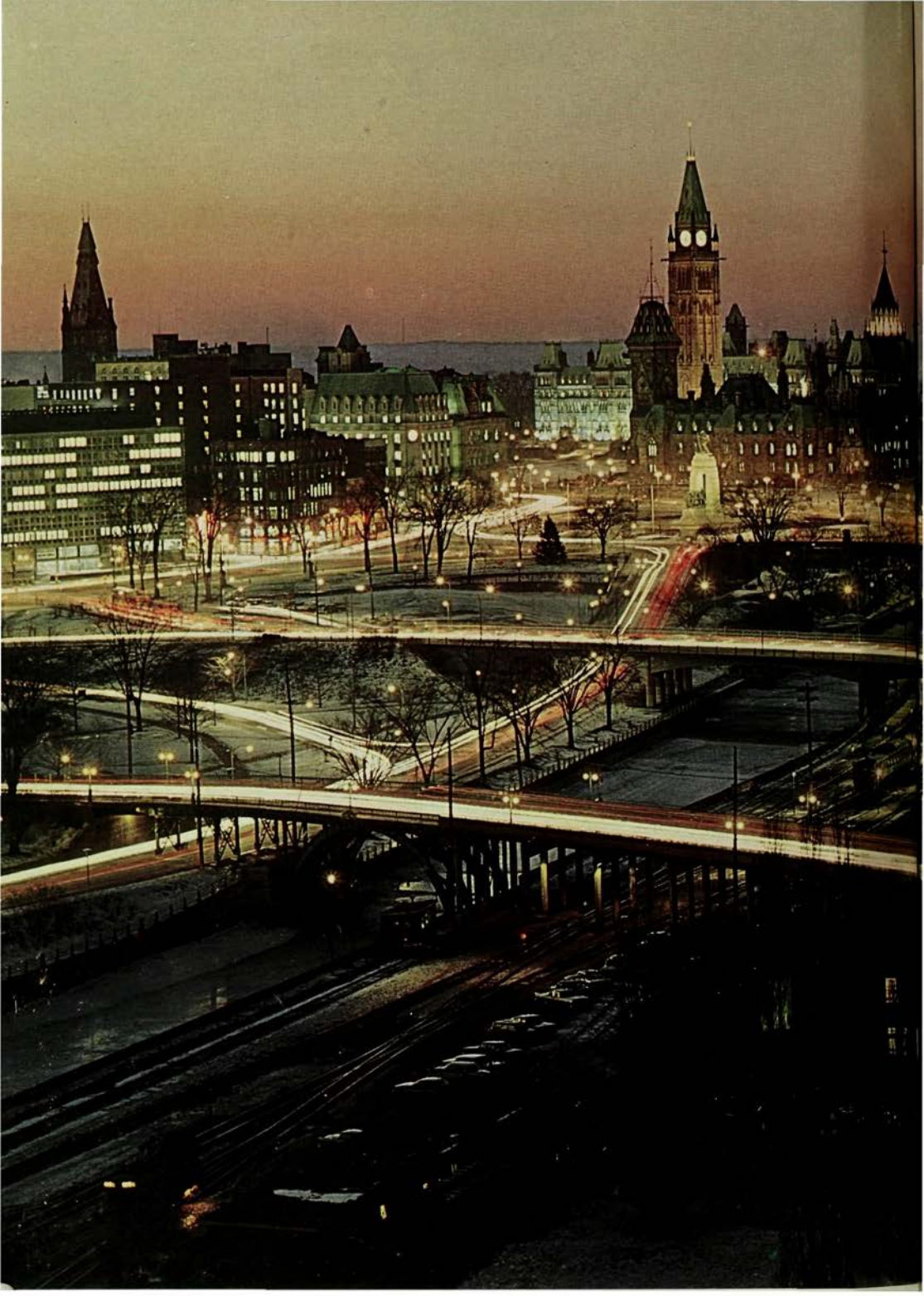
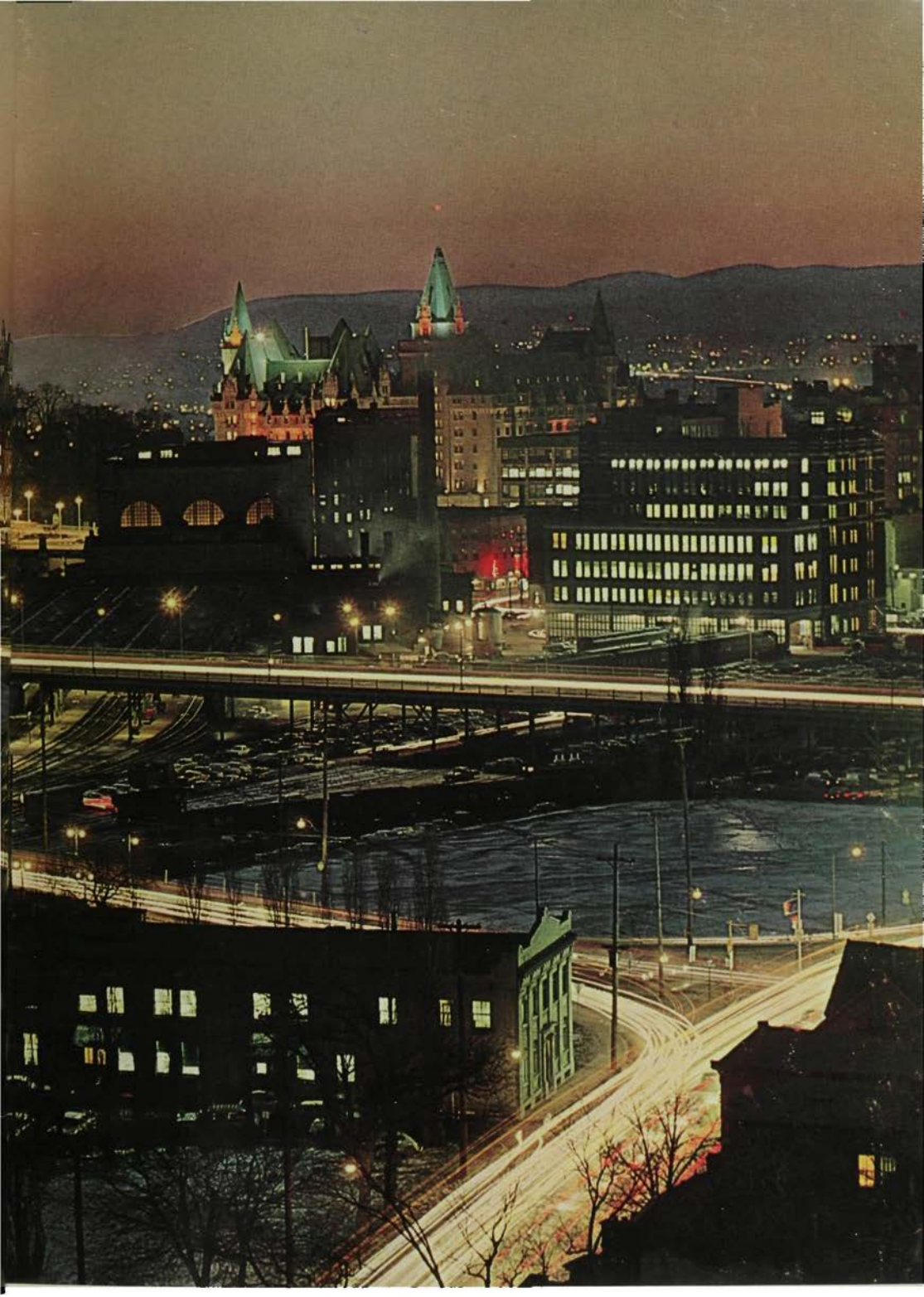
CANADA YEAR BOOK 1965





Malak, Ottawa

The heart of Ottawa—a jewel in the night.

CANADA YEAR BOOK 1965

OFFICIAL STATISTICAL ANNUAL OF THE RESOURCES, HISTORY, INSTITUTIONS AND SOCIAL AND ECONOMIC CONDITIONS OF CANADA

Published by Authority of
THE HONOURABLE MITCHELL SHARP
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1965

PREFACE

The 1965 edition of the Canada Year Book continues a series of annual publications giving official statistical and other information on almost every measurable phase of Canada's development. As the economy of the country has expanded, the Dominion Bureau of Statistics has endeavoured to present the story of this development, summarizing a great mass of detailed statistical, legislative and other pertinent information concisely within the covers of one volume and supplementing it with data from other Departments of the Federal Government and from the provinces.

Special feature articles are presented in each edition of the Year Book. Those in the current issue include: "Federal Government Surveying and Mapping", pp. 17-24; "Astronomy in Canada", pp. 47-55; "Use of the English and French Languages in Canada", pp. 180-184; "Agriculture in the Canadian Economy, 1964", pp. 440-446; "Canadian Forest Products and Changing World Markets", pp. 511-517; and "Operational and Technological Changes in Rail Transport", pp. 755-761. Changing emphasis has made necessary certain revisions in Chapter content and the inclusion of additional data which will be continuing features of the Year Book. Scientific and Industrial Research is covered in a separate Chapter and contains a selection of Canadian achievements in science and technology since 1800; a new Chapter is included on Land Use and Renewable Resource Development; the Public Finance Chapter contains a new Section covering Federal-Provincial Conditional Grants and Shared-Cost Programs; and the Chapter on Sources of Official Information and Miscellaneous Data contains for the first time a list of "Books About Canada". All Chapters include the latest data available at the time of printing and certain items in Chapter II on Constitution and Government, the cut-off date for which was Apr. 30, 1964, have been brought up to the date of Dec. 31, 1964 in the Appendix. A 140-mile-to-the-inch political map is enclosed in the pocket on the inside cover of the volume.

The present volume was produced in the Canada Year Book, Handbook and Library Division by Miss Margaret Pink, Associate Editor, and the Year Book staff under the editorship and direction of Dr. C. C. Lingard, Director of the Division. The charts and maps, except where otherwise indicated, were prepared by L. Tessier of the Drafting Unit.

The co-operation of numerous officials of the various Departments of the Federal and Provincial Governments and of this Bureau in the preparation of material for the Year Book is gratefully acknowledged. Credit by means of footnotes is given where possible, either to the persons or to the public service concerned.

Walter E Duffett.

DOMINION STATISTICIAN

DOMINION BUREAU OF STATISTICS,
Ottawa, Jan. 1, 1965.

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WEIGHTS AND MEASURES AND OTHER INTERPRETATIVE DATA

In Canada as a rule the Imperial system of weights and measures is followed; an exception is the ton where, unless otherwise stated, the short ton of 2,000 lb. is meant.

Relative Weights and Measures, Imperial and United States

The following list of coefficients may be used to translate amounts expressed in one unit to the other. Where reference is made to Imperial pint, quart and gallon, their equivalent in ounces is also in Imperial measure; likewise United States designations for these quantities are shown in the U.S. equivalent in ounces. The Imperial (or British) fluid ounce and the U.S. fluid ounce are different measures. One Imperial fluid ounce equals 0.96 U.S. fluid ounce and one Imperial gallon equals 1.2 U.S. gallons.

1 Imperial pint = 20 fluid ounces
1 U.S. pint = 16 fluid ounces
1 Imperial quart = 40 fluid ounces
1 U.S. quart = 32 fluid ounces
1 Imperial gallon = 160 fluid ounces
1 U.S. gallon = 128 fluid ounces
1 Imperial proof gallon = 1.36 U.S. proof gallon

1 short ton = 2,000 lb.
1 long ton = 2,240 lb.
1 barrel crude petroleum = 35 Imperial gallons
1 ounce avoirdupois = 0.91146 ounce troy (oz.t.)
1 statute mile = 5,280 feet
1 nautical mile = 6,080 feet

The following weights and measures are used in connection with the principal field crops and fruit; 2.3 bu. of wheat are required to produce 100 lb. of flour.

	Pounds per Bushel
Grains—	
Wheat	60
Oats	34
Barley and buckwheat	48
Rye, flaxseed and corn	56
Rapeseed and mixed grains	50
All others	60

		Pounds per Bushel
Fruits (standard conversions)—		
Apples		45
Pears, plums, cherries, peaches, grapes and apricots		50
Strawberries and raspberries	(per qt.)	1.25

Fiscal Years of Federal and Provincial Governments

The fiscal year of the Federal Government and of each of the ten Provincial Governments ends on March 31. Throughout the Year Book, all figures are for calendar years except where otherwise indicated in text or table headings.

Miscellaneous

Maritime Provinces = Prince Edward Island, Nova Scotia and New Brunswick
Atlantic Provinces = Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick
Central Canada = Quebec and Ontario
Prairie Provinces = Manitoba, Saskatchewan and Alberta
Btu. = British thermal unit (coal)
Mcf. = thousand cubic feet (gas)
n.e.s. = not elsewhere specified
n.o.p. = not otherwise provided for
psi. (atomic research) = pounds-force per square inch (pressure)
D.B.H. (forestry) = diameter at breast height.

SYMBOLS

The interpretation of the symbols used in the tables throughout this publication is as follows:—

. . figures not available.

... figures not appropriate or not applicable.

— nil or zero.

- - amount too small to be expressed or where "a trace" is meant.

p preliminary figures.

r revised figures.

Photo by
Malak, Ottawa

Globe, courtesy of—
L. M. Baker,
Department of Mines and Technical Surveys.

NORTH AMERICA
EUROPE

CHAPTER I.—PHYSIOGRAPHY AND RELATED SCIENCES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii.

PART I.—GEOGRAPHY AND GEOLOGY*

Canada occupies the northern half of the North American Continent with the exception of Alaska and Greenland, extending in longitude from Cape Spear, Newfoundland, at 52° 37′ W, to Mount St. Elias, Yukon Territory, at 141° W, a distance of 88° 23′ or 3,223 miles. In latitude it stretches from Middle Island in Lake Erie, at 41° 41′ N, to the North Pole. The northernmost point of land is Cape Columbia on Ellesmere Island, at 83° 07′ N, and the straight-line distance from Middle Island to Cape Columbia is 2,875 miles.

In shape, Canada resembles a distorted parallelogram with its four corners making important salients. In the north the salient formed by the Arctic Archipelago, which penetrates deep into the Arctic basin, guards the northern approaches to the Continent from Europe and Asia and makes Canada neighbour to the Union of Soviet Socialist Republics. In the south the salient of peninsular Ontario thrusts far into the heart of the United States. In the east the salient of Labrador and the Island of Newfoundland commands the shortest crossings of the North Atlantic Ocean and links Canada geographically with Britain and France. In the west the broad arc of land between Vancouver in southern British Columbia and Whitehorse in Yukon Territory provides the shortest crossings of the North Pacific Ocean between continental North America and the Far East. Canada thus lies at the crossroads of contact with the principal powers and some of the most populous areas of the world.

*Revised by the Geographical Branch, Department of Mines and Technical Surveys.

1.—Approximate Land and Freshwater Areas, by Province or Territory

NOTE.—A classification of land areas as agricultural, forested, etc., is given in Chapter X on Land Use and Resource Development.

Province or Territory	Land	Freshwater	Total	Percentage of Total Area
	sq. miles	sq. miles	sq. miles	
Newfoundland	143,045	13,140	156,185	4.1
Island of Newfoundland	*41,164*	*2,195*	*43,359*	*1.1*
Labrador	*101,881*	*10,945*	*112,826*	*3.0*
Prince Edward Island	2,184	—	2,184	0.1
Nova Scotia	20,402	1,023	21,425	0.6
New Brunswick	27,835	519	28,354	0.7
Quebec	523,860	71,000	594,860	15.4
Ontario	344,092	68,490	412,582	10.7
Manitoba	211,775	39,225	251,000	6.5
Saskatchewan	220,182	31,518	251,700	6.5
Alberta	248,800	6,485	255,285	6.6
British Columbia	359,279	6,976	366,255	9.5
Yukon Territory	205,346	1,730	207,076	5.4
Northwest Territories	1,253,438	51,465	1,304,903	33.9
Franklin	*541,763*	*7,500*	*549,263*	*14.3*
Keewatin	*218,460*	*9,700*	*228,160*	*5.9*
Mackenzie	*493,225*	*34,265*	*527,490*	*13.7*
Canada	**3,560,238**	**291,571**	**3,851,809**	**100.0**

In size, Canada is the largest country in the Western Hemisphere and the second largest country in the world. Its area of 3,851,809 sq. miles may be compared with that of the Union of Soviet Socialist Republics, 8,649,512 sq. miles,* the United States of America (including Alaska and Hawaii), 3,615,214 sq. miles,* and Brazil, 3,286,478 sq. miles.* It is more than forty times the size of Britain and eighteen times that of France. The immense size of the country, while encompassing many resources and seeming to afford much scope for settlement, imposes its own burdens and limitations, particularly because much of the land is mountainous and rocky or is under an arctic climate. The developed portion is probably not more than one third of the total; the occupied farm land is less than 8 p.c. and the currently accessible productive forested land 19 p.c. of the total. The population of Canada, estimated at 19,102,000 as at Jan. 1, 1964, may be compared with 186,591,000† for the United States (including Alaska and Hawaii) (1962) and with 75,271,000† for Brazil (1962).

The milages in Table 2 are another indication of the size of Canada. They show the length of communication facilities required between the larger cities, between outlying industrial communities built up around large mining or smelting projects and the nearest cities, and between northern outposts and the supplying cities. In this table milage given is for the major means of transport used between the points concerned; air milages are given for most transcontinental distances.

The length of Canada's southern border adjoining the United States is 3,986.8 miles and the length of the Yukon–British Columbia border adjoining Alaska is 1,539.8 miles.

* *United Nations Statistical Yearbook, 1962.*

† *United Nations Population and Vital Statistics Report, Jan. 1, 1964.*

2.—Travel Distances between Certain Cities and Other Points of Interest in Canada

NOTE.—The dash used in this table indicates that the distance concerned is of no particular interest. In each case the milage given is for the type of travel most generally used—road (H), rail (R), air (A) or water (W); air milages are given for most transcontinental distances. Water routes are given in nautical miles.

From To	Halifax	Montreal	Quebec	Ottawa	Toronto	Winnipeg	Edmonton	Vancouver
	miles	miles	miles	miles	miles	miles	miles	miles
St. John's, Nfld.	W 531	W 1,043	W 904	—	W 1,336	—	—	A 3,955
Charlottetown, P.E.I.	H 165	—	—	—	—	—	—	—
Halifax, N.S.	—	H 860	H 759	—	H 1,210	—	—	A 3,232
Fredericton, N.B.	H 329	H 531	H 366	—	—	—	—	—
Saint John, N.B.	H 296	H 624	H 459	H 748	H 974	—	—	—
Chibougamau, Que.	—	—	R 608	—	—	—	—	—
Montreal, Que.	A 840	—	H 165	H 124	H 350	A 1,419	A 2,225	A 2,668
Quebec, Que.	—	H 165	—	H 289	H 515	A 1,436	—	A 2,814
Schefferville, Que.	—	R 357 + W 430	R 357 + W 291	—	—	—	—	—
Sept Îles, Que.	—	W 430	W 291	—	—	—	—	—
Fort William, Ont.	—	W 1,055	W 1,194	R 878	W 762	R 419	R 1,219	R 1,892
Hamilton, Ont.	—	H 394	H 559	H 303	H 44	—	—	—
Ottawa, Ont.	—	H 124	H 289	—	H 259	A 1,325	A 2,131	A 2,574
Sudbury, Ont.	—	—	—	H 313	H 234	R 945	—	—
Toronto, Ont.	W 1,188[1]	H 350	H 515	H 259	—	A 957	A 1,748	A 2,360
Churchill, Man.	—	—	—	—	—	R 992	—	—
Lynn Lake, Man.	—	—	—	—	—	R 723	—	—
Winnipeg, Man.	—	—	—	—	A 957	—	R 800	R 1,473
Regina, Sask.	—	R 1,764	—	R 1,653	R 1,587	R 356	R 512	R 1,117
Saskatoon, Sask.	—	—	—	—	—	R 470	R 330	R 1,095
Uranium City, Sask.	—	—	—	—	—	—	A 456	A 992
Calgary, Alta.	—	—	—	—	R 2,063	R 832	R 194	R 641
Edmonton, Alta.	—	R 2,159	—	R 2,041	R 2,007	R 800	—	R 765
Fort St. John, B.C.	—	—	—	—	—	—	A 371	R 728
Kitimat, B.C.	—	—	—	—	—	—	—	W 420
Prince Rupert, B.C.	—	—	—	—	—	—	R 956	W 477
Vancouver, B.C.	A 3,232	A 2,668	R 3,042	R 2,770	A 2,360	A 1,403	R 765	—
Victoria, B.C.	A 3,279	—	—	—	—	—	—	W 81
Dawson, Y.T.	—	—	—	—	—	A 1,058	A 316	A 615
Whitehorse, Y.T.	—	—	—	—	—	—	H 1,287	A 1,056
Frobisher, N.W.T.	—	A 1,297	—	—	—	—	A 3,522	A 3,965
Inuvik, N.W.T.	—	A 3,543	—	—	—	A 2,140	A 1,318	A 1,854
Yellowknife, N.W.T.	—	—	—	—	—	A 1,398	A 656	A 1,192

[1] Via Strait of Canso.

Section 1.—Physical Geography

Subsection 1.—Main Physical and Economic Features of the Provinces and Territories

Politically, Canada is divided into ten provinces and two territories. Each province is sovereign in its own sphere and administers its own natural resources, and upon such resources, as related to topography, position and climate, is based the economy of the province. The resources of the Yukon and Northwest Territories, because of the remoteness, the great extent and the meagre and scattered populations of these areas, are administered by the Federal Government.

The main physical and economic characteristics of each province and territory are described in some detail in the 1963-64 Year Book; this article is available in reprint form. Also, it should be mentioned that the economic development of the country as a whole, based in the first instance on physical features and later on other factors, has formed regions quite distinct from the political divisions. These economic regions are described in an article appearing in the 1962 Year Book at pp. 17-23.

All geographical data on Canada that might be of use in promoting the country's economic, commercial and social welfare is available from the Geographical Branch of the

Department of Mines and Technical Surveys. The work of this Branch includes the compilation of geographical material of national significance and the conducting of geographical surveys in the field. Land surface conditions, land use, types of vegetation and the structure of towns and cities are typical subjects of investigation (see also p. 24). The Canadian Permanent Committee on Geographical Names, administered by the Branch, deals with all questions of geographical nomenclature affecting Canada and undertakes research and investigation into the origin and usage of geographical names. The Committee is composed of representatives of the federal mapping agencies and other federal agencies concerned with nomenclature and a representative appointed by each province.

Subsection 2.—Inland Waters

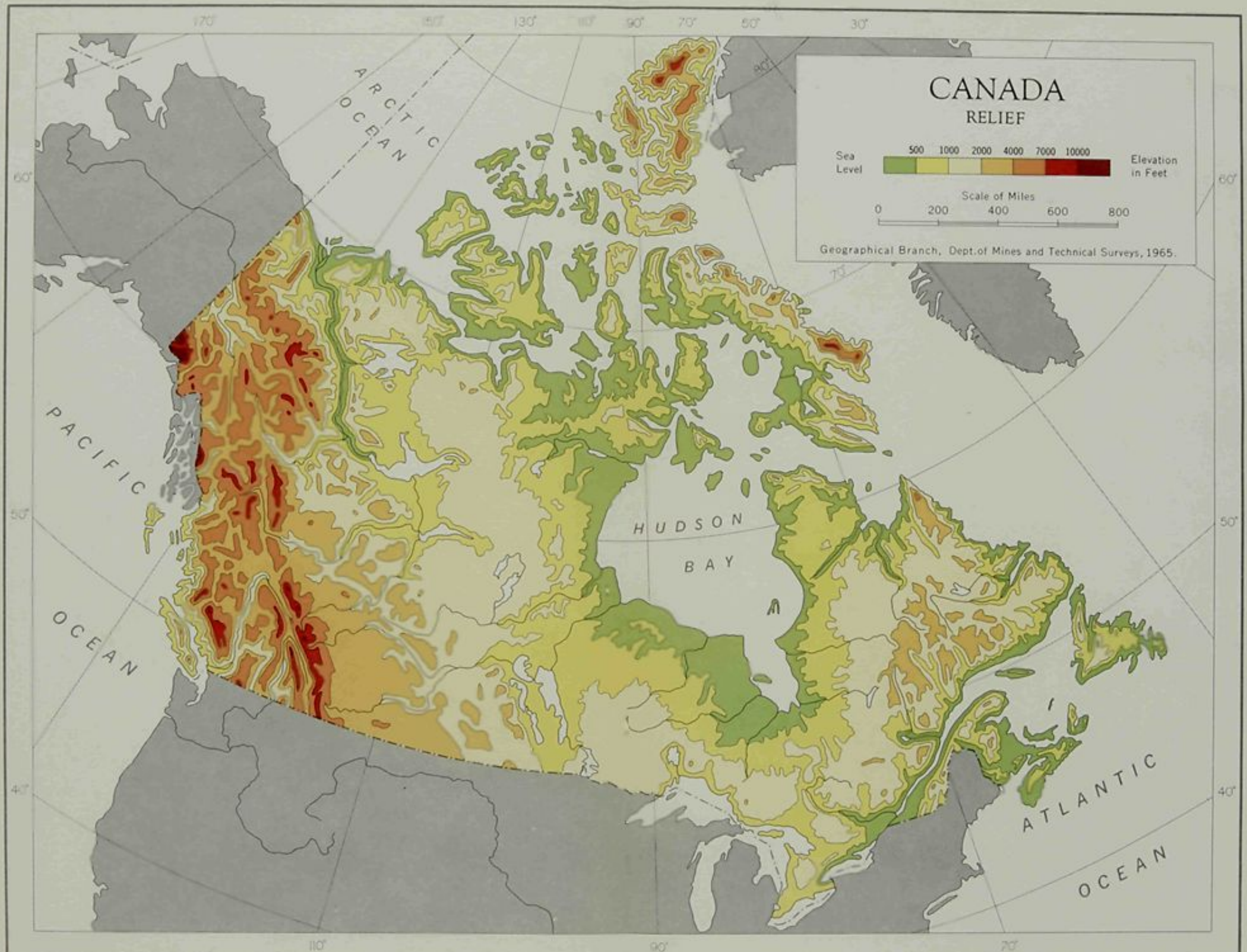
The inland waters of Canada (not including saltwater areas that are a part of Canada) are extensive, constituting about 7.6 p.c. of the total area of the country. Aside from their basic essentiality to the support of life, Canada's fast-flowing rivers and chains of lakes have had a great bearing on the development of the country and on its economic and social well-being. In the early days of exploration and settlement, they were the avenues of transportation and often the source of subsistence. These functions have now diminished in importance; with the exception of the St. Lawrence and certain water routes in the interior and the Far North, the rivers and lakes have assumed other roles in the domestic, industrial, agricultural and recreational life of the people. They still serve as efficient carriers of pulpwood from the forests to the mills and their waters are harnessed to provide power for industry or are dammed and diverted to irrigate and bring life to otherwise waste land.

The inland waters of Canada are best studied by segregating the main drainage basins. The Atlantic drainage basin is the most important, being dominated by the Great Lakes–St. Lawrence system which drains an area of approximately 678,000 sq. miles and forms an unequalled navigable inland waterway through a region rich in natural and industrial resources. From Duluth, Minn., at the head of Lake Superior to Belle Isle at the entrance to the Gulf of St. Lawrence the distance is 2,280 miles. The entire drainage area to the north of the St. Lawrence and the Great Lakes is occupied by the southern fringe of the Canadian Shield—a rugged, rocky, plateau region over the edge of which tumble many swift-flowing tributary rivers. These rivers, as well as the St. Lawrence itself, provide the electric power necessary to operate the great industries of the area. South of the St. Lawrence, the smaller rivers are important locally. The St. John, for instance, drains a fertile area and provides most of New Brunswick's hydro power.

The Hudson Bay drainage basin, though the largest in area, is the least important economically. Only the Nelson and Churchill Rivers have power potential within economical distance of settled areas. The two main branches of the Saskatchewan River, tributary to the Nelson, drain one of Canada's great agricultural regions and are now the bases of important irrigation projects.

The Arctic drainage basin is dominated by the Mackenzie, one of the world's longest rivers, which flows 2,635 miles from the head of the Finlay River to the Arctic Ocean and drains an area in the three westernmost provinces of approximately 700,000 sq. miles. Except for a 16-mile portage in Alberta, it is possible for steamboats to navigate from the end of steel at Waterways on the Athabasca River to the mouth of the Mackenzie, a distance of 1,700 miles.

The rivers of the Pacific basin rise in the mountains of the Cordilleran Region and flow to the Pacific Ocean over tortuous, precipitous courses, rushing through steep canyons and tumbling over innumerable falls and rapids. They provide power for large hydro



Printed by Surveys and Mapping Branch, Department of Mines and Technical Surveys, Ottawa.

developments and in season swarm with salmon returning inland to their spawning grounds. The major rivers of the basin are the Fraser which rises in the Rocky Mountains and toward its mouth flows through a rich agricultural area, the Columbia which is an international river with a total fall of 2,650 feet during its course and has thus a tremendous power potential, and the Yukon River which is also an international river but, though the largest on the Pacific slope, is at present relatively unimportant economically.

Table 3 lists the principal rivers of Canada and their tributaries. The tributaries and sub-tributaries are indicated by indention of names; thus the Ottawa and other rivers are shown as tributary to the St. Lawrence, and the Gatineau and other rivers as tributary to the Ottawa.

3.—Lengths of Principal Rivers and Their Tributaries

Drainage Basin and River	Length	Drainage Basin and River	Length
	miles		miles
Flowing into the Atlantic Ocean		**Flowing into Hudson Bay**	
St. Lawrence (to head of St. Louis, Minn.)	1,900	Nelson (to head of Bow)	1,600
Ottawa	696	Saskatchewan (to head of Bow)	1,205
Gatineau	240	South Saskatchewan	865
du Lièvre	205	Red Deer	385
Coulonge	135	Bow	315
Madawaska	130	Belly	180
Rouge	115	North Saskatchewan	760
Mississippi	105	Red (to head of Sheyenne)	545
Petawawa	95	Assiniboine	590
South Nation	90	Souris	450
Dumoine	80	Qu'Appelle	270
North	70	Winnipeg (to head of Firesteel)	475
North Nation	60	English	330
Saguenay (to head of Peribonca)	475	Churchill	1,000
Peribonca	280	Beaver	305
Mistassini	185	Koksoak (to head of Kaniapiskau)	660
Ashuapmuchuan	165	Kaniapiskau	575
St. Maurice	325	Severn (to head of Black Birch)	610
Mattawin	100	Albany (to head of Cat)	610
Manicouagan (to head of Racine de Bouleau)	310	Dubawnt	580
Outardes	270	Eastmain	510
Bersimis	240	Fort George (to Nichicum Lake)	480
Richelieu	210	Attawapiskat	465
St. Francis	165	Kazan	455
Chaudière	120	Nottaway (to head of Waswanipi)	400
Via the Great Lakes—		Waswanipi	190
French (to head of Sturgeon)	180	Nelson (to head of Lake Winnipeg)	400
Sturgeon	110	Rupert	380
Grand	165	Red (to head of Lake Traverse)	355
Thames	163	George (to Hubbard Lake)	345
Spanish	153	Moose (to head of Mattagami)	340
Trent	150	Abitibi	340
Mississagi	140	Mattagami	275
Nipigon (to head of Ombabika)	130	Missinabi	265
Moira	60	Hayes	300
Thessalon	40	Winisk	295
St. John	418	Whale	270
Romaine	270	Harricanaw	250
Natashquan	241	Great Whale	230
Moisie	210	Leaf	165
Hamilton	208		
Exploits	153	**Flowing into the Pacific Ocean**	
Naskaupi	152	Yukon (mouth to head of Nisutlin)	1,979
Canairiktok	139	Yukon (Int. Boundary to head of Nisutlin)	714
Eagle	138	Porcupine	590
Miramichi	135	Lewes	338
Marguerite	130	Pelly	330
Gander	102	Stewart	320
		Macmillan	200

3.—Lengths of Principal Rivers and Their Tributaries—concluded

Drainage Basin and River	Length	Drainage Basin and River	Length
	miles		miles
Flowing into the Pacific Ocean—concluded		**Flowing into the Arctic Ocean**	
Yukon (mouth to head of Nisutlin)—concluded		Mackenzie (to head of Finlay)	2,635
Yukon (Int. Boundary to head of Nisutlin)—concluded		Peace (to head of Finlay)	1,195
White	185	Finlay	250
Columbia (total)	1,150	Smoky	245
Columbia (in Canada)	459	Little Smoky	185
Kootenay (total)	407	Parsnip	145
Kootenay (in Canada)	276	Athabasca	765
Fraser	850	Pembina	210
Thompson (to head of North Thompson)	304	Liard	755
North Thompson	210	South Nahanni	350
South Thompson (to head of Shuswap)	206	Petitot	295
Nechako	287	Fort Nelson	260
Stuart (to head of Driftwood)	258	Hay	530
Chilcotin	146	Peel (to head of Ogilvie)	425
West Road (Blackwater)	141	Arctic Red	310
Skeena	360	Slave	258
Bulkley (to head of Maxam Creek)	160	Twitya	200
Stikine	335	Back	605
Alsek	260	Coppermine	525
Nass	236	Anderson	430
		Horton	275

The outstanding lakes of Canada are the Great Lakes, although only parts of these are in Canadian territory. The International Boundary between Canada and the United States passes through Lakes Superior, Huron, St. Clair, Erie and Ontario. Details are given in Table 4.

4.—Elevations, Areas and Depths of the Great Lakes

Lake	Elevation Above Sea Level	Length	Breadth	Maximum Depth	Total Area	Area on Canadian Side of Boundary
	ft.	miles	miles	ft.	sq. miles	sq. miles
Superior	602.23	383	160	1,302	32,483	11,524
Michigan (U.S.A.)	580.77	321	118	923	22,400	—
Huron	580.77	247	101	750	23,860	15,353
St. Clair	575.30	26	24	23	432	270
Erie	572.40	241	57	210	9,889	4,912
Ontario	245.88	193	53	774	7,313	3,849

There are no tides in the Great Lakes although there is considerable variation in water levels caused by strong winds.

Other large lakes of Canada, ranging in area from 9,500 to 12,300 sq. miles, are Lake Winnipeg, Great Slave Lake and Great Bear Lake. Apart from these, notable for size, are innumerable lakes scattered over that major portion of Canada lying within the Canadian Shield. In an area of 6,094 sq. miles, accurately mapped, south and east of Lake Winnipeg, there are 3,000 lakes. In an area of 5,294 sq. miles, accurately mapped, southwest of Reindeer Lake in Saskatchewan, there are 7,500 lakes.

5.—Elevations and Areas of Principal Lakes, by Province

NOTE.—Areas given are for mean water levels. For those reservoirs and lakes for which two elevations are given, HW means high water and LW low water.

Province and Lake	Elevation	Area
	ft.	sq. miles
Newfoundland—		
Deer	12	24
Gander	86	49
Grand	270	205
Melville	sea level	1,133
Michikamau	1,650	566
Red Indian	500	70
Victoria	700	15
Nova Scotia—		
Bras d'Or	tidal	360
New Brunswick—		
Grand	tidal	65
Quebec—		
Abitibi (total, 369) part	868	56
Albanel	1,289	172
Baskatong (reservoir)	HW 732 / LW 677	109
Bienville	1,400	392
Burnt (Brûlé)	1,590	56
Cabonga (reservoir)	HW 1,185 / LW 1,169	66
Champlain (total, 360) part	95	18
Chibougamau	1,253	88
Clearwater	790	535
d'Iberville	790	260
Evans	760	180
Goéland	810	125
Indian House	890	125
Kaniapiskau	1,850	210
Kempt	1,372	75
Kipawa	884	125
Lower Seal	860	130
Manicouagan	645	110
Manouane	1,340	100
Maricourt	..	110
Mattagami	765	88
Minto	450	485
Mistassini	1,220	840
Nichikun	1,737	150
Olga	785	50
Payne	430	230
Pipmuacan (reservoir)	HW 1,305 / LW 1,275	90
Pletipi	1,660	138
Quinze, des	HW 867 / LW 857	55
St. Francis, River St. Lawrence (total, 88) part	154	63
St. John	321	414
St. Louis	69	57
St. Pierre (Peter)	11	142
Simard	859	73
Timiskaming (total, 121) part	HW 589 / LW 575	66
Two Mountains	73	63
Waswanipi	830	75
Ontario—		
Abitibi (total, 369) part	868	313
Dog	1,380	61
Eagle	1,192	140
Erie (total, 9,889) part	572	4,912
Huron, including Georgian Bay (total, 23,860) part	580	15,353
Kesagami	..	90
La Croix (total, 55) part	1,186	25
Long	1,025	75
Manitou, Kenora	1,215	60
Mille Lacs, Lac des	1,496	103
Minnitaki	1,177	72
Nipigon	852	1,870
Ontario—concluded		
Nipissing	644	350
Ontario (total, 7,313) part	245	3,849
Rainy (total, 360) part (reservoir)	HW 1,108 / LW 1,103	291
Red	1,157	71
St. Clair (total, 432) part	574	270
St. Francis, River St. Lawrence (total, 88) part	154	25
St. Joseph	1,218	187
Sandy	906	270
Seul (reservoir)	1,170	539
Simcoe	718	283
Stout (Berens River)	1,039	50
Sturgeon (English River)	1,342	110
Superior (total, 32,483) part	602	11,524
Timagami	965	91
Timiskaming (total, 121) part	HW 589 / LW 575	55
Trout (English River)	1,294	156
Trout (Severn River)	770	264
Woods, Lake of the (total, 1,695) part (reservoir)	1,060	953
Manitoba—		
Athapapuskow	956	104
Atikameg	855	112
Beaverhill	651	70
Cedar	830	517
Cormorant	840	174
Cross (Nelson River)	679	274
Dauphin	853	200
Dog	815	64
Etawney	..	28
Gods	585	319
Goose	922	53
Granville	850	181
Island	744	550
Kamuchawie (total, 57) part	1,156	31
Kipahigan (total, 60) part	966	29
Kiskitto	697	65
Kiskittogisu	710	99
Kississing	920	138
Manitoba	812	1,817
Molson	..	154
Moose	838	525
Namew (total, 80) part	872	8
Northern Indian	760	150
Nueltin (total, 850) part	920	270
Oxford	612	155
Paint	615	54
Pelican (west of Lake Winnipegosis)	837	80
Playgreen	712	257
Red Deer (west of Lake Winnipegosis)	862	100
Reed	911	78
Reindeer (total, 2,467) part	1,150	371
St. Martin	798	125
Setting	737	49
Sipiwesk	598	201
Sisipuk (total, 103) part	919	71
Southern Indian	835	1,060
Stevenson	..	75
Swan	849	118
Talbot	845	72
Todatara (total, 241) part	..	156
Walker	679	62
Waterhen	829	90
Wekusko	840	64
Winnipeg	713	9,465
Winnipegosis	833	2,103
Woods, Lake of the (total, 1,695) part (reservoir)	1,060	69

5.—Elevations and Areas of Principal Lakes, by Province—concluded

Province and Lake	Elevation	Area	Province and Lake	Elevation	Area
	ft.	sq. miles		ft.	sq. miles
Saskatchewan—			**British Columbia**—concluded		
Amisk	964	168	François	2,345	91
Athabasca (total, 3,120) part	699	2,180	Harrison	35	87
Besnard	1,278	72	Kootenay	1,745	168
Black Birch	1,517	54	Kotcho	1,970	31
Candle	1,621	56	Lower Arrow	1,370	59
Canoe	1,415	78	Okanagan	1,123	136
Churchill	1,382	213	Ootsa	2,666	50
Cold (total, 138) part	1,756	46	Quesnel	2,380	100
Cree	1,570	446	Shuswap	1,135	120
Cumberland	871	98	Stuart	2,230	139
Deschambault	1,072	209	Tagish (total, 130) part	2,152	78
Doré	1,506	248	Takla	2,260	102
Ile à la Crosse	1,380	166	Teslin (total, 142) part	2,239	58
Kamuchawie (total, 57) part	1,156	26	Upper Arrow	1,401	88
Kipahigan (total, 60) part	966	31			
La Plonge	1,476	90	**Yukon Territory—**		
La Ronge	1,198	552	Aishihik	3,001	107
Last Mountain	1,606	89	Atlin (total, 299) part	2,192	1
Methy Lake (Loche, La)	1,460	76	Kluane	2,525	184
Montreal	1,608	162	Kusawa	2,200	56
Namew (total, 80) part	872	72	Laberge	2,100	87
Nemeiben	1,259	63	Tagish (total, 130) part	2,152	52
Peter Pond	1,382	302	Teslin (total, 142) part	2,239	84
Primrose (total, 188) part	1,964	180			
Quill	1,703	236	**Northwest Territories—**		
Reindeer (total, 2,467) part	1,150	2,096	Aberdeen	135	475
Riou	..	75	Artillery	1,190	153
Sisipuk (total, 103) part	919	32	Aylmer	1,230	340
Smoothstone	1,573	110	Baker	30	975
Snake	1,230	159	Clinton-Colden	1,230	253
Tazin	1,130	156	Dubawnt	700	1,600
Wollaston	1,300	796	Faber	753	163
			Franklin	..	175
Alberta—			Garry	..	980
Athabasca (total, 3,120) part	699	940	Gras, de	1,300	345
Beaverhill	2,202	80	Great Bear	390	12,275
Buffalo	2,566	56	Great Slave	512	10,980
Calling	1,949	55	Hardisty	699	107
Claire	695	545	Hottah	640	377
Cold (total, 138) part	1,756	92	Kaminuriak	320	360
La Biche	1,784	94	La Martre	870	685
Lesser Slave	1,892	461	Macdougal	..	265
Mamawi	695	64	MacKay	1,415	250
Peerless	2,269	75	Maguse	..	540
Primrose (total, 188) part	1,964	8	Marian	513	90
Sullivan (variable)	2,651	62	Nueltin (total, 850) part	920	580
Utikuma	2,115	85	Nutarawit	..	350
			Pelly	365	331
British Columbia—			Point	1,200	295
Adams	1,334	52	Rae	748	74
Atlin (total, 299) part	2,192	298	Schultz	125	110
Babine	2,332	194	Thaolintoa	..	160
Chilko	3,860	75	Todatara (total, 241) part	..	85
Eutsuk	2,817	96	Yathkyed	480	860

Subsection 3.—Coastal Waters*

The coastline of Canada, one of the longest of any country in the world, comprises the following estimated milages:—

Mainland—

Atlantic, 6,110; Pacific, 1,580; Hudson Strait, 1,245; Hudson Bay, 3,155; Arctic, 5,770; total, 17,860 miles.

Islands—

Atlantic, 8,680; Pacific, 3,980; Hudson Strait, 60; Hudson Bay, 2,305; Arctic, 26,785; total, 41,810 miles.

* The Federal Government's oceanographic research program is outlined on p. 21.

A comprehensive description of the coastal waters of Canada would require information from sciences such as oceanography, marine biology and meteorology. However, the basic factor in any study of the oceanic-continental margin is the physical relief of the sea floor, and the scope of the information presented here is therefore restricted to this and a few salient features of the Atlantic, Arctic and Pacific marginal seas surrounding Canada.

Atlantic.—Along this coastal area, the sea has inundated valleys and lower parts of the Appalachian Mountains as well as those of the Canadian Shield. The submerged continental shelf, protruding seaward from the shore, effects the transition from continental to oceanic conditions. This shelf is distinguished by great width and diversity of relief. From the coast of Nova Scotia its width varies from 60 to 100 miles, from Newfoundland 120 to 50 miles (at the entrance of Hudson Strait), and northward it merges with that of the Arctic Ocean. The outer edge of the shelf, known as the continental shoulder, is of varying depths of from 100 to 200 fathoms before the shelf suddenly gives way to the steep declivity leading to abyssal depths. The over-all gradient of the Atlantic continental shelf is slight but the whole area is studded with shoals, plateaux, banks, ridges and islands and the coasts of Nova Scotia and Newfoundland are rugged and fringed with islets and shoals. Off Nova Scotia the 40-fathom line lies at an average of 12 miles from the shore and constitutes the danger line for coastal shipping. The whole floor of the marginal sea appears to be traversed by channels and gullies cutting well into the shelf.

The main topographical features of the Atlantic marginal sea floor are attributed to glacial origin but land erosion is an important factor. Eroded materials are carried seaward by rivers, ice and wind, and wave action against cliffs and shore banks washes away enormous masses that are deposited over the surrounding sea floor. The topography of the continental sea floor is therefore constantly changing and navigation charts of Canada's eastern seaboard must be continuously revised.

Hudson Bay and Hudson Strait bite deeply into the Continent. Hudson Bay is an inland sea 250,000 sq. miles in area having an average depth of about 70 fathoms; the greatest charted depth in the centre of the Bay is 141 fathoms.

Hudson Strait separates Baffin Island from the continental coast and connects Hudson Bay with the Atlantic Ocean. It is 430 miles long and from 37 to 120 miles wide and its greatest charted depth of 481 fathoms is close inside the Atlantic entrance. Great irregularities of the sea floor are indicated but, except in inshore waters, few navigation hazards have been located.

Arctic.—The submerged plateau extending from the northern coast of North America is a major part of the great continental shelf, surrounding the Arctic Ocean, on which lie all the Arctic islands of Canada, Greenland, and most of the Arctic islands of Europe and Asia. This shelf is most uniformly developed north of Siberia, where it is about 500 miles wide; north of North America it surrounds the western islands of the Archipelago and extends 50 to 300 miles seaward from the outermost islands.

The topography of the floor of the submerged part of this continental margin is only partly explored but sufficient has been charted to indicate, in common with continental shelves throughout the world, an abrupt break at the oceanward edge to the relatively steep declivity of the continental slope. This slope borders the western side of the Queen Elizabeth Islands and, from it, deep well-developed troughs enter between the groups of islands. Sills across Davis Strait, Barrow Strait and other channels, on which the depth is about 200 fathoms, interrupt the network of deep troughs and separate the Arctic basin from the Atlantic.

That part of the continental shelf bordering the Arctic Ocean in the vicinity of the Queen Elizabeth Islands (see below) is the subject of extensive study. Since 1959 a party based at the joint Canadian–United States weather station at Isachsen on Ellef Ringnes Island has been investigating the oceanography, hydrography, submarine geology, gravity, geomagnetic features and crustal seismic properties of the continental shelf area, carrying out physiographic, hydrological, permafrost and glaciological studies on the islands of the region, mapping the nature, distribution and movement of the sea ice, and running basic topographic control surveys. This work is continuing, with a party in the field from March to September each year, and should eventually cover all of the unmapped parts of the shelf between Greenland and Alaska. The investigations should yield detailed and accurate information on the physical and chemical composition and dynamic characteristics of the Arctic oceanic waters, the bathymetry of the continental shelf and slope and the straits and sounds of the Archipelago; the topography and structure of the shelf and the nature of its sediments, its underlying rocks and possible mineral resources; the structure and physical characteristics of the northern edge of the North American continental platform and its contact with the Arctic Ocean basin; the factors controlling the development of the Arctic landscape and the evolution of the islands; and the behaviour of sea level, glaciers, sea ice and climate in the recent geological past.

Pacific.—The marginal sea of the Pacific differs strikingly from the other marine zones of Canada. The hydrography of British Columbia is characterized by bold, abrupt relief—a repetition of the mountainous landscape. Numerous inlets penetrate the mountainous coast for distances of 50 to 75 miles. They are usually a mile or two in width and of considerable depth, with steep canyon-like sides. From the islet-strewn coast, the continental shelf extends from 50 to 100 sea miles to its oceanward limit where depths of about 200 fathoms are found. There the sea floor drops rapidly to the Pacific deeps, parts of the western slopes of Vancouver Island and the Queen Charlotte Islands lying only four miles and one mile, respectively, from the edge of the declivity. These great detached land masses are the dominant features of the Pacific marginal sea. As is to be expected in a region so irregular in hydrographic relief, shoals and pinnacle rocks are numerous, necessitating cautious navigation.

Subsection 4.—Islands

The largest islands of Canada are in the north and all experience an arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83°07′N. Those in the District of Franklin lie north of the mainland of Canada and are generally referred to as the Canadian Arctic Archipelago; those in the extreme north—lying north of the M'Clure Strait–Viscount Melville Sound–Barrow Strait–Lancaster Sound water passage—are known as the Queen Elizabeth Islands.

On the West Coast, Vancouver Island and the Queen Charlotte Islands are the largest and the most important but the coastal waters are studded with many small rocky islands.

The Island of Newfoundland forming part of the Province of Newfoundland, the Province of Prince Edward Island, Cape Breton Island forming part of the Province of Nova Scotia, Grand Manan and Campobello Islands forming part of the Province of New Brunswick, and Anticosti Island and the Magdalen group included in the Province of Quebec are the largest islands off the East Coast.

Notable islands of the inland waters include Manitoulin Island (1,068 sq. miles in area) lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

6.—Areas of Principal Islands, by Region

Region and Island	Area
	sq. miles
Arctic Archipelago—	
Northern Region (Queen Elizabeth Islands)—	
Ellesmere	82,119
Devon	20,861
Melville	16,369
Axel Heiberg	15,779
Bathurst	7,609
Prince Patrick	6,081
Ellef Ringnes	5,139
Cornwallis	2,670
Amund Ringnes	2,515
Mackenzie King	1,922
Borden	1,344
Cornwall	1,292
Eglinton	551
King Christian	448
Lougheed	413
Brock	396
Cameron	396
Byam Martin	376
Meighen	293
Graham	293
North Kent	258
Emerald	251
Coburg	141
Little Cornwallis	139
Baillie Hamilton	114
Southern Region—	
Baffin	183,810
Victoria	81,930
Banks	23,230
Prince of Wales	12,830
Somerset	9,370
King William	4,955
Bylot	4,200
Prince Charles	3,639
Stefansson	2,890
Air Force	596
Wales	439
Rowley	436
Vansittart	386
Russell	349
Jens Munk	330
White	301
Bray	281
Foley	261
Koch	183
Matty	173
Royal Geographical Society (the larger of two)	173
Jenny Lind	170
Crown Prince Frederic	170
Prescott	167
Loks Land	164
Melbourne	149
Tennent	118
Gateshead	86
Hudson Bay and Strait—	
Southampton	15,700
Coats	2,206

Region and Island	Area
	sq. miles
Hudson Bay and Strait—concluded	
Mansel	1,285
Akimiski (James Bay)	1,137
Belcher (total for group)	1,118
Nottingham	543
Resolution	387
Salisbury	312
Big	310
Akpatok (Ungava Bay)	296
Charlton (James Bay)	119
Edgell	106
Killinek	104
Pacific Coast—	
Vancouver	12,408
Queen Charlotte	3,705
Graham	*2,491*
Moresby	*991*
Louise	*108*
Lyell	*63*
Kunghit	*52*
Princess Royal	870
Pitt	537
Banks	400
King	324
Porcher	199
Nootka	198
Aristazabal	167
Gilford	151
Hawkesbury	143
Hunter	136
Calvert	118
Texada	117
Swindle	109
Quadra	103
McCauley	102
Gil	94
Roderick	88
Gribbell	86
Atlantic Coast—	
Newfoundland—	
Labrador Coast—	
South Aulatsivik	167
Okak (total for two)	113
Tunungayualok	72
North Aulatsivik	53
Island—	
Newfoundland	42,734
Fogo	*95*
New World	73
Gulf of St. Lawrence—	
Cape Breton	3,970
Anticosti	3,043
Prince Edward	2,184
Magdalen (total for group)	*88*
Shippegan	59
Bay of Fundy—	
Grand Manan	55

Subsection 5.—Mountains and Other Heights

The predominant geographical feature in Canada is the Great Cordilleran Mountain System which contains many peaks over 10,000 feet in height. The highest peak in Canada is Mount Logan in the St. Elias Mountains of Yukon Territory, which rises 19,850 feet above sea level. The highest elevations in all parts of the country are shown in Table 7 in feet above mean sea level.

7.—Principal Heights in each Province and Territory

NOTE.—Certain peaks, indicated by an asterisk (*), form part of the line of demarcation between political subdivisions. Although their bases technically form part of both areas, they are listed only under one to avoid duplication.

Province and Height	Elevation
	ft.
Newfoundland	
Long Range—	
Lewis Hills	2,672
Gros Morne	2,644
Mount St. Gregory	2,251
Gros Pâté	2,152
Blue Mountain	2,128
Table Mountain	1,900–1,950
Blue Hills of Coteau—	
Peter Snout	1,600–1,650
Central Highlands—	
Main Topsail	1,822
Mizzen Topsail	1,761
Torngats—	
Cirque Mountain	5,160
Mount Cladonia	4,725
Mount Eliot	4,550
Mount Tetragona	4,500
Quartzite Mountain	3,930
Blow Me Down Mountain	3,880
Kaumjets—	
Bishops Mitre	4,060
Finger Hill	3,390
Nova Scotia	
(Spot height—Cape Breton)	1,747
Ingonish Mountain	1,392
Nutby Mountain (Cobequid)	1,204
Dalhousie Mountain (Cobequid)	1,115
North Mountain (4 miles NE of West Bay Road)	875
Sporting Mountain	675
New Brunswick	
Mount Carleton	2,690
Green Mountain	1,596
Moose Mountain	1,490
Quebec	
Appalachians—	
Mount Jacques Cartier (Shickshocks)	4,160
Mount Richardson	3,885
Barn Mountain	3,775
Mount Logan	3,700
Mégantic Mountain	3,625
Mount Albert	3,550
Bayfield Mountain	3,470
Mattawa Mountain	3,370
Roundtop (Sutton Mountains)	3,175
Hereford Mountain	2,760
Orford Mountain	2,750
Pinnacle Mountain	2,150
Brome Mountain	1,800
Shefford Mountain	1,725
Shield—	
Mount Tremblant	3,150
Mount Ste. Anne	2,625
Mount Sir Wilfrid	2,569

Province and Height	Elevation
	ft.
Quebec—concluded	
Monteregian Hills—	
St. Hilaire Mountain	1,350
Yamaska Mountain	1,350
Rougemont	1,200
Mount Johnson	750
Mount Royal	750
Ontario	
Tip Top Hill	2,120
Mount Batchawana	2,100
Niagara Escarpment—	
Osler Bluff	1,700
Caledon Mountain	1,400
Blue Mountain	1,250
High Hill	1,150
Mount Nemo	1,000
Manitoba	
Duck Mountain	2,727
Porcupine Mountain	2,700
Riding Mountain	2,000
Saskatchewan	
Cypress Hills[1]	4,546
Wood Mountain (West Summit)	3,371
Wood Mountain (East Summit)	3,347
Vermilion Hills	2,500
Alberta	
Rockies—	
*Mount Columbia	12,294[2]
The Twins (N Peak)	12,085
Mount Forbes	11,902
Mount Alberta	11,874
*Mount Assiniboine	11,870[2]
The Twins (S Peak)	11,675
Mount Temple	11,636
Mount Kitchener	11,500
*Mount Lyell	11,495[2]
*Mount Hungabee	11,457[2]
Mount Athabasca	11,452
*Mount King Edward	11,400[2]
Stutfield Mountain	11,400
Mount Brazeau	11,386
*Mount Victoria	11,365[2]
*The Snow Dome	11,340[2]
*Mount Joffre	11,316[2]
*Mount Deltaform	11,235[2]
*Mount Lefroy	11,230[2]
*Mount Alexandra	11,214[2]
*Mount Sir Douglas	11,174[2]
Woolley Mountain	11,170
*Lunette Peak	11,150[2]
Mount Hector	11,135

For footnotes, see end of table.

7.—Principal Heights in each Province and Territory—concluded

Province and Height	Elevation
	ft.
Alberta—concluded	
Rockies—concluded	
Diadem Peak	11,060
Mount Edith Cavell	11,033
Mount Chown	10,930
Mount Wilson	10,631
Clearwater Mountain	10,420
Mount Coleman	10,262
Eiffel Peak	10,101
Pinnacle Mount	10,072
Mount Fryatt	10,026
Mount Rundle	9,838
The Three Sisters	9,744
Mount Eisenhower	8,750
Mount Edith	8,370
British Columbia	
Vancouver Island Range—	
Mount Albert Edward	6,968
Mount Arrowsmith	5,960
Coast Range—	
Mount Waddington	13,260
St. Elias Range—	
*Mount Fairweather	15,300[3]
*Mount Root	12,860[3]
Columbia Mountains—	
Monashee—	
Mount Begbie	8,956
Storm Hill	5,300
Selkirks—	
Mount Dawson	11,020
Adamant Mountain	10,980
Grand Mountain	10,842
Iconoclast Mountain	10,630
Mount Rogers	10,525
Rockies—	
Mount Robson	12,972
Clemenceau Mountain	12,001
Mount Goodsir	11,686
Mount Bryce	11,507
Resplendent Mountain	11,240
Mount King George	11,226
Consolation Mountain	11,200
The Helmet	11,160
Whitehorn Mountain	11,101
Mount Huber	11,051
Geikie Mountain	11,016
Bush Mountain	11,000
Freshfield Mountain	10,945
Mount Mummery	10,918
Mount Vaux	10,881
*Mount Ball	10,865[2]
Mount Sir Alexander	10,740
Churchill Peak	10,500
Mount Stephen	10,495
Cathedral Mountain	10,464
Mount Gordon	10,346
President Mountain	10,287
Mount Odaray	10,175

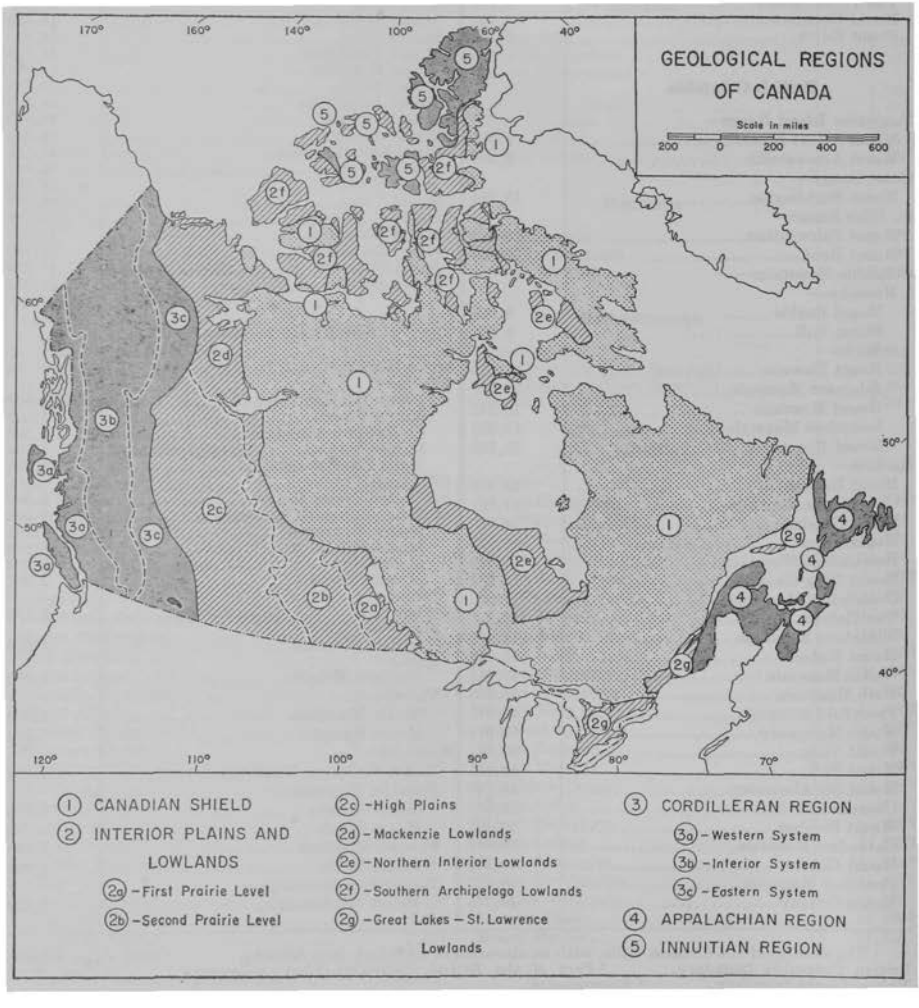
Province and Height	Elevation
	ft.
British Columbia—concluded	
Rockies—concluded	
Mount Laussedat	10,035
Mount Burgess	8,473
Yukon Territory	
St. Elias Mountains—	
Mount Logan	19,850
*Mount St. Elias	18,008[4]
Mount Lucania	17,150
King Peak	17,130
Mount Steele	16,440
Mount Wood	15,880
*Mount Vancouver	15,700[4]
*Mount Hubbard	14,950[4]
Mount Walsh	14,780
*Mount Alverstone	14,500[4]
McArthur Peak	14,400
Mount Augusta	14,070
Strickland Mountain	13,818
Mount Newton	13,811
Mount Cook	13,760
Mount Craig	13,250
Badham Mountain	12,625
Mount Malaspina	12,150
Mount Jeannette	11,700
Baird Mountain	11,375
Mount Seattle	10,070
Northwest Territories	
Arctic Islands—	
Baffin—	
Penny Highland (Ice Cap)	8,200–8,500
Mount Thule	5,800[5]
Cockscomb Mountain	5,300[5]
Barnes Ice Cap	3,700[5]
Knife Edge Mountain	2,700[5]
Ellesmere—	
United States Range	9,600[5]
Commonwealth Mountain	7,500[5]
Mount Townsend	7,200[5]
Mount Jeffers	6,500[5]
Mount Wood	5,900[5]
Mount Cheops	5,200[5]
Devon—	
Ice Cap	6,190
Mackenzie King—	
Leffinwell Crags	1,500
Banks—	
Durham Heights	2,460
Victoria—	
Shaler Mountain	2,000
Mount Bumpus	1,700
Mainland—	
Mount Sir James MacBrien	9,062
Franklin Mountains—	
Cap Mountain	5,175
Mount Clark	4,733
Pointed Mountain	4,550
Nahanni Butte	4,500
Richardson Mountains—	
Mount Goodenough	3,219

[1] The summit of the Cypress Hills, with an elevation of 4,810 feet, is in Alberta. [2] Part of the Alberta-British Columbia boundary. [3] Part of the British Columbia-Alaska boundary. [4] Part of the Yukon-Alaska boundary. [5] Approximate.

Section 2.—Geology*

North America comprises six main natural regions which are both physiographic and geological because the ages, kinds and structures of the underlying rocks determine the natures of the land surfaces. Knowledge of these regions is important because their geological characteristics have much influence on the suitability of different areas for such activities as agriculture, mining, petroleum production and sports, and contribute as well to the varied scenery of the country. The six regions are: the Canadian Shield, a vast area of ancient rocks that is mainly in Canada; the Interior Plains and Lowlands, the largest area of which extends throughout the mid-Continent from the Gulf of Mexico to the Arctic Ocean; the Appalachian Region, mainly in the United States but also forming an important part of Eastern Canada; the Cordilleran Region, extending along the entire west coast of the Continent; the Atlantic Coastal Plain along the eastern seaboard of the United States;

* Prepared by Dr. A. H. Lang and published by permission of the Director, Geological Survey of Canada, Ottawa.



and the Innuitian Region, a mountainous belt in the Arctic Archipelago. Canada includes parts of four of these regions and all of the Innuitian Region, but none of the Atlantic Coastal Plain.

The Canadian Shield, embracing about one half of the total area of Canada, is a roughly horseshoe or shield shaped terrain of some 1,850,000 sq. miles, having Hudson Bay at its approximate centre. The Shield continues into the United States west and south of Lake Superior, and east of the upper St. Lawrence River where a belt of resistant rocks called the Frontenac Axis forms the Thousand Islands and, to the south, broadens to form the Adirondack area. Far back in geological time the Shield contained many ranges of high mountains but these have been mainly worn down to a surface of moderate relief consisting of hills, ridges and valleys containing innumerable lakes and streams. Most of the surface is from 600 to 1,200 feet above sea level but higher uplands form such well known features as the Laurentian Mountains north of Montreal and the Haliburton Highlands in southeastern Ontario. Along the coast of Labrador and in Baffin Island are mountains rising 5,500 and 8,500 feet, respectively, above the sea. The Shield is a complex assemblage of Precambrian rocks that, as a whole, represent at least five sixths of the long duration of geological time. Most of the rocks have been subjected to more than one and in some cases several periods of orogeny, resulting in intricate structures, intense metamorphism, widespread igneous intrusions, and alteration of much ancient sedimentary rock to granite and related material. These complexities combined with the absence of fossils, which facilitate the correlation of strata younger than Precambrian, hamper interpretation of the geology of the Shield. Nevertheless, progress has been made and methods developed in Canada have been applied to Precambrian shields of other continents.

Flanking the Shield are large expanses of plains and lowlands underlain by relatively young and soft rocks overlain in many places by good agricultural soils. A notable characteristic of the boundary between the Shield and the Lowlands is the presence of large lakes that lie partly in rock basins in the Shield and partly in depressions in the younger strata. The most prominent are Great Bear Lake, Great Slave Lake, Lake Athabasca, Lake Winnipeg and Lake Huron. The largest lowland area is that of the Interior Plains, sometimes called the Great Plains or Western Interior Lowlands. These constitute the prairies of Western Canada and their wooded continuation to the north. The Northern Interior Lowlands include the Hudson Bay Lowlands south of Hudson Bay, the Foxe Basin Lowlands in and near western Baffin Island, and the Southern Archipelago Lowlands which occupy large parts of the more southerly Arctic islands. The Arctic Coastal Plain bordering the Arctic Ocean is sometimes classed as a separate physiographic region comparable to the Atlantic Coastal Plain but is here grouped with the other plains and lowlands for simplicity. The Great Lakes–St. Lawrence Lowlands form two important agricultural and industrial areas in southern Ontario, separated by the Frontenac Axis; the more easterly continues in Quebec, on both sides of the St. Lawrence River, and an isolated continuation forms Anticosti Island. Sedimentary strata of Palæozoic and younger ages overlap the Shield to form the Plains and Lowlands. These strata once covered much more of the Shield before being removed by erosion. The Shield continues under the Plains, as is proved by numerous wells drilled for oil or gas in the Great Plains and in southern Ontario having been bottomed in typical Shield rocks, but it is customary to regard the Canadian Shield Region as the part that is exposed or covered by glacial deposits. The overlying strata are undisturbed or gently tilted or flexed, the Shield and the Plains and Lowlands together forming a central continental region that has been relatively stable since Precambrian time, while orogenies were active in the flanking geosynclinal belts now indicated by the Appalachian, Cordilleran and Innuitian mountains.

The Canadian Cordilleran Region is a northwesterly-trending belt about 500 miles wide composed of high mountains and lower plateaux and valleys. It comprises southwestern Alberta, all of British Columbia except its northeastern corner, almost all of Yukon Territory and the southwestern part of the Northwest Territories. The individual mountain groups and plateaux are arranged in a complex pattern divisible into three parallel northwesterly-trending zones; in most places these zones are quite distinct and are called

the Western, Interior and Eastern Systems. The greater part of the Western System is composed of the high, rugged Coast Mountains along the mainland coast of British Columbia. Along part of the Yukon–Alaska boundary they are flanked to the southwest by the still higher St. Elias Mountains. Separated from the mainland by the Insular Passage are ranges forming Vancouver and Queen Charlotte Islands. The Interior System is a complex group of plateaux and mountains. The Eastern System is divided into the Northern Ranges and the Rocky Mountains, separated by a plain and plateau along the Liard River near the British Columbia–Yukon boundary. The main features of the Northern Ranges are the British and Richardson Mountains near the Arctic Coast, and the Mackenzie and Franklin Mountains in the western part of the Northwest Territories. The Rockies are composed of high, serrated ranges extending northward from the 49th Parallel; the elevation of the highest peak, Mount Robson, is 12,972 feet. Flanking them on the east are the Rocky Mountain Foothills which form a transition with the Plains. Because the Rocky Mountains, although extensive, are but a relatively small part of the mountains of Western Canada, the popular tendency to apply the name to the entire Canadian Cordillera is inadmissible.

The Cordillera are on the site of a great geosyncline where sediments were laid down at least as early as late Precambrian time, where marine sedimentation continued in places as late as the Upper Cretaceous, and where freshwater sediments were deposited locally during the Tertiary. The principal mountain-building and igneous processes of which good evidences remain began locally in early Mesozoic time, culminated in the western Cordillera in the Nevadan orogeny in late Jurassic and early Cretaceous time, but was not significant in the eastern Cordillera until the Laramide orogeny early in the Tertiary. Thus the western Cordillera were formed much earlier than the eastern, were largely worn down by erosion by the time the Rockies and other eastern mountains were built, and the western part of the region was uplifted at the time of the Laramide orogeny so that renewed erosion could carve the surface into the present mountains and plateaux. The strata in the western Cordillera are intruded by many bodies of igneous rocks, from small to very large in size. Most are granodiorite or diorite but many others are granite, gabbro or other related types; still others are ultrabasic, i.e., composed mainly of iron and magnesium minerals. Most are related to the Nevadan orogeny but some must have been intruded in late Cretaceous or early Tertiary time, and there is incomplete evidence that some are of ages from late Precambrian to Triassic. The intrusions are scattered widely, the largest concentration being the Coast Range Intrusions which form the greater part of the Coast Mountains. Intrusive rocks are rarely exposed in the eastern Cordillera, probably because the mountains there have not been eroded sufficiently to reveal many.

The Appalachian Region is the northern continuation of a long belt of folded strata extending along the eastern side of the United States. It is on the site of a geosyncline that existed mainly in Palæozoic time in which great thicknesses of sedimentary and volcanic strata were laid down. The northwestern boundary of the region is a long curving fault or zone of faults which extends from Lake Champlain at least as far as the Gulf of St. Lawrence and which causes the curved shape of the northern coast of Gaspe. The strata in the Appalachians have been folded and faulted by successive periods of orogeny along axes that strike northeasterly; thus strata of different kinds and ages and belts of intrusive rocks form northeasterly-trending bands, many of which are responsible for the peninsulas, bays and ridges of the region. Three principal periods of orogeny—the Taconic, the Acadian and the Appalachian—have been recognized. The Taconic occurred at the close of the Ordovician, the Acadian during the Devonian, and the Appalachian at the close of the Palæozoic. In Canada the Taconic disturbances were fairly widespread, the Acadian were more so, affecting areas that were previously affected by the Taconic and areas that were not, but the Appalachian orogeny, which was a major feature in parts of the United States, was of minor and local importance.

The Innuitian Region is underlain by moderately-to-intensely folded sedimentary, volcanic and metamorphic rocks of various ages, the oldest being probably Proterozoic and the youngest being Tertiary. Folding occurred at different times and in different

directions, some in early Devonian time, some late in the Palæozoic era, and some in Tertiary time. Five fold-belts have been recognized—Cornwallis, Parry Islands, Central Ellesmere, Northern Ellesmere and Eureka Sound. Granitic intrusions have been found in the Northern Ellesmere belt.

Brief sketches of the geological regions together with an outline of geological processes are given in the 1961 Year Book at pp. 1-14. Further information is supplied by *Geology and Economic Minerals of Canada* ($2, including Map 1045A) and *Prospecting in Canada*; the latter also contains chapters on the principles of geology and on minerals and rocks. The *Geological Map of Canada* (1045A, 50 cents) and *Canada, Principal Mining Areas* (900A) are also recommended. Map 900A is revised annually; one copy is sent free to residents of Canada and additional copies are 25 cents each. These publications may be ordered from the Director, Geological Survey of Canada, together with lists of reports and maps of the Geological Survey of Canada on specific topics and areas, for each province. Other publications are available from provincial mines departments.

Section 3.—Federal Government Surveying and Mapping*

Technical surveys, maps and charts are basic tools in the acquisition of knowledge of a country's physical features and its resource potential; they are essential for resource development, for extending trade and commerce, and for administration, defence, educational and recreational purposes.

In Canada the needs of government, industry and the public in this field are met largely by the federal mapping agency, the Department of Mines and Technical Surveys. To this Department falls the Herculean task of mapping Canada's 3,852,000 sq. miles of territory and the charting of its inland waters and of its thousands of miles of coastline, the longest coastline of any country in the world. It is responsible for compiling and printing topographical, geological and aeromagnetic maps, aeronautical and hydrographic charts, specialized maps, such as electoral and boundary maps, land-use maps and general maps of Canada at various scales. It is responsible, too, for the establishment of a national framework of survey control necessary for mapping and engineering purposes.

The Department's surveying and mapping activities take it, on land, into every nook and corner of the country from the Atlantic Ocean to the Pacific and from the International Boundary on the south to the outer fringe of the Arctic Archipelago in the Far North. On water, it is charged with the charting of inland waters and the charting and carrying out of oceanic surveys in the waters of the continental shelf and in the deep ocean. In the air, it is responsible for measuring the heights of land to assist air navigation over Canada and for carrying out geophysical surveys to acquire a knowledge of the composition and structure of the earth's crust in Canadian territory.

To assist it in this tremendous task, the Department makes use of the latest in techniques and instruments and, in addition, carries out a broad program of research to enhance the accuracy and efficiency of its maps and surveys. It has a staff of 4,000, of whom 1,000 are scientists and engineers and 1,300 are trained technicians. Each year it places some 1,500 men in the field to carry out survey and research programs, the results of which are brought back to Ottawa and produced in the form of maps, charts and reports.

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* Prepared by Mary J. Giroux, Head, Special Projects Section, Editorial and Information Division, Department of Mines and Technical Surveys. Copies of maps and charts may be purchased from the different branches of that Department in Ottawa, as follows: topographic, planimetric, land-use and electoral maps, aeronautical charts and sheets from the *Atlas of Canada* from the Map Distribution Office at 615 Booth St.; hydrographic charts from the Marine Sciences Branch and aerial photos from the National Air Photographic Library, both at 615 Booth St.; geological and aeromagnetic maps from the Geological Survey of Canada at 601 Booth St.; and magnetic charts and gravity maps from the Dominion Observatory, Carling Ave.

The Department has six branches, all of which, except the Mines Branch, are engaged in mapping and/or various types of surveying: the Surveys and Mapping Branch carries out geodetic surveys and produces base maps, electoral and other specialized maps and aeronautical charts; the Marine Sciences Branch charts inland waters and carries out oceanic surveys and oceanographic research in Canada's coastal waters and in the deep ocean; the Geological Survey of Canada maps and studies Canada's geology; the Dominion Observatories and the Geological Survey carry out geophysical surveys, and the Geographical Branch is making a physical and economic appraisal of the country.

Requests for topographic, geological, aeromagnetic and other types of mapping are submitted to the Department by other federal departments, provincial governments, private enterprise and the public. In determining its mapping and survey programs, the Department gives attention to the mapping of those areas where national interests are best served, since it is impossible to fill all the requests received. Each of the provinces carries out its own mapping program in line with its capabilities and particular requirements. To avoid duplication of effort, the Department maintains a close liaison with provincial governments and industry. The provision of hydrographic and aeronautical charts is, however, the responsibility of the Federal Government only.

Survey Methods.—The mapping of Canada presents many problems to federal map-makers, the chief being those arising from the great distances to be covered and from access difficulties. In overcoming such problems, they have been greatly assisted in recent years by the use of the aeroplane and the helicopter, the use of air photography, the use of such modern devices as shoran trilateration and such electronic instruments as the geodimeter, the tellurometer and the aerodist, and by the advances made in photogrammetry, i.e., the plotting and compilation of maps and air photographs.

The highly successful combination of fixed wing aircraft and helicopters has made possible the carrying out of economic and accurate surveys in many otherwise inaccessible areas. Another highly successful combination, the helicopter and the tellurometer, has made possible the completion of 200 miles of traverse in one day, and a season's work may now be reckoned in thousands of miles instead of in hundreds. The use of the helicopter has speeded up immensely the geological reconnaissance mapping of Canada's northland and its mountainous areas, so much so that the Geological Survey expects to complete this type of mapping by 1970 instead of a few generations hence as thought previous to 1952, when the helicopter was first used for aerial geological mapping.

More recently, the addition of the aerodist, the latest development in electronic distance-measuring instruments, has facilitated the establishment of topographic survey control, from the air, over muskeg and densely wooded country. In a trial project in 1963, a topographical party in northwestern Ontario established survey control for 37,000 sq. miles of territory on a scale of 1/50,000, or approximately one mile to the inch, in a matter of 7½ days. Such a project, by conventional methods, would have taken a year to complete on not-too-difficult terrain, and years of effort on this particular terrain.

Air photography, the forerunner of all mapping, has speeded up immeasurably the process of mapping. With the exception of some 40,000 sq. miles in northeastern Quebec and northern Labrador, Canada (including the Arctic Archipelago) has been completely covered with vertical air photography, suitable for small-scale mapping. Many areas must now be mapped at larger scales for development and other purposes and to meet specialized needs. This will require some up-to-date large-scale photography and periodic rephotography for revision purposes.

One of the greatest innovations in base mapping has been the development of photogrammetry, the science of obtaining reliable measurements of objects from the aerial photography of these objects. Before photogrammetry was used in mapping, all objects had to be positioned and their heights measured on the ground. With photogrammetry, costly time in the field has been greatly reduced and much of the detailed work can be

PRODUCED BY THE SURVEYS AND MAPPING BRANCH, OTTAWA, CANADA

done in the office under well controlled conditions. The Department is constantly investigating and developing new and better photogrammetric techniques to reduce the cost of mapping and to keep maps up to date and useful.

Geodetic Surveys.—The Department's Geodetic Survey provides the framework of control, i.e., horizontal and vertical control, for mapping and engineering operations carried out in Canada. The horizontal control network consists of a series of points, usually marked by survey tablets, the latitudes and longitudes of which have been accurately determined. The work progresses from points whose positions are already known to unknown points. The vertical control network consists of a series of points, usually marked by survey tablets and referred to as bench marks, whose elevations above sea level have been accurately determined.

The Geodetic Survey has extended first-order horizontal control over the ten provinces and into the territories, as shown on the accompanying map. It is gradually extending this precise control in the North and, at the same time, is increasing the density of control in the southern areas. In the North, the network of precise control will gradually replace that established by the Survey by means of shoran trilateration between 1948 and 1957 over the territories and the Arctic Archipelago to permit the reconnaissance mapping of this vast remote and isolated region. Shoran is an electronic method of measuring distance by air.

The Canadian precise level network consists of 44,500 miles of levelling, mostly along highways and railways south of the 55th parallel. The principal lines in the more northerly regions follow the railways to Churchill, to Lynn Lake and to Waterways; the Mackenzie Highway to Hay River on Great Slave Lake; and the Alaska Highway to Yukon Territory and Alaska. There are also a few lines in the Peace River district of Alberta and in northern British Columbia and Yukon Territory. In all, some 15,000 bench marks have been established in the course of this levelling and, in addition, there are about 16,000 miles of second-order levels, most of which were established prior to 1930. The ultimate goal of the Geodetic Survey is the establishment of at least one horizontal and vertical control point within ten miles of any point in Canada.

Topographical Mapping.—The basic requirement for resource development is, of course, suitable topographical maps of the country's vast land mass. The Department, through its Topographical Survey and in conjunction with the mapping agency of the Department of National Defence, is pressing forward with the topographical mapping of the country at the medium scale of 1/250,000, or about four miles to the inch, which it hopes to achieve by 1967, and with the larger scale mapping at 1/50,000 in the more settled areas and areas of greater economic importance. About 35 p.c. of this task has been completed. The third objective is to provide topographical mapping at a scale of 1/25,000 to assist the orderly planning and development of areas of special economic significance such as urban, suburban, mining and industrial districts. The progress the Survey is making in the mapping of the larger Canadian centres at this scale is also assisting it in carrying out a fourth objective—the systematic revision of out-dated maps. The rapid growth of industrial areas in Canada during the past two decades has completely changed the topographical face of these areas and made necessary the updating of existing maps.

Currently, topographical field parties in one field season cover a total of some 225,000 sq. miles for the average production of 30 maps at 1/25,000, of 300 maps at 1/50,000, and of 45 maps at 1/250,000. In one of its most challenging projects, the Survey, in co-operation with the Army Survey Establishment of the Department of National Defence, carried out the topographical mapping of the 500,000 sq. miles of territory of the Arctic Archipelago in the period 1960-63, and hopes to have these maps available for the public by 1967.

An idea of the amount of work done by a field party and the calibre of men on these parties may be gained from an account of the activities of one of the parties engaged in the mapping of the Arctic islands. In 1962 a party of 14 men, including aircrew, was

assigned to map the northernmost region of Ellesmere Island. With three helicopters and in extremely rugged country and under the most difficult of conditions, these men, for a period of over three months, worked from ridge to ridge of heights of from 5,000 to 8,000 feet above sea level and up to within 400 miles of the North Pole. By the end of the season, despite the unserviceability of one of the helicopters, they had succeeded in mapping their allotted territory of 70,000 sq. miles, a remarkable performance even in the light of modern-day achievements.

Legal Surveys.—The growth of the Canadian economy has increased the demand for legal surveys on Crown lands. The development of Canada's northland has brought a high demand for these surveys in the Yukon and Northwest Territories. To the south, highway construction, the growth of the oil industry and other factors have led to an increasing requirement for the subdivision and demarcation of Indian reserves and National Parks and occasionally other lands in which the Federal Government has an interest.

To enable legal transactions involved in the administration of these lands, the Department each year sends parties, headed by staff surveyors, into the field to carry out legal surveys. The services of private surveyors are enlisted each year to supplement the work of the Department's parties.

Interprovincial Boundaries.—The Federal Government, through the Department, works with the provinces in the surveying of interprovincial boundaries. In the early 1960's for instance, it completed, with the co-operation of the provinces concerned, one of its largest projects to date—that of surveying the 1,500-mile boundary between the Provinces of British Columbia, Alberta, Saskatchewan and Manitoba and the Yukon and Northwest Territories. Demarcation of the 60th parallel as the boundary between these provinces and territories had been started in 1899. In August 1963, the Minister of Mines and Technical Surveys and provincial authorities marked the occasion with a historic ceremony in the northern wilderness 700 miles north of Winnipeg and paid tribute to the men who had "chopped their way through dense forests, toiled up and down snowcapped mountains, forded streams and lakes and muskeg and coped with 60-below weather in winter and swarms of flies and bugs in summer".

The International Boundary.—The maintenance of the International Boundary is the responsibility of the International Boundary Commission which functions by virtue of the treaty of 1925 between Canada and the United States and the International Boundary Commission Act of 1960. The Act is administered in Canada by the Department through the Surveys and Mapping Branch and is operated through the Department of External Affairs. The treaty empowers and directs the two Commissioners, one from Canada and one from the United States, to inspect and provide for the maintenance of an effective boundary line between the two countries and to determine the location of any point of the boundary line which may become necessary in the settlement of any question that may arise between the two governments. The work of the Commission is a treaty obligation and does not duplicate or overlap provincial activity of any kind or the work of other federal departments.

Aeronautical Charts.—This is one of the Department's most active fields of mapping, mainly because of rapid developments in air navigation. Continual changes in aircraft and in air-navigation facilities (radio ranges, airways, etc.) necessitate a continuous program of revision of aeronautical charts and air information publications in the interests of civilian and military users. Another continuing requirement is for new types of charts to meet specific aviation needs.

Electoral Maps.—The Department handles the preparation of descriptions and diagrams of federal electoral districts. The proposed readjustment of representation of the provinces in the House of Commons will mean the readjustment of electoral boundaries and

therefore the preparation of descriptions of the boundaries of the redistributed districts and other work required in connection with Sect. 7 of the Representation Act (RSC 1952, c. 334).

National Air Photo Library.—The Library keeps complete records of all survey photographing done by or for the Federal Government, including a copy of each photograph and information on the flight lines, the flying agency, the film and camera operations. Established in 1925 under the Topographical Survey to function as a central reference library of national air photography, it has on file some 3,000,000 oblique, vertical and trimetrogon photographs, which provide an aerial view of all Canada.

Hydrographic and Oceanic Surveys.—Hydrographic and oceanic surveys in Canada's navigable waters are conducted by the Department's Marine Sciences Branch. Operations are directed from Ottawa and carried out through three regional offices—the Bedford Institute of Oceanography on the Atlantic Coast, the Pacific Coast Regional Office at Victoria and the Central Regional Office at Ottawa. Planning is under way to construct a Victoria Institute, similar in size and complexity to the Bedford Institute, from which all Pacific Coast operations will be co-ordinated.

To carry out hydrographic and oceanic surveys and research, the Branch operates a fleet of ships and launches including some privately owned vessels chartered for the purpose. Five of the major vessels operate out of the Bedford Institute and four out of Victoria with one vessel based in the Great Lakes. Land-based parties, equipped with launches, operate on coastal and inland waters and teams of hydrographers and oceanographers travel to the Arctic with the Department of Transport supply vessels to chart and study waters and harbours en route.

The Branch estimates that, at the present rate of charting, it will take more than fifty years to complete initial surveys of Canadian waters; meanwhile, the demands from industry, defence and the pleasure-boat operator for accurate and up-to-date charts continue to increase. To speed up its hydrographic and oceanographic work, the Branch plans the construction of 12 survey and research ships at a cost of $50,000,000 during the period 1964-70. In 1964 a $7,000,000 oceanographic research vessel, CSS *Hudson*, was commissioned and attached to the fleet at the Bedford Institute. The *Hudson* is a floating laboratory, capable of hydrographic and oceanographic work anywhere in the world, but it will serve mainly in the Arctic and Atlantic Oceans. Its main tour of duty in 1964 was a full-scale geophysical investigation of Hudson Bay.

The work of the Marine Sciences Branch also includes the analysing of tides and tidal current phenomena and the investigation of water levels. To meet the needs of charting, navigation, engineering and defence for constant and detailed information on water levels, it operates 92 permanent water-level gauging stations in coastal and inland waters and uses the services of local temporary gauge attendants for transmission of the data to Ottawa. Temporary gauge stations are also operated in various areas where short-term data are required. A long-term study is being made of the circulation in the Gulf of St. Lawrence which will be of great value for ice forecasting and other studies to facilitate winter navigation. Current surveys on the West Coast are carried out by the Pacific Coast regional office.

In 1963, the Marine Sciences Branch published 58 new charts, bringing the total number of catalogued charts to 930. Distribution reached a new high of 170,000 standard charts and a total, including various special charts produced, of over 217,000.

Geological Mapping.—The Geological Survey of Canada maps and studies the geology of Canada and carries out specialized research to enable its geologists to map and explain the geology of the country more effectively. It is the major organization engaged in this field in Canada and its studies are nation-wide. The Survey works closely with provincial agencies and endeavours, after prior consultation with the provincial government concerned, to fill in the province's geological framework and provide a basis for more

detailed mapping by provincial and company geologists. In areas under development, the Survey does more detailed mapping to supply industry with the geological key to the structures of orebodies.

Each year more than 100 parties are placed in the field. Field officers send rock and mineral samples to the many laboratories at Survey headquarters for various tests and analyses and the information obtained from these investigations is published in the form of maps and reports. In 1963, requests were received for some 320,000 geological maps and reports.

The Survey continues to press forward with its first priority, the reconnaissance geological mapping of Canada, in the interests of national development. The introduction in 1952 of the use of the helicopter and fixed wing aircraft as operational support has resulted in the more efficient coverage of much larger areas and has brought much closer the completion of this project. At the end of 1963, the Survey had published maps covering about 65 p.c. of the country on a scale of one inch to eight miles or in more detail. And the new program is already paying dividends. For example, the reconnaissance mapping of the central and western Arctic islands has revealed the region's oil potential with the result that petroleum companies are now engaged in major exploration programs in the islands, which is undoubtedly the largest petroleum reservoir in Canada and perhaps in North America.

Although the Survey's principal effort, about half the cost of all field parties, is devoted to reconnaissance investigations, other parties continue to do four-mile bedrock mapping and to carry out a wide variety of investigations, including detailed studies of bedrock and surficial deposits, geophysics, groundwater, geochemistry and engineering geology. A recent major mapping project was an all-out effort involving bedrock geology, geochemistry, geophysics and the study of overburden in a 50,000-sq. mile area in the Patricia District of northwestern Ontario, in connection with the Federal Government's Roads-to-Resources Program. This project, begun in 1959 and completed in 1961, was a co-operative effort with the Ontario Provincial Government. The resultant geological, geophysical and geochemical maps enabled the respective departments to select the areas most likely to produce mineral wealth and to select the routes for the roads to these areas. The success of this venture prompted the Federal Government, through the Geological Survey, to begin in 1961 an $18,000,000 federal-provincial program of aeromagnetic surveys of the Canadian Shield and bordering areas to be completed within 12 years. The surveys are being made, under contract, by various established survey companies and their cost is being shared equally by the province concerned and the Federal Government; surveys in the Yukon and Northwest Territories are financed by the Federal Government.

The Geological Survey has offices in three provinces and both territories—at Vancouver, B.C.; Calgary, Alta.; Whitehorse, Y.T.; Yellowknife, N.W.T.; and Dartmouth, N.S. These offices are staffed with resident geologists.

Geophysical Surveys.—Geophysicists of the Geological Survey of Canada and the Dominion Observatory conduct and interpret geophysical surveys as an aid to the understanding of the geology of Canada and the nature of the earth's interior. Their work also includes research on the development of new geophysical methods and instruments.

Recent projects include: continued investigation and evaluation of the extent to which aerial and colour photography and aeromagnetic data can be used to facilitate and expedite geological mapping; seismic surveys in various parts of Canada to establish the existence of buried channels and depths to Precambrian or other bedrock surfaces; a resistivity survey in southern Manitoba to delineate near-surface groundwater-bearing zones; a sea-magnetometer survey off Newfoundland and Nova Scotia in the study of the continental shelf; and a micromagnetic survey in northwestern Ontario to investigate known magnetic anomalies in some Precambrian iron-formations. Hammer seismic surveys were used successfully in the Moncton area of New Brunswick to outline bedrock surface and buried depressional features, which may be of assistance in groundwater

studies, and in the Kirkland Lake area of northern Ontario overburden thicknesses were measured and bedrock channels outlined, a project of possible assistance in locating placer gold deposits.

The Dominion Observatory studies and collects information on the geomagnetic field in Canada and publishes it in the form of maps and charts. Every ten years it issues a set of charts showing the direction and intensity of the field in all parts of the country and, at five-year intervals, it publishes the chart which is greatest in demand—that of magnetic declination (or variation). These charts must be revised periodically because the earth's magnetic field changes its direction and strength from year to year. Most of the information shown on the magnetic charts now originates in surveys carried out with the Observatory's three-component airborne magnetometer. In November 1963, Observatory geophysicists conducted a 37,000-mile survey in the High Arctic—the area extending from the mainland of North America to the North Pole, east to the Greenwich meridian and west to the international dateline. The data collected constitutes part of Canada's contribution to a magnetic map of the world.

Because the auroral zone passes through Canada and the North Magnetic Pole is located within Canadian borders, the Dominion Observatory plays an important role in the world-wide investigation of geomagnetic disturbance.

The Observatory is systematically mapping the gravity field in Canada on a regional basis with measurements at points 8 to 10 miles apart. These results, published in the *Gravity Map Series of the Dominion Observatory*, reveal the major density features of a region and are useful in geological studies. Detailed gravity surveys are also carried out to delineate local crustal structures.

In 1963, the Observatory continued regional gravity mapping activities in Southern Canada and in the Arctic; made an extensive study of the Timmins–Kirkland Lake–Noranda mining areas; continued gravity studies of the Atlantic continental shelf and eastern coastal waters of Canada; made some 600 gravity measurements on the ice of the Arctic Ocean and in the northern Archipelago; and carried out field investigations of six craters of possible meteorite origin in Ontario, Quebec and Saskatchewan. Work was continued on the expansion and modernization of Canada's seismological network, which, when completed, will consist of some 30 seismic stations established at 500-mile intervals throughout the country for the threefold purpose of assisting in the study of the earth's interior by international seismology, assisting in the study of nuclear explosions, and furnishing information on seismic risks in Canada. Three new stations were added in 1963, bringing the number to 16; in addition, there are three private seismological stations which report to the Dominion Observatory.

In 1962, the Observatory, in co-operation with the Department of National Defence and British scientists, set up a crossed array of seismographs at Yellowknife, N.W.T., to assist in policing any test-ban treaty. The array also provides an important tool for the study of the earth's structure.

International Projects.—Canada, like other nations, must shoulder its share of international scientific studies. One such study under way is the Upper Mantle Project, an international scientific study of the earth's upper mantle—that part of the earth's interior lying just below the crust. Two forms of study are being used—the direct approach of geology and the indirect approach of geophysics. Canada's contribution is being carried out by the Department of Mines and Technical Surveys and by some Canadian universities through grants from the National Research Council.

The Geological Survey in 1963 drilled three holes into selected parts of the Muskox Ultrabasic Intrusion in the Northwest Territories and are preparing to drill a deep hole in the Mount Albert Ultrabasic Intrusion in Quebec's Peninsula in 1965—locations where dense mantle material is believed to have broken through the crust to the earth's surface. A detailed study of diabase dykes across the country will also be made in an endeavour to cast some light on conditions within the mantle. Other projects include the start of a

detailed geological and geophysical study across the mountains from about Banff in Alberta to Vancouver, and studies of the area between Greenland and Canada.

Geophysicists of the Dominion Observatory are using seismology, gravity, geomagnetism and the study of earth currents and heat flow in the study of depths beyond the reach of drilling. Seismological data are obtained from two sources—the network of seismic stations being set up throughout the country for the study of earthquakes, and explosion seismology to determine the depth of the mantle beneath the earth's crust. At most of the stations in the seismic network, holes will be drilled to measure heat flow from within the earth and heat-flow measurements will also be taken from holes drilled by departmental geologists. Gravity data are used to locate areas in Canada where the heavy rocks of the upper mantie lie closest to the surface and to study vertical movements of the crust in response to surface loading and currents within the mantle, and variations in the earth's magnetic field are employed to estimate the electrical conductivity of the mantle.

In another fundamental study, aimed at a better understanding of the solar system and the early history of the earth, Observatory scientists are studying circular structures believed to be the result of the impact of meteorites. Geophysical surveys are being used to investigate a number of such features that have been located in the Canadian Shield (see also p. 45).

Geographical Surveys.—The Geographical Branch of the Department carries out various types of surveys, ranging from terrain and glaciological studies to surveys of sea-ice distribution and of urban and rural land use. Major projects currently under way include a long-range study of Baffin Island, the detailed geomorphological mapping of the dry regions of southwestern Saskatchewan, and the study and mapping of sea-ice distribution in the St. Lawrence River and Gulf and in the Queen Elizabeth Islands. The latter is part of the Department's oceanographic research program and the relationships between the various climatic factors and ice distribution are being studied in an effort to improve the accuracy of long-range ice forecasting.

The investigation of Baffin Island includes the mapping of surface conditions, the study of the history of the landscape's development, and research into geomorphic processes affecting present-day landscape changes. This work is largely of an experimental nature and should provide more precise information on the character of natural processes affecting the development of terrain, relative movements of land and sea, retreat of glaciers, mass movement of the surface materials, and the distribution of patterned ground in relation to permafrost. Many of these studies have an important bearing on engineering problems, the development of resources, and the determination of the feasibility of cross-country travel in the North. Experimental geomorphic maps have been completed showing surface conditions for parts of Ellef Ringnes Island, and the results of this work are being applied to geomorphic and hydrographic (surface water) mapping at 1/50,000 in the semi-arid prairie areas.

A comprehensive study of land use in Prince Edward Island, the first of a series of monographs to be prepared in the land-use mapping program, was produced in 1963. By early 1964 some 30 land-use maps, at various scales, had been published covering such areas as the important fruit-growing region of the Niagara Peninsula, large tracts of Nova Scotia and New Brunswick, parts of the Prairie Provinces, and the Lower Fraser Valley of British Columbia. This program is being modified to embrace the mapping of land use of the whole of Southern Canada on a scale of 1/50,000 and will form part of the Canadian Land Inventory of the Agricultural Rehabilitation and Development Act program (see Chapter X on Land Use and Resource Development).

In the urban field, geographers are mapping the physical characteristics, population distribution, population fluctuations and urban land use of major Canadian cities. The mapping of the city of Vancouver has been completed and detailed studies of Montreal and Toronto are under way. The data collected will provide a valuable basis for intensive research into many aspects of urban geography.

PART II.—PUBLIC LANDS AND WILDLIFE

Section 1.—Federal and Provincial Public Lands

In Table 1 classifying the area of Canada by tenure, items 2, 3, 4 and 5 are obtained from Federal Government sources and items 1, 6, 7 and 8 from provincial government sources.

1.—Total Area classified by Tenure (circa) 1963

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown	6,798	2,058	16,162	15,478	43,500	46,409
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations	160	83	165	612	373[1]	1,124
3. National Parks	153	7	367	79	[2]	12
4. Indian reserves	—	4	40	60	291	2,431
5. Federal forest experiment stations	—	—	—	35	7	41
6. Provincial lands other than Provincial Parks and provincial forest reserves	148,879	30	4,690	10,685	476,725	337,579
7. Provincial Parks	78	[2]	1	1	67,486	5,460
8. Provincial forest reserves	117	2	—	1,404	6,478	19,526
Totals	**156,185**	**2,184**	**21,425**	**28,354**	**594,860**	**412,582**

Item	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown	46,310	104,929	96,017	19,711	83	397,455
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations	1,180	5,089	2,925	485	1,508,261[3]	1,520,457
3. National Parks	1,148	1,496	20,717[4]	1,671	3,625[5]	29,275
4. Indian reserves	819	1,898	2,450	1,278	10	9,281
5. Federal forest experiment stations	[6]	—	23	—	—	106
6. Provincial lands other than Provincial Parks and provincial forest reserves	195,479	16,537	121,597	289,884	—	1,602,085
7. Provincial Parks	2,742[7]	2,284	2,289	9,981	—	90,322
8. Provincial forest reserves	3,322	119,467	9,267	43,245	—	202,828
Totals	**251,000**	**251,700**	**255,285**	**366,255**	**1,511,979**	**3,851,809**

[1] Includes Gatineau Park (97 sq. miles) and Quebec Battlefields Park (0.36 sq. mile) which are under federal jurisdiction but are not technically National Parks. [2] Less than one square mile. [3] Includes 952,849 sq. miles set aside by Order in Council as native game preserves in which only Indians and Eskimos may hunt, but which are not regarded as National Parks. [4] Includes that part of Wood Buffalo Park in Alberta (13,675 sq. miles); this park, although established under the National Parks Act, is administered by the Northern Administration Branch, Department of Northern Affairs and National Resources. [5] That part of Wood Buffalo Park in N.W.T. [6] A forest experiment area of 25 sq. miles is included in National Parks figure. [7] Includes 1,855 sq. miles of provincial park land within provincial forest reserves.

Federal Public Lands.—Public lands under the administration of the Federal Government comprise lands in the Northwest Territories including the Arctic Archipelago and the islands in Hudson Strait, Hudson Bay and James Bay, lands in Yukon Territory, Ordnance and Admiralty Lands, National Parks and National Historic Parks and Sites, Forest Experiment Stations, Experimental Farms, Indian reserves and, in general, all public lands held by the several departments of the Federal Government for various purposes connected with federal administration (see Table 1). These lands are administered under the Territorial Lands Act (RSC 1952, c. 263) and the Public Lands Grants Act (RSC 1952, c. 224) which became effective June 1, 1950 and replaced previous legislation.

The largest areas under federal jurisdiction are in the Northwest Territories and Yukon Territory where only 83 sq. miles of a total area of 1,511,979 sq. miles are privately owned. This part of the national domain, with the exception of the islands in Hudson Bay and James Bay, is all north of the 60th parallel of latitude and occupies about 40 p.c. of the surface of Canada. It is under the administration of the Northern Administration Branch of the Department of Northern Affairs and National Resources.

Provincial Public Lands.—Public lands of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia (except the Railway Belt and Peace River Block) have been administered since Confederation by the provincial governments. In 1930 the Federal Government transferred the unalienated portions of the natural resources of Manitoba, Saskatchewan and Alberta and of sections of British Columbia to the respective governments, and all unalienated lands in the Province of Newfoundland, except those administered by the Federal Government, became provincial public lands under the Terms of Union on Mar. 31, 1949. All land in the Province of Prince Edward Island has been alienated except 126 sq. miles under federal or provincial administration.

Information regarding provincial public lands may be obtained from the respective provinces. (See the Directory of Sources of Official Information, Chapter XXVIII, under "Lands and Land Settlement".)

Subsection 1.—National Parks

The National Park concept—the preservation of significant areas in their natural state for the benefit and enjoyment of the public—was developed in North America and Canada has the second largest number of National Parks and National Historic Parks in the world.

The Canadian system dates from 1885. In that year a 10-sq. mile reserve was established by the Federal Government around the mineral hot springs of Sulphur Mountain at Banff in Alberta and in the following year two spectacular areas in southern British Columbia were set aside as parks. By 1930, the National Park system comprised a number of natural and wildlife reserves in Western Canada and three small areas in Ontario. Since 1935, four park areas have been added, one in each of the Atlantic Provinces, bringing the total number across the country to 18 and the total area to 29,275 sq. miles.

These Parks, with the exception of that large northern area extending across the border of Alberta and the Northwest Territories known as Wood Buffalo Park, are administered by the National Parks Branch of the Department of Northern Affairs and National Resources; Wood Buffalo Park is administered by the Northern Administration Branch of the same Department. According to the National Parks Act of 1930, the Parks are to be preserved for the "benefit, education and enjoyment of the people of Canada" and are to be maintained and used "so as to leave them unimpaired for the enjoyment of future generations". Thus, these areas fulfil their intended function of preserving many unique examples of Canadian scenery, magnificent forests, and varied kinds of plant and animal life. And to enable the public to make maximum use of this park heritage, campgrounds, roads, trails, picnic areas, beaches, recreational facilities and, at some parks, golf courses and bathing establishments are provided by the National Parks Branch; and motels, hotels,

lodges and other visitor services are provided by private enterprise on land leased from the Federal Government. Each park is in charge of a superintendent and park wardens are on duty to protect the recreational areas, the wildlife and the forests from fire and other destructive forces, and to look after the safety of visitors.

While the National Parks preserve natural features of national importance, National Historic Parks and Sites preserve and identify the places important in the history of Canada. A site is declared of National historical significance by the Minister of Northern Affairs and National Resources on the recommendation of the Historic Sites and Monuments Board of Canada, an advisory board of historians representing all provinces. The 19 National Historic Parks are military or fur-trading forts that have been preserved, historic buildings or reconstructions of historic buildings. Most have museums associated with them. There are 591 historic monuments or plaques commemorating personages or events and 12 major National Historic Sites that are owned and operated by the National Parks Branch. In addition, there are 10 other major National Historic Sites owned by the National Parks Branch and leased to other organizations for maintenance and operation.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites

Park	Location	Year Established	Area	Characteristics
			sq. miles	
National Parks				
Terra Nova	On Bonavista Bay, Newfoundland, 205 miles north of St. John's.	1957	153.0	Rocky headlands, wooded interior areas, off-shore and freshwater fishing. Serviced campground and cabin accommodation.
Prince Edward Island	North shore of Prince Edward Island.	1937	7.0	Strip 25 miles long on shores of the Gulf of St. Lawrence. Fine bathing beaches. Hotel and cabin accommodation. Serviced campgrounds.
Cape Breton Highlands	Northern part of Cape Breton Island, N.S.	1936	367.0	Rugged Atlantic coastline with mountainous background. Fine seascapes. Hotel and cabin accommodation. Serviced campgrounds.
Fundy	On Bay of Fundy between Moncton and Saint John in New Brunswick.	1948	79.5	Interesting rock formations on coast and rolling hills inland. Campground and cabin accommodation. Excellent naturalist service.
Georgian Bay Islands	In Georgian Bay, 3 miles by water from Honey Harbour, Ont.	1929	5.4	Camping, canoeing, hiking, swimming, fishing and boating opportunities. Unusual geological formations on Flowerpot Island, off Tobermory on Midland Peninsula. Accessible by boat only.
Point Pelee	On Lake Erie near Leamington, in southwestern Ontario.	1918	6.0	Most southerly part of Canadian mainland. Fine bathing beaches. Unusual flora. Resting place for migrating birds. Campgrounds.
St. Lawrence Islands	In St. Lawrence River between Brockville and Kingston, Ont.	1914	260.0 (acres)	Mainland area and 14 islands with docks, campgrounds and picnic areas. Representative selection of the Thousand Islands. Islands accessible by boat only.
Riding Mountain	Southwestern Manitoba, west of Lake Winnipeg.	1929	1,148.0	Woodland escarpment with fine lakes. Fishing, swimming, trail-riding, hiking and golfing. Visitor services in Wasagaming townsite. Campgrounds.
Prince Albert	Central Saskatchewan, north of Prince Albert.	1927	1,496.0	Forested region dotted with lakes and interlaced with streams. Fishing, swimming, boating and golfing. Marina. Variety of visitor services at Waskesiu townsite.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—continued

Park	Location	Year Established	Area	Characteristics
			sq. miles	
National Parks— concluded				
Banff	Western Alberta, on east slope of Rockies, 65 miles from Calgary.	1885	2,564.0	Best known and most popular of the National Parks. Magnificent scenery. Mineral hot springs. Resort facilities at Banff and Lake Louise. Skiing developments at Mount Norquay, Mount Whitehorn, Sunshine, Skoki and Temple. On Trans-Canada Highway.
Elk Island	Central Alberta, near Edmonton.	1913	75.0	Fenced preserve containing large herd of buffalo; also deer, elk and moose. Popular picnic and day-use area. Cabin accommodation and serviced campground.
Jasper	Western Alberta, on east slope of Rockies, 235 miles from Edmonton.	1907	4,200.0	Mountainous area and noted wildlife sanctuary. Majestic peaks, icefields, beautiful lakes and famous resort, Jasper. Mineral hot springs. Connected with Banff by scenic Banff-Jasper Highway. Accessible also by rail. Hotel and cabin accommodation and campgrounds.
Waterton Lakes	Southern Alberta, adjoining Glacier Park in Montana, U.S.A.	1895	203.0	Canadian section, Waterton-Glacier International Peace Park. Mountainous area with spectacular parks and beautiful lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Glacier	Southeastern British Columbia, on summit of the Selkirk Range.	1886	521.0	Superb alpine region, towering peaks, glaciers and forests. Climbing, hiking and camping. On Trans-Canada Highway. Visitor services at Rogers Pass.
Kootenay	Southeastern British Columbia, on west slope of Rockies.	1920	543.0	Includes Vermilion-Sinclair section of Banff-Windermere Highway. Broad valleys, deep canyons, mineral hot springs. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Mount Revelstoke	Southeastern British Columbia, on west slope of Selkirks.	1914	100.0	Mountain-top plateau with rolling alpine meadow and picturesque tarns. No public access by vehicle to summit pending completion of road reconstruction.
Yoho	Eastern British Columbia, on west slope of Rockies.	1886	507.0	Lofty peaks, magnificent waterfalls, colourful lakes. Yoho and Kicking Horse Valleys. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Wood Buffalo[1]	Partly in Alberta, and partly in Northwest Territories, between Athabasca and Slave Rivers.	1922	17,300.0	Largest National Park in world. Home of largest remaining herds of plains and wood bison and nesting ground of whooping crane. Accommodation at and access by boat and aircraft from Fort Smith, N.W.T.
National Historic Parks			acres	
Signal Hill	St. John's, Nfld.	1958	243.4	Site of 1762 battle between French and British and of many fortifications. Marconi made first transatlantic wireless transmission here in 1901.
Fort Amherst	Prince Edward Island, near Rocky Point.	[2]	222.0	Remaining earthworks of British fort built after 1758.

For footnotes, see end of table, p. 30.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—continued

Park	Location	Year Established	Area	Characteristics
			acres	
National Historic Parks—concluded				
Fort Anne	Annapolis Royal, N.S.	1917	31.0	Site of French fort first built about 1635, finally captured and occupied by British in 1710. Museum and well-preserved earthworks.
Fortress of Louisbourg	Cape Breton Island, N.S., 25 miles from Sydney.	1940	13,000.0	Walled town built by French 1713-58 and demolished by British 1759. Being partially reconstructed. Archaeological investigations in progress.
Halifax Citadel	Halifax, N.S.	1951	20.0	Fortress constructed in 1820's and in 1850's. Museum.
Port Royal	Port Royal, N.S., 8 miles from Annapolis Royal.	1940	20.5	Reconstruction of "Habitation"—first fort built in 1605 by Champlain and DeMonts.
Alexander Graham Bell	Baddeck, N.S.	[2]	14.0	Museum containing mechanical and documentary records of research by the inventor.
Grand Pré	Grand Pré, N.S.	1957	20.0	Commemorates the story of the Acadians and the New England Planters. Museum.
Fort Beauséjour	New Brunswick, near Sackville.	1926	81.3	Site of French fort erected in mid-1700's. Museum.
Fort Chambly	Chambly, Que.	1940	2.5	Fort built by English in 1709-11. Museum.
Fort Lennox	Île aux Noix, Que., near St. Paul.	1940	210.0	Fort built by English in 1820's.
Fort Malden	Amherstburg, Ont.	1940	5.0	Site of defence post built in 1797-99. Museums.
Fort Wellington	Prescott, Ont.	1940	8.5	Military garrison 1812-66.
Woodside	Kitchener, Ont.	1954	12.0	Boyhood home of the Rt. Hon. William Lyon Mackenzie King, former Prime Minister of Canada.
Fort Prince of Wales	Northern Manitoba, near Churchill.	1940	50.0	Ruins of fort built 1733-71 to secure control of Hudson Bay for England.
Lower Fort Garry	Manitoba, 20 miles north of Winnipeg.	1951	13.0	Stone-walled fort built by the Hudson's Bay Company between 1831 and 1839.
Fort Battleford	Saskatchewan, 4 miles south of North Battleford.	1951	36.7	North West Mounted Police post built in 1876. Museum.
Fort Langley	Fort Langley, B.C.	[2]	11.0	Partially restored trading post founded 1827. Colony of British Columbia proclaimed here 1858.
Fort Rodd Hill	Esquimalt, B.C.	1962	44.4	Extensive 19th century stone and concrete coastal fortifications.
Major National Historic Sites				
George Island	Halifax, N.S.	[2]	--	Preserved harbour fortifications built in 1870's.
Fort Gaspereau	Near Port Elgin, N.B.	[2]	20.0	Site of 1751 French fort.
Sir Wilfrid Laurier's Birthplace.	St. Lin, Que.	1941	0.5	Period restoration relating to early life of a famous Prime Minister.

For footnote, see end of table, p. 30.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—concluded

Park	Location	Year Established	Area	Characteristics
			acres	
Major National Historic Sites—concluded				
Cartier-Brébeuf Park	Quebec, Que.	[2]	5.0	Park, possible wintering site of Jacques Cartier, 1535-36.
Old walls around City of Quebec.	Quebec, Que.	..	...	Former Quebec City fortifications.
Fort Coteau	Coteau du Lac, Que.	[2]	--	Site of fort built in 1779.
Fort St. Joseph	St. Joseph's Island near Sault Ste. Marie, Ont.	[2]	47.0	Most westerly British fort, built in 1796.
Batoche Rectory	Near Duck Lake, Sask.	1954	1.25	On field of final battle of Northwest Rebellion, 1885. Only surviving building of that date.
Fish Creek Memorial Park.	Near Rosthern, Sask.	..	..	Commemorates Northwest Rebellion battle of 1885.
Palace Grand Theatre	Dawson, Y.T.	[2]	--	Reconstruction of theatre of Gold Rush days.
S. S. *Keno*	Dawson, Y.T.	[2]	--	Preserved Yukon riverboat.
Yukon Sternwheelers	Whitehorse, Y.T.	[2]	--	Three preserved riverboats of late 1930 period.

[1] Administered by the Northern Administration Branch, Department of Northern Affairs and National Resources. [2] Not yet formally established.

Evidence of the increasing attraction of Canada's National Parks and National Historic Parks and Sites is the growing numbers of visitors as shown in Table 3.

3.—Visitors to National Parks and National Historic Parks and Sites, Years Ended Mar. 31, 1961-64

Park	1961	1962	1963	1964
	No.	No.	No.	No.
National Parks				
Terra Nova	20,000	29,710	29,915	55,926
Prince Edward Island	412,463	775,583	1,009,021	1,019,104
Cape Breton Highlands	323,392	371,686	451,911	615,133
Fundy	227,262	280,006	302,340	494,157
Georgian Bay Islands	19,657	14,230	19,126	18,052
Point Pelee	545,545	485,637	667,554	780,795
St. Lawrence Islands	61,522	86,150	75,239	77,368
Riding Mountain	629,140	642,931	654,251	693,316
Prince Albert	137,801	140,650	137,484	137,494
Banff	1,078,008	1,069,623	1,374,576	1,650,257
Elk Island	198,277	183,263	176,040	207,914
Jasper	356,538	346,493	392,987	468,579
Waterton Lakes	349,496	420,865	444,752	441,803
Glacier	287	10,213	345,961	752,512
Kootenay	467,555	470,562	541,485	567,291
Mount Revelstoke	38,634	64,901	428,572	768,417
Yoho	65,071	99,160	375,189	678,739
Wood Buffalo	..	..	..	..
Totals, National Parks	**4,930,648**	**5,491,663**	**7,426,403**	**9,426,857**

3.—Visitors to National Parks and National Historic Parks and Sites, Years Ended Mar. 31, 1961-64—concluded

Park	1961	1962	1963	1964
	No.	No.	No.	No.
National Historic Parks				
Signal Hill	112,054	137,600	238,538	195,208
Fort Amherst	893	1,452	1,764	3,851
Fort Anne	57,140	69,646	83,103	77,201
Fortress of Louisbourg	23,915	30,036	32,347	40,153
Halifax Citadel	204,677	229,677	243,609	192,286
Port Royal	19,842	20,922	31,579	35,947
Alexander Graham Bell	59,784	73,682	79,659	91,392
Grand Pré	34,361	47,392	47,871	63,395
Fort Beauséjour	31,719	43,543	51,454	43,346
Fort Chambly	68,738	62,533	71,053	85,569
Fort Lennox	30,725	32,890	24,959	27,943
Fort Malden	41,558	37,334	42,254	41,023
Fort Wellington	35,449	38,685	46,666	51,530
Woodside	5,170	7,797	10,738	12,564
Fort Prince of Wales	1,251	414	362	256
Lower Fort Garry	42,787	50,234	59,544	85,391
Fort Battleford	28,992	27,511	30,895	34,807
Fort Langley	91,627	104,961	98,560	105,139
Fort Rodd Hill	...	...	42,533	39,759
Totals, National Historic Parks	**890,682**	**1,016,309**	**1,237,488**	**1,226,760**
National Historic Sites[1]				
Sir Wilfrid Laurier's Birthplace	7,634	7,668	8,186	7,592
Batoche Rectory	5,896	15,641	15,350	7,069
Totals, National Historic Sites	**13,530**	**23,309**	**23,536**	**14,661**
Grand Totals	**5,834,860**	**6,531,281**	**8,687,427**	**10,668,278**

[1] Sites for which visitor data are available.

Subsection 2.—Provincial Parks

Most of the provincial governments of Canada have established parks within their boundaries. Some of these, particularly in Quebec and Ontario, are wilderness areas set aside in order that some portions of the country might be retained in their natural state without change brought about by the hand of man. Most of them, however, are smaller areas of exceptional scenic or other interest which are easily accessible and are equipped or slated for future development as recreational parks with camping and picnic facilities. The more important parks in each province are mentioned briefly in the following paragraphs.

Newfoundland.—There are 78.5 sq. miles of provincial parkland reservations in Newfoundland. Of this area, 26 sq. miles are at present being utilized for public recreation; the remaining 52.5 sq. miles are as yet undeveloped. The active provincial parks consist of three regional parks, each having an average area of 8 sq. miles and 18 roadside parks with camping and picnicking facilities, each comprising an area of approximately 100 acres.

Prince Edward Island.—Eighteen areas totalling 250 acres have been developed as provincial parks: Strathgartney Park, a 40-acre tract of land at Churchill on the Trans-Canada Highway between Charlottetown and Borden, is an excellent picnic site and camping ground with its hardwood groves, fresh spring water and beautiful view over West River and the surrounding country; Lord Selkirk Park, an area of 30 acres at Eldon, is of historic interest in that it contains an old French cemetery and marks the spot on the

shoreline where Lord Selkirk landed; Brudenell River Park, comprising 80 acres at Roseneath, has a considerable area of woodland and runs to the shore of the Brudenell River; Jacques Cartier Park, an area of 13 acres under development at Kildare Beach four miles from Alberton, is of historic significance as the place where Jacques Cartier first landed on Prince Edward Island; Green Park, 27 acres of land under development on the Trout River, is an attractive combination of land, trees and water and is also of interest as a historic shipbuilding centre. Several small parks have been developed or are under development. The parks are maintained by the Department of Industry and Natural Resources. A fee of $1 a night is charged for trailer space and of 75 cents a night for tent space in all provincial parks.

Nova Scotia.—A master plan has been prepared of theoretically desirable park locations in Nova Scotia, taking into consideration the need for roadside facilities, regional picnic parks and camping grounds. Geographic location, population density, volume of traffic and aesthetic features are being evaluated for each site. Roadside table sites, formerly administered by the Department of Highways, are being incorporated into this provincial scheme and will be operated according to provincial park standards. Many of the existing sites will be retained and improved, some will be retained on a temporary basis only and unsuitable sites will be discontinued. The provincial parks program will require about ten years of development work for completion.

In 1964, the Department of Lands and Forests will operate nine camping and picnic parks, 24 picnic parks and 32 roadside table sites located throughout the province.

New Brunswick.—The Department of Lands and Mines is responsible for the development of the Provincial Parks System, which includes 15 regional park sites ranging in size from 25 to 200 acres, 17 picnic campsites and 23 roadside picnic sites. All picnic and camping grounds contain tables, some form of toilet facility and a potable water supply but more elaborate facilities are available in the larger parks. Many of the regional park sites are associated with beach developments. Most sites are adjacent to or easily accessible from main trunk roads. No entrance fee is charged at any of the sites, but a daily camping fee of 75 cents to $1.50 is in effect at 11 of the larger parks.

The Department maintains a Game Farm at Magnetic Hill near Moncton where various species of wildlife to be found in the province are displayed.

Quebec.—The Province of Quebec has established six provincial parks and 16 fish and game reserves. Four of the park areas are quite extensive. La Vérendrye Park, 140 miles northwest of Montreal, has an area of 4,953 sq. miles; Laurentide Park, 30 miles north of Quebec City, is 3,613 sq. miles in extent; Mont Tremblant Park, 80 miles north of Montreal, 1,223 sq. miles; and Gaspesian Park, in the Gaspe Peninsula, 514 sq. miles. Mont Orford Park, situated 15 miles west of Sherbrooke, has an area of 16 sq. miles and Oka Provincial Park near Oka, 1.5 sq. miles.

Fish and Game Reserves together occupy 41,166 sq. miles.* The Chibougamau Reserve, the Mistassini Reserve and the Assinica Reserve, all northwest of Lake St. John, have areas of 3,400, 5,200 and 3,850 sq. miles, respectively, and farther north is the James Bay Reserve with an area of 25,000 sq. miles. The Aiguebelle Reserve in Abitibi County has an area of 100 sq. miles, the Baie Comeau and Chicoutimi Reserves in the Lake St. John area, 480 and 678 sq. miles, respectively, and the Kipawa Reserve in Témiscamingue County, 1,000 sq. miles. Adjoining Gaspesian Park in the Gaspe Peninsula, the Chic-Chocs, Matane and Joffre Reserves have, respectively, 325, 450 and 40 sq. miles. Also in Gaspe Peninsula are the Port Daniel, Rivière St. Jean and Rivière Petite Cascapédia Reserves for salmon and trout fishing, occupying 20, 13 and 300 sq. miles, respectively. Horton Reserve in Rimouski County has an area of 310 sq. miles.

* Excluded are the 16,000 sq. miles of the Mingan Reserve, no longer operated by the Department of Tourism, Game and Fish as a reserve.

These parks and reserves are wilderness areas of great scenic interest and are for the most part mountainous country threaded with many rivers, lakes and streams and abounding in wildlife. In all of them, except Mont Orford Park and Oka Provincial Park, excellent fishing may be found and most of them have been organized to accommodate sportsmen and tourists in camps, cottages and lodges. Mont Tremblant Park, located close to a famous year-round recreational area, is easily reached in summer by highway from Montreal and is very popular for tent or trailer camping and for swimming and picnicking. Mont Orford has an 18-hole golf course and, in winter, is the rendezvous of Canadian and United States skiers and the site of the Canadian Alpine downhill and slalom championship competitions. Hunting is forbidden in the parks and reserves, except Horton, Joffre, Kipawa and James Bay; in the latter only moose are protected.

Ontario.—The development of provincial park lands in Ontario continues at a rapid rate. Ten years ago there were 10 provincial parks in the province and today there are 86 such parks available for public use. Several new parks are in process of development and 47 other areas are reserved for future development. The total area in the Ontario Provincial Parks system is about 5,500 sq. miles.

The four largest provincial parks—Algonquin, Quetico, Lake Superior and Sibley—together have an area of about 5,200 sq. miles. Algonquin, 180 miles north of Toronto and 105 miles west of Ottawa, has several campgrounds which are accessible by car from Highway 60 and its numerous waterways may be traversed and enjoyed by canoe. Quetico Park is accessible by road at the Dawson Trail Campground on French Lake, and also by water via Basswood Lake in the south. Highway 17 north from Sault Ste. Marie provides access to Lake Superior Park, and Sibley Park may be reached by road from Highway 17 east from Port Arthur. Under the Wilderness Areas Act, which came into effect in 1959, 37 areas have been established. These tracts of land, widely distributed across the province, vary in size, character and significance but all are regarded as important for their historic, scientific, aesthetic or cultural values. The largest is a 225-sq. mile area of treeless tundra in the northeastern tip of the province, jutting out at the base of Hudson Bay where it meets James Bay. All the other areas are small and none exceeds 640 acres.

Ontario's vast lakeland areas make this province a vacation paradise and the number of park visitors increases year by year. Attendance reached an all-time high of 8,526,443 in 1963; 2,372,223 motor vehicles entered the parks and campers numbered 840,000. There are small charges made for entry of automobiles and overnight camping. At supervised campsites for tents and trailers, picnic tables, fireplaces, tested drinking water and washrooms are provided. Campsites, which are being added to at the rate of 500 to 2,000 a year, numbered 14,500 across the province in 1963 and in that year about 300,000 permits were issued for the use of them. Adding to the visitor's stay in provincial parks are the Naturalist Service and Interpretative Programmes which include nature museums, outdoor exhibits, conducted trips, illustrated talks and labelled nature trails. Interpretative programs were conducted at eleven parks in 1963.

The park lands of Ontario are administered by the Parks Branch of the Department of Lands and Forests, Parliament Buildings, Toronto, from which detailed information in booklet form is available.

Manitoba.—In Manitoba there are six provincial parks totalling 2,742 sq. miles in area. Of this park area, 1,855 sq. miles are also within forest reserves so that forest reserve and provincial park lands are in many cases one and the same. In addition, there are 40 established provincial recreation areas ranging in size from 2½ acres to 2,000 acres and having a total area of 7.5 sq. miles, as well as 78 roadside parks along the main highways of the province. The park and recreation areas are administered by the Parks Branch of the Department of Mines and Natural Resources; the forest reserves are operated and managed by the Forest Management Branch and are protected by the Forest Protection Branch of the same Department.

Saskatchewan.—Saskatchewan has 14 provincial parks with a total area of 2,284 sq. miles. Cypress Hills, Duck Mountain, Greenwater Lake and Moose Mountain are operated as summer resorts with chalet, lodge, cabin and trailer accommodation as well as camp and picnic facilities. The other parks have trailer sites and camping, picnicking, boating and swimming facilities. Recreational activities include fishing, boating, swimming, golf, tennis, dancing, baseball, hiking, nature study, horseback riding, etc., and the parks are all well fitted with playground and beach equipment for children. In Cypress Hills Park, elk, antelope, deer, sharp-tailed grouse and beaver are plentiful and brook and other trout have been stocked in streams and lakes. Heavy stands of tall straight lodgepole pine and white spruce provide a unique forest cover in this area. In Duck Mountain, Moose Mountain and Greenwater Lake Parks, moose, elk, deer, bear and beaver are common, as well as several varieties of grouse and many species of water and smaller land birds. Spruce, poplar and white birch provide excellent cover for wildlife. Pickerel, pike and perch are prevalent in most of the lakes. Lake trout are ardently sought by fishermen in the northern lakes. Three wilderness parks—LaRonge, Nipawin and Meadow Lake—offer wilderness-style canoe routes and 'fly-in' commercially operated fishing and hunting camps. Many roadside picnic grounds are located throughout the province and several excellent Trans-Canada Highway campsites are being developed or are in use.

Sites of historic interest are marked throughout the province and include the Touchwood Hills Hudson's Bay Post, where picnic facilities are available.

Alberta.—In Alberta, 42 provincial parks have been established, with a total area of approximately 140 sq. miles and, of these, 38 are under development. Cypress Hills Provincial Park with an area of 77 sq. miles is the largest and is situated in the southeast portion of the province. Other parks under development are: Aspen Beach, Beauvais Lake, Big Hill Springs, Big Knife, Bow Valley, Bragg Creek, Crimson Lake, Cross Lake, Dillberry Lake, Dinosaur, Entrance, Garner Lake, Gooseberry Lake, Hommy, Kinbrook Island, Lac Cardinal, Little Bow, Little Fish Lake, Long Lake, Ma-Me-O Beach, Miquelon Lake, Moonshine Lake, O'Brien, Park Lake, Pembina River, Red Lodge, Rochon Sands, Saskatoon Island, Taber, Thunder Lake, The Vermilion, Wabamun Lake, Williamson, Willow Creek, Winagami Lake, Woolford and Writing-on-Stone. These parks are generally provided with picnic, camping and playground facilities and are maintained by the Department of Lands and Forests primarily for the recreation and enjoyment of the residents of the province. There is a park within easy reach of almost every town. The most northerly park is Lac Cardinal, about 28 miles southwest of Peace River, and the southernmost park is Writing-on-Stone which adjoins the Alberta–Montana border. Alberta's provincial parks were visited by 2,500,000 tourists and vacationists in 1963.

In addition to the recreational parks, 18 sites have been established to mark and preserve locations of historic interest. They include: Athabasca Landing, Buckingham House, Coronation Boundary Marker, Early Man Site, Fort DeL'Isle, Fort George, Fort Vermilion, Fort Victoria, Fort White Earth, Frog Lake Massacre, Hay Lakes Telegraph Station, Massacre Butte, Ribstones, Standoff, Stephansson, Twelve Foot Davis, Shaw Woolen Mill and Rev. George McDougall's Death Site.

Provided also for Albertans are the Wilderness Provincial Park, which adjoins Jasper National Park in the north and extends along the British Columbia border, and two wilderness areas established under the Forest Reserves Act in 1961. The Wilderness Provincial Park has an area of 2,149 sq. miles, Siffleur Wilderness 159 sq. miles and White Goat Wilderness 489 sq. miles. These areas have been set aside to preserve as far as possible the natural scene and are not subject to any development or provided with roads.

British Columbia.—There are 216 (170 developed) provincial parks in British Columbia with a total area of about 9,981 sq. miles. These parks are classified as A, B and C. Class A parks are reserved solely for recreational purposes; some are highly developed and others are wilderness areas. Class B parks are set aside primarily for recreation, but regulations permit other natural resource use where this is not in conflict

with recreation. Class C parks are administered in detail by a Parks Board of local citizens, under the over-all jurisdiction of the Minister of the Department of Recreation and Conservation. British Columbia parks are in many stages of development and dedicated to a variety of recreational uses. There are immense wilderness areas such as Tweedsmuir Park and Wells Gray Park. Outstanding scenic and mountain reserves include Garibaldi, Mount Robson, Manning and Bowron Lakes Parks. The formal gardens of Peace Arch Park are a monument to the goodwill between Canada and the United States. Vancouver Island has a chain of small forested parks that have achieved tremendous popularity with tourists—the best known are Little Qualicum Falls, Miracle Beach and Goldstream. The famous gold town of Barkerville has been restored to become the first Provincial Historic Park. Six marine parks with mooring facilities and campsites have been developed on the islands of the Straits of Georgia for the benefit of water-borne vacationists. The popularity of the province's parks, with their integrated campsites and picnic areas, is attested by the fact that about 4,000,000 persons visited them during 1963; about one quarter of the visitors were campers and the remainder day visitors. Records show that Mount Seymour, Cultus Lake and Alouette Lake Parks were the most popular.

Subsection 3.—Canada's National Capital*

Ottawa, the city selected by Queen Victoria in 1857 to be the seat of government for the Province of Canada in British North America, was designated the National Capital upon Confederation on July 1, 1867. The community had grown out of the military and construction camp that served as headquarters for the building of the Rideau Canal, a project carried out between 1826 and 1832 to establish a safe navigable waterway between Lake Ontario and the Ottawa River. The building of the Canal was the crowning achievement in the life of a distinguished British military engineer, Lieutenant-Colonel John By, R.E., who gave his name to the new settlement inhabited mainly by stone-masons and discharged soldiers. As time passed, Bytown prospered as a timber centre and was incorporated as a town in 1847. Then, on Dec. 18, 1854, the name of Bytown was changed to Ottawa and under that name the community was incorporated as a city on Jan. 1, 1855.

The city, situated in an area of great natural beauty and surrounded by waterways, has remained a self-governing municipality and, although throughout the years the Federal Government co-operated with the municipal authorities in the development of a system of driveways and parks, the city expanded without the benefit of a comprehensive plan. However, in 1950 a Master Plan was presented to the Government of Canada, designed to guide the development of the Capital's urban area over the following half-century and to protect the beauty of the surrounding National Capital Region. This Region originally covered 900 sq. miles but was increased in 1959 to 1,800 sq. miles—half in the Province of Ontario and half in the Province of Quebec. Although the successful implementation of the Plan is dependent upon the co-operation of the cities of Ottawa, Hull and Eastview and of about sixty other autonomous municipalities and the two provincial governments involved, the National Capital Plan is not officially recognized by the Governments of Ontario and Quebec.

The federal agency responsible for the planning of Canada's Capital is the National Capital Commission, created in 1959 to replace the Federal District Commission which, in turn, was the lineal descendant of the Ottawa Improvement Commission. The National Capital Commission, which reports to Parliament through the Minister of Public Works, is composed of twenty members appointed by the Governor in Council and representing each of Canada's ten provinces. It is headed by a chairman and a general manager and has a personnel of over 700, although this number fluctuates because of the seasonal character of a large part of the work involved. Six committees give advice and direction to the Commission: the *Executive Committee* consists of the chairman and vice-chairman of the Commission and three other members appointed by the Commission, one of whom

* Prepared in the Information and Historical Division, National Capital Commission, Ottawa.

is from the Province of Quebec; the *Land Committee*, composed of several experts in land evaluation, advises the Commission on matters of land purchases and property administration; the *Advisory Committee on Design*, comprising prominent Canadian architects, town planners and landscape architects, gives advice on the external appearance of government buildings, locations, site plans and landscape designs; the *Historical Advisory Committee* advises the Commission on matters of preservation, marking and interpretation of buildings and sites having historical significance within the National Capital Region; the *Information Advisory Committee* studies and considers the publicity and public relations activities of the Commission, and carries out an extensive program of historical research and preservation; and the *Gatineau Park Advisory Committee* is concerned with the administration and development of Gatineau Park.

The National Capital Plan, as conceived by the eminent French town planner, the late Jacques Gréber, was dedicated to those who gave their lives for Canada during the Second World War and has since constituted the Commission's planning guide for the Capital of Canada. In accordance with the first proposal of the Master Plan, the principle of "open space" is being applied, a policy beneficial to both residents and visitors. Part of this policy involves the restoration to their natural beauty of the shores of the waterways in and around Ottawa, a program evident in the work of the Commission at Rideau Falls Park opposite the City Hall and in the development of Vincent Massey Park in the heart of the city; the latter is a 75-acre park and playground extension to 50-acre Hog's Back Park at the foot of Hog's Back Falls. The Commission owns 40 miles of riverfront property in the National Capital and makes these attractive areas accessible to the public. On the Quebec side of the Ottawa River the Commission maintains two parks—the historically interesting Brébeuf Park and Jacques Cartier Park, both on the shores of the Ottawa River. There are at present 40 miles of wide landscaped roadways in Ottawa and Hull, and 30 miles of right-of-way have been acquired for future expansion. The Commission cares for the landscaping of 13 municipal parks in Ottawa–Hull, of which Strathcona Park in Sandy Hill district and Rockcliffe Park are the most extensive and attractive. The acquisition of land along both shores of the Ottawa and Rideau Rivers and the exceptionally wide rights-of-way for parkways have given Ottawa about 4,000 acres of open space.

The program of planned location of new government buildings has been under way for some time and excellent examples of planned sites for government structures now exist at Confederation Heights, at Tunney's Pasture and at the Printing Bureau site in Hull. Other areas, such as the large tract of already serviced land at Pinecrest, are awaiting development. The grounds of more than 140 government buildings in the National Capital Region are cared for by the Commission, which also gives assistance to municipal projects that enhance the attractiveness of the area, such as the provision of land and landscaping for the 10-mile Queensway being built under a four-way partnership between the Federal Government, the National Capital Commission, the Province of Ontario and the City of Ottawa.

An important proposal of the Master Plan calls for the establishment of a Greenbelt around the National Capital, one of the main objectives of which is to restrain the tentacular and uneconomical growth of the city. There is also the aesthetic consideration that this belt of green open space and planned building sites will provide the beautified Capital with suitable approaches. The present semicircular Greenbelt on the Ontario side occupies 41,000 acres of land and surrounds, to a depth of about two and one half miles, the urban zone at an average distance of nine miles from the Peace Tower. The Commission encourages agricultural activity within this area and at the same time reserves within its boundaries certain tracts of land to be occupied by government buildings, public institutions and some types of industrial development such as research and experimentation establishments requiring considerable space to operate. There are many other factors that help make the Ottawa Greenbelt an ideal planning measure: it allows some control over the demographic increase of the Capital; it is an incentive for better urban land use; and it favours the development of satellite communities in the National Capital Region.

The Commission has under way the large-scale program advocated in the Master Plan of removing railway trackage and yards from the urban area with the co-operation of the railway companies. The abandoned rights-of-way are destined to become roadways which will relieve traffic bottlenecks within the heart of the city; the Queensway, still under construction, runs on a former railway bed. This program, which is expected to be completed by 1965, involves the removal of 32 miles of track, the elimination of 72 railway crossings and the consequent acquisition of 449 acres of high-value land for redevelopment.

The Master Plan also includes the establishment and development of the beautiful and impressive Gatineau Park, an 80,000-acre forest and lake area in the shape of a triangle stretching from its apex in the city of Hull northwestward for 35 miles into the Laurentian Hills. The National Capital Commission owns more than 63,000 acres of the projected area and the acquisition of private holdings is continuing. The 22 miles of parkway now traversing this area are to be extended deeper into the wilderness. Camping and picnic sites are being improved by the installation of drinking fountains, barbecues and outdoor ovens, and well-designed restrooms, and by the addition of fishing and swimming facilities. At Lac Philippe and Lac Lapêche, two of the four big lakes in Gatineau Park, the Commission has developed or is planning large-scale public recreation facilities with easy road access.

In addition to these major development projects, the National Capital Commission, through its Historical Advisory Committee, plans to conserve and mark historic buildings and sites as mementoes of the past. Such sites are carefully studied and their preservation and suitable identification is an important part of the over-all program.

Planning aid to municipalities in the National Capital Region is given in the form of grants in special circumstances and advice on establishing areas of subdivision control, preparation of basic plans and maps, master plans for communities and zoning legislation. This advice is available upon request and the Commission, having no planning powers, must seek to persuade rather than impose its proposals.

Estimated expenditures for Commission projects in the year ended Mar. 31, 1964 totalled $28,040,000, which included $8,178,000 for administration, operation and maintenance and $19,862,000 for capital projects and assistance to municipalities.

Section 2.—Wildlife Resources and Conservation*

Wildlife in Canada is an important renewable natural resource. In the early days, wildlife was, and in large areas still is, a form of sustenance in the hinterland and trade in fur determined the course of exploration and settlement. During the period of the opening up of the country, a number of mammals and birds became seriously depleted or completely extinct. The passenger pigeon, the great auk and the Labrador duck were extirpated, the buffalo vanished from the prairies, and wapiti, prong horn antelope and muskoxen were reduced to small fractions of their former numbers. The destruction was not limited to birds and mammals but in areas of settlement their habitat was reduced by the cutting and burning of the forests, the diversion and pollution of streams and other changes in the land.

Since then it may be said that wildlife has been changed and influenced by man to the degree that he has changed and influenced the environment for wildlife. The Arctic and alpine tundra, one of Canada's major vegetational regions, has been changed hardly at all; the adjacent sub-arctic and sub-alpine non-commercial forests have been changed principally as a result of increased human travel causing more forest fires; the great forest farther south has not lost its real character through being managed for commercial use; cultivable lands, whether originally forest or grassland, have completely changed, but often they and the managed forest are better for many forms of wildlife than the original

* A series of special articles relating to the wildlife resources of Canada has been carried in previous editions of the Year Book. See the list of special articles in Chapter XXVIII, Part II, under the heading of "Fauna and Flora".

wilderness. Some creatures thrive on change. There are more moose, deer, ruffed grouse and probably more coyotes than in Indian days. Fur species, such as beaver and muskrat, are easily managed and many small mammals and birds thrive better in fields and woodlots than in the virgin forests, provided that they are not poisoned by pesticides. At the present time, the harvestable surplus of game and fur species across Canada is seldom fully utilized and it is quite clear that wildlife will remain abundant wherever there is suitable habitat and enlightened management.

Thus, Canada today is known throughout the world for the wealth and variety of its wildlife. It maintains most or all the existing stocks of woodland caribou, mountain sheep, wolves, grizzly bears and wolverines, to mention a few. And these animals exist not only because of the vastness of their habitat but also because of man's efforts to preserve them. There is evidence of concern about the preservation of wildlife by the early Canadians; there were game laws in force in the original provinces when all but a few thousand acres of land were still the patrimony of the Indians. In 1885 pioneer conservationists were instrumental in establishing Banff Park in Alberta and in 1887 a bird sanctuary, the first on the Continent, was established at Last Mountain Lake in Saskatchewan. The same fervour for preservation of Canada's wildlife heritage led to the complete protection of wood bison in 1893 and to the purchase and establishment of a nucleus herd of plains bison at Wainwright in Alberta in 1907. Thus was formed the basis of wildlife conservation efforts, which, for a long time, took the form of protection of certain species from destruction by man or predator. Better knowledge of nature's operations and the recognition of the fact that many other factors combine to cause fluctuation in wildlife numbers are now being reflected in a loosening of restrictions on hunting and a rescinding of preserves. The science of animal numbers is new and sometimes runs counter to popular prejudice. But it is well understood that any area will support only so many animals, and species that are highly productive must have a quick turnover. Wildlife must never be separated from the consideration of its environment and if the environment is fully stocked the annual increment need only replace the losses. All extra is surplus, only part of which is taken by predators and part, if the animal is a game species, by man.

As a natural resource, wildlife within the provinces comes under the administration of the respective provincial governments; wildlife on federal lands and certain problems of national or international interest are the concern of the Federal Government.

The Canadian Wildlife Service.—The Canadian Wildlife Service deals with most wildlife problems coming within the jurisdiction of the Federal Government. It was organized in 1947 to meet the growing need for scientific research in wildlife management and is a division of the National Parks Branch of the Department of Northern Affairs and National Resources. The Service conducts scientific research into wildlife problems in the Northwest Territories, Yukon Territory and the National Parks, advises the administrative agencies concerned on wildlife management, and co-operates in the application of such advice. It administers the Migratory Birds Convention Act, provides co-ordination and advice in connection with the administration of the Game Export Act in the provinces, deals with national and international problems relating to wildlife resources, and co-operates with other agencies having similar interests and problems in Canada and elsewhere.

The Migratory Birds Convention Act was passed in 1917 to give effect to the Migratory Birds Treaty signed at Washington in 1916. It provides a measure of protection for numerous species of birds that migrate between the two countries. The Canadian Wildlife Service, in its capacity as administrator of the Act, is responsible for recommending the annual revision of the Migratory Bird Regulations, which govern such matters as open

seasons and other waterfowl hunting details, taking and possessing migratory birds for scientific or propagating purposes, eiderdown collecting, etc. The Act and Regulations thereunder are enforced by the Royal Canadian Mounted Police and in both administration and enforcement co-operation is received from provincial authorities. There are 106 migratory bird sanctuaries in Canada, having a total area of 39,687 sq. miles. A sanctuary may be established on the initiative of the Department of Northern Affairs and National Resources or of a provincial or municipal government, or on petition by a private person or organization. Bird banding provides valuable information on the migration of birds and their natural history and is especially useful in waterfowl management. Serially numbered bands supplied by the United States Bureau of Sport Fisheries and Wildlife are used in Canada as well as in the United States.

Many research projects under way were continued during 1963. These included the study, in co-operation with the governments of Manitoba and Saskatchewan and the Council of the Northwest Territories, of barren-ground caribou and of wolves that prey upon caribou. Human utilization is still the most important factor in herd reduction but other significant factors include effects of forest fires on winter range, predation, accidents and poor calf survival. Studies were continued on mink, muskrat and beaver in the Mackenzie District, and of polar bear and white fox in Keewatin and Franklin Districts. Big game mammals in the National Parks were also the object of continued study, special attention being given to mountain sheep and wapiti in the mountain parks of Alberta where large populations of those species facilitate investigations, and to the competition for food between wapiti and the livestock still allowed to graze in Riding Mountain Park in Manitoba. In Wood Buffalo Park, investigations into the problems of disease and low reproductive rates among bison were continued as a long-term project in the hope that some control of each might be achieved. A second outbreak of anthrax in bison outside the Park was dealt with and studies were initiated on the epizootology of the disease.

Damage to cereal crops by wild ducks and sandhill cranes continued to receive intensive study and much time was devoted to other species greatly reduced in number or in danger of extinction, such as the Ross' goose, trumpeter swan and whooping crane. Nation-wide investigations of migratory waterfowl included kill surveys conducted in Prince Edward Island, New Brunswick, Quebec and Ontario and a crop-damage survey in Saskatchewan. Arctic bird-banding programs were continued.

At the end of 1963 the research staff included 44 wildlife biologists stationed at various centres throughout Canada. Ornithologists were located at Vancouver, B.C., Edmonton, Alta., Saskatoon, Sask., Winnipeg, Man., Ottawa and Aurora, Ont., Quebec, Que., Sackville, N.B., and St. John's, Nfld. Mammalogists were stationed in the Northwest Territories at Fort Smith and Inuvik, at Whitehorse in the Yukon Territory, and at Edmonton, Sackville and Ottawa. A limnologist was located at Jasper and a range specialist and two pathologists at Edmonton and Ottawa, respectively. A number of university graduates and undergraduates are engaged annually to assist in summer field work. Ottawa headquarters has an administrative staff of about 30 in addition to supervisory research officers, and about 25 part-time migratory bird wardens and sanctuary caretakers are employed.

Provincial Government Wildlife Conservation Measures.—As stated previously, each province has jurisdiction over its own wildlife resources. The measures adopted by the respective provincial governments to conserve these resources are outlined in the 1963-64 Year Book at pp. 46-52. The conservation of wild fur-bearing animals in the different provinces is discussed in the Fisheries and Furs Chapter, Part II, and information on provincial conservation of fisheries resources is given in Part I of the same Chapter, together with data relating to the work of the Fisheries Research Board of Canada and to international fisheries conservation (see Index).

PART III.—CLIMATE AND TIME ZONES

Section 1.—Climate*

Just as there are great differences in the weather throughout Canada at any given instant, there are also many climates. These climates are not unique but are similar to those in Europe and Asia extending from the Arctic down to the mid-northern hemispheric latitudes. Because Canada is situated in the northern half of the hemisphere, most of the country loses more heat annually than it receives from the sun. The general atmospheric circulation compensates for this and at the same time produces a general movement of air from west to east. Migrant low pressure areas move across the country in this "westerly zone", producing storms and bad weather. In intervals between storms there prevails the fair weather associated with high pressure areas.

Although the movement of migrant high and low pressure systems within the zone of the westerlies is the most significant climatic control over Canada, the physical geography of North America contributes greatly to the climate. On the West Coast, the western Cordillera limits mild air from the Pacific to a narrow band along the coast, while the prairies to the east of the mountains are dry and have extreme temperatures because they are shielded from the Pacific Ocean and are in the interior of a large land mass. In addition, the prairies are part of a wide north-south corridor open to rapid air flow from either north or south which often brings sudden and drastic weather changes to this interior area. On the other hand, the large water surfaces of Eastern Canada produce a considerable modification to the climate. In southwestern Ontario winters are milder with more snow, and in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. On the East Coast, the Atlantic Ocean has considerable effect on the immediate coastal area where temperatures are modified and conditions made more humid when the winds blow inland from the ocean.

The following table gives temperature and precipitation data for typical stations in the various regions of Canada. Temperatures in this table refer to observations taken in a thermometer shelter which has been placed in a representative location with the thermometer bulbs four feet above the surface of the ground. Mean January and July temperature data are based on records over the 30-year period from 1921 to 1950 except for far northern stations where the available period of record is shorter. After an average temperature is obtained for each day in January over a 30-year period, the mean January temperature may be arrived at by striking a mean of these 930 daily values. The mean July temperatures may be obtained in a similar manner. The highest and lowest temperatures on record refer to the absolute extremes for the entire period of record at each station. Average dates are shown for the last occurrence in spring of a temperature of 32°F. or lower and for the first occurrence in autumn of freezing temperatures at the four-foot level in the thermometer shelter.

The official Canadian rain gauge is a small cylinder in which the rain is caught and then measured to one hundredth of an inch with a simple measuring device. Freshly fallen snow is measured as it lies on the ground and recorded to the tenth of an inch. Total precipitation values as shown in the table are the sum of the total rainfall and one tenth of the total snowfall. For the purposes of this table, a day with precipitation is one on which at least one hundredth of an inch of rain or one tenth of an inch of snow has fallen.

* Prepared by the Meteorological Branch of the Department of Transport, Toronto. A comprehensive study on The Climate of Canada, also prepared by the Meteorological Branch, was carried in the 1959 Year Book, pp. 23-51. Supplementing that textual material, detailed tabulations of climatic factors for 45 individual meteorological stations across the country were carried in the 1960 Year Book, pp. 33-77. A reprint is available from the above source giving the complete textual and tabular data. A very brief outline of the climate of Canada by region is given in the 1962 edition, pp. 39-40.

Temperature and Precipitation Data for Typical Stations in the Various Districts

District and Station	Temperatures (Fahrenheit)						Precipitation		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F. or Lower)		Total (All Forms)[1]	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
Newfoundland—									
Island of Newfoundland—									
Belle Isle	11.0	48.6	73	—31	June 19	Sept. 24	33.19	98.8	152
Gander	18.6	61.6	96	—15	June 1	Oct. 3	39.50	119.2	194
St. Andrew's	22.9	59.7	81	—11	June 11	Sept. 28	42.47	54.8	156
St. John's	24.0	60.0	93	—21	June 2	Oct. 10	53.09	114.1	201
Labrador—									
Cartwright	4.2	55.2	97	—36	June 26	Sept. 9	40.31	200.6	165
Goose	0.8	60.5	100	—38	June 10	Sept. 14	28.66	140.9	164
Nain	—2.5	50.4	91	—37	July 3	Aug. 12	29.56	128.2	121
Maritime Provinces—									
Prince Edward Island—									
Charlottetown	18.8	66.6	98	—27	May 16	Oct. 14	43.13	112.7	156
Nova Scotia—									
Annapolis Royal	24.4	65.3	91	—13	May 20	Oct. 6	41.35	68.0	144
Halifax	24.4	65.0	99	—21	May 13	Oct. 12	54.26	64.1	159
Sydney	22.7	65.0	98	—25	May 29	Oct. 13	50.61	96.6	169
Yarmouth	27.0	61.6	86	—12	May 7	Oct. 14	47.08	83.1	151
New Brunswick—									
Chatham	12.7	66.5	102	—43	May 21	Sept. 28	36.71	88.5	152
Grand Falls	8.7	64.7	98	—46	May 28	Sept. 20	38.42	106.3	101
Moncton	16.1	65.8	99	—33	June 1	Sept. 14	40.97	108.4	130
Saint John	19.8	61.8	93	—22	May 4	Oct. 16	47.39	80.0	170
Quebec—									
Northern—									
Fort Chimo	—13.0	52.6	90	—51	June 25	Aug. 14	16.37	68.8	157
Knob Lake	—11.9	55.1	88	—59	June 21	Aug. 30	27.55	128.6	193
Nitchequon	—12.6	55.9	90	—57	June 14	Sept. 13	30.88	116.3	193
Port Harrison	—14.8	46.8	86	—57	July 5	Aug. 20	14.64	73.3	134
Southern—									
Bagotville	2.9	63.8	96	—46	June 1	Sept. 16	38.72	130.3	160
Father Point	10.8	58.4	90	—32	May 22	Sept. 26	33.56	108.0	147
Montreal	15.4	70.4	97	—29	Apr. 28	Oct. 17	41.80	100.8	160
Quebec	12.0	67.6	97	—34	May 11	Oct. 5	44.76	123.7	171
Sept Iles	3.2	59.2	90	—46	June 4	Sept. 10	41.94	165.5	149
Sherbrooke	14.8	67.8	98	—42	May 18	Sept. 23	38.93	97.2	176
Ontario—									
Northern—									
Kapuskasing	—1.3	62.8	101	—53	June 14	Sept. 5	27.99	95.8	142
Port Arthur-Fort William	7.6	63.4	104	—42	June 4	Sept. 7	31.62	93.4	137
Sioux Lookout	—1.3	65.0	103	—51	June 1	Sept. 15	27.45	74.5	157
Trout Lake	—11.9	61.2	95	—54	June 16	Sept. 15	24.74	85.1	146
Southern—									
London	22.5	69.6	106	—27	May 16	Oct. 1	38.24	78.0	160
Ottawa	12.0	68.6	102	—38	May 11	Sept. 29	34.89	80.5	145
Parry Sound	16.2	67.8	100	—39	May 15	Oct. 2	37.87	118.2	162
Toronto	24.5	70.8	105	—26	May 3	Oct. 15	30.93	54.6	143
Windsor	24.5	73.0	101	—27	Apr. 29	Oct. 15	33.43	35.8	139
Prairie Provinces—									
Manitoba—									
Churchill	—17.3	54.7	96	—57	June 28	Aug. 30	15.01	55.2	102
The Pas	—6.2	64.9	100	—54	May 30	Sept. 9	16.98	53.2	102
Winnipeg	0.6	68.4	108	—54	May 27	Sept. 15	19.72	49.4	119

[1] Total rainfall and one tenth of the total snowfall.

Temperature and Precipitation Data for Typical Stations in the Various Districts—concluded

District and Station	Temperatures (Fahrenheit)						Precipitation		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F. or Lower)		Total (All Forms)[1]	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
Prairie Provinces—concl.									
Saskatchewan—									
Regina	2.3	66.6	110	—56	June 5	Sept. 6	15.09	40.1	113
Saskatoon	0.8	66.4	104	—55	May 24	Sept. 13	14.15	34.4	104
Swift Current	9.8	67.2	107	—54	May 27	Sept. 10	14.89	40.2	112
Alberta—									
Beaverlodge	9.7	60.2	98	—54	May 30	Sept. 1	17.32	68.2	127
Calgary	15.8	62.4	97	—49	June 3	Sept. 3	17.47	57.0	105
Edmonton	7.7	62.9	99	—57	May 29	Sept. 6	17.63	52.9	126
Medicine Hat	13.7	70.2	108	—51	May 15	Sept. 18	13.55	41.6	98
British Columbia—									
Pacific Coast and Coastal Valleys—									
Estevan Point	40.4	56.3	80	7	Apr. 3	Nov. 12	107.66	10.2	203
Langara	37.3	54.2	78	6	Apr. 2	Dec. 2	67.79	20.8	255
Prince Rupert	35.7	56.2	88	—6	Apr. 19	Nov. 3	94.00	32.1	229
Vancouver	37.6	64.4	92	2	Apr. 1	Nov. 5	56.83	24.5	179
Victoria	39.2	60.0	95	—2	Feb. 28	Dec. 7	26.18	10.1	149
Southern Interior—									
Glacier	13.6	57.9	98	—32	June 10	Sept. 8	52.24	342.5	192
Invermere	13.3	63.1	99	—43	May 27	Sept. 12	11.52	30.2	92
Kamloops	22.3	70.4	107	—37	Apr. 25	Oct. 8	10.14	29.4	83
Penticton	26.7	68.7	105	—16	May 7	Oct. 3	11.50	25.4	109
Princeton	17.1	63.1	107	—49	June 11	Sept. 4	13.30	49.2	105
Central Interior—									
Barkerville	16.0	54.5	96	—52	June 25	Aug. 16	43.83	220.4	187
McBride	17.2	59.2	100	—50	June 18	Aug. 23	19.73	74.2	125
Prince George	14.6	59.6	102	—58	June 17	Aug. 24	22.16	66.5	166
Smithers	15.7	58.8	92	—47	June 22	Aug. 11	19.09	67.1	147
Northern Interior—									
Atlin	4.6	53.8	87	—54	June 11	Sept. 4	11.01	46.4	70
Dease Lake	3.6	54.4	93	—60	July 2	Aug. 13	15.29	66.7	144
Fort Nelson	—7.3	61.7	98	—61	May 24	Sept. 2	16.37	66.8	115
Fort St. John	5.2	61.1	92	—53	May 25	Sept. 1	14.94	62.5	122
Smith River	—6.0	56.8	92	—74	July 2	Aug. 11	18.14	75.4	151
Yukon Territory—									
Dawson	—16.0	59.8	95	—73	June 4	Aug. 21	12.73	52.5	119
Snag	—13.2	56.8	89	—81	June 17	Aug. 7	13.82	52.8	109
Watson Lake	—7.6	58.7	93	—74	June 1	Aug. 25	16.75	77.0	141
Whitehorse	5.2	56.2	91	—62	June 10	Aug. 27	10.66	44.2	92
Northwest Territories—									
Mackenzie Basin—									
Fort Good Hope	—21.0	59.8	95	—69	June 14	Aug. 6	12.18	57.3	110
Fort Simpson	—15.1	62.4	97	—69	June 4	Aug. 28	12.13	45.2	97
Hay River	—11.6	59.8	96	—62	June 11	Sept. 7	12.02	46.8	99
Barrens—									
Baker Lake	—30.0	50.5	82	—58	July 2	Aug. 24	6.74	21.8	71
Chesterfield	—25.6	48.0	86	—60	June 30	Sept. 4	11.12	51.5	96
Coppermine	—19.0	49.0	87	—58	June 28	Aug. 18	10.87	55.5	105
Arctic Archipelago—									
Clyde	—15.3	40.1	71	—47	[2]	[2]	10.04	69.4	89
Eureka	—36.3	41.9	67	—63	June 25	Aug. 10	2.61	13.9	50
Frobisher Bay	—15.8	45.7	76	—49	June 24	Aug. 27	13.53	73.1	104
Mould Bay	—28.9	38.0	59	—63	[2]	[2]	3.25	19.1	74
Resolute	—28.2	39.7	61	—61	[2]	[2]	5.28	28.0	93

[1] Total rainfall and one tenth of the total snowfall.

[2] No appreciable period free from frost.

Section 2.—Meteorological Observing Stations in Canada*

In January 1964, official meteorological observations were taken and recorded at some 2,230 weather reporting stations in Canada. There are several different classes of stations, ranging from the first-order reporting stations at airports where hourly observations of all aspects of the weather are recorded, to the co-operative precipitation observing stations where a volunteer observer makes daily observations of rainfall and snowfall. While there are vast areas of the country where the weather stations are several hundred miles apart, most of the settled parts of the country are represented by first-order hourly reporting stations every 100 miles or so, and by co-operative climatological observing stations at least every 25 miles.

At most of the 241 first-order synoptic stations complete weather observations are made every six hours and at a large percentage of them only slightly less complete observations for aviation forecasts are made every hour. These weather data, including information on temperature, precipitation, pressure, wind, humidity, cloud and visibility, are sent first by radio and teletype to the different weather offices across the Continent to be used for weather forecasting purposes, and then at each month-end the manuscript reports are sent by mail to Meteorological Branch Headquarters for use in compiling climatic statistics. At some 90 of these observing stations, personnel of the Telecommunications Branch of the Department of Transport take weather observations as part of their scheduled duties, and 35 stations are operated in a similar manner by the different Armed Services; 70 stations are operated by Meteorological Branch personnel and the remainder are operated under contract, mainly by various transportation and communications companies.

Twice daily at 36 locations throughout the country, complete upper air observations are made from the surface to altitudes upwards to 100,000 feet. Pressure, temperature and humidity measurements are determined by radiosonde instruments carried aloft by balloons and the information reported by radio to the ground receiving station; winds are determined by observing the drift of the balloon by means of radar or radio direction finding ground equipment. There are also 26 other locations where the winds in the lower layers of the atmosphere are determined by observing free balloon drift by means of a theodolite or by radar. As in the case of the first-order synoptic reporting stations, these upper air weather observations are made available immediately to forecast offices for weather forecasting purposes, and the manuscript reports are collected at Meteorological Branch Headquarters for compilation of climatic statistics.

About 1,268 weather observing stations in Canada are classified as climatological stations where the observers record temperature extremes and precipitation once or twice daily and send in monthly data sheets. Most of these observers serve on a voluntary basis and willingly spend several hours a month on their hobby. In addition, many governmental and industrial organizations such as agricultural experimental farms and power companies have incorporated brief climatological duties into the general work of some of their employees. These climatological stations have contributed much useful information on temperature and precipitation for publication by the Meteorological Branch.

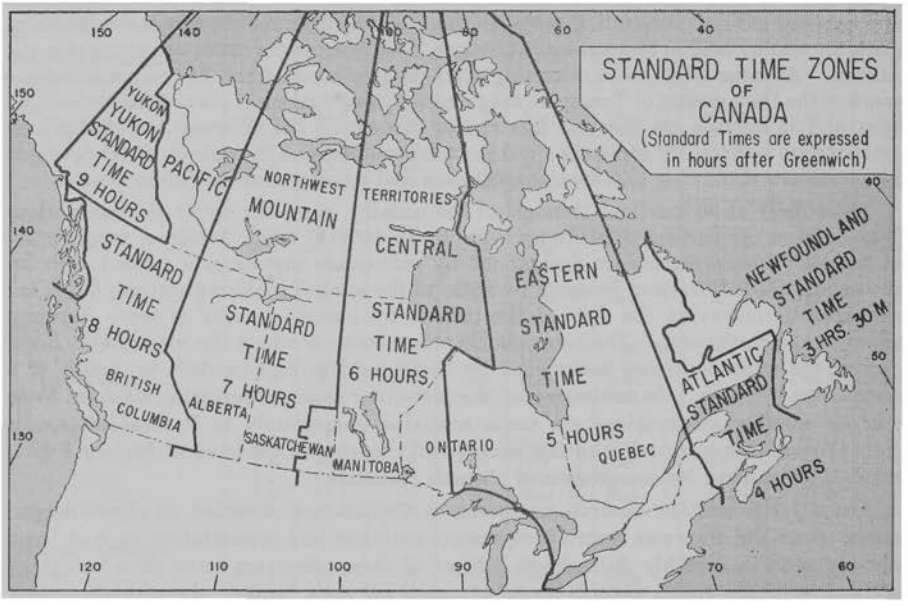
There are about 605 stations classified as precipitation stations where rainfall and snowfall only are observed and recorded. Since precipitation varies more rapidly than temperature over short distances, a dense network of these stations is required, especially in large urban areas. Finally, there are about 83 miscellaneous stations where observations of wind, sunshine and temperature are taken for special purposes. In all, the number of weather stations in Canada has been growing at a rate of more than 50 a year for the past decade and thus a steadily increasing climatic intelligence is assisting Canadians in all economic pursuits.

* Prepared by the Meteorological Branch, Department of Transport, Toronto.

Section 3.—Standard Time and Time Zones

Standard time, which was adopted at a World Conference held at Washington, D.C., in 1884, sets the number of time zones in the world at 24, each zone extending over one twenty-fourth of the surface of the earth and including all the territory between two meridians 15° longitude apart. The basis of world time is Greenwich time and all other time zones are a definite number of hours behind Greenwich.

Canada has seven time zones, the most easterly being Newfoundland standard time, three hours and thirty minutes behind Greenwich time. In the west, Pacific standard time, used throughout British Columbia and part of the Northwest Territories, is eight hours behind Greenwich, and Yukon standard time, used throughout the Yukon Territory, is nine hours behind Greenwich. Some municipalities adopt the time used by the local railways which, in certain cases, differs from the standard. There are also villages that adopt such time as seems best to suit their convenience but in general the legal boundaries of the different time zones are actually in use.



Legal Authority for the Time Zones.—Most of the regulations made in Canada concerning standard time have been passed by the provincial legislatures and the Northwest Territories Council. Legislation, besides determining the boundaries of zones, regulates such matters as the times of coming into effect or expiration of Acts, ordinances, contracts and agreements, times of opening and closing registration offices, law courts, post offices and other public offices, times of open or close seasons for hunting and fishing, and times of opening and closing business houses and places of amusement.

Daylight Saving Time.—For some years before World War I there was active propaganda, particularly in the cities, for the use during the summer months of an earlier time usually referred to as 'daylight saving time', one hour ahead of standard time. It was considered from the economic as well as from the health point of view that people in industrial towns and cities would gain by having longer periods of sunlight at their disposal for recreation. Canada adopted daylight saving time in 1918 but the Canadian Act lapsed

at the end of that year. Since that date, however, most cities and towns have adopted daylight saving for varying periods in the summer months. Several provinces have recently placed legislation on their statute books making daylight saving time mandatory, either throughout the province or in certain areas. However, Saskatchewan operates on central standard time the year round and Alberta passed a Daylight Saving Time Act applying to the summer of 1964 (SA 1964, c. 18) prohibiting the use of daylight saving time in the province, except in certain cases.

PART IV.—GEOPHYSICS AND ASTRONOMY

Section 1.—Geophysics*

Geophysics is the study of the earth, including the oceans and atmosphere, by the methods of physics. Because it extends over such a very wide range of topics, it is generally divided into seven fields, each a well developed science in itself. Of these, one of the oldest is geodesy, the study of the earth's shape, and of variations in the gravitational attraction of the earth, which are related to the shape. Seismology originally was the study of earthquakes but it now includes investigations of the earth's interior by means of vibrational waves, which may be produced by explosions as well as by earthquakes. Meteorology deals with the atmosphere, and hydrology deals with the surface waters of the earth, excluding the oceans but including ice and snow. The study of the oceans, their currents and bottom profiles, forms a subject in itself—oceanography. Geomagnetism is involved with the earth's magnetic field and with many related phenomena, such as the ionosphere and the radiation belts that surround the earth. Finally, volcanology is the study not only of existing volcanoes but of volcanoes of the past and of the rocks they produced.

The seven fields all deal with the investigation of some major property of the earth. They may be considered as pure sciences but it is apparent that they all have applications that are vital to modern life. The findings of geodesy on the precise shape of the earth are needed for accurate maps. The search for minerals and oil by scientific methods makes use of the techniques of gravity measurements, seismology and geomagnetism. Meteorology obviously has great practical importance, and the contributions of hydrology to water supply problems and of oceanography to the fisheries are also very large. The following paragraphs cover 1963 activities in the different fields of geophysics.

The Geodetic Survey, Department of Mines and Technical Surveys, extended its network of triangulation, which provides, very accurately, the positions of points on the earth, to Coppermine on the Arctic coast, to Chesterfield Inlet on Hudson Bay, and to near Fort Chimo in northern Quebec. Precise levelling was continued in several provinces, and, in some areas, significant changes in level of the land surface from the time of previous surveys were indicated. The most important of these was in the Lake St. John area of Quebec, where an uplift of one foot in forty years has taken place. Measurements of gravity, which provide information on both the earth's shape and on geological structures, were made by the Dominion Observatory, Department of Mines and Technical Surveys, and by university and commercial groups. The Dominion Observatory work included a survey of a large area in northern Ontario, using helicopter transport, as well as measurements in the Gulf of St. Lawrence, using an instrument lowered to the bottom from ships. The Bedford Institute of Oceanography, Department of Mines and Technical Surveys, conducted extensive tests on gravity meters suitable for use on ships at sea.

The network of seismological stations in Canada, operated by the Dominion Observatory, was extended to include 19 stations, with four more under construction. Some of these stations are on or near university campuses, and are operated in co-operation with university departments. The network is sufficiently extensive and well equipped to

* This submission, prepared by Dr. G. D. Garland, Geophysics Laboratory, University of Toronto, Toronto, covers all Canadian activity in the field of geophysics. The surveying and mapping activities of the federal Department of Mines and Technical Surveys, of necessity included here, are also covered in different form in the article on pp. 17-24.

detect local earthquakes in virtually any part of Canada, and also to constitute a major contribution to the international study of earthquakes on a world-wide scale. Studies of the earth's crust using the waves from artificial explosions were carried out in several places. An extensive program, conducted by government and university scientists in co-operation with groups from the United States, involved the detection of waves from charges placed on the bottom of Lake Superior. The results of this program, when the calculations have been completed, should provide one of the most detailed pictures of the geological nature of the earth's crust ever achieved. Other crustal studies were conducted in the Canadian Arctic by the Polar Continental Shelf group of the Department of Mines and Technical Surveys, and in British Columbia, Alberta, Manitoba and Nova Scotia by universities.

The study of the earth's atmosphere (meteorology) involves the Meteorological Branch, Department of Transport, and university groups such as the Department of Meteorology, McGill University, and the Department of Physics, University of Toronto. The forecasting operations of the Meteorological Branch are well-known, but important research is also carried out. This research involves the use of modern measuring equipment, such as radar, and also high-speed computing techniques. Canada has areas in which particular meteorological conditions constitute serious problems. One of these is the hail belt of the western prairies, and groups from McGill University, the University of Toronto and the Alberta Research Council are investigating the causes of hail storms and the possibilities of weather modification.

In many parts of the world, the supply of fresh water has become a critical problem. Canada is relatively well supplied with this natural resource, but in some areas of the country the supply must be carefully watched. Many groups from federal and provincial government departments are concerned with hydrology, which is the study of the earth's fresh waters. The Water Resources Branch, Department of Northern Affairs and National Resources, conducts a survey of water resources on a national scale. Other groups study the water cycle, including precipitation, snowmelt, runoff and groundwater movements, in local watersheds. The Geological Survey of Canada and some provincial agencies are studying seismological and other geophysical methods of locating buried stream channels. In view of the extensive work in hydrology in progress, it is appropriate that Canadian hydrologists have made plans to participate in the International Hydrological Decade, a ten-year study of the world's resources of water.

The study of glaciers is rather closely related to hydrology, since glacial ice is one form in which water is available as a natural resource. In addition, glaciers are very sensitive indicators of climate, and measurements of glacial advances and retreats provide information on climatic change. The Geographical Branch, Department of Mines and Technical Surveys, is preparing an inventory of Canadian glaciers, based chiefly on aerial photographs. Investigations in the field were conducted in recent seasons in the Rocky Mountains, Monashee Mountains and Icefield Ranges of Western Canada; in central Labrador; and on Baffin Island and the Queen Elizabeth Islands of the Canadian Arctic. Field work includes geophysical measurements of ice thickness, precise surveys to determine the rate of ice flow, and measurements of accumulation and melting. The Defence Research Board established a field station at the head of Tanquary Fiord (latitude 81°25′N, longitude 76°55′W) for its studies of northern Ellesmere Island.

Measurements of the earth's magnetic field, and of its changes with time, are important for a number of reasons. In earlier years, the use of the magnetic compass for navigation required accurate measurements of the declination. This is still a consideration but more important today is the use of magnetic measurements for detection of mineral deposits, and the study of changes in the magnetic field produced by charged particles from the sun. The general mapping of the earth's magnetism over Canada by both ground and airborne measurements is the responsibility of the Dominion Observatory. The Geological Survey of Canada, in part with the co-operation of provincial governments, conducts airborne magnetic surveys for geological purposes, including the indication of favourable areas for prospectors. During 1963, the Survey produced 140 sheets of aeromagnetic maps (scale

1 inch to 1 mile) from its own surveys, and shared with provincial governments in the production, by contract, of 437 sheets. The amount of information, of value to all persons studying the geology and mineral deposits in the areas covered, that has been made available to the public is very great. Studies of magnetic effects in the ionosphere and space have become increasingly important in Canada. The *Alouette* satellite, launched in 1962, continued to provide a very great amount of useful information on the ionosphere. The *Alouette*, or 'topside sounder' of the ionosphere, transmitted to earth 2,060 hours of data from measurements made by the instruments it carried. The rocket-launching range at Churchill, Man., was used by a number of groups to send instrument-carrying rockets aloft, including one prepared by the University of Saskatchewan. Research on ionospheric conditions as related to radio communication problems was continued by the Defence Research Board. McGill University scientists investigated the use of missiles launched from guns to send instruments into the upper atmosphere.

Oceanographic measurements were extended in both the Atlantic and Pacific Oceans, and similar work was carried out in the Great Lakes by the Great Lakes Institute, University of Toronto. Work in the oceans was conducted by the Bedford Institute of Oceanography, Department of Mines and Technical Surveys, and by Oceanographic Institutes at Dalhousie University and the University of Toronto. The measurements made by these groups include not only water depth, temperature, salinity and currents, but also geophysical studies of the crust beneath the oceans, by seismological, gravimetric and magnetic methods. The ship resources for Canadian oceanography were greatly strengthened by the construction during 1963 of the CSS *Hudson*, a modern research vessel. In addition, the Minister of Mines and Technical Surveys announced that twelve survey and research ships would be built during the next five years. These ships, operated by the Canadian Coast Guard, must operate at times under the most difficult conditions. The CCGS *Labrador*, for example, encountered the worst ice conditions on record when, in 1963, she pushed into Kennedy Channel between Ellesmere Island and Greenland.

The use of geophysical methods in the exploration for petroleum and minerals showed an increase during the year, and there was an increased demand for students with degrees in the subject. Teaching and research in geophysics was started in additional universities, so that virtually all Canadian universities now have some activity in the field. The activity of this country in geophysics was recognized when the Geophysics Laboratory of the University of Toronto was accepted as the principal office and headquarters of the International Union of Geodesy and Geophysics.

Section 2.—Astronomy

There has been in Canada, as elsewhere in the world, an upsurge of popular interest in astronomy, due no doubt to the achievements in space science. This subject was last covered in detail in the 1956 Year Book, pp. 49-55; the following special article indicates the advances made since that time in astronomical research and educational facilities in Canada.

ASTRONOMY IN CANADA*

Astronomy in Canada is currently an expanding science pursued with vigour at various institutions devoted to astronomical research and education. Its early history is closely related to the demand for accurate positions on the earth, for the problem of establishing longitudes in Canada was once acute because of the difficulty in transporting accurate time across the Atlantic Ocean. The early Jesuits in Quebec were interested in solar eclipse observations as an aid to longitude determination and records exist showing that they observed partial solar eclipses as early as 1670. Their records also describe observations of several bright comets observed from Quebec City.

* Prepared from material supplied by the various institutions and edited by Dr. Ian Halliday of the Dominion Observatory, Ottawa.

The first astronomical observatory in Canada was founded at Fredericton, N.B., in 1851 with latitude and longitude determinations the prime incentive in the early years. Other small observatories followed—at Quebec City in 1854, at Kingston in 1875 and at McGill University in 1879.

Modern astronomical research in Canada is concentrated in certain federal agencies and in universities. The Dominion Observatory at Ottawa, Ont., and the Dominion Astrophysical Observatory at Victoria, B.C., comprise a Branch of the Department of Mines and Technical Surveys. The National Research Council is active in the field of radio astronomy through its Division of Radio and Electrical Engineering. The David Dunlap Observatory of the University of Toronto is a centre for astronomical research as well as for the teaching of astronomy in the University's Department of Astronomy. All of these institutions are equipped with major observing instruments. Other universities with less extensive research facilities in astronomy include Queen's University and the University of Western Ontario.

The Dominion Observatory.—The early history of the Dominion Observatory dates back to 1885 when the first modern longitude surveys were begun in order to define certain tracts of land involved in railway construction in British Columbia. This eventually led to the establishment of the Dominion Observatory on its present site in Ottawa in 1905. Research in positional astronomy and in the new field of astrophysics became important functions of the Observatory while geodetic surveying was separated from the Observatory and became part of another Branch in 1917. In addition to its work in astronomy, the Dominion Observatory has three Divisions engaged in research in geophysics (see pp. 22-23).

Apart from research work, the Observatory performs an educational service to the public. Saturday evenings from April to October, inclusive, are set aside for this purpose and visitors are given an opportunity to view celestial objects through the 15-inch telescope and to learn something about the operation of the Observatory and its research. During the remainder of the year groups may visit the Observatory at pre-arranged times.

Positional Astronomy and Time Service.—Determination of the precise positions and proper motions of the stars, although less spectacular than some other aspects of astronomy, is nevertheless one of the foundations of the science and an important task of most national observatories. Observation is made of the time at which a star crosses the meridian and of its angular distance from the equator. The minute change in these values with passing years is the proper motion of the star. Results from many observatories are incorporated into star catalogues used internationally for navigation, surveying, timekeeping and the optical tracking of artificial satellites.

The Observatory now uses a mirror transit instrument for fundamental positional work. A plane mirror with an attached graduated circle is pivoted on an east-west axis. The mirror reflects light from a star on the meridian into either one of two fixed 10-inch aperture horizontal telescopes which lie on a north-south line facing in toward the mirror. The transit of the star and the position of the circle are recorded photographically by remote control.

Provision of a national standard of time is another basic function of the Dominion Observatory. Although a meridian circle can determine time, since 1952 astronomical observations for time have been carried out with a special instrument, the photographic zenith tube. Light from a star near the zenith enters the 10-inch lens of the telescope, goes down the tube to the horizontal surface of a pool of mercury in a basin and is reflected back to a photographic plate in the focus just below the lens. The plate follows the moving image of the star for 20 seconds and records the image as a small dot; the motion is accurately timed by a clock. Lens and plate are then rotated 180 degrees about the vertical and another exposure made. Repetition of the cycle leaves a pattern of four images

of the star on the plate; measurement of the size and shape of the pattern gives the correction to the clock time and the latitude of the observatory. A program employing automatic telescope operation is carried out from dusk to dawn throughout the year on a selected list of stars passing nearly overhead at Ottawa. This gives the time to an accuracy of a few thousandths of a second, and latitude to a few hundredths of a second of arc on any one night.

The time so determined is then disseminated throughout the country by wire and radio. Seconds' pulses with a bilingual voice announcement every minute are available continuously over the Dominion Observatory's short-wave station CHU. These meet the needs of aerial and marine navigation and surveying, and also of many scientific laboratories for whom the radio link is adequate. Direct wire provides accurate time and frequency to local government and private laboratories, to the railway telegraph offices, to the Parliament Buildings, and to the CBC for the control of the 1:00 P.M. signal.

Stellar Physics.—The Stellar Physics Division concentrates its research activities in three particular fields of astronomical research—solar physics, radio astronomy and meteor astronomy—each of which employs highly specialized instruments and techniques. Only the solar research program retains a close connection to the name of the Division, since the study of distant stars, once based on observations made with the 15-inch refractor in Ottawa, is now pursued at the Dominion Astrophysical Observatory using the much greater light-gathering power of its reflecting telescopes.

A large solar telescope is used in Ottawa to form an image of the sun about 10 inches in diameter. Any area on the visible hemisphere may then be selected for detailed study. The light is fed into a large grating spectrograph so that the solar spectrum may be recorded in any region from the ultraviolet through the visible and far into the infrared. Studies of the composition, temperature and atmospheric motions in the sun may be conducted in this manner. A smaller optical system is used with an interference filter to photograph the sun in the light emitted by hydrogen atoms. This technique is used to detect solar flares and other transient phenomena in the solar atmosphere. The flare patrol is operated each clear day, photographs of the sun being taken more frequently than once per minute. The importance of magnetic fields in controlling certain phenomena related to sunspots and flares has become more evident in recent years. An adaptation of the solar spectrograph to produce maps showing the strength of solar magnetic fields is nearing completion.

A total eclipse of the sun provides an opportunity to study the tenuous outer atmosphere or corona of the sun which cannot be observed from the earth at other times. In recent years high-flying aircraft have been employed for the study of such eclipses. Observations of the brightness and temperature of the corona were secured from a large RCAF aircraft flying over the Northwest Territories in July 1963.

The study of the emission of radio waves by astronomical sources, known as radio astronomy, has recently become a major branch of astronomical research. It provides valuable data of a kind not obtainable with optical telescopes. The Dominion Radio Astrophysical Observatory is located about 15 miles south of Penticton, B.C., and was opened in 1960 as a part of the Stellar Physics Division.

A parabolic reflector 84 feet in diameter is used primarily for studies of the structure of the Milky Way star system and particularly for detailed mapping of the neutral hydrogen gas which frequently is found in large clouds in interstellar space. In this program, high-frequency radiation near 1,400 megacycles per second is observed. To study the distribution of energy within the radio spectrum, observations at much lower frequencies are also required. For this work a different type of antenna system must be used and a large array of aerials has been constructed. The array is in the shape of a "T" in which the crossbar is four fifths of a mile in length. It operates at 22 megacycles per second while a second array, operating at 10 megacycles per second, will take advantage of the conditions of low radio interference expected near the time of minimum solar activity.

Two meteor field stations operated in northern Alberta are known as the Meanook and Newbrook Meteor Observatories. Each observatory is equipped with a Super-Schmidt meteor camera for the photography of meteor trails. The results are used to study both the upper atmosphere through which the meteor passes and the meteors themselves. Data on the orbits of the particles in the solar system prior to their collision with the earth are obtained. About 20 meteor spectrographs are also in use to obtain photographic spectra of meteors from which data on the composition of the meteor particles and the method in which they react with the atmosphere are derived.

The Dominion Observatory is interested in the related subject of meteorites. In this field, the astronomical and geophysical divisions have co-operated in an intensive study of ancient Canadian craters which appear to be originated by the impact of huge meteorites. This program followed the identification in 1952 of the New Quebec (Chubb) Crater as an old meteorite crater. About a dozen such craters are now recognized in Canada, ranging from one to 40 miles in diameter. Some are at least several hundred million years old. The most important support for a meteoritic origin has come from diamond drilling operations in which core is recovered from beneath the crater. This may then be studied for alterations caused by the great pressure and heat created at the moment of impact. Results of drilling operations have supported a meteoritic origin for the following craters: Brent and Holleford, Ont.; Deep Bay, Sask.; and East and West Clearwater Lakes, Que. Further studies of these and other features are planned. With the current progress in studies of the moon's surface, this study of terrestrial meteorite craters has assumed increasing importance.

The Dominion Astrophysical Observatory

The Dominion Astrophysical Observatory at Victoria, B.C., is concerned with observations of the quantity and nature of the light radiations received from the stars and other celestial bodies. The interpretation of these observations assists in the understanding of the structure, both of the stars themselves and of the Milky Way system which they form and of which the sun and its planets are a part. From the earth, all the stars appear very faint, and it is necessary to collect as much of their light as possible in order to make useful observations.

The principal telescope of the Observatory is the 72-inch reflecting telescope to which is attached a spectrograph which analyses the starlight into its constituent colours and photographs the pattern, or *spectrum*, thus produced. In 1962 a 48-inch reflector was brought into use, together with an associated spectrograph which uses the starlight it receives much more efficiently, thus compensating to some extent for the smaller size of its telescope. The 48-inch telescope is also used for photoelectric *photometry*—the precise measurement of the apparent brightnesses and colours of the stars with the aid of a photoelectric cell. In 1963 a 16-inch telescope, which will in future be used for photometry, was presented to the Observatory.

Analysis of starlight with a spectrograph permits detailed study of many properties of the stars which would otherwise remain unknown. An example is the speed of a star along the line of sight. If the speeds of large numbers of stars, whose distances are known, are determined, the structure and dynamics of the Milky Way system can be studied. Distances of stars can be estimated from their spectra, provided the results of accurate photometry are available for the same stars. A major program of this kind, representing some twenty years of observational effort, has been completed recently. In accordance with normal scientific practice, the results of this and other investigations are published and sent to astronomers throughout the world.

The study of a star's spectrum also leads to a knowledge of the chemical composition of the star. Each chemical element removes light of certain definite and well-known colours from the total light of a star, leaving a dark line across the spectrum. The lines of a given element can appear in a spectrum only if that element is present in the star. Other factors, however, determine which of the elements actually present will affect the

spectrum. Precise chemical analysis must take account of the differences of temperature and pressure in the atmospheres of different stars. The outer layers of the stars may appear to differ widely, but this is because of differences in their physical state. It is found that the majority of stars are of closely similar chemical composition. Studies of this nature depend on knowledge of the behaviour of matter in laboratories on earth. On the other hand, the stars themselves are a unique kind of laboratory where matter exists, and can be studied, under conditions that cannot be reproduced on earth. Thus some branches of astronomy, physics and chemistry complement each other.

Another important part of the Observatory's work is the study of close double stars. These are systems of two stars held together by their gravitational attraction. Under the influence of this attraction they revolve around their centre of gravity, completing a revolution in a very short time—usually a few days. The two stars are too close to each other to be seen separately with any telescope but they can be studied separately with the spectrograph. These objects are important because their motions are determined by the well-known law of gravitation, and can be made to yield much information about the component stars of each system. In favourable cases, the masses, sizes, densities, temperatures and luminosities of the two stars can be determined. Many of these stellar properties can be derived only from the study of such systems.

In addition to their research, the astronomers try to give a more direct service to the public. Telephone and mail inquiries are answered and many visitors come to the dome. Lectures are given to schools and other interested groups in the neighbourhood. On Saturday nights in the summer the 72-inch telescope is available for public observation during a two-hour period. Several hundred people take advantage of this opportunity whenever the sky is clear.

The David Dunlap Observatory of the University of Toronto

The David Dunlap Observatory, located at Richmond Hill about ten miles north of Toronto, was built between 1932 and 1935. Its establishment resulted from a fortunate combination of interests centred in the tireless pioneering efforts of Professor C. A. Chant of the Department of Physics and (later) the Department of Astronomy at the University of Toronto in the training of professional astronomers, and in the generous offer of Mrs. Jessie Donalda Dunlap to donate an observatory to the University in memory of her deceased husband who had been interested in the efforts and aspirations of Professor Chant.

The David Dunlap Observatory was designed primarily for astrophysical research. The principal telescope, housed in a 61-foot dome, is a reflector of 74-inch aperture equipped with both Newtonian secondary for direct photography and Cassegrain secondary for use with several accessories for the analysis of starlight. One of these accessories is a prism spectrograph by means of which a star's light may be analysed to calculate its temperature, the content of its atmosphere, its velocity of approach or recession and sometimes its mass and diameter. A new spectrograph under construction in the observatory workshop will use reflection gratings and mirrors and so will extend the stellar spectra into the ultraviolet and will also permit work on fainter stars. Another accessory used at the Cassegrain focus is a photoelectric spectrophotometer which can record the light intensity of a single star in all colours of the spectrum in succession. Separate from the dome for the 74-inch telescope is the Administration Building which contains library, offices, laboratories and workshops. Atop this building there are now two telescopes, a 19-inch reflector which is used for photoelectric photometry of relatively bright stars, and a 6-inch refractor for student use. In the planning stage is a third telescope to be supported on the Administration Building—a reflector of intermediate size to relieve the pressure of student demand upon the other two research telescopes. Measuring instruments of various types for studying astronomical photographs are housed in the Administration Building.

A small separate building serves as the focal point of the Observatory's radio astronomy installation. A variety of antennas and radiometers are used in studying the radio radiation from astronomical objects.

The Observatory's facilities at Richmond Hill are supplemented by laboratories and offices of the Department of Astronomy on the main campus of the University. Here also the astronomy staff and students are able to make considerable use of the up-to-date computing facilities of the University in analysing the data obtained at the Observatory.

Stellar Radial Velocities.—With regard to the real motions of the stars, which reveal the over-all dynamics of the stellar system, classical astronomy had to be content with that part of the motion which is directed across the line of sight and which is manifested by slight changes of position of the stars relative to one another. About eighty years ago it became possible by means of astronomical spectroscopy to measure also the radial or line-of-sight component of stellar motion. These stellar radial velocities, as they became available for statistically large numbers of stars in the early part of this century, revealed much new information concerning the structure of the galaxy. It was this field of radial velocity determination which was chosen for the major effort of the 74-inch telescope during the Observatory's early years. In thirty years about 3,000 stars have been measured for radial velocity out of a total of about 17,000 for which radial velocities are now known.

Stellar Photometry.—Another measurable attribute of stars which has always been of the greatest importance to the study of stars and star systems has been their apparent brightness. In particular this is true for stars of variable brightness. Some classes of these variables hold the clue for the determination of distances in the outer parts of the galaxy, particularly of the globular clusters. A thirty-year program of photographic photometry of faint variable stars in many of the globular clusters has added greatly to the knowledge of these clusters and of the stars which comprise them. A highlight of this program was the recent discovery of a nova or exploding star in one of these clusters. During the past decade photoelectric photometry both with the 74-inch telescope and with the 19-inch telescope has occupied an increasing proportion of the observing time. This kind of photometry is more time-consuming than photographic photometry but it is also more precise. In its simplest form the light of a single star is focused by the telescope onto the photosensitive surface of a photomultiplier tube, and by a suitable amplifying circuit a pen recorder gives a measure of the star's brightness. When various coloured filters are used in succession, the records provide an accurate measure of a star's colour as well as its brightness. In the photoelectric spectrophotometer the colour analysis is carried one step further by recording the brightness of the star at all colours as the star's spectrum is swept over the photosensitive surface. With these photometers many important studies have been made of the brightness and colour of stars and star clusters. Some of these studies have had a direct bearing on theories of the origin and evolution of stars; others have helped to establish the nature of the material in interstellar space and the size and structure of the Milky Way galaxy.

Stellar Luminosities.—Ranking in importance with measurement of apparent brightness of stars is the measurement of the luminosity or intrinsic brightness for, if both can be measured for the same star, then the star's distance may be calculated. Methods are available for gauging stellar luminosities from spectra of the stars and, in recent years, have been adapted to the collection of stellar spectra available at the Observatory from the radial velocity work. About 1,500 stars have now been measured for luminosity and new equipment and new methods are being developed to increase the precision of luminosity determination.

Radio Astronomy.—Astronomical bodies emit radio waves as well as light waves but only recently have radio telescopes been built to study the nature of these radio waves. The result has been a flood of new information about the sun, moon and planets, the interstellar hydrogen gas, and the Milky Way and other galaxies. Through co-operation between the Observatory and the Department of Electrical Engineering, a program of studies in radio astronomy is under way. Antenna and radiometer design, measurement of the radio emission from the sun and the solar corona, studies of ionized interstellar

hydrogen, of supernova remnants, and of the magnetic properties of the earth's surroundings in the Milky Way are some of the topics of this research. The work is carried out at the Algonquin Radio Observatory, Lake Traverse, Ont., as well as at Richmond Hill and on the University of Toronto campus.

Theoretical Studies.—The advent of electronic computation and the rapid development of this powerful scientific tool in the Institute of Computer Studies at the University of Toronto have thrown new emphasis on theoretical approaches to astronomy by the staff and students at the Observatory. These studies range from computations involving the energy generation in the interior of stars to an analysis of the dynamics of the earth's great galaxy. Theoretical studies like these are of the greatest importance at an observatory, sometimes following from observational discoveries and sometimes pointing the way to new observational tests.

The foregoing outline of the work of the Observatory is intended to indicate only the continuing major fields of activity. To this might be added the many particular research problems involving sun, moon, planets, stars, clusters and galaxies which have been undertaken by members of the staff and by graduate students. An effort is always needed to strike a balance between the production of routine astronomical data—which is regarded as a debt to astronomers of the future—and the encouragement of individual enterprise in the attack upon diversified problems of immediate interest—which is regarded in particular as the due of the increasing number of young graduate students who hold the key to the future of Canadian astronomy.

The Observatory is open to the public by appointment on Wednesday afternoons throughout the year and on Saturday evenings except in winter.

Astronomy at the National Research Council

Solar Radio Astronomy.—In 1946 the Radio and Electrical Engineering Division of the National Research Council commenced investigations of the radio emission from the sun at a site near Ottawa. This grew out of the realization that advances in radio technology due to wartime radar work in the Division could be readily used to obtain fundamental information about astronomical objects. A small paraboloidal reflector, four feet in diameter, was used as a radio telescope together with a sensitive radio receiver to measure the radio emission from the solar disc at a frequency of 2,800 megacycles per second (10.7 cm. wave-length). The emission was monitored from sunrise to sunset for several months and when its variations were compared with optical observations at other observatories three components of the radio emission were recognized as follows: (1) an emission from the undisturbed solar atmosphere; (2) an emission varying slowly from day to day which originates from condensations of electrons above sunspots; and (3) sudden enhancements of radio emission associated with solar flares.

Since its inception in 1946 an uninterrupted series of daily observations has been made. This is now recognized as providing a quantitative measure of solar X-ray and ultraviolet emissions which is of great use in ionospheric research, in studies of the solar component of cosmic rays and in studies of the solar influence on the atmospheric drag on satellites. Because of an increase in radio interference near Ottawa, the program was relocated in 1962 at the Algonquin Radio Observatory, Lake Traverse, Ont. A similar patrol undertaken at the Dominion Radio Astrophysical Observatory in co-operation with the Dominion Observatory will provide increased reliability to the combined program and will increase the daily period of observations by three hours, owing to the difference in longitude of the two observatories.

A new type of antenna based upon the principles of interferometry was developed at Ottawa from 1953 to 1958 to obtain a sharp antenna beam in order to study the emission from small regions above sunspots. The antenna is of the linear type, 600 feet in length,

and it has been used to locate the radio-emissive regions in the solar atmosphere. A similar antenna for the Algonquin Radio Observatory will ultimately take the form of a cross or "T" to produce a narrow pencil-shaped beam.

Observations of the sun at longer radio wavelengths (several meters) began in 1948 and have been extended at the new site. These observations are concerned with events in the solar corona at heights up to several solar radii above the optical surface. The events are likely caused by the ejection of particles into the corona from disturbances near sunspots. Information on the magnetic fields in the corona may be derived from these observations. A simple interferometer was used to study the extent of the radio emission during the solar eclipse of July 1963 and to observe the radio emissions from the planet Jupiter.

Galactic and Extra-Galactic Radio Astronomy.—The facilities of the Algonquin Radio Observatory will include three outstanding instruments for general radio astronomy. A precision parabolic radio telescope, 33 feet in diameter, has been in operation since 1963 and can be used at wavelengths as short as 1.5 cm. It is well suited for accurate mapping of selected regions of the sky and has revealed more detail in its first surveys than had been detected in previous studies.

A precisely calibrated horn-reflector antenna is used to provide accurate measures of the amount of radio energy received from the stronger astronomical sources. The measures are of intrinsic value and, in addition, are of importance in that they provide an international standard for the calibration of other, larger radio telescopes.

The major instrument of the Observatory is to be a 150-foot diameter paraboloid with completion scheduled for 1966. The emphasis will be on microwave observations at wavelengths between 3 and 21 cm. The size and precision of this instrument will permit detailed mapping of a large number of interesting regions, including many of the weaker radio sources not observable with a smaller instrument.

Meteor Astronomy.—A program of meteor research is active at the Springhill Meteor Observatory operated by the National Research Council at a location some 25 miles south of Ottawa. Here radar equipment of several types records the flux of meteoric particles into the earth's atmosphere. This program was started shortly after the end of World War II and was put on a continuous recording basis at the beginning of the International Geophysical Year. Some ten million meteors have been recorded on IBM data-processing equipment. In addition, spectrograph records of meteors are correlated with the data from the radar record and with the visual observations carried out simultaneously by a team of eight observers. The aim of this research is to learn more about the physical reactions that take place in the earth's upper atmosphere and to study various properties of the small, solid particles which exist in interplanetary space.

Astronomy at Queen's University

Work in astronomy began in 1861, took a large step forward with the construction of the first Observatory in 1906 and a further step forward in 1955 with the construction of the present Observatory and the establishment of the Radio Astronomy Research Group. The new telescope is a 15-inch reflector equipped with various photographic, photoelectric and spectroscopic devices. It is used mainly as a teaching instrument both for undergraduate students, including a number of school teachers who attend the Queen's Summer School, and for graduate students working on various research projects.

Astronomical research is mainly in the field of radio astronomy where the departments of physics, electrical engineering and mathematics combine their interests. Studies of the ionosphere employing radio astronomy techniques have included a wide variety of observations. The present research is directed mainly toward the design and construction of large-aperture antenna systems suitable for extra-galactic measurements. This work includes both the engineering problems associated with antennas and receivers and the

interpretation of observations in terms of cosmological theory. The principal radio telescope operates at a frequency of 146 megacycles per second; a second instrument is planned which will operate at 73 megacycles per second.

The University of Western Ontario

The Hume Cronyn Memorial Observatory of the University of Western Ontario, London, was established in 1940. The observing equipment includes three moderate-sized telescopes on a single mounting. The major observing program is in stellar photometry using both photoelectric and photographic techniques to study certain types of interesting stars. An electronic computer is used to facilitate the analysis of observational results and to pursue some projects in theoretical astrophysics. Instruction in astronomy is provided at both undergraduate and graduate levels.

Other Astronomical Activities

In addition to the above-described strictly astronomical research, there are certain Canadian research projects in physics under way which have direct applications to astronomy and astrophysics. These include studies in laboratory spectra at the National Research Council and the University of Western Ontario, studies in nuclear physics at the University of Montreal, and certain projects on the upper atmosphere of the earth conducted by the Defence Research Board and the Universities of Saskatchewan and Western Ontario.

In addition to the advanced courses in astronomy offered at certain universities, some astronomical instruction is also available at other institutions. The Royal Astronomical Society of Canada, with centres in 16 Canadian cities, provides a means of communication between professional astronomers and the large number of non-professionals who maintain an active interest in astronomy. The Society publishes a Journal devoted to the dissemination of astronomical knowledge and an annual Handbook which contains the necessary data to facilitate astronomical observing. Small observatories are maintained by some centres of the Society and also by the Regina Astronomical Society. The Queen Elizabeth Planetarium of the City of Edmonton conducts an active program of public education in astronomy and some other Canadian cities have plans for the construction of planetariums. With the increased public awareness of astronomical research resulting from the achievements in space science, further expansion of all aspects of astronomical education may be predicted with confidence.

CHAPTER II.—CONSTITUTION AND GOVERNMENT*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—CONSTITUTION OF CANADA

The Canadian federal state, which today comprises ten provinces and two vast northern territories, had its beginning ninety-seven years ago in the enactment (Mar. 29, 1867) by the British Parliament of the British North America Act, 1867. Fashioned largely out of the Seventy-two Resolutions drafted at Quebec (1864) by the Fathers of Confederation, the British North America Act, 1867 provided for the federal union of the three British North American provinces (Canada, New Brunswick and Nova Scotia) in one Dominion under the name of "Canada".

While the new nation that came into being on July 1, 1867 was a federation comprised of four provinces, namely, Ontario, Quebec, New Brunswick and Nova Scotia, Sect. 146 of the Act provided for the admission into the Union of the Crown colonies of Prince Edward Island and Newfoundland on the Atlantic and the united (1866) island and mainland colony of British Columbia on the Pacific, and also of the vast expanse of Hudson's Bay Company territory in the North West known as "Rupert's Land and the North-Western

* Except where otherwise indicated, the information in this Chapter has been brought up to the date of Apr. 30, 1964. Certain changes occurring between that date and the date of going to press will be found in an Appendix to this volume. Also, official appointments made up to the date of going to press will be found in Chapter XXVIII (see Index).

Malak, Ottawa

The National Flag of Canada . . .

flying at Harrington Lake, Gatineau Park. The Proclamation of the new Flag was signed by Her Majesty Queen Elizabeth II at Buckingham Palace on January 28, 1965 in the presence of Prime Minister Lester B. Pearson, to be effective February 15, 1965. At 12 o'clock noon on that day, the Flag was raised for the first time on Parliament Hill in Ottawa, and simultaneously, with fitting ceremony, thousands were raised throughout the land and wherever Canadians were in official service around the world.

Territory". Following the negotiation of an agreement on terms comprising the Company's surrender of its authority and territories to the Crown (which was to transfer them at once to Canada) and the retention of one twentieth of the land of the fertile belt (the southern territories) with designated blocks of land around its trading posts and a Canadian cash payment of £300,000, the new nation of Canada was ready to expand westward with considerable momentum across the Continent to the Pacific.

The acquisition by Canada of Rupert's Land and the North-Western Territory enabled the Red River settlement, after a few months of disturbance, to receive limited provincial establishment under the name of "Manitoba" in 1870; provided the Federal Government with the public lands needed to help subsidize a transcontinental railway linking the Pacific with the Canadian East, thereby fulfilling the pledge to British Columbia to begin the Canadian Pacific Railway within two years and to complete it within ten years of the date of union, July 20, 1871; and laid, through the provision of millions of acres of public lands, the land and economic bases for the Federal Government's adoption of a free-homestead policy for the Canadian prairies that, in conjunction with the completion of the Canadian Pacific Railway and the launching of other railway lines, brought wave after wave of settlers into the Northwest Territories in such numbers as to justify the creation of the two Provinces of Saskatchewan and Alberta in 1905 out of the portion of the Northwest Territories south of the 60th parallel of north latitude. Although provision for their entry was included in the British North America Act, 1867, the Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

The Constitution of Canada, which had a corporate beginning in 1867, combines, in a set of rules determining the creation and operation of the machinery or institutions of government, the Cabinet system of responsible government (based on an inheritance from Britain) with a Canadian adaptation of federalism (as then practised in the United States for eighty years). A written document, the British North America Act of 1867, contains a substantial portion of Canada's Constitution and this Act, with its various amendments,* is popularly held to be the Canadian Constitution. There is, however, another and perhaps more important part which appears, through the evolutionary processes of historical growth, in various guises including well-established usages and conventions found in the unwritten provisions of the Constitution.

Thus, the British North America Act is not a comprehensive constitutional document presenting an exhaustive statement of fundamental laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other British statutes (such as the Statute of Westminster, 1931) and Orders in Council (notably those admitting various provinces and territories to the federation), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the Royal Style and Titles, the Governor General, the Senate, the House of Commons, the creation of courts, the establishment of government departments, the franchise, elections, and also statutes of provincial legislatures relating to provincial constitutional institutions and government matters. Federal and provincial Orders in Council, legally authorized by their respective statutes, provide further constitutional material as do the decisions of the courts which interpret the British North America Act and all ordinary statutes and indeed possess the power to set aside any laws which they hold to be *ultra vires* or beyond the jurisdiction of the enacting legislative bodies, whether federal or provincial. Moreover, the Canadian Constitution comprises, in addition to the statutory law and its judicial interpretation, substantial sections of the common law, unwritten constitutional usages and conventions and principles of democratic government which were transplanted from Britain over two hundred years ago and since then have been thriving and evolving in the Canadian

* See *A Consolidation of The British North America Acts 1867 to 1960*, consolidated by Elmer A. Driedger as of Jan. 1, 1964. Queen's Printer, Ottawa. 75 cents (Catalogue No. YX1—164). A further amendment was made in 1964 respecting old age pensions (see p. 66).

environment. For example, the Cabinet system of responsible government (see pp. 61-62) and its functioning through close identification of the executive and the legislative powers (that is, of the Cabinet and the House of Commons) is not mentioned in the British North America Act but derives from an unwritten convention of the Constitution.

Although the essential principles of Cabinet government are based in custom or constitutional usage, the federal structure of Canadian government rests on the explicit written provisions of the British North America Act. Apart from the creation of the federal union, the dominant feature of the Act and indeed of the Canadian federation was the distribution of powers between the central or federal government on the one hand and the component provincial governments on the other. In brief, the primary purpose was to grant to the Parliament of Canada legislative jurisdiction over all subjects of general or common interest, while giving to the provincial legislatures jurisdiction over all matters of local or particular interest (see p. 80 and p. 93).

Unlike the written constitutions of many nations, the British North America Act lacks comprehensive "bill of rights" clauses, although it does accord specific constitutional protection to the use of the English and French languages (clause 133) and special safeguards with respect to sectarian or denominational schools. Such vital rights as freedom of speech, freedom of assembly, freedom of religion, freedom of the press, trial by jury and similar liberties enjoyed by the individual citizen are not recorded in the British North America Act but rather depend on the statute law and the common law inheritance. Security of these rights was confirmed by the passage of a Canadian Bill of Rights—An Act for the Recognition and Protection of Human Rights and Fundamental Freedoms (SC 1960, c. 44), assented to Aug. 10, 1960. (See also Chapter IX, Sect. 1 on Canadian Criminal Law and Procedure.)

No provision was made in the British North America Act of 1867 for amendment thereof by any legislative authority in Canada but both the Parliament of Canada and the provincial legislatures were given legislative jurisdiction with respect to some matters relating to government. Thus, for example, the Parliament of Canada was given jurisdiction with respect to the establishment of electoral districts and election laws and the privileges and immunities of Members of the House of Commons and the Senate, and each provincial legislature was empowered to amend the constitution of the province except as regards the office of Lieutenant-Governor. By an amendment to the British North America Act passed in 1949, the authority of the Parliament of Canada to legislate with respect to constitutional matters was considerably enlarged and it may now amend the Constitution of Canada except as regards the legislative authority of the provinces, the rights and privileges of provincial legislatures or governments, schools, the use of the English or the French language, and the duration of the House of Commons other than in time of real or apprehended war, invasion or insurrection.

The question of devising amendment procedure within Canada which satisfies the need to safeguard or entrench such basic provincial and minority rights as are noted immediately above and yet possesses sufficient flexibility to ensure that the Constitution can be altered to meet changing circumstances is one that still engages the attention of the federal and provincial governments and legislatures. The constitutional background to the problem, the present amending procedures, the attempts since 1935 to devise amending procedures, and the complexities inherent in amendment of a federal constitution are all discussed in a special article published in the 1961 Canada Year Book, pp. 51-57, entitled "Amendment of the Canadian Constitution".* The only barrier to Canada's complete control over the amendment of its own written Constitution (i.e., the British North America Act, 1867, a statute of the British Parliament) has been the inability of the Canadian people and their elected representatives in the federal and provincial fields to draft amendment procedures on which they will be in general agreement.

* Also available in reprint form from the Dominion Bureau of Statistics, Ottawa, 25 cents.

1.—Provinces and Territories of Canada, Dates of Admission to Confederation, Legislative Processes by which Admission was Effected, Present Area and Seat of Government

Province, Territory or District	Date of Admission or Creation	Legislative Process	Present Area (sq. miles)	Seat of Provincial or Territorial Government
Ontario[1]	July 1, 1867	Act of Imperial Parliament—The British North America Act, 1867 (Br. Stat. 1867, c. 3) and Imperial Order in Council, May 22, 1867.	412,582	Toronto
Quebec[2]	July 1, 1867		594,860	Quebec
Nova Scotia	July 1, 1867		21,425	Halifax
New Brunswick	July 1, 1867		28,354	Fredericton
Manitoba[3]	July 15, 1870	Manitoba Act, 1870 (SC 1870, c. 3) and Imperial Order in Council, June 23, 1870.	251,000	Winnipeg
British Columbia	July 20, 1871	Imperial Order in Council, May 16, 1871..	366,255	Victoria
Prince Edward Island	July 1, 1873	Imperial Order in Council, June 26, 1873...	2,184	Charlottetown
Saskatchewan[4]	Sept. 1, 1905	Saskatchewan Act, 1905 (SC 1905, c. 42)...	251,700	Regina
Alberta[4]	Sept. 1, 1905	Alberta Act, 1905 (SC 1905, c. 3).....	255,285	Edmonton
Newfoundland	Mar. 31, 1949	The British North America Act, 1949 (Br. Stat. 1949, c. 22).....	156,185	St. John's
Northwest Territories[5]...	July 15, 1870	Act of Imperial Parliament—Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105) and Imperial Order in Council, June 23, 1870.....	1,304,903	
Mackenzie[5]	Jan. 1, 1920	Order in Council, Mar. 16, 1918.....	*527,490*	Ottawa[7]
Keewatin[6]	Jan. 1, 1920		*228,160*	
Franklin[5]	Jan. 1, 1920		*549,253*	
Yukon Territory[8]	June 13, 1898	Yukon Territory Act, 1898 (SC 1898, c. 6)	207,076	Whitehorse
		Canada	**3,851,809**	

[1] The area of Ontario was extended by the Ontario Boundaries Extension Act, 1912 (SC 1912, c. 40).

[2] Extended by Quebec Boundaries Extension Act, 1912 (SC 1912, c. 45) and diminished Mar. 1, 1927 in consequence of the Award of the Judicial Committee of the British Privy Council whereby approximately 112,000 sq. miles of territory (formerly considered as part of Quebec) was assigned to Newfoundland.

[3] Extended by the Extension of Boundaries Act of Manitoba, 1881 and the Manitoba Boundaries Extension Act, 1912 (SC 1912, c. 32).

[4] Saskatchewan and Alberta created as provinces in 1905 from the area formerly comprised in the provisional districts of Assiniboia, Athabaska, Alberta and Saskatchewan established May 17, 1882 by minute of Canadian Privy Council concurred in by Dominion Parliament and Order in Council, Oct. 2, 1895.

[5] By an Imperial Order in Council passed on June 23, 1870 pursuant to the Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105), the former territories of the Hudson's Bay Company known as Rupert's Land and the North-Western Territory were transferred to Canada effective July 15, 1870. These territories were designated as the North-West Territories by the Act of SC 1869, c. 3 and as the Northwest Territories by RSC 1906, c. 62. By Imperial Order in Council of July 31, 1880 (effective Sept. 1, 1880), all British territories and possessions in North America not already included within Canada and all islands adjacent thereto (with the exception of the Colony of Newfoundland and its dependencies) were annexed to Canada and these additional territories were formally included in the North-West Territories by SC 1905, c. 27. The Province of Manitoba was formed out of a portion of the territories by the Manitoba Act, 1870 (SC 1870, c. 3) and a further portion was added to Manitoba in 1881 by SC 1881, c. 14. The Provinces of Alberta and Saskatchewan were formed out of portions of the territories in 1905 and in 1912 other portions were added to Manitoba, Ontario and Quebec.

[6] By SC 1876, c. 21, a separate district to be known as the District of Keewatin was established and provision was made for the local government thereof. The Act was expressed to come into force by proclamation. It provided that portions of the District might be re-annexed to the North-West Territories by proclamation; in 1886 a portion of the District of Keewatin was re-annexed and in 1905 the entire Keewatin District was re-annexed. The Act of 1876 was never proclaimed. By Order in Council of May 8, 1882 the provisional districts of Assiniboia, Saskatchewan, Alberta and Athabaska were created for the convenience of settlers and for postal purposes. By Order in Council of Oct. 2, 1895 the further provisional districts of Ungava, Franklin, Mackenzie and Yukon were created. The boundaries of these provisional districts were re-defined by Order in Council of Dec. 18, 1897. Subsequently the Yukon Territory was formed, the Provinces of Alberta and Saskatchewan were created and other portions of the territories were annexed to Quebec, Ontario and Manitoba. By Order in Council dated Mar. 16, 1918 (effective Jan. 1, 1920) the remaining portions of the Northwest Territories were divided into three provisional districts known as Mackenzie, Keewatin and Franklin.

[7] See pp. 92-93.

[8] The provisional district of Yukon established in 1895 was created a judicial district of the North-West Territories by proclamation issued pursuant to Sect. 51 of the North-West Territories Act (RSC 1886, c. 50) on Aug. 16, 1897 and by the Yukon Territory Act (SC 1898, c. 6) was declared to be a separate Territory.

PART II.—MACHINERY OF GOVERNMENT

Section 1.—The Federal Government

Subsection 1.—The Executive

The Crown.—The British North America Act of 1867 (Sect. 9) provides that "the Executive Government and authority of and over Canada is vested in the Queen". The functions of the Crown, which are substantially the same as those of the Queen in relation to the British Government, are discharged in Canada by the Governor General in accordance with established principles of responsible government.

The Queen.—The personal participation of the Queen in the functions of the Crown in Canada has been limited to such occasions as the granting of honours and awards, approval of changes in the Table of Precedence, institution of new military awards, or the periodic appointment of a Governor General. On the occasion of a royal visit, the Queen may participate in those ceremonies that otherwise are carried out in her name, such as the opening and dissolution of Parliament, the assent to Bills and the granting of a general amnesty.

Apart from her constitutional position in relation to the various governments of the Commonwealth countries, the Queen is Head of the Commonwealth and symbolizes the association of the member countries. Until 1953 the title of the Queen was the same throughout the Commonwealth. Constitutional developments put the title somewhat out of accord with the facts of the position, and in December 1952 it was decided by the Prime Ministers of the Commonwealth countries meeting at London, England, that new forms of title for each country should be devised. The title for Canada was approved by Parliament and established by a Royal Proclamation on May 29, 1953. The title of the Queen, so far as Canada is concerned, now is:—

"Elizabeth the Second, by the Grace of God, of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith".

1.—Sovereigns of Canada since Confederation, 1867

Name	Dynasty	Year of Birth	Date of Accession
Victoria	House of Hanover	1819	June 20, 1837
Edward VII	House of Saxe-Coburg and Gotha	1841	Jan. 22, 1901
George V	House of Windsor	1865	May 6, 1910
Edward VIII	House of Windsor	1894	Jan. 20, 1936
George VI	House of Windsor	1895	Dec. 11, 1936
Elizabeth II	House of Windsor	1926	Feb. 6, 1952

The Governor General.—The Governor General, appointed by the Queen as her personal representative on the advice of the Prime Minister of Canada, traditionally serves for a term of five years. He exercises the executive authority of the Queen in relation to the Government of Canada under Letters Patent issued under the Great Seal of Canada (revised and re-issued, effective Oct. 1, 1947) and the provisions of the British North America Acts, 1867 to 1960. Acting under the recommendations of his responsible Ministers, in the Queen's name, he summons, prorogues and dissolves Parliament, assents to Bills, and exercises other executive functions.

The Governor General's annual salary and allowances provided by the Parliament of Canada are $48,666 and $80,000, respectively. Office expenses and certain other items of expenditure are provided for in the estimates for the Office of the Secretary to the Governor General.

The present Governor General is styled His Excellency General The Right Honourable Georges P. Vanier, D.S.O., M.C., C.D.

2.—Governors General of Canada since Confederation, 1867

Name	Date of Appointment	Date of Assumption of Office
The Viscount Monck of Ballytrammon	June 1, 1867	July 1, 1867
The Baron Lisgar of Lisgar and Baliieborough	Dec. 29, 1868	Feb. 2, 1869
The Earl of Dufferin	May 22, 1872	June 25, 1872
The Marquis of Lorne	Oct. 5, 1878	Nov. 25, 1878
The Marquis of Lansdowne	Aug. 18, 1883	Oct. 23, 1883
The Baron Stanley of Preston	May 1, 1888	June 11, 1888
The Earl of Aberdeen	May 22, 1893	Sept. 18, 1893
The Earl of Minto	July 30, 1898	Nov. 12, 1898
The Earl Grey	Sept. 26, 1904	Dec. 10, 1904
Field Marshal H. R. H. The Duke of Connaught	Mar. 21, 1911	Oct. 13, 1911
The Duke of Devonshire	Aug. 19, 1916	Nov. 11, 1916
General The Lord Byng of Vimy	Aug. 2, 1921	Aug. 11, 1921
The Viscount Willingdon of Ratton	Aug. 5, 1926	Oct. 2, 1926
The Earl of Bessborough	Feb. 9, 1931	Apr. 4, 1931
The Baron Tweedsmuir of Elsfield	Aug. 10, 1935	Nov. 2, 1935
Major General The Earl of Athlone	Apr. 3, 1940	June 21, 1940
Field Marshal The Viscount Alexander of Tunis	Mar. 21, 1946	Apr. 12, 1946
The Right Honourable Vincent Massey	Jan. 24, 1952	Feb. 28, 1952
General The Right Honourable Georges P. Vanier	Aug. 1, 1959	Sept. 15, 1959

The Cabinet.—The Cabinet is a committee of Ministers chosen by the Prime Minister (the leader of the political party forming the Government of the Day) generally from Members of Parliament. By convention, all members of the Cabinet either have seats in Parliament or secure seats within a short time and, again by convention, all Ministers in charge of departments of government are generally Members of the House of Commons although there is nothing in the Constitution to prevent a Minister with Portfolio being a Senator.* However, they generally prefer to have seats in the House of Commons where all crucial legislation, by convention, is introduced and where they can offer explanations necessary to secure passage of their Estimates or legislation with which they are deeply concerned. Ministers without Portfolio (without a department to administer) can be members of either the House of Commons or the Senate. Frequently the Cabinet contains one Minister without Portfolio—usually the Leader of the Government in the Senate—and perhaps one or two others chosen for a variety of reasons such as the desirability of including certain provincial or sectional representation that might otherwise be lacking in the Ministry.

Cabinet members are selected by the Prime Minister in such manner as to ensure, as far as possible, representation of the several geographical and political regions of the country and its principal ethnic, religious and social interests. Each Cabinet Minister generally assumes charge of one of the departments of government, although a Minister may hold more than one portfolio at the same time or he may hold one or more portfolios and one or more acting portfolios, or a Minister without Portfolio may hold one or more acting portfolios. In his acting capacity, the Minister exercises the same authority as if he were the Minister of the department.

* Senator the Hon. Gideon Decker Robertson held the portfolio of Minister of Labour for the periods Nov. 7, 1918 to Dec. 29, 1921 and Aug. 7, 1930 to Feb. 2, 1932; Senator the Hon. Malcolm Wallace McCutcheon served as Minister of Trade and Commerce from Feb. 12 to Apr. 22, 1963.

The position of Prime Minister, the keystone of the Cabinet, is one of exceptional authority. He alone makes recommendations on the dissolution and convocation of Parliament, appointment of Privy Councillors, Cabinet Ministers, Lieutenant-Governors, Chief Justices, Senators, Speakers of the Senate and House of Commons, and Deputy Heads of departments. The Cabinet, under his leadership, directs the business of the Commons, initiates nearly all public Bills placed before Parliament, and has complete responsibility for the initiation of taxes and the recommendation of expenditures. Following established precedent or convention, it is always responsible to the Commons. When the Cabinet (the Government) suffers defeat on a Government Bill or a vote of censure or on a motion of want of confidence in the Commons, the existing Government or Cabinet must either resign or request a dissolution from the Governor General. If it resigns, the Governor General may call on the Leader of the Opposition in the Commons to form a new Government. Alternatively, if a Government that has been defeated in the House is granted a dissolution and is defeated in the ensuing general election, then, should no clear majority be indicated, the Government may decide (1) to remain in office and seek a vote of confidence in the House when it meets or (2) to resign immediately with the consequent result that the Governor General will ask the leader of the party with the highest number of members returned to form a new Government. These alternatives may also eventuate as a result of a general election subsequent to the normal dissolution of Parliament at or near the close of its statutory life.

The primary responsibility of the Governor General in either of the above circumstances is to provide the nation with a Cabinet or Ministry capable of conducting Her Majesty's Government with the support of the House of Commons.

The Prime Ministers since Confederation are listed in Table 3 and the members of the Ministry as at Apr. 30, 1964 in Table 4. Sessional and other allowances received by Cabinet Ministers are given at pp. 75-76.

3.—Prime Ministers since Confederation, 1867

Ministry	Prime Minister	Length of Administration
1	Rt. Hon. Sir JOHN ALEXANDER MACDONALD	July 1, 1867 — Nov. 5, 1873
2	Hon. ALEXANDER MACKENZIE	Nov. 7, 1873 — Oct. 16, 1878
3	Rt. Hon. Sir JOHN ALEXANDER MACDONALD	Oct. 17, 1878 — June 6, 1891
4	Hon. Sir JOHN JOSEPH CALDWELL ABBOTT	June 16, 1891 — Nov. 24, 1892
5	Rt. Hon. Sir JOHN SPARROW DAVID THOMPSON	Dec. 5, 1892 — Dec. 12, 1894
6	Hon. Sir MACKENZIE BOWELL	Dec. 21, 1894 — Apr. 27, 1896
7	Rt. Hon. Sir CHARLES TUPPER	May 1, 1896 — July 8, 1896
8	Rt. Hon. Sir WILFRID LAURIER	July 11, 1896 — Oct. 6, 1911
9	Rt. Hon. Sir ROBERT LAIRD BORDEN	Oct. 10, 1911 — Oct. 12, 1917 (Conservative Administration)
10	Rt. Hon. Sir ROBERT LAIRD BORDEN	Oct. 12, 1917 — July 10, 1920 (Unionist Administration)
11	Rt. Hon. ARTHUR MEIGHEN	July 10, 1920 — Dec. 29, 1921 (Unionist—"National Liberal and Conservative Party")
12	Rt. Hon. WILLIAM LYON MACKENZIE KING	Dec. 29, 1921 — June 28, 1926
13	Rt. Hon. ARTHUR MEIGHEN	June 29, 1926 — Sept. 25, 1926
14	Rt. Hon. WILLIAM LYON MACKENZIE KING	Sept. 25, 1926 — Aug. 6, 1930
15	Rt. Hon. RICHARD BEDFORD BENNETT	Aug. 7, 1930 — Oct. 23, 1935
16	Rt. Hon. WILLIAM LYON MACKENZIE KING	Oct. 23, 1935 — Nov. 15, 1948
17	Rt. Hon. LOUIS STEPHEN ST. LAURENT	Nov. 15, 1948 — June 21, 1957
18	Rt. Hon. JOHN GEORGE DIEFENBAKER	June 21, 1957 — Apr. 22, 1963
19	Rt. Hon. LESTER BOWLES PEARSON	Apr. 22, 1963 — ...

4.—Members of the Nineteenth Ministry, as at Apr. 30, 1964[1]

(According to precedence of Ministers)

NOTE.—A complete list of the members of Federal Ministries from Confederation to 1913 appears in the 1912 Year Book, pp. 422-429. Later Ministries will be found in subsequent editions.

Office	Occupant	Date of Appointment
Prime Minister	Rt. Hon. LESTER BOWLES PEARSON	Apr. 22, 1963
Secretary of State for External Affairs	Hon. PAUL JOSEPH JAMES MARTIN	Apr. 22, 1963
Minister of Transport	Hon. JOHN WHITNEY PICKERSGILL	Apr. 22, 1963
Minister of National Defence	Hon. PAUL THEODORE HELLYER	Apr. 22, 1963
Minister of Finance and Receiver General	Hon. WALTER LOCKHART GORDON	Apr. 22, 1963
Minister of Trade and Commerce	Hon. MITCHELL SHARP	Apr. 22, 1963
President of the Queen's Privy Council for Canada	Hon. GEORGE JAMES MCILRAITH	Apr. 22, 1963
Minister of Mines and Technical Surveys	Hon. WILLIAM MOORE BENIDICKSON	Apr. 22, 1963
Minister of Northern Affairs and National Resources	Hon. ARTHUR LAING	Apr. 22, 1963
Secretary of State of Canada	Hon. MAURICE LAMONTAGNE	Apr. 22, 1963
Associate Minister of National Defence	Hon. LUCIEN CARDIN	Apr. 22, 1963
Minister of Labour	Hon. ALLAN JOSEPH MACEACHEN	Apr. 22, 1963
Minister of Public Works	Hon. JEAN-PAUL DESCHATELETS	Apr. 22, 1963
Minister of Fisheries	Hon. HÉDARD ROBICHAUD	Apr. 22, 1963
Solicitor General	Hon. J. WATSON MACNAUGHT	Apr. 22, 1963
Minister of Veterans Affairs	Hon. ROGER TEILLET	Apr. 22, 1963
Minister of National Health and Welfare	Hon. JUDY V. LAMARSH	Apr. 22, 1963
Minister of Industry and Minister of Defence Production	Hon. CHARLES MILLS DRURY	Apr. 22, 1963
Minister of Justice and Attorney General	Hon. GUY FAVREAU	Apr. 22, 1963
Postmaster General	Hon. JOHN ROBERT NICHOLSON	Apr. 22, 1963
Minister of Agriculture	Hon. HARRY HAYS	Apr. 22, 1963
Minister of Citizenship and Immigration	Hon. RENÉ TREMBLAY	Apr. 22, 1963
Minister without Portfolio	Hon. JOHN JOSEPH CONNOLLY	Feb. 3, 1964
Minister of Forestry	Hon. MAURICE SAUVÉ	Feb. 3, 1964
Minister without Portfolio	Hon. YVON DUPUIS	Feb. 3, 1964

[1] Any changes occurring between Apr. 30, 1964 and the date of going to press will be carried in an Appendix to this volume.

Parliamentary Secretaries.—The Parliamentary Secretaries Act (SC 1959, c. 15), assented to June 4, 1959, provides for the appointment of 16 Parliamentary Secretaries from among the Members of the House of Commons to assist the respective Ministers in such manner as each Minister may direct. The Government thus revived the system of parliamentary assistantships in practice during the World War II and postwar years subsequent to 1943, whereby Cabinet Ministers might receive assistance in the performance of their parliamentary functions and promising Members of the House might secure a degree of apprenticeship for higher public office. Parliamentary Secretaries hold office for 12 months.

At Apr. 30, 1964, the following Parliamentary Secretaries were in office:—

Secretary	*Minister*
JACK DAVIS GUY ROULEAU	Prime Minister
STANLEY HAIDASZ	External Affairs
JEAN-CHARLES CANTIN	Transport
EDGAR J. BENSON	Finance
JEAN-LUC PÉPIN	Trade and Commerce
JOHN N. TURNER	Northern Affairs and National Resources
JOHN B. STEWART	Secretary of State
JAMES A. BYRNE	Labour
G. ROY MCWILLIAM	Public Works
CHESLEY W. CARTER	Veterans Affairs
JOHN C. MUNRO	National Health and Welfare
DONALD S. MACDONALD	Justice
ALEXIS CARON	Postmaster General
BRUCE S. BEER	Agriculture Forestry
HUBERT BADANAI	Citizenship and Immigration

The Privy Council.—The British North America Act of 1867 (Sect. 11) provides for "a Council to aid and advise in the Government of Canada, to be styled the Queen's Privy Council for Canada . . . ". At present it consists of about 110 members sworn of the Council by the Governor General on the advice of the Prime Minister. Membership in the Privy Council is for life so that Privy Councillors include both former and present Ministers of the Crown as well as a number of persons who have been, from time to time as an honour, sworn as Privy Councillors; these include members of the Royal Family, past and present Commonwealth Prime Ministers, and former Speakers of the Senate and of the House of Commons of Canada. The Council seldom meets as a body and its constitutional responsibilities as adviser to the Crown in respect to Canada are performed exclusively by a Committee; the membership thereof, with a few historical exceptions, is identical to that of the Cabinet of the Day. A clear distinction between the functions of the Committee of the Privy Council and the Cabinet is rarely made and actually the terms "Council" and "Cabinet" are commonly employed as synonyms.

5.—Members of the Queen's Privy Council for Canada According to Seniority Therein, as at Apr. 30, 1964

President of the Privy Council ..... Hon. G. J. McIlraith
Clerk of the Privy Council and Secretary to the Cabinet ..... R. G. Robertson

Note.—In this list the prefix "Rt. Hon." indicates membership in the British Privy Council.

Member[1]	Date When Sworn In	Member[1]	Date When Sworn In
Hon. Thomas Alexander Crerar	Oct. 12, 1917	Hon. Roch Pinard	July 1, 1954
Hon. Henry Herbert Stevens	Sept. 21, 1921	Hon. Herbert J. Symington	Nov. 26, 1956
Hon. Edward James McMurray	Nov. 14, 1923	Hon. Louis René Beaudoin	Apr. 15, 1957
Rt. Hon. Charles Vincent Massey	Sept. 16, 1925	Hon. Paul Theodore Hellyer[2]	Apr. 26, 1957
H.R.H. The Duke of Windsor	Aug. 2, 1927	Rt. Hon. John George Diefenbaker	June 21, 1957
Hon. Donald Matheson Sutherland	Aug. 7, 1930	Hon. Howard Charles Green	June 21, 1957
Hon. Thomas Gerow Murphy	Aug. 7, 1930	Hon. Donald Methuen Fleming	June 21, 1957
Hon. William Earl Rowe	Aug. 30, 1935	Hon. Alfred Johnson Brooks	June 21, 1957
Hon. Charles Gavan Power	Oct. 23, 1935	Hon. George Hees	June 21, 1957
Rt. Hon. James Lorimer Ilsley	Oct. 23, 1935	Hon. Léon Balcer	June 21, 1957
Hon. Joseph Enoil Michaud	Oct. 23, 1935	Hon. George Randolph Pearkes	June 21, 1957
Hon. Colin William George Gibson	July 8, 1940	Hon. Gordon Churchill	June 21, 1957
Hon. Joseph Thorarinn Thorson	June 11, 1941	Hon. Edmund Davie Fulton	June 21, 1957
Hon. William Ferdinand Alphonse Turgeon	Oct. 8, 1941	Hon. George Clyde Nowlan	June 21, 1957
Rt. Hon. Louis Stephen St. Laurent	Dec. 10, 1941	Hon. Douglas Scott Harkness	June 21, 1957
Rt. Hon. Sir Winston Leonard Spencer Churchill	Dec. 29, 1941	Hon. Ellen Louks Fairclough	June 21, 1957
Hon. Andrew George Latta McNaughton	Nov. 2, 1944	Hon. J. Angus MacLean	June 21, 1957
Hon. Joseph Arthur Jean	Apr. 18, 1945	Hon. Michael Starr	June 21, 1957
Hon. Lionel Chevrier	Apr. 18, 1945	Hon. William McLean Hamilton	June 21, 1957
Hon. Paul Joseph James Martin[2]	Apr. 18, 1945	Hon. James MacKerras Macdonnell	June 21, 1957
Hon. Douglas Charles Abbott	Apr. 18, 1945	Hon. William J. Browne	June 21, 1957
Hon. Thomas Vien	July 19, 1945	Hon. Paul Comtois	Aug. 7, 1957
Hon. Wishart McLea Robertson	Sept. 4, 1945	Hon. Jay Waldo Monteith	Aug. 22, 1957
Hon. Milton Fowler Gregg	Sept. 2, 1947	Hon. Francis Alvin George Hamilton	Aug. 22, 1957
Hon. Robert Wellington Mayhew	June 11, 1948	H.R.H. The Prince Philip, Duke of Edinburgh	Oct. 14, 1957
Rt. Hon. Lester Bowles Pearson[3]	Sept. 10, 1948	Hon. Raymond Joseph Michael O'Hurley	May 12, 1958
Hon. Stuart Sinclair Garson	Nov. 15, 1948	Hon. Henri Courtemanche	May 12, 1958
Hon. Robert Henry Winters	Nov. 15, 1948	Hon. David James Walker	Aug. 20, 1959
Hon. Frederick Gordon Bradley	Apr. 1, 1949	Hon. Joseph Pierre Albert Sévigny	Aug. 20, 1959
Hon. Charles Jost Burchell	Apr. 1, 1949	Hon. Hugh John Flemming	Oct. 11, 1960
Hon. Hugues Lapointe	Aug. 25, 1949	Hon. Noël Dorion	Oct. 11, 1960
Hon. Gabriel Édouard Rinfret	Aug. 25, 1949	Hon. Walter Dinsdale	Oct. 11, 1960
Hon. Walter Edward Harris	Jan. 18, 1950	Hon. George Ernest Halpenny	Oct. 11, 1960
Hon. George Prudham	Dec. 13, 1950	Hon. Robert Henry McGregor	Dec. 21, 1960
Hon. George Black	Aug. 3, 1951	Hon. Walter Morley Aseltine	Dec. 28, 1961
Earl Alexander of Tunis	Jan. 29, 1952	Hon. Leslie Miscampbell Frost	Dec. 28, 1961
Hon. James Sinclair	Oct. 15, 1952	Hon. Jacques Flynn	Dec. 28, 1961
Hon. Ralph Osborne Campney	Oct. 15, 1952	Hon. John Bracken	May 4, 1962
Hon. William Ross Macdonald	May 12, 1953	Hon. Paul Martineau	Aug. 9, 1962
Hon. George Alexander Drew	May 12, 1953	Hon. Richard Albert Bell	Aug. 9, 1962
Hon. John Whitney Pickersgill[2]	June 12, 1953	Hon. Malcolm Wallace McCutcheon	Aug. 9, 1962
Hon. Jean Lesage	Sept. 17, 1953	Hon. Mark Robert Drouin	Oct. 15, 1962
Hon. George Carlyle Marler	July 1, 1954	Hon. Roland Michener	Oct. 15, 1962

For footnotes, see end of table, p. 65.

5.—Members of the Queen's Privy Council for Canada According to Seniority Therein, as at Apr. 30, 1964—concluded

Member[1]	Date When Sworn In	Member[1]	Date When Sworn In
Hon. MARCEL LAMBERT	Feb. 12, 1963	Hon. HÉDARD ROBICHAUD[2]	Apr. 22, 1963
Hon. THÉOGÈNE RICARD	Mar. 18, 1963	Hon. J. WATSON MACNAUGHT[2]	Apr. 22, 1963
Hon. FRANK CHARLES MCGEE	Mar. 18, 1963	Hon. ROGER TEILLET[2]	Apr. 22, 1963
Hon. MARTIAL ASSELIN	Mar. 18, 1963	Hon. JUDY LAMARSH[2]	Apr. 22, 1963
Hon. WALTER LOCKHART GORDON[2]	Apr. 22, 1963	Hon. CHARLES MILLS DRURY[2]	Apr. 22, 1963
Hon. MITCHELL SHARP[2]	Apr. 22, 1963	Hon. GUY FAVREAU[2]	Apr. 22, 1963
Hon. AZELLUS DENIS	Apr. 22, 1963	Hon. JOHN ROBERT NICHOLSON[2]	Apr. 22, 1963
Hon. GEORGE JAMES MCILRAITH[2]	Apr. 22, 1963	Hon. HARRY HAYS[2]	Apr. 22, 1963
Hon. WILLIAM MOORE BENIDICKSON[2]	Apr. 22, 1963	Hon. RENÉ TREMBLAY[2]	Apr. 22, 1963
Hon. ARTHUR LAING[2]	Apr. 22, 1963	Hon. ROBERT TASCHEREAU	Apr. 26, 1963
Hon. MAURICE LAMONTAGNE[2]	Apr. 22, 1963	Hon. JOHN JOSEPH CONNOLLY[2]	Feb. 3, 1964
Hon. LUCIEN CARDIN[2]	Apr. 22, 1963	Hon. MAURICE SAUVÉ[2]	Feb. 3, 1964
Hon. ALLAN JOSEPH MACEACHEN[2]	Apr. 22, 1963	Hon. YVON DUPUIS[2]	Feb. 3, 1964
Hon. JEAN-PAUL DESCHATELETS[2]	Apr. 22, 1963		

[1] Members of Her Majesty's Privy Council for Canada take rank *inter se* according to the dates of their being sworn in. [2] Ranks as a Member of the Cabinet. [3] Ranks as the Prime Minister of Canada.

6.—Duration and Sessions of Parliaments, 1945-64

NOTE.—Similar information for the 1st to the 12th Parliaments, covering the period from Confederation to 1917, is given in the 1940 Year Book, p. 46; that for the 13th to 17th Parliaments in the 1945 edition, p. 53; and for the 18th and 19th Parliaments in the 1957-58 edition, p. 46.

Order of Parliament	Session	Date of Opening	Date of Prorogation	Days of Session	Sitting Days of House of Commons	Date of Election, Writs Returnable, Dissolution, and Length of Parliament[1,2]
20th Parliament	1st	Sept. 6, 1945	Dec. 18, 1945	104	76	June 11, 1945[3] Aug. 9, 1945[4] Apr. 30, 1949[5] 3 y., 8 m., 22 d.
	2nd	Mar. 14, 1946	Aug. 31, 1946	171	118	
	3rd	Jan. 30, 1947	July 17, 1947	169	115	
	4th	Dec. 5, 1947	June 30, 1948	209	119	
	5th	Jan. 26, 1949	Apr. 30, 1949	95	59	
21st Parliament	1st	Sept. 15, 1949	Dec. 10, 1949	87	64	June 27, 1949[3] Aug. 25, 1949[4] June 13, 1953[5] 3 y., 9 m., 20 d.
	2nd	Feb. 16, 1950	June 30, 1950	135	90	
	3rd	Aug. 29, 1950	Jan. 29, 1951	154	17	
	4th	Jan. 30, 1951	Oct. 9, 1951	253	105	
	5th	Oct. 9, 1951	Dec. 29, 1951	82	56	
	6th	Feb. 28, 1952	Nov. 20, 1952	267	87	
	7th	Nov. 20, 1952	May 14, 1953	176	108	
22nd Parliament	1st	Nov. 12, 1953	June 26, 1954	227	139	Aug. 10, 1953[3] Oct. 8, 1953[4] Apr. 12, 1957[5] 3 y., 6 m., 5 d.
	2nd	Jan. 7, 1955	July 28, 1955	203	140	
	3rd	Jan. 10, 1956	Aug. 14, 1956	218	152	
	4th	Nov. 26, 1956	Jan. 8, 1957	44[6]	5	
	5th	Jan. 8, 1957	Apr. 12, 1957	95	71	
23rd Parliament	1st	Oct. 14, 1957	Feb. 1, 1958	111	78	June 10, 1957[3] Aug. 8, 1957[4] Feb. 1, 1958[5] 5 m., 25 d.
24th Parliament	1st	May 12, 1958	Sept. 6, 1958	117	93	Mar. 31, 1958[3] Apr. 30, 1958[4] Apr. 19, 1962[5] 3 y., 11 m., 20 d.
	2nd	Jan. 15, 1959	July 18, 1959	185	127	
	3rd	Jan. 14, 1960	Aug. 10, 1960	210	146	
	4th	Nov. 17, 1960	Sept. 28, 1961	316[7]	174	
	5th	Jan. 18, 1962	Apr. 18, 1962	91	65	
25th Parliament	1st	Sept. 27, 1962	Feb. 5, 1963[8]	132	72	June 18, 1962[3] July 18, 1962[4] Feb. 6, 1963[5] 6 m., 20 d.
26th Parliament	1st	May 16, 1963	Dec. 21, 1963	220[9]	117	Apr. 8, 1963[3] May 8, 1963[4]
	2nd	Feb. 18, 1964	...	...	...	

[1] The ordinary legal limit of duration for each Parliament is five years. [2] Duration of Parliament in years, months and days. The life of a Parliament is counted from the date of return of election writs to the date of dissolution, both days inclusive (BNA Act, Sect. 50). [3] Date of general election. [4] Writs returnable. [5] Dissolution of Parliament. [6] Includes long adjournment from Nov. 29, 1956 to Jan. 8, 1957. [7] Includes long adjournment from July 13 to Sept. 7, 1961. [8] Government defeated in House of Commons on want of confidence motion. [9] Includes long adjournment from Aug. 2 to Sept. 30, 1963.

Subsection 2.—The Legislature

The federal legislative authority is vested in the Parliament of Canada consisting of the Queen, an Upper House styled the Senate, and the House of Commons. Bills may originate in either the Senate or the House subject to the provisions of Sect. 53 of the British North America Act, 1867, which provides that Bills for the appropriation of any part of the public revenue or the imposition of any tax or impost shall originate in the House of Commons. Bills must pass both Houses and receive Royal Assent before becoming law. In practice most public Bills originate in the House of Commons, although there has been a marked increase recently in the introduction of public Bills in the Senate, at the instance of the Government, in order that Bills may be dealt with in the Senate while the Commons is engaged in other matters such as the debate on the Speech from the Throne. Private Bills usually originate in the Senate. The Senate may delay, amend or even refuse to pass Bills sent to it from the Commons, but differences are usually settled without serious conflict. (See Chap. XXVIII for current legislation.)

Under Sect. 91 of the British North America Acts, 1867 to 1964, the legislative authority of the Parliament of Canada extends to the following: the amendment of the Constitution of Canada (subject to certain exceptions—see p. 58); the public debt and property; the regulation of trade and commerce; unemployment insurance; the raising of money by any mode or system of taxation; the borrowing of money on the public credit; postal service; the Census and statistics; militia, military and naval service, and defence; the fixing of and providing for the salaries and allowances of civil and other officers of the Government of Canada; beacons, buoys, lighthouses and Sable Island; navigation and shipping; quarantine and the establishment and maintenance of marine hospitals; sea coast and inland fisheries; ferries between a province and any British or foreign country or between two provinces; currency and coinage, banking, incorporation of banks and the issue of paper money; savings banks; weights and measures; bills of exchange and promissory notes; interest; legal tender; bankruptcy and insolvency; patents of invention and discovery; copyrights; Indians and lands reserved for the Indians; naturalization and aliens; marriage and divorce; the criminal law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters; the establishment, maintenance and management of penitentiaries; such classes of subjects as are expressly excepted in the enumeration of the classes of subjects by these Acts assigned exclusively to the legislatures of the provinces.

Under Sect. 95, the Parliament of Canada may make laws in relation to agriculture and immigration concurrently with provincial legislatures although federal legislation is paramount in the event of conflict. By the British North America Act, 1951 (Br. Stat. 1950-51, c. 32) it is declared that the Parliament of Canada may make laws in relation to old age pensions in Canada but no such law shall affect the operation of any provincial laws in relation to old age pensions. By the British North America Act, 1964, which received Royal Assent on July 31, 1964, this amendment was extended, at the request of the Parliament of Canada (June 19, 1964) to permit the payment of supplementary benefits, including survivors' and disability benefits irrespective of age, under a contributory pension plan.

The Senate.—From an original membership of 72 at Confederation, the Senate, through the addition of new provinces and the general growth of population, now has 102 members, the latest change in representation having been made on the admission of Newfoundland to Confederation in 1949. The growth of representation in the Senate is summarized by province in Table 7.

Senators are appointed for life by the Governor General by instrument under the Great Seal of Canada on the recommendation of the Prime Minister. The actual power of appointing Senators resides by constitutional usage in the Prime Minister whose advice the Governor General accepts in this regard. In each of the four main divisions of Canada, except Quebec, Senators represent the whole of the province for which they are appointed; in Quebec one Senator is appointed for each of the 24 electoral divisions of what was

formerly Lower Canada. The deliberations of the Senate are presided over by a Speaker appointed by the Governor General in Council (in effect by the Government) and government business in the Senate is sponsored by the Government Leader in the Senate.

7.—Representation in the Senate since Confederation, 1867

Province	1867	1870	1871	1873	1882	1887	1892	1903	1905	1915-1948	1949-1964
Ontario	24	24	24	24	24	24	24	24	24	24	24
Quebec	24	24	24	24	24	24	24	24	24	24	24
Atlantic Provinces	24	24	24	24	24	24	24	24	24	24	30
Nova Scotia	*12*	*12*	*12*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*
New Brunswick	*12*	*12*	*12*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*
Prince Edward Island	...	...	...	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Newfoundland	...	...	...	...	...	...	...	...	...	...	*6*
Western Provinces	...	2	5	5	6	8	9	11	15	24	24
Manitoba	...	*2*	*2*	*2*	*3*	*3*	*4*	*4*	*4*	*6*	*6*
British Columbia	...	...	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*6*	*6*
Saskatchewan	...	...	...	...	...	*2*	*2*	*4*	*4*	*6*	*6*
Alberta									*4*	*6*	*6*
Totals	72	74	77	77	78	80	81	83	87	96	102

The Senate is not a competitor of the House of Commons in the field of legislation but, in the main, acts as a second chamber giving further scrutiny to legislation initiated in the House of Commons. Under the Constitution, Bills for appropriating any part of the public revenue or for imposing a tax or impost must originate in the Commons but in every other respect, since both Houses must concur in every piece of legislation, the Senate has an equal voice with the House of Commons.

8.—Members of the Senate, by Province, as at Apr. 30, 1964[1]

Speaker.....Hon. MAURICE BOURGET
Leader of the Government.....Hon. JOHN J. CONNOLLY
Leader of the Opposition.....Hon. ALFRED J. BROOKS
Clerk of the Senate and Clerk of the Parliaments.....JOHN FORBES MACNEILL

(Ranked according to seniority, by province. All Senators are entitled to the designation "Honourable".)

Province and Name of Senator	P.O. Address
Newfoundland—	
(5 Senators—1 vacancy)	
BAIRD, ALEXANDER BOYD	St. John's
BASHA, MICHAEL G.	Curling
BRADLEY, FREDERICK GORDON	Bonavista
HOLLETT, MALCOLM	St. John's
COOK, ERIC	St. John's
Prince Edward Island—	
(4 Senators)	
GRANT, THOMAS VINCENT	Montague
INMAN, FLORENCE ELSIE	Montague
MACDONALD, JOHN JOSEPH	Charlottetown
PHILLIPS, ORVILLE HOWARD	Alberton
Nova Scotia—	
(10 Senators)	
ROBERTSON, WISHART MCLEA	Truro
KINLEY, JOHN JAMES	Lunenburg
COMEAU, JOSEPH WILLIE	Comeauville
ISNOR, GORDON B.	Halifax
SMITH, DONALD	Liverpool
CONNOLLY, HAROLD	Halifax
BLOIS, FREDERICK MURRAY	Truro
MACDONALD, JOHN MICHAEL	North Sydney
O'LEARY, CLEMENT AUGUSTINE	Antigonish
WELCH, FRANK C.	Wolfville

Province and Name of Senator	P.O. Address
New Brunswick—	
(10 Senators)	
VENIOT, CLARENCE JOSEPH	Bathurst
MCLEAN, ALEXANDER NEIL	Saint John
BURCHILL, GEORGE PERCIVAL	South Nelson
FERGUSSON, MURIEL MCQUEEN	Fredericton
MCGRAND, FRED A.	Fredericton Jct.
SAVOIE, CALIXTE F.	Moncton
TAYLOR, AUSTIN CLAUDE	Salisbury
BROOKS, ALFRED JOHNSON	Sussex
FOURNIER, EDGAR	Iroquois
RATTENBURY, NELSON	Saint John
Quebec—	
(23 Senators—1 vacancy)	
HUGESSEN, ADRIAN K.	Montreal
GOUIN, LÉON MERCIER	Montreal
VIEN, THOMAS	Outremont
VAILLANCOURT, CYRILLE	Lévis
DUPUIS, VINCENT	Montreal
DESSUREAULT, JEAN-MARIE	Quebec
BOUFFARD, PAUL HENRI	Quebec
JODOIN, MARIANA BEAUCHAMP	Montreal
TREMBLAY, LEONARD DAVID SWEEZEY	St. Malachie
FOURNIER, SARTO	Montreal

[1] Any changes occurring between Apr. 30, 1964 and the date of going to press will be carried in an Appendix to this volume.

8.—Members of the Senate, by Province, as at Apr. 30, 1964[1]—concluded

Province and Name of Senator	P.O. Address
Quebec—concluded	
Molson, Hartland de Montarville	Montreal
Power, Charles Gavan	St. Pacôme
Pouliot, Jean-François	Rivière du Loup
Lefrançois, J. Eugène	Montreal
Méthot, Léon	Trois Rivières
Monette, Gustave	Montreal
Quart, Josie Alice Dinan	Quebec
Beaubien, Louis Philippe	Montreal
Flynn, Jacques	Quebec
Bourget, Maurice	Lévis
Gélinas, Louis P.	Montreal
Bourque, Romuald	Outremont
Denis, Azellus	Montreal
Ontario—	
(23 Senators—1 vacancy)	
Lambert, Norman P.	Ottawa
Hayden, Salter Adrian	Toronto
Paterson, Norman McLeod	Fort William
Davies, William Rupert	Toronto
Taylor, William Horace	Brantford
Bishop, Charles L.	Ottawa
Roebuck, Arthur Wentworth	Toronto
Woodrow, Allan L.	Toronto
Macdonald, William Ross	Brantford
Connolly, John J.	Ottawa
Croll, David A.	Toronto
Leonard, Thomas D'Arcy	Toronto
White, George Stanley	Madoc
Sullivan, Joseph A.	Toronto
Choquette, Lionel	Ottawa
Willis, Harry A.	Toronto
McCutcheon, M. Wallace	Toronto
O'Leary, M. Grattan	Ottawa
Grosart, Allister	Ottawa
Robertson, John A.	Kenora
Ontario—concluded	
Walker, David James	Toronto
Belisle, Rhéal	Sudbury
Lang, Daniel Aiken	Toronto
Manitoba—	
(6 Senators)	
Beaubien, Arthur L.	St. Jean Baptiste
Crerar, Thomas Alexander	Winnipeg
Thorvaldson, Gunnar S.	Winnipeg
Irvine, Olive Lillian	Winnipeg
Haig, J. Campbell	Winnipeg
Yuzyk, Paul	Winnipeg
Saskatchewan—	
(6 Senators)	
Horner, Ralph Byron	Blaine Lake
Aseltine, Walter M.	Rosetown
Wood, Thomas H.	Regina
Boucher, William Albert	Prince Albert
Pearson, Arthur M.	Lumsden
Hnatyshyn, John	Saskatoon
Alberta—	
(6 Senators)	
Blais, Aristide	Edmonton
Gershaw, Fred William	Medicine Hat
Stambaugh, J. Wesley	Bruce
Cameron, Donald	Edmonton
Gladstone, James	Cardston
Buchanan, John Alexander	Edmonton
British Columbia—	
(5 Senators—1 vacancy)	
Farris, John Wallace de B.	Vancouver
McKeen, Stanley Stewart	Vancouver
Reid, Thomas	New Westminster
Hodges, Nancy	Victoria
Smith, Sydney John	Kamloops

[1] Any changes occurring between Apr. 30, 1964 and the date of going to press will be carried in an Appendix to this volume.

The House of Commons.—The British North America Act, 1867 provided that in respect of representation in the House of Commons the Province of Quebec should have the fixed number of sixty-five members and that there should be assigned to each of the other provinces such a number of members as would bear the same proportion to the number of its population as the number sixty-five bears to the number of the population of Quebec. This Act also provided that on the completion of a census in 1871 and of each subsequent decennial census the representation of the several provinces should be re-adjusted provided the proportionate representation of the provinces as prescribed by the Act were not thereby disturbed.

In the session of 1946 the House of Commons adopted a resolution stating that the effect of the provisions of the British North America Act relating to representation had not been satisfactory in that proportionate representation of the provinces according to population had not been maintained and that a more equitable apportionment of members to the various provinces could be effected if readjustments were made on the basis of the population of all the provinces taken as a whole. The Act was amended accordingly in 1946 to provide a new rule to regulate representation in the House of Commons. Generally speaking, representation was fixed as follows:—

> The membership assigned to each province shall be computed by dividing the total population of the provinces by two hundred and fifty-four and by dividing the population of each province by the quotient so obtained.

This rule, employed in the redistribution of representation made in 1947, was effective in the General Election of 1949.

After the completion of the 1951 Census it was apparent that, as a result of a wartime shift of population, a substantial reduction in the representation of the Province of Saskatchewan would ensue under the rules then regulating representation. Accordingly, in an effort to eliminate sharp reductions in provincial representation from one census to another, the British North America Act was again amended (RSC 1952, c. 304, Sect. 51) (see Canada Year Book 1963-64, p. 75) to ensure that the representation of any province should not be reduced by more than 15 p.c. at any one readjustment, subject however to the qualification that the effect of the rule should not be to make the representation of a province with a smaller population greater than any province with a larger population.

Subsequently in 1952, Parliament enacted RSC 1952, c. 334, effective in the General Election of 1953 and in each successive General Election down to that of the Twenty-Sixth Parliament (Apr. 8, 1963), which provided that representation in the House of Commons should be on the following basis:—

> "Sect. 2.—Eighty-five members of the House of Commons shall be elected for the Province of Ontario, seventy-five for the Province of Quebec, twelve for the Province of Nova Scotia, ten for the Province of New Brunswick, fourteen for the Province of Manitoba, twenty-two for the Province of British Columbia, four for the Province of Prince Edward Island, seventeen for the Province of Saskatchewan, seventeen for the Province of Alberta, seven for the Province of Newfoundland, one for the Yukon Territory and one for Mackenzie district of the Northwest Territories, thus making a total of two hundred and sixty-five members."

Enactment of an Electoral Boundaries Readjustment Act was being debated in the House of Commons throughout the spring of 1964 as required by the British North America Act, 1867 (Sect. 51), following the completion of the 1961 decennial census. The proposed legislation provides for the establishment of an electoral boundary commission for each province to prepare a report for the Representation Commissioner (SC 1963, c. 40) charged with the responsibility of transmitting a certified copy to the Speaker of the House of Commons setting forth the boundary commission's recommendations concerning the division of the province into electoral districts and concerning the description of the boundaries of each such district and the representation and name to be given thereto. The new boundary readjustment Act, if passed before this volume goes to press, will be outlined in the Appendix.

The number of representatives of each province elected at each of the 26 General Elections since Confederation is given in Table 9.

9.—Representation in the House of Commons, as at Federal General Elections 1867-1963

Province or Territory	1867	1872	1874 1878	1882	1887 1891	1896 1900	1904	1908 1911	1917 1921	1925 1926 1930	1935 1940 1945	1949	1953 1957 1958 1962 1963
Ontario	82	88	88	92	92	92	86	86	82	82	82	83	85
Quebec	65	65	65	65	65	65	65	65	65	65	65	73	75
Nova Scotia	19	21	21	21	21	20	18	18	16	14	12	13	12
New Brunswick	15	16	16	16	16	14	13	13	11	11	10	10	10
Manitoba	...	4	4	5	5	7	10	10	15	17	17	16	14
British Columbia	...	6	6	6	6	6	7	7	13	14	16	18	22
Prince Edward Island	...	...	6	6	6	5	4	4	4	4	4	4	4
Saskatchewan	...	...	...	...	4	4	10	10	16	21	21	20	17
Alberta	...	...	...	...				7	12	16	17	17	17
Yukon Territory	...	...	...	...	...	...	1	1	1	1	1	1	1
Mackenzie River, N.W.T.[1]													1
Newfoundland	...	...	...	...	...	...	...	...	...	...	...	7	7
Totals	**181**	**200**	**206**	**211**	**215**	**213**	**214**	**221**	**235**	**245**	**245**	**262**	**265**

[1] Northwest Territories in 1963.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964.

Speaker ..... Hon. ALAN A. MACNAUGHTON
Prime Minister ..... Rt. Hon. LESTER B. PEARSON
Leader of the Opposition ..... Rt. Hon. JOHN G. DIEFENBAKER
Clerk of the House of Commons ..... LÉON J. RAYMOND

NOTE.—The vote is summarized by provinces in Table 12, p. 77. The leaders of the political parties are indicated by asterisks (*). For Parliamentary Secretaries, see p. 63. This information, except the population of constituencies, has been supplied by the Chief Electoral Officer. Party affiliations are unofficial. Lib.=Liberal; P.C.=Progressive Conservative; S.C.=Social Credit; N.D.P.=New Democratic Party; R.Cr.=Le Ralliement des Creditistes; L.-Lab.=Liberal-Labour.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Newfoundland— (7 members)							
Bonavista-Twillingate	50,527	24,706	16,185	11,748	Hon. J. W. PICKERSGILL	Ottawa, Ont.	Lib.
Burin-Burgeo	48,673	22,684	14,682	12,167	C. W. CARTER	St. John's	Lib.
Grand Falls-White Bay-Labrador	82,433	41,239	25,977	18,233	C. R. M. GRANGER	St. John's	Lib.
Humber-St. George's	74,015	32,151	22,897	13,605	H. M. BATTEN	Corner Brook	Lib.
St. John's East	77,070	38,018	28,854	14,768	J. P. O'KEEFE	St. John's	Lib.
St. John's West	68,979	33,693	26,327	14,724	R. J. CASHIN	St. John's	Lib.
Trinity-Conception	56,156	28,830	17,253	12,331	J. R. TUCKER	St. John's	Lib.
Prince Edward Island— (4 members)							
Kings	17,893	9,969	9,108	4,705	J. MULLALLY	Souris	Lib.
Prince	40,894	20,588	17,675	8,967	Hon. J. W. MACNAUGHT	Ottawa, Ont.	Lib.
Queens	45,842	26,472	42,703	11,666	Hon. J. A. MACLEAN	Lewis, Beatons Mills	P.C.
				11,608	H. N. MACQUARRIE	Victoria	P.C.
Nova Scotia— (12 members)							
Antigonish-Guysborough	27,634	14,905	12,852	6,947	J. B. STEWART	Bayfield	Lib.
Cape Breton North-Victoria	50,957	25,646	21,490	10,508	R. MUIR	Sydney Mines	P.C.
Cape Breton South	85,001	42,671	36,986	14,307	D. MACINNIS	Glace Bay	P.C.
Colchester-Hants	60,751	34,513	29,511	14,387	C. F. KENNEDY	Truro	P.C.
Cumberland	37,767	21,573	18,079	9,034	R. C. COATES	Amherst	P.C.
Digby-Annapolis-Kings	76,073	39,793	34,091	16,887	Hon. G. C. NOWLAN	Wolfville	P.C.
Halifax	225,723	122,846	183,402	46,274	J. E. LLOYD	Halifax	Lib.
				45,173	G. A. REGAN	Halifax	Lib.
Inverness-Richmond	33,907	19,068	15,448	8,373	Hon. A. J. MACEACHEN	Ottawa, Ont.	Lib.
Pictou	43,908	24,809	20,793	10,566	H. R. MACEWAN	New Glasgow	P.C.
Queens-Lunenburg	48,153	29,684	24,105	12,591	L. R. CROUSE	Lunenburg	P.C.
Shelburne-Yarmouth-Clare	47,133	26,366	22,595	11,607	F. T. ARMSTRONG	Yarmouth	Lib.
New Brunswick— (10 members)							
Charlotte	23,285	13,726	11,939	6,279	A. M. A. MCLEAN	Blacks Harbour	Lib.
Gloucester	66,343	29,182	23,423	13,344	Hon. H.-J. ROBICHAUD	Ottawa, Ont.	Lib.
Kent	26,667	12,294	10,077	5,971	G. CROSSMAN	Buctouche	Lib.
Northumberland-Miramichi	50,035	23,240	18,182	10,148	G. R. MCWILLIAM	Newcastle	Lib.
Restigouche-Madawaska	79,956	36,012	29,139	14,111	J.-E. DUBÉ	Campbellton	Lib.
Royal	37,548	21,806	17,882	9,524	R. G. L. FAIRWEATHER	Rothesay	P.C.
Saint John-Albert	101,736	57,601	42,112	21,584	T. M. BELL	Saint John	P.C.
Victoria-Carleton	43,219	22,180	18,039	10,572	Hon. H. J. FLEMMING	Juniper	P.C.
Westmorland	93,679	50,361	41,905	19,989	S. H. RIDEOUT[1]	Moncton	Lib.
York-Sunbury	75,468	38,330	32,859	15,827	J. C. MACRAE	Fredericton	P.C.
Quebec— (75 members)							
Argenteuil-Deux-Montagnes	64,667	34,905	29,027	12,324	V. DROUIN	St. Eustache	Lib.

[1] Died May 29, 1963; see Appendix for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Quebec—continued							
Beauce	61,332	30,234	25,211	12,627	G. PERRON	St. Joseph de Beauce	S.C.[1]
Beauharnois-Salaberry	70,191	38,619	31,299	15,892	G. LANIEL	Valleyfield	Lib.
Bellechasse	32,513	15,834	12,336	5,434	H. LAVERDIÈRE	St. Lazare Village	Lib.
Berthier-Maskinongé-Delanaudière	48,749	25,806	20,573	8,471	R. PAUL	Louiseville	P.C.
Bonaventure	42,962	20,632	16,304	9,092	A. BÉCHARD	Carleton sur Mer	Lib.
Brome-Missisquoi	43,217	23,734	18,971	8,411	W. H. GRAFFTEY	Knowlton	P.C.
Chambly-Rouville	60,959	32,287	24,770	13,850	B. PILON	Beloeil	Lib.
Champlain	63,086	32,715	27,987	12,446	J.-P. MATTE	St. Tite	Lib.
Chapleau	71,394	33,901	25,130	14,701	G. LAPRISE	La Sarre	S.C.[1]
Charlevoix	48,906	24,136	20,184	7,390	L.-P.-A. BÉLANGER	Beaupré	S.C.[1]
Châteauguay-Huntingdon-Laprairie	61,729	33,660	23,262	10,746	I. WATSON	Howick	Lib.
Chicoutimi	83,635	38,087	31,541	14,581	M. CÔTÉ	Chicoutimi North	S.C.
Compton-Frontenac	42,366	20,227	15,931	6,234	H. LATULIPPE	Lac Mégantic	S.C.[1]
Dorchester	38,953	18,049	14,332	5,830	P.-A. BOUTIN	Ste. Marguerite de Dorchester	S.C.[1]
Drummond-Arthabaska	89,851	45,601	37,184	17,338	J.-L. PÉPIN	Drummondville	Lib.
Gaspé	65,300	29,804	23,982	10,738	A. CYR	Chandler	Lib.
Gatineau	58,771	31,116	25,030	11,589	R. LEDUC	Maniwaki	Lib.
Hull	86,563	44,713	37,379	19,667	A. CARON	Hull	Lib.
Iles-de-la-Madeleine	12,479	5,656	4,827	3,053	M. SAUVÉ	Montreal	Lib.
Joliette-L'Assomption-Montcalm	102,717	54,060	38,117	16,103	L.-E. PIGEON	Joliette	P.C.
Kamouraska	35,312	17,736	12,967	6,286	C.-E. DIONNE	St. Pascal	S.C.[1]
Labelle	45,701	22,228	17,487	6,951	G. GIROUARD	Mont Laurier	S.C.[1]
Lac-Saint-Jean	48,149	21,777	18,606	9,318	M. LESSARD	Alma	S.C.
Lapointe	74,408	33,482	28,455	13,312	G. GRÉGOIRE	Lapointe	S.C.[1]
Lévis	49,047	27,374	23,778	9,634	R. GUAY	Lauzon	Lib.
Longueuil	107,318	56,390	43,030	17,223	J.-P. CÔTÉ	Longueuil	Lib.
Lotbinière	38,529	18,301	16,028	6,957	A. CHOQUETTE	Quebec	Lib.
Matapédia-Matane	67,226	29,145	24,079	10,265	Hon R. TREMBLAY	Ottawa, Ont.	Lib.
Mégantic	70,064	33,276	26,055	11,329	R.-C. LANGLOIS	Thetford Mines	S.C.[1]
Montmagny-L'Islet	40,987	20,591	16,076	7,096	J. BERGER	Montmagny	Lib.
Nicolet-Yamaska	45,192	23,968	19,767	9,438	C. VINCENT	Ste. Perpétue	P.C.
Pontiac-Témiscamingue	41,069	20,000	17,029	6,449	Hon. P. MARTINEAU	Campbell's Bay	P.C.
Portneuf	48,137	25,385	20,564	11,473	J.-L. FRENETTE	St. Marc des Carrières	S.C.
Quebec East	92,170	54,163	44,873	18,661	R. BEAULÉ	Quebec	S.C.[1]
Quebec South	54,535	36,316	30,178	16,314	J.-C. CANTIN	Quebec	Lib.
Quebec West	57,763	33,006	27,539	13,136	L. PLOURDE	Quebec	S.C.[1]
Quebec-Montmorency	138,030	76,279	62,953	28,147	G. MARCOUX	Beauport	S.C.
Richelieu-Verchères	60,832	34,040	26,887	14,194	Hon. L. CARDIN	Ottawa, Ont.	Lib.
Richmond-Wolfe	60,534	28,473	22,195	8,762	P.-T. ASSELIN	Bromptonville	Lib.
Rimouski	75,076	35,921	29,394	12,414	G. OUELLET	St. Mathieu	S.C.[2]
Rivière-du-Loup-Témiscouata	58,909	26,916	22,710	10,753	R. GENDRON	Rivière du Loup	Lib.
Roberval	56,234	24,570	20,107	10,345	C.-A. GAUTHIER	Mistassini	S.C.[1]
Saint-Hyacinthe-Bagot	63,942	35,276	26,674	13,716	Hon. T. RICARD	St. Hyacinthe	P.C.
Saint-Jean-Iberville-Napierville	65,464	33,514	28,118	14,656	Y. DUPUIS	St. Jean	Lib.
Saint-Maurice-Laflèche	86,296	43,828	36,168	16,358	J. CHRÉTIEN	Shawinigan	Lib.
Saguenay	81,097	46,781	32,853	13,896	G. BLOUIN	Sept Îles	Lib.
Shefford	67,962	35,104	26,815	9,989	G. RONDEAU	St. Césaire	S.C.[1]
Sherbrooke	73,417	41,514	32,067	12,708	G. CHAPDELAINE	Sherbrooke	S.C.
Stanstead	43,309	23,844	18,899	7,649	Y. FOREST	Magog	Lib.
Terrebonne	102,450	55,872	41,716	19,015	L. CADIEUX	St. Jérôme	Lib.
Trois-Rivières	68,854	39,790	32,845	14,558	Hon. L. BALCER	Trois Rivières	P.C.
Vaudreuil-Soulanges	38,756	21,061	17,532	8,639	R. ÉMARD	Île Perrot	Lib.
Villeneuve	79,675	36,305	30,115	18,096	R. CAOUETTE[3]	Rouyn	S.C.[1]

[1] R.Cr. from September 1963. [2] P.C. from Apr. 25, 1964. [3] Leader of R.Cr. formed September 1963.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Quebec—concluded							
Montreal and Jesus Islands—							
Cartier	51,819	19,944	13,842	6,642	M. L. KLEIN	Montreal	Lib.
Dollard	107,394	58,212	41,808	23,764	G. ROULEAU	Montreal	Lib.
Hochelaga	79,912	46,587	28,717	13,093	R. EUDES	Montreal	Lib.
Jacques-Cartier-Lasalle	163,148	94,681	76,086	44,299	R. ROCK	Lachine	Lib.
Lafontaine	50,325	31,411	21,975	10,929	G.-C. LACHANCE	Montreal	Lib.
Laurier	45,652	26,870	18,226	8,059	Hon. L. CHEVRIER[1]	Ottawa, Ont.	Lib.
Laval	193,437	112,822	81,825	43,452	J.-L. ROCHON	Montreal	Lib.
Maisonneuve-Rosemont	108,023	64,850	42,704	20,595	Hon. J.-P. DESCHATELETS	Ottawa, Ont.	Lib.
Mercier	233,964	120,083	80,904	33,450	P. BOULANGER	Montreal	Lib.
Mont-Royal	128,524	74,982	54,180	37,648	Hon. A. A. MACNAUGHTON	Ottawa, Ont.	Lib.
Notre-Dame-de-Grâce	100,719	61,237	47,731	30,532	E.-T. ASSELIN	Montreal	Lib.
Outremont-Saint-Jean	63,888	33,945	23,856	13,305	Hon. M. LAMONTAGNE	Ottawa, Ont.	Lib.
Papineau	87,588	48,526	30,605	15,677	Hon. G. FAVREAU	Ottawa, Ont.	Lib.
St. Ann	38,173	19,601	12,989	7,215	G. LOISELLE	Montreal	Lib.
Saint-Antoine-Westmount	59,609	38,175	27,731	16,635	Hon. C. M. DRURY	Ottawa, Ont.	Lib.
Saint-Denis	65,090	36,516	23,341	11,707	Hon. A. DENIS[2]	Ottawa, Ont.	Lib.
Saint-Henri	71,691	39,202	27,604	13,981	H.-P. LESSARD	Montreal	Lib.
Saint-Jacques	54,679	33,045	20,592	7,841	M. RINFRET	Montreal	Lib.
St. Lawrence-St. George	34,020	22,294	14,880	8,552	J. N. TURNER	Montreal	Lib.
Sainte-Marie	56,455	32,253	20,491	8,549	G.-J. VALADE	Montreal	P.C.
Verdun	78,317	46,396	35,223	19,473	B. S. MACKASEY	Verdun	Lib.
Ontario— (85 members)							
Algoma East	54,868	25,104	20,897	10,817	Rt. Hon. L. B. PEARSON*	Ottawa	Lib.
Algoma West	80,542	41,161	34,132	14,023	G. E. NIXON	Sault Ste. Marie	Lib.
Brantford	54,392	30,700	25,115	10,804	J. E. BROWN	Brantford	Lib.
Brant-Haldimand	57,644	32,337	26,576	12,733	L. T. PENNELL	Brantford	Lib.
Bruce	29,334	17,382	14,541	7,451	J. LONEY	Tiverton	P.C.
Carleton	130,497	77,910	67,728	32,325	C. L. FRANCIS	Ottawa	Lib.
Cochrane	47,854	24,613	18,951	7,809	J.-A. HABEL	Kapuskasing	Lib.
Dufferin-Simcoe	53,226	26,173	21,738	10,278	J. E. MADILL	Orangeville	P.C.
Durham	39,916	21,873	18,994	8,720	R. C. HONEY	Port Hope	Lib.
Elgin	62,862	33,890	28,924	13,957	J. A. MCBAIN	St. Thomas	P.C.
Essex East	99,432	53,589	43,520	25,727	Hon. P. MARTIN	Ottawa	Lib.
Essex South	55,816	29,631	25,725	12,947	E. F. WHELAN	Amherstburg	Lib.
Essex West	101,526	55,689	41,877	23,165	H. E. GRAY	Windsor	Lib.
Fort William	57,642	30,885	26,436	11,765	H. BADANAI	Fort William	Lib.
Glengarry-Prescott	46,443	24,336	20,057	9,906	V. ETHIER	Glen Robertson	Lib.
Grenville-Dundas	40,026	22,592	18,155	10,434	JEAN CASSELMAN	Prescott	P.C.
Grey-Bruce	36,883	21,648	18,593	10,535	E. A. WINKLER	Hanover	P.C.
Grey North	38,824	23,110	19,225	9,804	P. V. NOBLE	Shallow Lake	P.C.
Halton	107,285	59,151	49,368	25,482	H. C. HARLEY	Oakville	Lib.
Hamilton East	65,287	36,132	28,397	13,167	J. C. MUNRO	Hamilton	Lib.
Hamilton South	121,161	67,669	54,451	19,205	W. D. HOWE	Hamilton	N.D.P.
Hamilton West	72,131	41,264	31,380	13,701	J. MACALUSO	Hamilton	Lib.
Hastings-Frontenac	48,217	26,206	20,637	12,321	R. A. WEBB	Norwood	P.C.
Hastings South	70,806	37,041	32,228	15,505	R. TEMPLE	Belleville	Lib.
Huron	48,355	26,076	22,547	12,224	L. E. CARDIFF	Brussels	P.C.
Kenora-Rainy River	72,775	36,006	27,327	16,794	Hon. W. M. BENIDICKSON	Ottawa	L.-Lab.
Kent	71,285	39,541	32,307	15,381	H. W. DANFORTH	Blenheim	P.C.
Kingston	76,485	40,993	34,198	18,425	E. J. BENSON	Kingston	Lib.
Lambton-Kent	43,235	24,323	20,233	9,520	MAC T. MCCUTCHEON	Florence	P.C.
Lambton West	78,482	41,342	32,760	15,978	W. F. FOY	Sarnia	Lib.
Lanark	40,081	22,565	18,579	10,475	G. H. DOUCETT	Carleton Place	P.C.
Leeds	47,121	26,867	22,183	12,113	J. R. MATHESON	Brockville	Lib.

[1] Resigned Dec. 27, 1963; appointed High Commissioner to Britain Feb. 3, 1964; see Table 11 for by-election.
[2] Resigned Dec. 27, 1963; appointed to the Senate Feb. 3, 1964; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Ontario—concluded							
Lincoln	126,674	70,159	55,846	25,902	J. C. McNULTY	St. Catharines	Lib.
London	73,970	44,283	34,229	15,700	J. A. IRVINE	Lambeth	P.C.
Middlesex East	101,721	57,158	44,599	19,850	C. E. MILLAR	London	P.C.
Middlesex West	45,731	25,585	21,299	10,247	W. H. A. THOMAS	Strathroy	P.C.
Niagara Falls	78,010	42,688	31,480	18,749	Hon. JUDY V. LAMARSH	Ottawa	Lib.
Nickel Belt	76,307	35,277	29,905	13,414	O.-J. GODIN	Sudbury	Lib.
Nipissing	68,173	34,851	27,984	16,547	Hon. J. R. GARLAND[1]	Ottawa	Lib.
Norfolk	50,475	27,464	22,973	10,862	J. M. ROXBURGH	Simcoe	Lib.
Northumberland	42,768	24,226	21,376	10,343	PAULINE JEWETT	Brighton	Lib.
Ontario	125,784	70,303	58,602	22,902	Hon. M. STARR	Oshawa	P.C.
Ottawa East	51,828	31,132	25,591	12,043	J.-T. RICHARD	Ottawa	Lib.
Ottawa West	67,131	38,934	31,169	18,634	Hon. G. J. McILRAITH	Ottawa	Lib.
Oxford	70,499	38,915	32,381	19,402	W. B. NESBITT	Woodstock	P.C.
Parry Sound-Muskoka	55,898	31,710	26,109	12,132	G. H. AIKEN	Gravenhurst	P.C.
Peel	111,575	65,035	53,517	28,009	B. S. BEER	Brampton	Lib.
Perth	55,816	32,760	27,028	15,328	Hon. J. W. MONTEITH	Stratford	P.C.
Peterborough	67,969	38,434	33,334	11,909	F. F. STENSON	Peterborough	P.C.
Port Arthur	87,977	43,314	35,828	16,141	D. M. FISHER	Ottawa	N.D.P.
Prince Edward-Lennox	37,758	21,051	17,532	8,869	A. D. ALKENBRACK	Napanee	P.C.
Renfrew North	55,616	26,368	23,478	11,580	J. M. FORGIE	Pembroke	Lib.
Renfrew South	35,929	19,760	17,774	8,765	J. J. GREENE	Arnprior	Lib.
Russell	124,368	62,929	52,664	31,182	P. TARDIF	Ottawa	Lib.
Simcoe East	58,773	30,591	25,236	12,662	P. B. RYNARD	Orillia	P.C.
Simcoe North	46,377	26,764	22,301	10,157	H. E. SMITH	Barrie	P.C.
Stormont	57,867	30,739	24,869	13,285	L. LAMOUREUX	Cornwall	Lib.
Sudbury	73,945	38,808	32,632	15,794	D. R. MITCHELL	Sudbury	Lib.
Timiskaming	50,654	26,290	21,800	7,356	A. PETERS	New Liskeard	N.D.P.
Timmins	48,956	25,067	19,967	8,452	M. W. MARTIN	Timmins	N.D.P.
Victoria	48,789	28,798	23,223	10,538	C. LAMB	Lindsay	P.C.
Waterloo North	115,579	66,651	51,036	22,007	O. W. WEICHEL	Elmira	P.C.
Waterloo South	61,175	34,875	28,270	11,479	G. CHAPLIN	Galt	P.C.
Welland	86,731	47,181	36,408	19,879	W. H. McMILLAN	Thorold	Lib.
Wellington-Huron	32,638	18,440	15,419	8,391	W. M. HOWE	Arthur	P.C.
Wellington South	59,150	33,436	28,822	11,350	A. D. HALES	Guelph	P.C.
Wentworth	99,940	54,814	44,612	18,589	J. B. MORISON	Hamilton	Lib.
York Centre	190,405	106,741	83,394	41,485	J. E. WALKER	Downsview	Lib.
York East	89,709	59,809	47,660	21,038	S. OTTO	Toronto	Lib.
York-Humber	90,618	55,860	44,552	20,188	R. B. COWAN	Toronto	Lib.
York North	100,874	56,201	45,382	21,668	J. H. ADDISON	King	Lib.
York-Scarborough	267,252	162,950	133,145	63,049	M. J. MOREAU	Scarborough	Lib.
York South	114,867	62,892	48,520	21,042	M. GELBER	Toronto	Lib.
York West	162,604	98,473	81,136	41,480	L. P. KELLY	Toronto	Lib.
City of Toronto—							
Broadview	56,982	29,775	21,605	8,743	D. G. HAHN	Toronto	Lib.
Danforth	88,988	52,116	41,019	14,903	R. SCOTT	Scarborough	N.D.P.
Davenport	64,520	26,604	20,366	11,023	Hon. W. L. GORDON	Ottawa	Lib.
Eglinton	70,470	49,709	41,694	22,215	Hon. M. SHARP	Ottawa	Lib.
Greenwood	58,548	31,243	24,305	9,421	F. A. BREWIN	Toronto	N.D.P.
High Park	60,630	32,232	25,429	13,034	A. J. P. CAMERON	Toronto	Lib.
Parkdale	59,145	34,078	25,052	12,694	S. HAIDASZ	Toronto	Lib.
Rosedale	56,015	31,442	23,711	12,860	D. S. MACDONALD	Toronto	Lib.
St. Paul's	53,155	38,323	28,296	15,891	I. G. WAHN	Toronto	Lib.
Spadina	83,424	37,793	27,592	14,850	S. P. RYAN	Toronto	Lib.
Trinity	64,902	26,533	19,940	10,595	Hon. P. T. HELLYER	Ottawa	Lib.
Manitoba— (14 members)							
Brandon-Souris	65,036	37,337	30,067	18,100	Hon. W. G. DINSDALE	Brandon	P.C.
Churchill	54,952	29,478	22,099	11,707	R. SIMPSON	Flin Flon	P.C.
Dauphin	40,179	22,854	17,646	7,541	R. E. FORBES	Dauphin	P.C.
Lisgar	46,397	25,173	19,468	9,698	G. R. *MUIR*	*Roland*	P.C.
Marquette	47,865	25,254	21,549	11,729	J. N. MANDZIUK	Oakburn	P.C.
Portage-Neepawa	57,958	31,913	24,892	12,532	S. J. ENNS	Portage la Prairie	P.C.
Provencher	40,314	20,925	14,671	6,729	W. H. JORGENSON	Morris	P.C.
St. Boniface	76,524	42,395	33,479	13,547	Hon. R.-J. TEILLET	St. Boniface	Lib.

[1] Died Mar. 14, 1964; see Appendix for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Manitoba—concluded							
Selkirk	50,320	26,999	20,043	10,096	E. STEFANSON	Gimli	P.C.
Springfield	48,343	26,331	20,198	9,552	J. B. SLOGAN	Selkirk	P.C.
Winnipeg North	116,266	65,992	51,106	18,512	D. ORLIKOW	Winnipeg	N.D.P.
Winnipeg North Centre	78,615	42,432	29,785	13,619	S. H. KNOWLES	Winnipeg	N.D.P.
Winnipeg South	113,629	68,016	56,463	24,467	MARGARET KONANTZ	Winnipeg	Lib.
Winnipeg South Centre	85,288	51,426	40,404	17,092	Hon. G. CHURCHILL	Winnipeg	P.C.
Saskatchewan— (17 members)							
Assiniboia	45,553	24,032	21,033	9,393	L. WATSON	Avonlea	P.C.
Humboldt-Melfort	48,243	25,779	21,304	12,010	R. R. RAPP	Spalding	P.C.
Kindersley	47,960	24,631	21,779	9,944	R. W. CANTELON	Unity	P.C.
Mackenzie	44,479	23,627	17,617	10,010	S. J. KORCHINSKI	Rama	P.C.
Meadow Lake	37,937	18,344	13,927	7,819	A. C. CADIEU	Spiritwood	P.C.
Melville	40,255	22,815	19,497	9,412	J. N. ORMISTON	Cupar	P.C.
Moose Jaw-Lake Centre	81,960	45,927	38,454	20,958	J. E. PASCOE	Moose Jaw	P.C.
Moose Mountain	44,404	23,313	20,122	9,949	R. R. SOUTHAM	Gainsborough	P.C.
Prince Albert	58,493	31,782	25,066	17,824	Rt. Hon. J. G. DIEFENBAKER*	Ottawa, Ont.	P.C.
Qu'Appelle	39,362	21,138	17,829	10,690	Hon. A. HAMILTON	Manotick, Ont.	P.C.
Regina City	89,293	50,600	42,662	19,605	K. H. MORE	Regina	P.C.
Rosetown-Biggar	47,208	25,237	21,717	11,984	C. O. COOPER	Hawarden	P.C.
Rosthern	46,954	23,657	18,895	11,351	E. NASSERDEN	Saskatoon	P.C.
Saskatoon	95,575	58,154	49,469	26,237	H. F. JONES[1]	Saskatoon	P.C.
Swift Current-Maple Creek	56,528	31,230	26,512	12,963	J. McINTOSH	Swift Current	P.C.
The Battlefords	51,613	26,725	20,890	12,108	A. R. HORNER	Blaine Lake	P.C.
Yorkton	49,364	28,560	23,200	12,443	G. D. CLANCY	Yorkton	P.C.
Alberta— (17 members)							
Acadia	47,724	24,356	20,539	10,616	J. H. HORNER	Pollockville	P.C.
Athabaska	59,184	28,223	22,237	12,074	F. J. BIGG	Westlock	P.C.
Battle River-Camrose	58,655	31,255	25,689	15,565	C. S. SMALLWOOD	Irma	P.C.
Bow River	62,806	31,912	25,112	11,461	E. M. WOOLLIAMS	Calgary	P.C.
Calgary North	134,783	72,693	57,038	21,966	Hon. D. S. HARKNESS	Calgary	P.C.
Calgary South	124,248	69,807	54,174	21,619	Hon. H. W. HAYS	Ottawa, Ont.	Lib.
Edmonton East	82,246	44,443	32,784	13,582	W. SKOREYKO	Edmonton	P.C.
Edmonton-Strathcona	121,124	66,269	53,646	18,880	T. J. NUGENT	Edmonton	P.C.
Edmonton West	150,257	79,781	63,204	26,578	Hon. M. LAMBERT	Ottawa, Ont.	P.C.
Jasper-Edson	70,088	35,923	26,405	14,776	H. M. HORNER	Barrhead	P.C.
Lethbridge	69,175	32,878	26,647	11,475	D. R. GUNDLOCK	Warner	P.C.
Macleod	50,966	25,928	21,674	9,785	L. E. KINDT	Nanton	P.C.
Medicine Hat	63,450	32,796	27,043	11,080	H. A. OLSON	Medicine Hat	S.C.
Peace River	75,811	39,275	27,666	16,111	G. W. BALDWIN	Peace River	P.C.
Red Deer	63,205	33,530	27,194	12,182	R. N. THOMPSON*	Red Deer	S.C.
Vegreville	42,798	23,416	19,139	12,859	F. J. W. FANE	Vegreville	P.C.
Wetaskiwin	55,424	28,435	21,973	11,601	H. A. MOORE	Wetaskiwin	P.C.
British Columbia— (22 members)							
Burnaby-Coquitlam	90,941	49,944	41,289	19,067	T. C. DOUGLAS*	Ottawa, Ont.	N.D.P.
Burnaby-Richmond	96,835	52,520	43,758	16,578	R. W. PRITTIE	Burnaby	N.D.P.
Cariboo	82,173	43,073	30,805	9,335	B. R. LEBOE	Prince George	S.C.
Coast-Capilano	113,734	65,669	54,155	27,177	J. DAVIS	West Vancouver	Lib.
Comox-Alberni	71,886	39,303	31,399	13,449	T. S. BARNETT	Alberni	N.D.P.
Esquimalt-Saanich	74,979	44,514	36,968	13,772	G. L. CHATTERTON	Royal Oak	P.C.
Fraser Valley	88,518	45,929	38,444	11,500	A. B. PATTERSON	Abbotsford	S.C.
Kamloops	73,446	37,988	29,433	8,604	C. J. M. WILLOUGHBY	Kamloops	P.C.
Kootenay East	41,449	22,164	18,438	6,165	J. A. BYRNE	Kimberley	Lib.
Kootenay West	57,136	29,939	23,046	8,595	H. W. HERRIDGE	Nakusp	N.D.P.
Nanaimo-Cowichan-The Islands	59,786	34,517	27,969	12,280	C. CAMERON	Lantzville	N.D.P.
New Westminster	142,803	79,027	64,220	23,609	B. MATHER	Ladner	N.D.P.

[1] Died Mar. 4, 1964; see Appendix for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1964—concluded.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
British Columbia—concluded							
Okanagan Boundary	66,180	37,010	30,495	10,031	D. V. PUGH	Oliver	P.C.
Okanagan-Revelstoke	36,009	19,545	16,572	5,800	S. A. FLEMING	Vernon	P.C.
Skeena	58,740	26,572	20,382	10,743	F. HOWARD	Kitimat	N.D.P.
Vancouver-Burrard	60,347	41,081	32,204	12,048	S. R. BASFORD	Vancouver	Lib.
Vancouver Centre	44,920	34,541	24,359	9,472	Hon. J. R. NICHOLSON	Ottawa, Ont.	Lib.
Vancouver East	59,496	31,920	23,594	12,688	H. E. WINCH	Vancouver	N.D.P.
Vancouver-Kingsway	67,228	37,858	29,772	13,966	A. A. WEBSTER	Vancouver	N.D.P.
Vancouver-Quadra	69,981	43,299	36,495	15,160	G. DEACHMAN	Vancouver	Lib.
Vancouver South	86,069	51,538	42,661	19,140	Hon. A. LAING	Ottawa, Ont.	Lib.
Victoria	86,426	53,123	43,771	15,040	D. W. GROOS	Victoria	Lib.
Yukon Territory—(1 member)							
Yukon	14,628	6,878	6,051	2,969	E. NIELSEN	Whitehorse	P.C.
Northwest Territories—(1 member)							
Northwest Territories	14,895	11,856	8,663	4,814	G. RHÉAUME	Yellowknife	P.C.

11.—By-elections from the Date of the Twenty-Sixth General Election, Apr. 8, 1963 to Apr. 30, 1964[1]

Electoral District and Province	Date of By-election	Voters on List	Candidates	Votes Polled	Name of New Member	P.O. Address	Party Affiliation
		No.	No.	No.			
Montreal-Laurier, Que.	Feb. 10, 1964	25,989	5	10,518	FERNAND-E. LEBLANC	Montreal	Lib.
Montreal-Saint-Denis, Que.	Feb. 10, 1964	35,500	6	15,656	MARCEL PRUD'HOMME	Montreal	Lib.

[1] By-elections held between Apr. 30, 1964 and the date of going to press will be carried in an Appendix to this volume.

Indemnities and Allowances.—Members of the Senate and House of Commons receive a sessional allowance at the rate of $12,000 per annum. In addition, for each session of Parliament, they may be paid travelling expenses between their place of residence or constituency and Ottawa as may be required for the performance of their duties as members of the Senate and House of Commons. Senators receive an annual expense allowance of $3,000 and members of Parliament receive an expense allowance of $6,000, neither of which is subject to income tax, and is payable quarterly. The member of the Senate occupying the recognized position as Leader of the Government in the Senate is paid, in addition to his sessional allowance, an annual allowance of $10,000 and to the member of the Senate occupying the recognized position as Opposition Leader in the Senate there is paid, in addition to his sessional allowance, an annual allowance of $6,000; but if the Leader of the Government is in receipt of a salary under the Salaries Act the annual allowance is not paid. The remuneration of the Prime Minister is $25,000 a year and of a Cabinet Minister and the Leader of the Opposition in the House of Commons $15,000 a year in addition to the sessional and expense allowances each receives as a member of Parliament. The remuneration of a Minister without Portfolio is $7,500 a year in addition to the

sessional and expense allowances, the latter being not taxable. Additional annual allowances of $4,000 (beyond the above-noted sessional allowance) are provided to each Leader of a Party having a recognized membership of twelve or more persons in the House of Commons other than the Prime Minister and the member occupying the recognized position as Leader of the Opposition in the House of Commons and, likewise, to the Chief Government Whip and to the Chief Opposition Whip in the House of Commons. The Speaker of the Senate and the Speaker of the House of Commons each receives, besides the sessional allowance and expense allowance, a salary of $9,000 per annum. The Deputy Speaker of the House of Commons receives a salary of $6,000 per annum. The Speakers of the Senate and the House of Commons are also entitled to $3,000 in lieu of residence and the Deputy Speaker of the House of Commons an allowance of $1,500 in lieu of residence; these allowances are not taxable. The Deputy Chairman of Committees receives an annual allowance of $2,000. Parliamentary Secretaries to the Ministers of the Crown receive an annual allowance of $4,000 a year, in addition to their sessional and expense allowances. A motor vehicle allowance of $2,000 is paid to each Minister of the Crown and to the recognized Leader of the Opposition in the House of Commons, and a motor vehicle allowance of $1,000 is paid to the Speakers of the Senate and of the House of Commons; these allowances are not taxable.

A member of Parliament contributes, by reservation, 6 p.c. of his full sessional indemnity toward his retirement allowance, which is based on five twelfths of the total contributions, paid or elected to be paid; to the widow of an ex-member is paid three fifths of the allowance paid or payable to the ex-member at the time of his death. The maximum allowance payable to an ex-member is $9,000 per annum and the maximum payable to the widow of an ex-member is $5,400 per annum.

Every former Prime Minister who held office for four years will receive from the Consolidated Revenue Fund an allowance of two thirds of the annual salary provided for Prime Ministers under the Salaries Act, the allowance to commence when the former Prime Minister ceases to hold office, or attains the age of 70 years, whichever is the later, and to continue during his lifetime. The widow of a Prime Minister will receive an annual payment of one third of the allowance that was being paid or that would have been paid to her husband, where he dies without receiving the allowance, such allowance to commence immediately after the death of her husband and to continue during her natural life or until her remarriage. None of these allowances is payable while the recipient is a Senator or a member of the House of Commons.

The latest revision of indemnities and allowances for members of the Senate and of the House of Commons was provided for in an amendment to the Senate and House of Commons Act and the Members of Parliament Retiring Act (SC 1963, c. 14) and became effective Apr. 8, 1963.

The Federal Franchise.—The present federal franchise laws are contained in the Canada Elections Act (SC 1960, c. 39). The franchise is conferred upon all Canadian citizens or British subjects, men and women, who have attained the age of 21 years, are ordinarily resident in the electoral district on the date of the issue of the writ ordering an election and, in the case of British subjects other than Canadian citizens, have been ordinarily resident in Canada for twelve months prior to polling day at such election. Persons denied the right to vote are:—

(1) the Chief Electoral Officer and the Assistant Chief Electoral Officer;
(2) judges appointed by the Governor General in Council;
(3) the returning officer for each electoral district;
(4) persons undergoing punishment as inmates of any penal institution for the commission of any offence;
(5) persons restrained of their liberty or deprived of the management of their property by reason of mental disease; and
(6) persons disqualified under any law relating to the disqualification of electors for corrupt and illegal practices.

Prior to July 1, 1960, the list of persons denied the right to vote included "Indians ordinarily resident on an Indian reserve who were not members of His Majesty's Forces in World Wars I or II or who did not execute a waiver of exemption under the Indian Act from taxation on and in respect of personal property". Legislation proclaimed on the above-mentioned date confers upon all Indians who have attained the age of 21 years the right to vote at federal elections, without taking from them any of the rights and privileges to which they are entitled under the Indian Act. The Eskimos who are Canadian citizens possess the right to vote in federal elections, and the assumption of that right in the far-flung communities of the Canadian Far North has grown with Government establishment of electoral districts and polling facilities.

The Canadian Forces Voting Rules set out in Schedule II to the Canada Elections Act prescribe voting procedure for members of the Armed Forces of Canada and also for veterans in receipt of treatment or domiciliary care in certain institutions.

12.—Voters on the Lists and Votes Polled at the Federal General Elections of 1958, 1962 and 1963

NOTE.—Corresponding statistics for the General Elections of 1911, 1917, 1921 and 1925 are given in the 1926 Year Book, p. 82; those for 1926 in the 1945 edition, p. 66; those for 1930 and 1935 in the 1948-49 edition, p. 94; those for 1940 in the 1956 edition, p. 81; those for 1945 in the 1957-58 edition, p. 57; and those for 1949, 1953 and 1957 in the 1962 edition, p. 71.

Province or Territory	Voters on the Lists			Votes Polled		
	1958	1962	1963	1958	1962	1963
	No.	No.	No.	No.	No.	No.
Newfoundland	204,778	215,565	221,321	160,928	155,263	152,175
Prince Edward Island	54,200	56,542	57,029	69,302[1]	73,509[1]	69,486[1]
Nova Scotia	390,196	398,161	401,874	418,479[2]	423,556[2]	419,352[2]
New Brunswick	294,387	302,313	304,732	249,706	252,053	245,557
Quebec	2,576,682	2,728,191	2,807,634	2,045,199	2,117,644	2,143,246
Ontario	3,189,422	3,397,647	3,455,363	2,534,555	2,719,020	2,799,870
Manitoba	481,552	508,920	516,525	385,648	393,023	401,870
Saskatchewan	488,139	502,495	505,551	399,949	426,426	419,973
Alberta	608,820	680,253	700,920	452,977	505,752	552,164
British Columbia	830,237	891,686	921,074	629,982	691,930	740,229
Yukon Territory[3]	6,071	6,762	6,878	5,469	5,978	6,051
Northwest Territories[4]	6,716	11,790	11,856	4,945	8,502	8,663
Totals	**9,131,200**	**9,700,325**	**9,910,757**	**7,357,139**	**7,772,656**	**7,958,636**

[1] Each voter in the double-member constituency of Queens County, P.E.I., had two votes; in 1963, 26,472 voters on the list cast 42,703 votes. [2] Each voter in the double-member constituency of Halifax, N.S., had two votes; in 1963, 122,846 voters on the list cast 183,402 votes. [3] Electoral District of Yukon. [4] Electoral District of Mackenzie River in 1958 and 1962 and Electoral District of Northwest Territories in 1963.

Subsection 3.—The Judiciary

The Federal Judiciary

The Parliament of Canada is empowered by Sect. 101 of the British North America Act from time to time to provide for the constitution, maintenance and organization of a general Court of Appeal for Canada and for the establishment of any additional courts for the better administration of the laws of Canada. Under this provision, Parliament has established the Supreme Court of Canada, the Exchequer Court of Canada and certain miscellaneous courts.

Supreme Court of Canada.—This Court, first established in 1875 and now governed by the Supreme Court Act (RSC 1952, c. 259), consists of a chief justice, who is called the Chief Justice of Canada, and eight puisne judges. The chief justice and the puisne judges are appointed by the Governor in Council and they hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa

and exercises general appellate jurisdiction throughout Canada in civil and criminal cases. The Court is also required to consider and advise upon questions referred to it by the Governor in Council and it may also advise the Senate or the House of Commons on private Bills referred to the Court under any rules or orders of the Senate or of the House of Commons.

Appeals may be brought from any final judgment of the highest court of final resort in a province in any case where the amount or value of the matter in controversy exceeds the sum of $10,000. An appeal may be brought from any other final judgment with leave of the highest court of final resort in the province; if such court refuses to grant leave, the Supreme Court of Canada may grant leave to appeal. The Supreme Court may grant leave to appeal from any judgment whether final or not. Appeals in respect of indictable offences are regulated by the Criminal Code. Appeals from federal courts are regulated by the statute establishing such courts. The judgment of the Supreme Court of Canada in all cases is final and conclusive.

13.—Chief Justice and Judges of the Supreme Court of Canada, as at Apr. 30, 1964

(In order of seniority)

Name	Date of Appointment
Hon. Chief Justice ROBERT TASCHEREAU	Apr. 23, 1963[1]
Hon. Justice JOHN R. CARTWRIGHT	Dec. 23, 1949
Hon. Justice J. H. GERALD FAUTEUX	Dec. 23, 1949
Hon. Justice DOUGLAS CHARLES ABBOTT	July 1, 1954
Hon. Justice RONALD MARTLAND	Jan. 15, 1958
Hon. Justice WILFRED JUDSON	Feb. 5, 1958
Hon. Justice ROLAND A. RITCHIE	May 5, 1959
Hon. Justice EMMETT M. HALL	Nov. 23, 1962
Hon. WISHART FLETT SPENCE	May 30, 1963

[1] First appointed a Judge of the Supreme Court, Feb. 9, 1940.

Exchequer Court of Canada.—The Exchequer Court was first established in 1875 as part of the Supreme Court of Canada but is now a separate court governed by the Exchequer Court Act (RSC 1952, c. 98). The Court consists of a president and six puisne judges who are appointed by the Governor in Council. The president and the puisne judges hold office during good behaviour but may be removed by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and also at any other place in Canada where sittings may be fixed by the Court. The jurisdiction of the Court extends to cases where claims are made by or against the Crown in right of Canada. Proceedings against the Crown are taken by petition of right pursuant to the Petition of Right Act (RSC 1952, c. 210).

An appeal lies to the Supreme Court of Canada from any final judgment of the Exchequer Court in which the amount in controversy exceeds $500; an appeal also lies with leave of the Supreme Court in certain cases where the amount in controversy does not exceed $500 or where the judgment is not final.

The Exchequer Court also exercises admiralty jurisdiction in Canada. This was first conferred in 1891 by the Admiralty Act (SC 1891, c. 29) and is now governed by the Admiralty Act (RSC 1952, c. 1). Under this statute, the Exchequer Court is continued as a Court of Admiralty. The president and puisne judges of the Exchequer Court exercise admiralty jurisdiction throughout the whole of Canada. In addition, Canada is divided into various admiralty districts; a district judge in admiralty is appointed for each district. Appeals to the Supreme Court of Canada from judgments of the president or the puisne

judges are governed by the general appeal provisions in the Exchequer Court Act. Appeals may be taken from a final judgment of a district judge in admiralty either to the Exchequer Court or direct to the Supreme Court of Canada.

Miscellaneous Courts.—*Railway Act.*—The Railway Act, 1903 (RSC 1952, c. 234) established the Board of Railway Commissioners for Canada as a court of record; by the Transport Act, 1938 (RSC 1952, c. 271) the name was changed to the Board of Transport Commissioners for Canada. This Court exercises jurisdiction with respect to railway matters. The Governor in Council is given jurisdiction to vary any order of the Board and an appeal lies from the Board to the Supreme Court of Canada upon a question of jurisdiction or a question of law.

Bankruptcy Act.—By virtue of Sect. 91(21) of the British North America Act, 1867, Parliament has exclusive legislative jurisdiction in relation to bankruptcy and insolvency. By the Bankruptcy Act (RSC 1952, c. 14) the superior courts of the provinces are constituted bankruptcy courts; original jurisdiction is conferred upon the trial courts and appellate jurisdiction is conferred upon the appeal courts of the provinces.

Income Tax Act and Estate Tax Act.—By the Income Tax Act (RSC 1952, c. 148) the Tax Appeal Board is established consisting of a chairman and not fewer than two or more than four members with jurisdiction over appeals against income tax assessments. A further appeal may be taken to the Exchequer Court. Under the Estate Tax Act (SC 1958, c. 29) the Tax Appeal Board also has jurisdiction to hear appeals from assessments under that Act.

Provincial and Territorial Judiciaries*

Certain provisions of the British North America Act govern to some extent the provincial judiciaries. Under Sect. 92 (14) the legislature of each province exclusively may make laws in relation to the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction. Sect. 96 provides that the Governor General shall appoint the judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick. Sect. 100 provides that the salaries, allowances and pensions of judges of the superior, district and county courts (except the courts of probate in Nova Scotia and New Brunswick) are to be fixed and provided by the Parliament of Canada and these are set out in the Judges Act (RSC 1952, c. 159 and amendments). Under Sect. 99, the judges of the superior courts hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The tenure of office of district and county court judges is fixed by the Judges Act as being during good behaviour and their residence within the area for which the court is established.

All provinces have minor courts with limited civil and criminal jurisdiction, the judges of which are appointed by provincial authority as, for example, justices of the peace, magistrates and juvenile court judges. Except in Quebec, there are county or district courts of each province with limited jurisdiction varying from $500 to $2,500 in amount. Each province has a superior court with virtually unlimited jurisdiction variously known as Court of Queen's Bench, Supreme Court, Superior Court, etc. There is also a Court of Appeal in each province.

The Yukon Act and the Northwest Territories Act each provide for a superior court of record in and for the Territory, called the Territorial Court, and consisting of one or more judges appointed by the Governor in Council. The judges of the Territorial Court of the Yukon Territory are ex officio judges of the Territorial Court of the Northwest Territories and vice versa. In 1960 the two Acts were amended to provide for a Court of Appeal in each of the Territories. Police magistrates and justices of the peace have jurisdiction in minor civil and criminal cases.

* More detailed information concerning provincial judiciaries is given in the 1954 Year Book, pp. 48-55.

Section 2.—Provincial and Territorial Governments*

In each of the provinces, the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council. The Lieutenant-Governor acts on the advice and with the assistance of his Ministry or Executive Council which is responsible to the Legislature and resigns office under circumstances similar to those described on p. 62 concerning the Federal Government.

The Legislature of each province is unicameral, consisting of the Lieutenant-Governor and a Legislative Assembly, except for the Province of Quebec where there is a Legislative Council as well as a Legislative Assembly. The Legislative Assembly is elected by the people for a statutory term of five years but may be dissolved within that period by the Lieutenant-Governor on the advice of the Premier of the province.

The source of legislative authority of the Provincial Legislatures is the British North America Act, 1867 (Br. Stat. 1867, c. 3 and amendments). Under Sect. 92 of the Act, the Legislature of each province exclusively may make laws in relation to the following matters: amendment of the constitution of the province except as regards the Lieutenant-Governor; direct taxation within the province; borrowing of money on the credit of the province; establishment and tenure of provincial offices and appointment and payment of provincial officers; the management and sale of public lands belonging to the province and of the timber and wood thereon; the establishment, maintenance and management of public and reformatory prisons in and for the province; the establishment, maintenance and management of hospitals, asylums, charities and eleemosynary institutions in and for the province, other than marine hospitals; municipal institutions in the province; shop, saloon, tavern, auctioneer and other licences issued for the raising of provincial or municipal revenue; local works and undertakings other than interprovincial or international lines of ships, railways, canals, telegraphs, etc., or works which, though wholly situated within one province, are declared by the Federal Parliament to be for the general advantage either of Canada or of two or more provinces; the incorporation of companies with provincial objects; the solemnization of marriage in the province; property and civil rights in the province; the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction including procedure in civil matters in these courts; the imposition of punishment by fine, penalty or imprisonment for enforcing any law of the province relating to any of the aforesaid subjects; generally all matters of a merely local or private nature in the province.

Further, in and for each province the Legislature exclusively may, under Sect. 93, make laws in relation to education subject to certain restrictions relating to the establishment of schools by religious minorities. These powers with similar restrictions were conferred on the more recently admitted provinces on their inclusion in the federation.

The Provincial Legislatures may also make laws under Sect. 95 in relation to agriculture and immigration, subject to any laws of the Parliament of Canada in relation to these subjects.

Provincial Franchise.—Details regarding qualifications and disqualifications of the franchise are contained in the Elections Act of each province. In general, every person, male or female, at the age of 21 years who is a Canadian citizen or other British subject, who complies with certain residence requirements in the province and the electoral district of polling and who falls under no statutory disqualifications, is entitled to vote. These qualifications apply with modifications to voters in six of the ten provinces. The exceptions give voting privileges to persons in Quebec and Saskatchewan at the age of 18 and in Alberta and British Columbia at 19 years.

* The information given in Subsections 1 to 7, 9 and 10 of this Section is brought up to Apr. 30, 1964; Subsection 8 is as at June 10, 1964, the date of availability of information following the Saskatchewan General Election of Apr. 22, 1964. Any important changes occurring between those dates and the time of going to press will be found in an Appendix to this volume.

Subsection 1.—Newfoundland

The Government of Newfoundland consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Legislative Assembly has 42 members elected for a term of five years. The Legislature elected Nov. 19, 1962 is the 33rd in the history of Newfoundland and the 5th since Confederation.

Since the date of Confederation, Mar. 31, 1949, the province has had four Lieutenant-Governors: the Hon. Sir Albert Joseph Walsh commissioned Apr. 1, 1949; the Hon. Lt.-Col. Sir Leonard Outerbridge commissioned Sept. 5, 1949; the Hon. Campbell Macpherson commissioned Dec. 16, 1957; and the Hon. Fabian O'Dea commissioned Mar. 1, 1963. The first Ministry, formed on July 13, 1949 under the leadership of the Hon. Joseph R. Smallwood, was still in office on Apr. 30, 1964.

The Premier receives a salary of $10,000 and the other Cabinet Ministers $9,000 per annum, plus a sessional indemnity of $3,333.33 and a travelling and expense allowance of $2,166.66. Each member of the House of Assembly receives a sessional indemnity of $3,333.33 plus a travelling and expense allowance of $1,666.66. An additional allowance of $3,000 is made to the Leader of the Opposition.

14.—First Ministry of Newfoundland, as at Apr. 30, 1964

(Party standing at latest General Election, Nov. 19, 1962: 34 Liberal, 7 Progressive Conservative and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Economic Development	Hon. J. R. Smallwood	Apr. 1, 1949	Apr. 1, 1949
Attorney General	Hon. L. R. Curtis	Apr. 1, 1949	Apr. 1, 1949
Minister of Mines, Agriculture and Resources	Hon. W. J. Keough	July 29, 1949	May 1, 1957
Minister of Labour	Hon. C. H. Ballam	Apr. 4, 1950	Apr. 4, 1950
Minister of Finance	Hon. E. S. Spencer	July 29, 1949	May 1, 1957
Minister of Public Works	Hon. J. R. Chalker	Apr. 4, 1950	May 1, 1957
Minister of Highways	Hon. F. W. Rowe	May 21, 1952	May 11, 1959
Minister without Portfolio	Hon. P. J. Lewis	Dec. 15, 1951	Dec. 15, 1951
Minister of Public Welfare and Solicitor General	Hon. M. P. Murray	Dec. 15, 1951	Feb. 15, 1963 Apr. 10, 1955
Minister of Provincial Affairs	Hon. J. T. Cheeseman	May 1, 1957	Feb. 15, 1963
Minister of Health	Hon. J. M. McGrath	July 5, 1956	Aug. 7, 1956
Minister of Municipal Affairs and Supply	Hon. B. J. Abbott	May 1, 1957	May 1, 1957
Minister of Education	Hon. G. A. Frecker	Aug. 26, 1959	Aug. 26, 1959
Minister of Fisheries	Hon. C. M. Lane	June 12, 1961	Feb. 15, 1963

Subsection 2.—Prince Edward Island

The Government of Prince Edward Island consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1873) to 1959 are cited in the 1960 Year Book, p. 105; since that date, the position has been held by the Hon. F. W. Hyndman, appointed effective Mar. 31, 1958, followed by the Hon. W. J. MacDonald, appointed effective Aug. 1, 1963.

The General Assembly elected Dec. 10, 1962 is the 50th in the history of Prince Edward Island Legislatures and the 25th since Confederation. It has 30 members from 15 electoral districts who serve for a statutory term of five years. One half of the members of the Legislative Assembly are elected on a property vote. Each district elects one Councillor (elected on a property vote) and one Assembly member (elected on a general franchise vote). Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 105.

The annual salary of the Premier is $8,000 and that of a Cabinet Minister $5,000. Each member of the Assembly is paid $2,000 for each session attended by him and an

additional $1,000 tax free as indemnity for expenses and travelling. The Speaker is paid an additional $666.60 and a further additional $333.40 tax free as indemnity for expenses and travelling. The Leader of the Opposition is paid an additional $1,000 and a further additional $500 tax free for expenses and travelling.

15.—Legislatures of Prince Edward Island, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 75; for 1924-35 in the 1938 edition, p. 110; and for 1936-43 in the 1963-64 edition, p. 82.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Sept. 15, 1943	20th	4	Feb. 15, 1944	Oct. 27, 1947
Dec. 11, 1947	21st	5	Feb. 24, 1948	Mar. 30, 1951
Apr. 26, 1951	22nd	6	Oct. 23, 1951	Apr. 27, 1955
May 25, 1955	23rd	4	Feb. 2, 1956	Aug. 3, 1959
Sept. 1, 1959	24th	4	Mar. 1, 1960	Nov. 8, 1962
Dec. 10, 1962	25th	[1]	Mar. 14, 1963	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

16.—Twenty-Fourth Ministry of Prince Edward Island, as at Apr. 30, 1964

(Party standing at latest General Election, Dec. 10, 1962: 19 Progressive Conservative and 11 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Executive Council	Hon. WALTER R. SHAW	Sept. 16, 1959	Sept. 16, 1959
Minister of Public Works and Minister of Highways	Hon. J. PHILIP MATHESON	Sept. 16, 1959	Jan. 3, 1963
Minister of Education	Hon. L. GEORGE DEWAR	Sept. 16, 1959	Jan. 3, 1963
Minister of Industry and Natural Resources and Minister of Fisheries	Hon. LEO F. ROSSITER	Sept. 16, 1959	Jan. 3, 1963
Minister of Health	Hon. HUBERT B. MCNEILL	Sept. 16, 1959	Jan. 3, 1963
Provincial Treasurer, Attorney and Advocate General	Hon. M. ALBAN FARMER	Jan. 3, 1963	Jan. 3, 1963
Provincial Secretary, Minister of Tourist Development and Minister of Municipal Affairs	Hon. J. DAVID STEWART	Sept. 16, 1959	Jan. 3, 1963
Minister of Welfare and Labour	Hon. HENRY W. WEDGE	Sept. 16, 1959	Jan. 3, 1963
Minister of Agriculture	Hon. ANDREW B. MACRAE	Sept. 16, 1960	Jan. 3, 1963

Subsection 3.—Nova Scotia

The Government of Nova Scotia consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 106; since that date the position has been held by Maj.-Gen. the Hon. E. C. Plow, commissioned to office Sept. 1, 1958, followed by the Hon. H. P. MacKeen, commissioned to office Mar. 1, 1963.

The Legislature has 43 members elected for a maximum term of five years. The Legislature elected Oct. 8, 1963 is the 48th in Nova Scotia's history and the 25th since Confederation. Premiers since Confederation are listed in the 1960 Year Book, p. 107.

The Premier of the province receives a salary of $12,000 per annum and each Cabinet Minister a salary of $10,000 per annum. Each member of the House of Assembly receives a sessional indemnity of $3,200 and an allowance of $1,600 for expenses incidental to the discharge of his duties. The Leader of the Opposition receives an allowance of $7,200 in addition to his sessional indemnity.

17.—Legislatures of Nova Scotia, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 76; for 1924-33 in the 1938 edition, p. 111; and for 1939-44 in the 1963-64 edition, p. 83.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 23, 1945	20th	4	Mar. 14, 1946	Apr. 27, 1949
June 9, 1949	21st	4	Mar. 21, 1950	Apr. 14, 1953
May 26, 1953	22nd	3	Feb. 24, 1954	Sept. 20, 1956
Oct. 30, 1956	23rd	3	Feb. 27, 1957	Apr. 26, 1960
June 7, 1960	24th	3	Feb. 8, 1961	Aug. 29, 1963
Oct. 8, 1963	25th	[1]	Feb. 6, 1964	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

18.—Seventeenth Ministry of Nova Scotia, as at Apr. 30, 1964

(Party standing at latest General Election, Oct. 8, 1963: 39 Progressive Conservative and 4 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Education	Hon. R. L. STANFIELD	Nov. 20, 1956	Nov. 20, 1956
Minister of Finance and Economics and Chairman of the Nova Scotia Power Commission	Hon. G. I. SMITH	Nov. 20, 1956	May 2, 1962 Nov. 20, 1956
Attorney General and Minister of Public Health	Hon. R. A. DONAHOE	Nov. 20, 1956	Nov. 20, 1956
Minister of Public Works and Minister of Highways	Hon. S. T. PYKE	Nov. 20, 1956	Nov. 20, 1956 May 2, 1962
Minister of Agriculture and Marketing and Minister of Lands and Forests	Hon. E. D. HALIBURTON	Nov. 20, 1956	Nov. 20, 1956 July 27, 1959
Minister of Trade and Industry and Minister of Fisheries	Hon. E. A. MANSON	Nov. 20, 1956	Nov. 20, 1956 Apr. 7, 1964
Minister of Municipal Affairs and Minister of Labour	Hon. N. L. FERGUSSON	Nov. 20, 1956	July 27, 1959 May 2, 1962
Provincial Secretary, Minister of Public Welfare, Minister in charge of Emergency Measures Organization and Minister under the Water Act	Hon. W. S. KENNEDY JONES	Apr. 21, 1960	Oct. 20, 1960 Oct. 20, 1960 May 2, 1962
Minister of Mines and Minister in charge of the Liquor Control Act	Hon. DONALD M. SMITH	Oct. 13, 1960	Dec. 12, 1961 Oct. 13, 1960
Minister without Portfolio	Hon. GEORGE A. BURRIDGE	Oct. 13, 1960	Oct. 13, 1960

Subsection 4.—New Brunswick

The Government of New Brunswick has a Lieutenant-Governor, an Executive Council and a House of Assembly. The Hon. J. Leonard O'Brien, Lieutenant-Governor at Apr. 30, 1964, was commissioned to office June 6, 1958. Lieutenant-Governors since Confederation (1867) are cited in the 1960 Year Book, p. 108.

The Legislature elected Apr. 22, 1963 is the 45th in New Brunswick's history and the 18th since Confederation. It has 52 members who are elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 108.

The Premier receives $7,500 per annum in addition to the salary for any other portfolio he may hold. The salary of each Cabinet Minister is $10,000 and the amount paid as indemnity to each member of the House of Assembly is $3,400 plus an additional $1,700 allowance for expenses. The Leader of the Opposition receives an additional $6,000 and the Speaker receives an allowance of $4,000 in addition to the regular indemnity.

19.—Legislatures of New Brunswick, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 77; for 1924-35 in the 1938 edition, p. 112; and for 1936-44 in the 1963-64 edition, p. 84.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 28, 1944	13th	4	Feb. 20, 1945	May 18, 1948
June 28, 1948	14th	4	Mar. 8, 1949	July 16, 1952
Sept. 22, 1952	15th	4	Feb. 12, 1953	Apr. 17, 1956
June 18, 1956	16th	4	Feb. 21, 1957	May 19, 1960
June 27, 1960	17th	3	Nov. 17, 1960	Mar. 12, 1963
Apr. 22, 1963	18th	[1]	May 28, 1963	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

20.—Twenty-Third Ministry of New Brunswick, as at Apr. 30, 1964

(Party standing at latest General Election, Apr. 22, 1963: 31 Liberal and 21 Progressive Conservative.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Attorney General	Hon. LOUIS J. ROBICHAUD	July 12, 1960	July 12, 1960
Minister of Finance and Industry	Hon. L. G. DESBRISAY	July 12, 1960	July 12, 1960
Minister of Lands and Mines	Hon. H. G. CROCKER	July 12, 1960	July 12, 1960
Minister of Education	Hon. HENRY G. IRWIN	July 12, 1960	July 12, 1960
Minister of Public Works	Hon. ANDREW F. RICHARD	July 12, 1960	July 12, 1960
Minister of Agriculture	Hon. J. ADRIEN LÉVESQUE	July 12, 1960	July 12, 1960
Minister of Health	Hon. GEORGE L. DUMONT	July 12, 1960	July 12, 1960
Minister of Labour	Hon. KENNETH J. WEBBER	July 12, 1960	July 12, 1960
Minister of Municipal Affairs	Hon. JOSEPH E. LEBLANC	July 12, 1960	July 12, 1960
Chairman, New Brunswick Electric Power Commission	Hon. D. A. RILEY	May 28, 1963	July 3, 1963
Minister of Youth and Welfare	Hon. WILLIAM R. DUFFIE	July 12, 1960	Nov. 30, 1960
Minister of Fisheries	Hon. ERNEST RICHARD	May 28, 1963	July 8, 1963
Provincial Secretary	Hon. DONALD HARPER	July 12, 1960	July 8, 1963

Subsection 5.—Quebec

The Government of Quebec consists of a Lieutenant-Governor, an Executive Council and a bicameral legislature—the Legislative Council and the Legislative Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 109; since that date the position has been held by the Hon. Onésime Gagnon, commissioned to office Feb. 14, 1958 followed by the Hon. Paul Comtois, commissioned to office Oct. 6, 1961.

The Legislative Council has 24 members nominated for life by the Lieutenant-Governor in Council. The Legislative Assembly has 95 elected members and, like the Legislative Council, has the power to bring forward Bills relating to civil and administrative matters and to the amendment or repeal of existing laws. A Bill to be approved by the Lieutenant-Governor must have received the assent of both Houses. Only the Legislative Assembly can bring forward a Bill requiring the expenditure of public money. The

maximum life of a legislature is five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 110.

Each member of the Legislative Council and the Legislative Assembly receives a sessional indemnity of $10,000, plus an expense allowance of $2,000 to each Legislative Councillor and $5,000 to each member of the Legislative Assembly. In addition to this sessional indemnity and allowance, the Premier receives an annual indemnity of $12,000, an expense allowance of $4,000 and a lodging allowance of $2,000; Ministers with Portfolio each receive an annual indemnity of $10,000 plus a $5,000 expense allowance; Ministers without Portfolio each receive an indemnity of $5,000 plus a $2,000 expense allowance; the Speaker of the Legislative Assembly receives an indemnity of $8,000, an expense allowance of $1,000 and a lodging allowance of $1,000 and the Deputy Speaker receives an indemnity of $5,000 and an expense allowance of $1,000; the Leader of the Opposition in the Assembly receives an indemnity of $8,000, an expense allowance of $2,000 and a lodging allowance of $2,000; the Leader of the Government and the Leader of the Opposition in the Legislative Council each receive an additional sessional indemnity of $2,000 plus a $3,000 expense allowance.

21.—Legislatures of Quebec, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 78; for 1924-35 in the 1938 edition, p. 113; and for 1936-44 in the 1963-64 edition, p. 85.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 8, 1944	22nd	4	Feb. 7, 1945	June 9, 1948
July 28, 1948	23rd	4	Jan. 19, 1949	May 28, 1952
July 16, 1952	24th	4	Nov. 12, 1952	Apr. 25, 1956
June 20, 1956	25th	4	Nov. 14, 1956	Apr. 27, 1960
June 22, 1960	26th	3	Sept. 20, 1960	Sept. 19, 1962
Nov. 15, 1962	27th	[1]	Jan. 15, 1963	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

22.—Twenty-Third Ministry of Quebec, as at Apr. 30, 1964

(Party standing at latest General Election, Nov. 15, 1962: 63 Liberal, 31 Union Nationale and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, Minister of Finance and Minister of Federal-Provincial Affairs	Hon. JEAN LESAGE	July 6, 1960	Apr. 1, 1961
Minister of Cultural Affairs	Hon. GEORGES LAPALME	July 6, 1960	Aug. 8, 1963
Attorney General	Hon. RENÉ HAMEL	July 6, 1960	Aug. 8, 1963
Minister of Youth	Hon. PAUL GÉRIN-LAJOIE	July 6, 1960	July 6, 1960
Minister of Agriculture and Colonization	Hon. ALCIDE COURCY	July 6, 1960	July 6, 1960
Minister of Natural Resources	Hon. RENÉ LÉVESQUE	July 6, 1960	Apr. 1, 1961
Minister of Provincial Revenue	Hon. ERIC KIERANS	Aug. 8, 1963	Aug. 8, 1963
Minister of Transportation and Communications	Hon. GÉRARD COURNOYER	July 6, 1960	July 6, 1960
Minister of Roads	Hon. BERNARD PINARD	July 6, 1960	July 6, 1960
Minister of Family and Social Welfare	Hon. EMILIEN LAFRANCE	July 6, 1960	July 6, 1960
Provincial Secretary	Hon. BONA ARSENAULT	July 6, 1960	Apr. 3, 1963
Minister of Health	Hon. ALPHONSE COUTURIER	July 6, 1960	July 6, 1960
Minister of Tourism, Game and Fish	Hon. LIONEL BERTRAND	July 6, 1960	Apr. 3, 1963
Minister of Industry and Commerce	Hon. GÉRARD D. LÉVESQUE	July 6, 1960	Dec. 5, 1962
Minister of Lands and Forests	Hon. LUCIEN CLICHE	Dec. 20, 1961	Dec. 5, 1962
Minister of Public Works	Hon. RENÉ SAINT-PIERRE	Mar. 28, 1961	Mar. 28, 1961
Minister of Municipal Affairs	Hon. PIERRE LAPORTE	Dec. 5, 1962	Dec. 5, 1962
Minister without Portfolio	Hon. GEORGE C. MARLER	Oct. 8, 1960	Oct. 8, 1960
Minister without Portfolio	Hon. CLAIRE KIRKLAND-CASGRAIN	Dec. 5, 1962	Dec. 5, 1962
Minister of Labour	Hon. CARRIER FORTIN	Dec. 5, 1962	Aug. 8, 1963

23.—Members of the Legislative Council of Quebec, as at Apr. 30, 1964
(According to seniority)

Name	Division	Date of Appointment
R. O. Grothé	De Salaberry	Dec. 20, 1927
Hector Laferté (Speaker)	Stadacona	July 25, 1934
J. L. Baribeau	Shawinigan	Jan. 14, 1938
Philippe Brais	Grandville	Feb. 16, 1940
Jules Brillant	Golfe	Jan. 14, 1942
Félix Messier	De Lanaudière	Feb. 12, 1942
Edouard Asselin	Wellington	Jan. 23, 1946
Geo. B. Foster	Victoria	Aug. 22, 1946
Gérald Martineau	Lauzon	Aug. 22, 1946
J. Olier Renaud	Alma	Aug. 22, 1946
Patrice Tardif	De la Vallière	July 20, 1952
Edouard Masson	Repentigny	Mar. 12, 1953
Albert Bouchard	La Salle	Nov. 24, 1954
Jean Barrette	Sorel	Oct. 19, 1955
Albiny Paquette	Rougemont	Oct. 29, 1958
John P. Rowat	De Lorimier	Oct. 29, 1958
Ernest Benoit	Kennebec	Apr. 8, 1959
Antonio Auger	Les Laurentides	Sept. 30, 1959
Oscar Gilbert	Bedford	Mar. 30, 1960
Jean Raymond	Rigaud	Apr. 27, 1960
George C. Marler (Leader)	Inkerman	Oct. 8, 1960
Arthur Dupré	Montarville	Aug. 21, 1963

Subsection 6.—Ontario

The Government of Ontario consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 112; since that date, the position has been held by the Hon. Justice John Keiller Mackay, appointed effective Dec. 30, 1957, followed by the Hon. William Earl Rowe, appointed effective Mar. 1, 1963.

The House of Assembly, the single-chamber Legislature of the province, is composed of 108 members elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 112; the Hon. John Parmenter Robarts became Premier on Nov. 8, 1961 upon the resignation of the Hon. Leslie M. Frost, Premier from May 4, 1949.

Besides the regular departments of government, the Niagara Parks Commission, the Ontario Municipal Board, The Hydro-Electric Power Commission of Ontario, the Ontario-St. Lawrence Development Commission, the Ontario Northland Transportation Commission, the Liquor Control Board, the Liquor Licence Board, the Hospital Services Commission and The Water Resources Commission have been created.

Under the provisions of the Legislative Assembly Act (RSO 1960, c. 208) each member of the Assembly is paid an annual indemnity of $5,000 and an allowance of $2,000 for expenses. In addition, the Speaker receives a special indemnity at the annual rate of $3,000 and an expense allowance of $2,000; the Chairman of the Committee of the Whole a special indemnity at the annual rate of $2,000; and the Leader of the Opposition a salary of $12,000 per annum in addition to his indemnity as a member. Each member of the Cabinet having charge of a department receives the ordinary indemnity as a member of the Legislature in addition to his salary as a Minister of the Crown. The salary provided in the Executive Council Act for the Premier is $16,000 and for a Cabinet Minister having charge of a department $12,000. By the 1956 amendment, every Minister of the Crown in charge of a department, the Minister of the Crown who is a member of The Hydro-Electric Power Commission of Ontario, and the Leader of the Opposition receives a representation allowance of $2,000 per annum. Each Minister without Portfolio, other than the Minister who is a member of The Hydro-Electric Power Commission, receives $2,500 salary and $1,000 representation allowance per annum, by the Executive Council Act and the Legislative Assembly Act, respectively (RSO 1960).

24.—Legislatures of Ontario, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 79; for 1924-34 in the 1938 edition, p. 114; and for 1935-45 in the 1963-64 edition, p. 87.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 4, 1945	22nd	4	July 16, 1945	Apr. 27, 1948
June 7, 1948	23rd	4	Feb. 10, 1949	Oct. 6, 1951
Nov. 22, 1951	24th	5	Feb. 21, 1952	May 2. 1955
June 9, 1955	25th	5	Sept. 8, 1955	May 4, 1959
June 11, 1959	26th	4	Jan. 26, 1960	Aug. 16, 1963
Sept. 25, 1963	27th	[1]	Oct. 29, 1963	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

25.—Seventeenth Ministry of Ontario, as at Apr. 30, 1964

(Party standing at latest General Election, Sept. 25, 1963: 77 Progressive Conservative, 24 Liberal and 7 New Democratic Party.)

NOTE.—Ministers are shown at date of original appointment as a Minister and at date of appointment to present portfolio, despite the formation of a new Ministry consequent upon the appointment of a new Premier.

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Council	Hon. JOHN PARMENTER ROBARTS	Dec. 22, 1958	Nov. 8, 1961
Minister of Lands and Forests	Hon. ARCHIBALD KELSO ROBERTS	Aug. 17, 1955	Oct. 25, 1962
Minister of Public Welfare	Hon. LOUIS PIERRE CECILE	Sept. 17, 1948	Aug. 17, 1955
Provincial Treasurer	Hon. JAMES NOBLE ALLAN	Jan. 5, 1955	Apr. 28, 1958
Minister of Public Works	Hon. THOMAS RAY CONNELL	Nov. 1, 1956	Dec. 22, 1958
Minister of Health	Hon. MATTHEW BULLOCH DYMOND	July 18, 1957	Dec. 22, 1958
Minister of Municipal Affairs	Hon. JOSEPH WILFRID SPOONER	July 18, 1957	Oct. 25, 1962
Provincial Secretary and Minister of Citizenship	Hon. JOHN YAREMKO	Apr. 28, 1958	Nov. 8, 1961
Minister of Mines	Hon. GEORGE CALVIN WARDROPE	Dec. 22, 1958	Nov. 8, 1961
Minister of Labour	Hon. HENRY LESLIE ROWNTREE	Nov. 21, 1960	Oct. 25, 1962
Minister of Reform Institutions	Hon. ALLAN GROSSMAN	Nov. 21, 1960	Aug. 14, 1963
Minister of Agriculture	Hon. WILLIAM ATCHESON STEWART	Nov. 21, 1960	Nov. 8, 1961
Minister of Highways	Hon. CHARLES STEEL MACNAUGHTON	Nov. 8, 1961	Oct. 25, 1962
Minister of Transport	Hon. IRWIN HASKETT	Nov. 8, 1961	Aug. 14, 1963
Minister of Tourism and Information	Hon. JAMES ALEXANDER CHARLES AULD	Oct. 25, 1962	Aug. 14, 1963
Minister of Education	Hon. WILLIAM GRENVILLE DAVIS	Oct. 25, 1962	Oct. 25, 1962
Minister of Energy and Resources Management	Hon. JOHN RICHARD SIMONETT	Oct. 25, 1962	Oct. 16, 1963
Minister of Economics and Development	Hon. STANLEY JOHN RANDALL	Nov. 8, 1963	Nov. 8, 1963
Attorney General	Hon. ARTHUR ALLISON WISHART	Mar. 26, 1964	Mar. 26, 1964

Subsection 7.—Manitoba

In addition to a Lieutenant-Governor, Manitoba has an Executive Council at present composed of 13 members and a Legislative Assembly of 57 members elected for a statutory term of five years. The Hon. Errick F. Willis, Lieutenant-Governor at Apr. 30, 1964, was sworn in on Jan. 15, 1960. Lieutenant-Governors from Confederation (1870) to 1959 are cited in the 1960 Year Book, p. 113. Premiers since Confederation are listed in the 1960 Year Book, p. 114.

The Premier of the province is paid a salary of $14,500 per annum and each of the other members of the Cabinet $12,500. Members of the Legislature are each paid a sessional indemnity of $3,200 and an expense allowance of $1,600 plus an allowance of $10 a day for a period of 60 days continuous sitting including Saturdays and Sundays. The Leader of the Opposition is paid an additional amount of $6,000 and the Speaker of the Legislature receives $9,600 which is an amount equal to double the indemnity and expense allowance of an individual member.

26.—Legislatures of Manitoba, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 80; for 1924-36 in the 1938 edition, p. 115; and for 1937-45 in the 1963-64 edition, p. 88.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 15, 1945	22nd	4	Feb. 19, 1946	Sept. 29, 1949
Nov. 10, 1949	23rd	7	Feb. 14, 1950	Apr. 23, 1953
June 8, 1953	24th	5	Feb. 2, 1954	Apr. 30, 1958
June 16, 1958	25th	2	Oct. 23, 1958	Mar. 31, 1959
May 14, 1959	26th	5	June 9, 1959	Nov. 9, 1962
Dec. 14, 1962	27th	[1]	Feb. 28, 1963	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

27.—Fifteenth Ministry of Manitoba, as at Apr. 30, 1964

(Party standing at latest General Election, Dec. 14, 1962: 35 Progressive Conservative, 13 Liberal, 8 New Democratic Party and 1 Social Credit.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Acting Provincial Treasurer	Hon. DUFF ROBLIN	June 30, 1958	June 30, 1958
Minister of Industry and Commerce	Hon. EDWARD GURNEY V. EVANS	June 30, 1958	Aug. 7, 1959
Attorney-General	Hon. STEWART E. MCLEAN	June 30, 1958	Dec. 9, 1963
Minister of Mines and Natural Resources	Hon. STERLING R. LYON	June 30, 1958	Dec. 9, 1963
Minister of Education	Hon. GEORGE JOHNSON	June 30, 1958	Dec. 9, 1963
Minister of Welfare	Hon. J. B. CARROLL	June 30, 1958	Feb. 27, 1963
Minister of Health	Hon. C. H. WITNEY	Aug. 7, 1959	Dec. 9, 1963
Minister of Agriculture and Conservation	Hon. GEORGE HUTTON	Aug. 7, 1959	Aug. 7, 1959
Minister of Public Works	Hon. WALTER WEIR	Oct. 31, 1961	Nov. 5, 1962
Minister of Labour	Hon. OBIE BAIZLEY	Feb. 27, 1963	Feb. 27, 1963
Minister of Municipal Affairs	Hon. R. G. SMELLIE	Feb. 27, 1963	Feb. 27, 1963
Minister without Portfolio	Hon. A. W. HARRISON	Feb. 27, 1963	Feb. 27, 1963
Minister of Public Utilities and Provincial Secretary	Hon. MAITLAND STEINKOPF	June 12, 1963	June 12, 1963

Subsection 8.—Saskatchewan*

The Government of Saskatchewan consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1905) to 1959 are cited in the 1960 Year Book, p. 115; since that date the office has been held by the Hon. F. L. Bastedo, commissioned to office Jan. 27, 1958, followed by the Hon. Robert L. Hanbidge, commissioned to office Mar. 1, 1963.

The statutory number of members of the Legislative Assembly is 59, elected for a maximum term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 115.

The Premier receives $13,000 and each Cabinet Minister $10,000 annually in addition to a sessional indemnity. The Leader of the Opposition receives $10,000 plus an office allowance of $12,000 per annum, the Speaker $3,000 and the Deputy Speaker $2,000. The sessional indemnity of a member of the Legislature is $4,000 together with an expense allowance of $2,000. Each of the members for the three northernmost constituencies of Cumberland, Athabasca and Meadow Lake receives a $4,335 sessional indemnity and a $2,165 expense allowance.

* As at June 10, 1964, the date of availability of information following the General Election of Apr. 22, 1964.

28.—Legislatures of Saskatchewan, 1945-64, as at June 10, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 81; for 1924-34 in the 1938 edition, p. 116; and for 1935-44 in the 1963-64 edition, p. 89.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 15, 1944	10th	5	Oct. 19, 1944	May 19, 1948
June 24, 1948	11th	5	Feb. 10, 1949	May 7, 1952
June 11, 1952	12th	4	Feb. 12, 1953	Apr. 25, 1956
June 20, 1956	13th	4	Feb. 14, 1957	May 4, 1960
June 8, 1960	14th	6	Oct. 11, 1960	Mar. 18, 1964
Apr. 22, 1964	15th	[1]	[1]	[1]

[1] Legislature not yet in session at June 10, 1964.

29.—Tenth Ministry of Saskatchewan, as at June 10, 1964

(Party standing at latest General Election, Apr. 22, 1964: 33 Liberal, 25 Co-operative Commonwealth Federation and 1 Progressive Conservative.)

Office	Name	Date of Appointment
Premier, President of the Executive Council and Provincial Treasurer	Hon. W. R. THATCHER	May 22, 1964
Minister of Agriculture	Hon. A. H. McDONALD	May 22, 1964
Minister of Public Health	Hon. D. G. STEUART	May 22, 1964
Attorney General and Provincial Secretary	Hon. D. V. HEALD	May 22, 1964
Minister of Mineral Resources	Hon. A. C. CAMERON	May 22, 1964
Minister of Industry and Information	Hon. H. C. PINDER	May 22, 1964
Minister of Education	Hon. G. J. TRAPP	May 22, 1964
Minister of Highways and Transportation and Minister of Telephones	Hon. G. B. GRANT	May 22, 1964 May 29, 1964
Minister of Social Welfare and Rehabilitation	Hon. D. BOLDT	May 22, 1964
Minister of Municipal Affairs	Hon. D. T. McFARLANE	May 22, 1964
Minister of Labour and Minister of Co-operation and Co-operative Development	Hon. L. P. CODERRE	May 22, 1964
Minister of Public Works	Hon. J. W. GARDINER	May 22, 1964
Minister of Natural Resources	Hon. J. M. CUELENAERE	May 22, 1964

Subsection 9.—Alberta

The Government of Alberta is composed of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. There are 63 members in the Legislative Assembly, elected for a maximum period of five years. The Hon. J. Percy Page, Lieutenant-Governor at Apr. 30, 1964, was commissioned to office Dec. 19, 1959. Lieutenant-Governors from Confederation (1905) to 1959 are listed in the 1960 Year Book, p. 116. Premiers since Confederation are listed in the same edition, p. 117.

Each member of the Legislative Assembly (except the Speaker, the Deputy Speaker and the Leader of the Opposition) receives a sessional indemnity of $3,600 plus $1,800 expense allowance plus $15 for each day during the session when the member is necessarily absent from his ordinary place of residence, both tax free. The Speaker's sessional indemnity is $6,000 plus $3,000 expense allowance, the Deputy Speaker's sessional indemnity is $4,800 plus $2,400 expense allowance, and the Leader of the Opposition's sessional indemnity is $7,600 plus $3,800 expense allowance. Each also receives $15 for each day during the session when he is necessarily absent from his ordinary place of residence. The Premier, in addition to the sessional indemnity, receives $16,000 and each of the other Ministers receives $12,500.

30.—Legislatures of Alberta, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 82; for 1924-34 in the 1938 edition, p. 117; and for 1935-44 in the 1963-64 edition, p. 90.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 8, 1944	10th	5	Feb. 22, 1945	July 16, 1948
Aug. 17, 1948	11th	5	Feb. 17, 1949	June 28, 1952
Aug. 5, 1952	12th	3	Feb. 19, 1953	May 12, 1955
June 29, 1955	13th	5	Aug. 17, 1955	May 9, 1959
June 18, 1959	14th	5	Feb. 11, 1960	May 9, 1963
June 17, 1963	15th	[1]	Feb. 13, 1964	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

31.—Eighth Ministry of Alberta, as at Apr. 30, 1964

(Party standing at latest General Election, June 17, 1963: 60 Social Credit, 2 Liberal and 1 Coalition.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of Council and Attorney General	Hon. ERNEST C. MANNING	Sept. 3, 1935	May 31, 1943 Aug. 2, 1955
Minister of Municipal Affairs	Hon. ALFRED J. HOOKE	Apr. 20, 1945	Aug. 2, 1955
Minister of Highways	Hon. GORDON E. TAYLOR	Dec. 27, 1950	May 1, 1951
Minister of Education	Hon. ANDERS O. AALBORG	Sept. 9, 1952	Sept. 9, 1952
Minister of Public Welfare	Hon. LEONARD C. HALMRAST	Jan. 3, 1953	Oct. 15, 1962
Minister of Lands and Forests	Hon. NORMAN A. WILLMORE	Nov. 10, 1953	Aug. 2, 1955
Provincial Treasurer	Hon. EDGAR W. HINMAN	Dec. 23, 1954	Aug. 2, 1955
Minister of Public Works	Hon. FRED. C. COLBORNE	Aug. 2, 1955	Nov. 30, 1962
Minister of Industry and Development and Minister of Mines and Minerals	Hon. A. RUSSELL PATRICK	Aug. 2, 1955	Sept. 1, 1959 Oct. 15, 1962
Minister of Labour and Minister of Telephones	Hon. RAYMOND REIERSON	Aug. 2, 1955	Sept. 22, 1959
Minister of Health	Hon. Dr. J. DONOVAN ROSS	Sept. 18, 1957	Sept. 18, 1957
Minister of Agriculture	Hon. HARRY E. STROM	Oct. 15, 1962	Oct. 15, 1962
Provincial Secretary	Hon. AMBROSE HOLOWACH	Oct. 15, 1962	Oct. 15, 1962
Minister without Portfolio	Hon. IRA MCLAUGHLIN	Nov. 30, 1962	Nov. 30, 1962
Minister without Portfolio	Hon. ETHEL S. WILSON	Nov. 30, 1962	Nov. 30, 1962

Subsection 10.—British Columbia

The Government of British Columbia has a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Maj.-Gen. the Hon. George Randolph Pearkes, Lieutenant-Governor at Apr. 30, 1964, was commissioned to office Oct. 13, 1960. Lieutenant-Governors from Confederation (1871) to 1959 are cited in the 1960 Year Book, p. 118.

The Legislative Assembly, elected for a statutory term of five years, has 52 members. Premiers from Confederation to 1959 are cited in the 1960 Year Book, p. 118.

Each member of the Executive Council and the Legislative Assembly receives a sessional allowance of $4,000 and $1,000 for expenses. There is also paid to each member a living allowance of $25 for each day's attendance at the session and for each Saturday, Sunday or holiday that intervenes between two sittings of the House; the allowance of $25

in any session is not paid in respect of more than 40 days. Each member also receives an allowance of 25 cents per mile of the distance between his place of residence and the city of Victoria, reckoning such distance, going and coming, according to the nearest mail route. Each member also receives an allowance of $400 for telegraph and telephone expenses. In addition, the Premier receives a salary of $17,500 and each member of the Executive Council $15,000. The Leader of the Opposition has a special allowance of $5,000 for expenses, the Speaker receives a special allowance of $5,000 and the Deputy Speaker an allowance of $1,500.

32.—Legislatures of British Columbia, 1945-64, as at Apr. 30, 1964

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 83; for 1924-37 in the 193 edition, p. 118; and for 1938-45 in the 1963-64 edition, p. 91.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 25, 1945	21st	5	Feb. 21, 1946	Apr. 16, 1949
June 15, 1949	22nd	4	Feb. 14, 1950	Apr. 10, 1952
June 12, 1952	23rd	1	Feb. 3, 1953	Mar. 27, 1953
June 9, 1953	24th	4	Sept. 15, 1953	Aug. 13, 1956
Sept. 19, 1956	25th	4	Feb. 7, 1957	Aug. 3, 1960
Sept. 12, 1960	26th	4	Jan. 26, 1961	Aug. 21, 1963
Sept. 30, 1963	27th	[1]	Jan. 23, 1964	[1]

[1] Life of Legislature not expired at Apr. 30, 1964.

33.—Twenty-Seventh Ministry of British Columbia, as at Apr. 30, 1964

(Party standing at latest General Election, Sept. 30, 1963: 33 Social Credit, 14 New Democratic Party and 5 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council and Minister of Finance	Hon. WILLIAM ANDREW CECIL BENNETT	Aug. 1, 1952	Aug. 1, 1952 Aug. 1, 1952 Feb. 15, 1954
Provincial Secretary and Minister of Social Welfare	Hon. WESLEY DREWETT BLACK	Aug. 1, 1952	Aug. 1, 1952 Mar. 20, 1959
Attorney-General and Minister of Commercial Transport	Hon. ROBERT WILLIAM BONNER	Aug. 1, 1952	Aug. 1, 1952 Mar. 20, 1964
Minister of Lands, Forests, and Water Resources	Hon. RAY GILLIS WILLISTON	Apr. 14, 1954	Mar. 30, 1962
Minister of Agriculture	Hon. FRANCIS XAVIER RICHTER	Nov. 28, 1960	Nov. 28, 1960
Minister of Mines and Petroleum Resources	Hon. DONALD LESLIE BROTHERS	Mar. 20, 1964	Mar. 20, 1964
Minister of Highways	Hon. PHILIP ARTHUR GAGLARDI	Aug. 1, 1952	Mar. 15, 1955
Minister of Labour and Minister of Education	Hon. LESLIE RAYMOND PETERSON	Sept. 27, 1956	Nov. 28, 1960
Minister of Industrial Development, Trade, and Commerce	Hon. RALPH RAYMOND LOFFMARK	Mar. 20, 1964	Mar. 20, 1964
Minister of Municipal Affairs	Hon. DANIEL ROBERT JOHN CAMPBELL	Mar. 20, 1964	Mar. 20, 1964
Minister of Health Services and Hospital Insurance	Hon. ERIC CHARLES FITZGERALD MARTIN	Aug. 1, 1952	Mar. 20, 1959
Minister of Public Works	Hon. WILLIAM NEELANDS CHANT	Mar. 15, 1955	Mar. 15, 1955
Minister of Recreation and Conservation	Hon. WILLIAM KENNETH KIERNAN	Aug. 1, 1952	Mar. 20, 1964

Subsection 11.—Yukon Territory and Northwest Territories

Yukon Territory.—The Yukon was created a separate Territory in June 1898 (see p. 59). Provision is made for a local government administered by a Commissioner appointed by the Governor in Council. There is an elected Council of seven members (1961) which usually meets twice each year in Whitehorse, the seat of local government; the Council elects its own speaker. The Commissioner administers the government under instructions from the Governor in Council or the Minister of Northern Affairs and National Resources. The Commissioner in Council has power to make ordinances dealing with the imposition of local taxes, sale of liquor, preservation of game, establishment of territorial offices, maintenance of municipal institutions, issue of licences, incorporation of companies, solemnization of marriage, property and civil rights, and generally all matters of a local nature in the Territory. The Commissioner and Council in office on Apr. 30, 1964 were elected in 1961 for a three-year term.

GOVERNMENT OF THE YUKON TERRITORY
(as at Apr. 30, 1964)

Commissioner	G. R. CAMERON
Members of the Council—	
Carmacks-Kluane	J. LIVESEY (Speaker)
Dawson	G. O. SHAW
Mayo	R. L. MCKAMEY
Watson Lake	D. TAYLOR
Whitehorse East	HERBERT E. BOYD
Whitehorse North	K. MCKINNON
Whitehorse West	J. WATT
Officers of the Council—	
Territorial Secretary and Clerk of the Council	H. J. TAYLOR
Territorial Treasurer	K. MCKENZIE
Legal Adviser	C. P. HUGHES

The Northern Administration Branch, Department of Northern Affairs and National Resources, has the responsibility for the general administration of the natural resources of the Yukon Territory, except game. The Department maintains lands and mining offices at four points in the Territory. Other departments and agencies of the Federal Government, including the Department of Justice, the Royal Canadian Mounted Police, the Departments of National Defence, Citizenship and Immigration, Mines and Technical Surveys, National Revenue, Transport, Post Office, Agriculture, Fisheries, and Public Works and the Unemployment Insurance Commission also maintain offices in the Yukon Territory.*

Northwest Territories.—As reconstituted on Sept. 1, 1905, the Northwest Territories comprise: (1) all that part of Canada north of the 60th parallel of north latitude, except the portions thereof within the Yukon Territory and the Provinces of Quebec and Newfoundland; and (2) the islands in Hudson Bay, James Bay and Ungava Bay, except those islands within the Provinces of Manitoba, Ontario and Quebec.

The Northwest Territories Act (RSC 1952, c. 331) provides for the appointment of a Commissioner to administer the government of the Territories under instructions given from time to time by the Governor in Council or the Minister of Northern Affairs and National Resources. The Northwest Territories Act, as amended, also provides for a

* Further information on officials of various Federal Government departments serving the Yukon Territory may be obtained from the Director, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

Council of nine members, four of whom are elected in the Mackenzie District and five of whom are appointed by the Governor in Council. The Commissioner in Council has legislative powers respecting such matters as direct taxation, establishment and tenure of Territorial offices, municipal institutions, controverted elections, licences, incorporation of companies, property and civil rights, administration of justice, game, education, hospitals and generally all matters of a local or private nature. The Council meets once each year in the Territories and at least once each year in Ottawa, which is the seat of government. The resources, except game, remain under the control of the Federal Government. The administration of legislation passed by the Commissioner in Council and the management of resources under federal legislation are conducted by the Northern Administration Branch of the Department of Northern Affairs and National Resources. Administrative offices are located at a number of centres in the Territories including Fort Smith, Yellowknife. Hay River, Inuvik and Frobisher Bay.

COUNCIL OF THE NORTHWEST TERRITORIES
(as at May 22, 1964)

Commissioner	B. G. Sivertz
Deputy Commissioner	W. G. Brown
Members of the Council—	
Appointed	W. G. Brown, Frank Vallée, Hugh Campbell, Robert N. Harvey and Stuart M. Hodgson
Elected	Lyle R. Trimble, John W. Goodall, Peter Baker and Robert Porritt
Officers of the Council—	
Secretary	F. H. Murphy
Legal Adviser	Dr. Hugo Fischer

Section 3.—Municipal Government*

The British North America Act of 1867 placed municipal government in Canada under the control of the provincial legislatures. The powers and responsibilities of municipalities are those delegated to them by statutes passed by their respective provincial legislatures. Some of these statutes apply to all municipalities within a province, some to a certain type or group and many to one municipality only. The types of municipal organization in existence and the nature of the municipal services provided vary greatly from region to region and are adjusted from time to time to meet changing needs and conditions.

In addition to the well-known types of organized municipalities—cities, towns, villages, counties, etc.—there are various other forms of local government organization. Certain municipal government bodies encompass a number of municipalities or parts of municipalities. For example, special district authorities (greater water and sewerage districts, drainage and irrigation districts and health units) may provide services to a number of municipalities. Similarly, metropolitan government authorities provide certain services to a number of area municipalities. In some provinces, the more sparsely settled areas do not have organized municipalities. Instead, they are divided into local improvement districts, local government districts or special areas in which the local government services are administered by officials appointed by the provincial Departments of Municipal Affairs.

* Prepared in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

The major local revenue source available to municipalities is the taxation of real property. It is supplemented in varying degrees by taxation of personal property, business, persons (poll taxes) and tenants. In two provinces municipalities may levy an amusement tax, in three they may impose sales taxes on specific commodities. Miscellaneous general revenue is derived from licences, permits, rents, concessions, franchises and fines. A great many municipalities operate utilities for the provision of water and, in many instances, electricity, gas, transportation, telephone and other services. These sometimes provide surplus funds that may become available to help pay for other municipal services. On the other hand, expenditures of municipalities often include provision for the deficits of their utilities and enterprises.

In differing degrees and with varying provincial assistance, municipalities are responsible for the following services: protection to persons and property through police and fire forces, courts and local gaols, and inspection services; roads and streets; sanitation; certain health and welfare services; and some recreation and other community services. In most provinces, municipalities are responsible for levying and collecting local education taxes on property on behalf of the local schools, and often for borrowing capital funds for school construction. Local administrative responsibility for education lies with boards of trustees separate from the councils that govern municipalities (except Alberta; see p. 96).

All provinces give some form of financial assistance to their municipalities. This may be in the form of monetary grants, such as unconditional subsidies which may be spent as the municipalities see fit, or grants in aid of specific services that are the municipal responsibility. The provinces may also make loans to municipalities for capital purposes or guarantee the bonds issued by the municipalities. Other forms of indirect assistance are the resumption by the provincial governments of responsibilities formerly delegated to the municipalities and the extension of municipal taxing privileges into what were formerly considered to be provincial revenue fields. The provinces also provide various technical and consultative services to their municipalities.

The following paragraphs describe municipal organization in each province and in the Territories as at Jan. 1, 1964. In Table 34 (which gives the number of each type of municipality in each province) all fully incorporated cities, towns and villages are regarded as 'urban' municipalities.

Newfoundland.—The Province of Newfoundland has two cities—St. John's and Corner Brook. A number of the province's many settlements have been organized into 45 towns, four rural districts, two local improvement districts and 47 local government communities. The towns, rural districts and local improvement districts operate under the Local Government Act; towns and rural districts have elected councils and local improvement districts have appointed trustees. Local government communities established under the Community Councils Act in the smaller settlements have limited powers and functions. There are no rural municipalities in the usual sense. Only about one fifth of 1 p.c. of the total area is municipally organized. Municipalities are supervised by the Department of Municipal Affairs and Supply.

Prince Edward Island.—In this province, one city and seven towns have been incorporated under special Acts and 17 villages have been established under the Village Services Act. There is no municipal organization for the remainder of the province although it is divided into school sections which have elected school boards.

Nova Scotia.—Municipal organization in Nova Scotia covers the whole of the province. The three cities operate under special charters and special legislation. Thirty-nine towns operate under the Town Incorporation Act but there are no municipalities

incorporated as villages. Cities and towns are independent of counties. The rural area is divided into 18 counties which, in themselves, do not represent units of local government. However, 12 of these counties each comprise one municipality and the other six each comprise two municipalities, making a total of 24 rural municipalities. Supervision of municipalities is exercised through the Department of Municipal Affairs.

New Brunswick.—This province is divided into 15 counties which are incorporated municipalities and have direct powers of local self-government as rural municipalities, although certain of their powers often apply in both rural and urban municipalities. The seven cities have special charters and the 20 towns operate under the Towns Incorporation Act. There is also one village. There are 57 local improvement districts and 10 commissions within the counties but outside the cities, towns and village; these have been incorporated for the provision of limited municipal services. The Department of Municipal Affairs exercises supervision.

Quebec.—Municipal divisions in Quebec embrace the more thickly settled areas comprising about one third of the province and the remainder is governed by the province as 'territories'. The organized area is divided into 74 county municipalities which are divided again into local municipalities and designated as village, township or parish municipalities or simply as municipalities. The counties as such have no direct powers of taxation. Funds to finance the services falling within their jurisdiction are provided by the municipalities forming part thereof. Parts of some counties are not yet organized into incorporated units of local government, being in outlying areas and having little or no population. There are 328 villages and 1,108 townships and parishes. A small number of these are independent of the counties in which they are located. The Municipal Code governs local municipalities and the 63 cities and 178 towns have special Acts. The supervision and assistance of municipalities is through the Department of Municipal Affairs and the Quebec Municipal Commission. Municipal statistics are gathered by the Quebec Bureau of Statistics.

The active functions of the Montreal Metropolitan Corporation are limited because of the ability of the area municipalities to fulfil their own obligations. The Corporation services borrowings contracted before Apr. 1, 1961, when the Montreal Metropolitan Boulevard became a provincial responsibility, and apportions costs incurred in the area municipalities for streets constructed on each side of the Boulevard.

Ontario.—Slightly more than one tenth of the area of Ontario is municipally organized and the remainder is governed entirely by the provincial government. The older settled section of the province is divided into 43 counties, five of which are united with others for administrative purposes. Each county, although it is an incorporated municipality, is comprised of the towns, villages and townships situated within its borders and these provide its revenue. There are 32 cities, 158 towns, 157 villages, 573 townships and 18 improvement districts in the province. Some of each are located in the northern districts which are not organized into counties. Supervisory control of municipalities is exercised by the Department of Municipal Affairs and the Ontario Municipal Board under the Municipal Act and other Acts governing aspects of municipal government.

The Municipality of Metropolitan Toronto, in existence since Jan. 1, 1954, encompasses one city, four towns, three villages and five townships. The Metropolitan Council is composed of the mayor, two senior controllers and the senior alderman of each of the nine wards of the City of Toronto, and the head of the council of each of the 12 suburban municipalities. The chairman is elected by the councillors and need not be a councillor of an area municipality. The Council has jurisdiction over assessments, water supply,

sewerage works, metropolitan road systems, transit, municipal housing developments, community planning, parks and recreation areas, the Court House, certain health and welfare services and the correlation of educational facilities in the metropolitan area. It also controls a unified metropolitan police force and a metropolitan licensing commission. Expenditures are financed by a levy apportioned among the area municipalities. All borrowing of the area municipalities for capital purposes is done by the Municipality of Metropolitan Toronto.

Manitoba.—Manitoba has nine cities, which derive their powers from special Acts and do not come under the supervision of the Department of Municipal Affairs. The Department supervises the 36 towns, 41 villages and 110 rural municipalities under the Municipal Act. There are local government districts in settled areas not within municipalities where the province has placed a resident administrator to carry out the functions of a municipal council. The unorganized areas are the direct responsibility of the provincial government.

The Metropolitan Corporation of Greater Winnipeg has been in existence since Nov. 1, 1960. Its council is separate and distinct from those of the 16 area municipalities. The councillors are elected as individuals from ten new districts, each containing approximately the same number of voters. The council has jurisdiction over planning, zoning, land development, assessments, arterial roads, water supply, sewage disposal, transit and other services. It borrows money only for its own undertakings and leaves to its area municipalities the responsibility for welfare, police, fire protection and other services. Expenditures are financed by a proportion of the business and other taxes levied on industrial or commercial property by the area municipalities and by a uniform levy on the equalized assessment of all taxable real property in the area municipalities.

Saskatchewan.—All municipalities in Saskatchewan derive their powers from general Acts that are designated with the name of the type of municipality. There are 11 cities, 120 towns, 363 villages and 296 rural municipalities. The area so organized consists of most of the southern two fifths of the province; the remainder of this portion is administered for local purposes by the province in unincorporated local improvement districts. The northern three fifths is sparsely populated and without local government, although some municipal services are provided by the province through operation of the Northern Administrative Area. Municipalities are supervised by the Department of Municipal Affairs.

Alberta.—The whole Province of Alberta is under some type of municipal organization. The province has an Act applying to each type of municipality and under these Acts the Department of Municipal Affairs supervises the nine cities, 90 towns, 162 villages, 22 municipal districts and 26 counties. The latter administer schools as well as municipal services. Municipal government for the 51 improvement districts and three special areas is provided by the Department of Municipal Affairs.

British Columbia.—Less than one half of 1 p.c. of the area of British Columbia is organized into municipalities. Additional small areas have sufficient population to require administration of local activities by the provincial government. There are 32 cities, four towns, 62 villages and 30 districts; the latter are chiefly rural municipalities, except for those adjacent to the principal cities of Victoria and Vancouver which are largely urban in character. It should be emphasized, however, that the application of the name 'city' is somewhat different from the commonly accepted meaning, in that several of them have populations of fewer than 1,000 and perhaps one half or more would not normally be incorporated as cities in another province. Municipalities are supervised by the Department of Municipal Affairs.

In addition to the above types of municipalities, there are unincorporated improvement districts that have been set up to provide certain municipal services such as protection, waterworks, irrigation, etc. These districts are under the supervision of the Department of Lands, Forests, and Water Resources.

Yukon and Northwest Territories.—There are two cities, Whitehorse and Dawson, and one unincorporated town, Mayo, in the Yukon Territory and two municipal districts, Yellowknife and Hay River, in the Northwest Territories, all of which provide some municipal services to their local areas. These are not shown in Table 34.

34.—Official Designation and Statistical Classification of Municipalities, by Province, as at Jan. 1, 1964

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	OFFICIAL DESIGNATION[1]										
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Local municipalities	100	25	66	100[3]	1,678	940	197	790	309	128	4,333
Metropolitan corporations	...	...	...	...	*1*[4]	*1*[5]	*1*[6]	...	...	...	*3*
Cities	*2*	*1*	*3*	*7*	*63*	*52*	*9*	*11*	*9*	*32*	*169*
Towns	*51*[7]	*7*	*39*	*20*	*178*	*158*	*36*	*120*	*90*	*4*	*703*
Villages	*47*[8]	*17*	...	*1*	*328*	*157*	*41*	*363*	*162*	*62*	*1,178*
Rural[9]	...	...	*24*	*72*[3]	*1,108*	*592*[10]	*110*[11]	*296*[12]	*48*[12]	*30*[14]	*2,280*
Quebec and Ontario counties	...	...	...	...	75[15]	38	...	...	...	...	113
Totals, Incorporated Municipalities	**100**	**25**	**66**	**100**	**1,753**	**978**	**197**	**790**	**309**	**128**	**4,446**
	STATISTICAL CLASSIFICATION[2]										
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Municipalities in Metropolitan Areas	2	...	3	5	121	74	17	...	10	20	252
Urban[16]	*2*	...	*2*	*3*	*103*	*45*	*9*	...	*5*	*8*	*177*
Rural	...	...	*1*	*2*	*18*	*29*	*8*	...	*5*	*12*	*75*
Other urban municipalities	98	25	40	25	467	303	78	494	256	90	1,876
Other rural municipalities	...	...	23	70	1,090	563	102	296	43	18	2,205
Semi-urban	...	...	...	...	...	*49*[17]	...	...	...	...	*49*
Other	...	...	*23*	*70*	*1,090*	*514*	*102*	*296*	*43*	*18*	*2,156*
Quebec and Ontario counties	...	...	...	...	75	38	...	...	...	...	113
Totals, Incorporated Municipalities	**100**	**25**	**66**	**100**	**1,753**	**978**	**197**	**790**	**309**	**128**	**4,446**

[1] Municipalities grouped according to their official nomenclature, which is roughly indicative of size and nature (see footnote 9). [2] Municipalities grouped under the classification devised by the Dominion-Provincial Conferences on Municipal Statistics, designed to bring municipalities into comparable groups for statistical presentation. [3] Includes the 57 local improvement districts; excludes commissions. [4] The Montreal Metropolitan Corporation. [5] The Municipality of Metropolitan Toronto. [6] The Metropolitan Corporation of Greater Winnipeg. [7] Designated by the province as towns (45), rural districts (4) and local improvement districts (2); all operate under the same Act. [8] Classified by the province as community councils. [9] Rural municipalities are designated by different names in the different provinces. [10] Includes the 18 improvement districts. [11] Includes the 3 units of self-government known as suburban municipalities; excludes the unincorporated local government districts. [12] Excludes the 12 unincorporated local improvement districts. [13] Includes the 26 county municipalities; excludes the 51 unincorporated improvement districts and the 3 special areas. [14] Excludes the 276 unincorporated improvement districts and the 2 local districts. [15] Includes the Inter-Urban Corporation of Île Jésus (formerly Laval County). [16] Includes municipalities shown wholly or partly in metropolitan areas by the 1961 Census, with subsequent revisions to take care of annexations, etc. Included in "Urban" are the Montreal Metropolitan Corporation, the Municipality of Metropolitan Toronto and the Metropolitan Corporation of Greater Winnipeg. [17] Classified by the province as suburban or semi-urban.

Section 4.—Federal and Provincial Royal Commissions

Federal Royal Commissions Established.—Royal Commissions established from May 1, 1963 to Apr. 30, 1964 under Part I of the Federal Inquiries Act are given here in continuation of those previously reported in the Year Books beginning with the 1940 edition, pp. 1108-1110. Any Commission established between Apr. 30, 1964 and the date of going to press will be found in the Register of Official Appointments, Chapter XXVIII, Part IV.

Nature of Commission	*Chief Commissioner*	*Date Established*
To inquire into and report upon the existing state of bilingualism and biculturalism in Canada, etc.	André Laurendeau } Davidson Dunton }	July 19, 1963
To inquire into and report upon certain problems relating to the Prairie Farm Assistance Administration.	His Hon. Judge Harold W. Pope	Dec. 21, 1963

Reports of Federal Royal Commissions.—Reports of Federal Royal Commissions issued during the period May 1, 1963 to Apr. 30, 1964 were as follows.

Royal Commission on Government Organization, established Sept. 16, 1960: Organization of the Government of Canada. Ottawa, 1963. Pp. 23-97. 50 cents. (Cat. No. Z1-1960/4-524).

Vol. 5, Organization of the Government of Canada: Summary of proposals for reorganization (abridged edition). Ottawa, June 1963. 100 p. $1. (Cat. No. Z1-1960/4-5.1).

Royal Commission on Bilingualism and Biculturalism, established July 19, 1963: Preliminary hearing. Ottawa, Nov. 1963. 548 p. Bilingual. $54.80. (Cat. No. Z1-1963/1).

Royal Commission on Banking and Finance, established Oct. 18, 1961. Ottawa, 1964. 587 p. $10. (Cat. No. Z1-1961/2).

Provincial Royal Commissions.—The following provincial Royal Commissions were established during the period May 1, 1963 to Apr. 30, 1964.

Province and Nature of Commission	*Chief Commissioner or Chairman*	*Date Established*
Nova Scotia		
To inquire into cost of borrowing money	A. R. Moreira	May 29, 1963
To inquire into safe transportation of school children	C. R. Rand	Aug. 22, 1963
To inquire into prices paid for pulpwood	R. J. MacSween	Apr. 16, 1964
New Brunswick		
*To inquire into present and future supply of, demand for and revenue structure of primary forest products.	Louis R. Scheult	Apr. 10, 1963
Quebec		
*To inquire into chiropractic in the Province of Quebec.	His Hon. Judge Gérard Lacroix	Feb. 21, 1963
*To inquire into the provincial, municipal and school taxation system.	Marcel Bélanger	Mar. 12, 1963
*To inquire into the Catholic School Board of the City of Jacques Cartier, the Catholic School Board of Verdun and the school trustees of the municipality of Alma.	Raymond Morcel	Mar. 19, 1963
*To inquire into the book trade in Quebec	Maurice Bouchard	Apr. 3, 1963

* Appointed prior to May 1, 1963, but omitted from the list published in the 1963-64 Year Book.

Province and Nature of Commission	*Chief Commissioner or Chairman*	*Date Established*
QUEBEC—concluded		
To inquire into the municipal administrative system of the City of Quebec.	His Hon. Judge CHARLES-A. SYLVESTRE.	May 17, 1963
To inquire into the real estate transactions of the Protestant School Board of Greater Montreal.	His Hon. Judge ARTHUR I. SMITH.	Nov. 13, 1963
To inquire into the Coffin affair.....	His Hon. Judge ROGER BROSSARD.	Jan. 8, 1964
To inquire into the Municipal Court of the City of Quebec.	His Hon. Judge CHARLES-A. SYLVESTRE.	Jan. 29, 1964
ONTARIO		
To inquire into and report upon the structure and the operation of the Municipality of Metropolitan Toronto and the School Board, to examine whether the purposes and objectives of the establishment of the Corporation and the School Board have been met and to determine whether the objectives of establishing the Municipality of Metropolitan Toronto could be achieved under a new or revised system of local government and whether the boundaries of the metropolitan area should be extended.	H. CARL GOLDENBERG.....	June 20, 1963
To inquire into and report upon the contents of Bill 163, an Act respecting medical services insurance and how its principles may be best implemented.	Dr. J. GERALD HAGEY.....	Aug. 22, 1963
To inquire into and report upon the applying of compulsory arbitration in the settlement of disputes between Labour and Management over the negotiation and settlement of terms of collective agreements affecting hospitals and their employees and, in particular, to the settlement of a dispute concerning the Trenton Memorial Hospital and its employees.	His Hon. Judge COLIN E. BENNETT	Oct. 31, 1963
MANITOBA		
*To inquire into the organization and finance of local governments in the Province of Manitoba and their relations with the provincial government.	Hon. ROLAND MICHENER.....	Feb. 13, 1963
SASKATCHEWAN		
To consult and co-operate with the federal Royal Commission on Taxation, to consider and report upon the systems of taxation which comprise the total tax structure in effect in the Province of Saskatchewan and to make recommendations for changes and improvements in the existing tax structure and in tax administration.	Dr. T. H. McLEOD.....	June 4, 1963
BRITISH COLUMBIA		
To inquire into the fairness of the price structure of gasoline at the refinery, wholesale, and retail levels in the province.	His Hon. Judge CHARLES WILLIAM MORROW.	Oct. 21, 1963
To inquire into and study the Workmen's Compensation Act and its administration.	Hon. CHARLES WILLIAM TYSOE†...	Jan. 23, 1964

* Appointed prior to May 1, 1963, but omitted from the list published in the 1963-64 Year Book.

† Appointed to replace the Hon. Chief Justice Alexander Campbell DesBrisay, who died on Nov. 30, 1963, before completing the inquiry to which he was appointed. See 1963-64 Year Book, p. 99.

PART III.—ADMINISTRATIVE FUNCTIONS OF THE FEDERAL GOVERNMENT

Section 1.—Financial Administration*

The financial affairs of the Government of Canada are administered and controlled under the fundamental principles that no tax shall be imposed and no money shall be spent without the authority of Parliament and that expenditures shall be made only for the purposes authorized by Parliament. The most important constitutional provisions relating to Parliament's control of finances are contained in the British North America Act; this Act provides that all taxing and appropriating measures must originate in the House of Commons and all requests for grants must come from the Crown through responsible Ministers, and for such requests the Government is solely responsible. In practice, financial control is exercised through a budgetary system based on the principle that all the financial needs of the Government for each fiscal year be considered at one time so that both the current condition and the prospective condition of the public treasury are clearly in evidence.

Estimates and Appropriations.—In the latter part of the calendar year, at the request of the Minister of Finance, each of the several departments prepares its estimates for the following fiscal year and submits them by a specified date to the Treasury Board. This Board is a Committee of the Queen's Privy Council for Canada and consists of the Minister of Finance as chairman and five other Ministers named by the Governor in Council, with such additional members of the Privy Council as the Governor in Council may nominate to serve as alternates. A senior officer of the Department of Finance acts as secretary to the Board and the necessary staff is provided by that Department. Under the Financial Administration Act, the Board has a statutory duty to advise the Governor in Council on matters relating to finance, estimates, expenditures, financial commitments, establishments, revenues, accounts, terms and conditions of employment of persons in the public service and general administrative policy in the public service.

On receipt, departmental estimates are assembled by officers of the Treasury Board, comparisons are made with the expenditures of previous years and digests of supporting data and other pertinent information are prepared. The Board reviews each departmental submission in the light of probable revenues and of governmental policy generally, usually consulting the appropriate Minister and departmental officials. Expenditure proposals may be rejected or reduced and unresolved differences of opinion may be referred to the Cabinet for decision. When the Board is satisfied with their substance and form, these estimates, known as the Main Estimates, are submitted to the Cabinet and later to the Governor General for approval and are then laid before the House of Commons.

On motion of the Minister of Finance, the estimates are referred for consideration to the Committee of Supply, which is a committee of the whole House. However, the estimates of certain departments may first go to select committees of the House; these, after being reported upon to the House, are referred back to the Committee of Supply. The consideration of the estimates usually extends over a period of several months. Each vote is the subject of a separate resolution and Members of the House may question the Minister on any item but no private member or Minister on his own responsibility can introduce any new expenditure proposal or any amendment to an estimates item that would result in an increased expenditure. When the examination of the individual items has been completed, the estimates are referred to the Committee of Ways and Means, also a committee of the whole House, which is asked to consider a resolution for the introduction of a Bill to appropriate money to meet the requirements as approved in the Committee of Supply. When such resolution is passed, an appropriation Bill is introduced which, when

* Prepared under the direction of H. R. Balls, Comptroller of the Treasury, Department of Finance, Ottawa.

approved by the House of Commons and the Senate, is given Royal Assent and becomes law. Grants in the Appropriation Acts are grants to the Crown and funds cannot be disbursed until supply, voted by Parliament to the Crown, is released by a warrant prepared on an Order of the Governor in Council and signed by the Governor General.

As weeks or months may elapse after the commencement of the fiscal year before the main Appropriation Act is passed, funds are made available for the conduct of government functions by the passage of an interim supply Bill granting one twelfth or one sixth of the total of each item in the estimates, equivalent to one or two months' supply, respectively. Additional interim supply Bills may be introduced if required, awaiting Parliament's detailed consideration of the estimates. In addition, to cover any new and unforeseen requirements that might arise during the year, supplementary estimates are usually introduced after some months of the fiscal year have elapsed, and just prior to the end of the fiscal year further supplementary estimates are laid before the House. These supplementary estimates are dealt with in the same manner as the Main Estimates.

In addition to the expenditure items included in the annual Appropriation Acts, there are a number of items, such as interest on the public debt, family allowances and old age assistance payments, which have been authorized under the provisions of other statutes. Although it is not necessary for Parliament to pass annually on these items, they are included in the Main Estimates for purposes of information. Statutory provision is also made for the expenditure of public money in emergencies where no specific parliamentary appropriation is available. Under the Financial Administration Act, the Governor in Council, upon the report of the Minister of Finance that there is no appropriation for the expenditure and upon the report of the appropriate Minister that the expenditure is urgently required, may order the issuance of a special warrant authorizing disbursement of the amount required. Such warrants may be issued only when Parliament is not in session and every warrant is published in the *Canada Gazette* within thirty days of issue. The Fire Losses Replacement Account Act also provides for emergency expenditures for the urgent repair or replacement of property destroyed or damaged by fire, where there is not sufficient money available in the appropriation for the Service suffering loss. Such amounts must be charged subsequently to an appropriation or included in the estimates for the department or agency concerned.

In addition, disbursements are made for purposes not reflected in the budgetary accounts but recorded in the Government's statement of assets and liabilities, such as loans to and investments in Crown corporations, loans to international organizations and to national, provincial and municipal governments, and loans to veterans. There are also disbursements in connection with deposit and trust and insurance, pension and guaranty accounts which the Government holds or administers, including the old age security fund which is operated as a separate entity. Although these disbursements are excluded from the calculation of the annual budgetary surplus or deficit, they are all subject to appropriation by Parliament either in the annual Appropriation Acts or in other legislation.

The Budget.—Some time after the Main Estimates have been introduced, the Minister of Finance presents his annual Budget Speech in the House of Commons. Budget papers, tabled for the information of Parliament at least one day prior to the presentation of the Budget, include a general review of economic conditions and a preliminary review of the Government's accounts for the fiscal year then ending. The Budget Speech itself reviews the state of the national economy and the financial operations of the Government for the previous fiscal year and gives a forecast of the probable financial requirements for the year ahead, taking into account the Main Estimates and making allowances for supplementary and further supplementary estimates and probable lapsings. At the close of his address, the Minister tables the formal resolutions for changes in the existing tax rates and customs tariff which, in accordance with parliamentary procedure, must precede the introduction of any money Bills. These resolutions give notice of the amendments

which the Government intends to ask Parliament to make in the taxation statutes. However, if a change is proposed in a commodity tax, such as a sales tax or excise duty on a particular item, it is usually made effective immediately; the legislation, when passed, is made retroactive to the date of the Speech.

The Budget Speech is delivered in support of a motion that the House go into Committee of Ways and Means, the debate on which usually lasts for several weeks. With the passage of the motion, the way is clear for the consideration of the Budget resolutions and, when these have been approved by the Committee, a report to this effect is made to the House and the tax Bills are introduced and thereafter dealt with in the same manner as all other government financial legislation.

Revenues and Expenditures.—The administrative procedures whereby revenues are collected and expenditures are made are, for the most part, contained in the Financial Administration Act.

With respect to revenues, the basic requirement is that all public money shall be paid into the Consolidated Revenue Fund, which is defined as the aggregate of all public money on deposit to the credit of the Receiver General. The Treasury Board has prescribed detailed regulations governing the receipt and deposit of such money. For the actual custody of public money, use is made of the Bank of Canada and the chartered banks. Balances are allocated to the various chartered banks on the basis of a percentage allocation established by agreement among all the banks and communicated to the Department of Finance by the Canadian Bankers' Association. The daily operating account is maintained with the Bank of Canada and the division of funds between it and the chartered banks takes into account the immediate cash requirements of the Government and consideration of monetary policy. The Minister of Finance may purchase and hold securities of, or guaranteed by, Canada and pay for them out of the Consolidated Revenue Fund or may sell such securities and pay the proceeds into the Fund. Thus, if cash balances in the Fund are in excess of requirements for the immediate future they may be invested in interest-earning assets. In addition, the Minister of Finance has established a purchase fund to assist in the orderly retirement of the public debt.

The principal agencies exercising control over expenditures are the Treasury Board (previously described) and the Comptroller of the Treasury, who has the status of a deputy head but is an officer of the Department of Finance, with representatives who act as accounting and disbursing officers stationed in all the principal departments.

The Treasury Board exercises detailed central control over the budgets, programs and staffs of departments and over financial and administrative matters generally. Although the most important part of this control function is exercised during the consideration of the estimates, the Board maintains continuous control over certain types of expenditure to ensure that the scale of activities and commitments for the future is held within approved policies, that departments follow uniform, efficient and economical practices, and that the Government is informed of and approves any major development of policy or significant transaction that might give rise to public or parliamentary criticism.

To ensure that the decisions of Parliament, the Government and Ministers in regard to expenditures are enforced, there is a centralized accounting and disbursing system. The Financial Administration Act provides that no payment shall be made out of the Consolidated Revenue Fund without the authority of Parliament and no charge shall be made against an appropriation except upon the requisition of the appropriate Minister or a person authorized by him in writing. These requisitions, and certificates that the work has been performed, the material supplied or the services rendered and that the price charged is reasonable or according to contract, together with such documents as may be required, are presented to the Comptroller of the Treasury. If the charge is a lawful one against the appropriation and does not exceed the amount of the appropriation or reduce it below the amount necessary to meet other commitments, and does not contravene any applicable legislative or executive requirements, the Comptroller will make the payment. However, if he declines to make a payment, disallows an item in an account or refuses to

give a certificate, the Minister concerned may report the circumstances to the Treasury Board for decision and the Board may confirm or overrule the action of the Comptroller. The Comptroller may transmit to the Board any requisition with respect to which he desires its direction and the Board may order that payment be made or refused.

At the beginning of each fiscal year each department submits to the Treasury Board, through the Comptroller, a division or allotment of each item included in its estimates. Once approved by the Board, these allotments cannot be varied or amended without the approval of the Board and expenditures charged to appropriations are limited to such allotments. To avoid over-expenditures within a fiscal year, the Comptroller records and controls commitments due to come in course of payment within the year for which Parliament has provided or has been asked to provide appropriations. The Government, through the Treasury Board and the Comptroller, also maintains careful control over commitments made under contract that will fall due in succeeding years, since it must be prepared in future to ask Parliament for appropriations to cover them. Any unexpended amounts in the annual appropriations lapse at the end of the year for which they are granted, but for thirty days subsequent to Mar. 31 payments may be made and charged to the previous year's appropriations for debts incurred prior to the end of that fiscal year.

Under the Financial Administration Act, every payment pursuant to an appropriation is made under the control and direction of the Comptroller by cheque drawn on the account of the Receiver General or by such other instrument as the Treasury Board may direct. In practice, the paid Comptroller's cheques are cleared daily by the chartered banks through the Bank of Canada to the Cheque Adjustment Branch of the Comptroller's Office, and reimbursement is made by means of a cheque drawn on the Receiver General's account with the Bank of Canada.

Public Debt.—In addition to the collection and disbursement of public money for budgetary and non-budgetary purposes, the Government receives and disburses substantial sums in connection with its public debt operations. The Minister of Finance is authorized to borrow money by the issue and sale of securities at such rate of interest and subject to such terms and conditions as the Governor in Council may approve. Although the specific authority of Parliament is required for new borrowings, the Financial Administration Act authorizes the Governor in Council to approve the borrowing of such sums of money as are required for the redemption of maturing or called securities and, to ensure that the Consolidated Revenue Fund will be sufficient to meet lawfully authorized disbursements, he may also approve the temporary borrowing of such sums as are necessary for periods not exceeding six months. The Bank of Canada acts as the fiscal agent of the Government in the management of the public debt.

Accounts and Financial Statements.—Under the Financial Administration Act, accounts are kept to show the revenues of Canada, the expenditures made under and the commitments chargeable against each appropriation, the other payments into and out of the Consolidated Revenue Fund, and such of the assets and direct and contingent liabilities as the Minister of Finance believes are required to give a true and fair view of the financial position of Canada. The statement of assets and liabilities is designed to disclose the amount of the net debt, which is determined by offsetting against the gross liabilities only those assets regarded currently as readily realizable or interest- or revenue-producing. Fixed capital assets, such as government buildings and public works, are charged to budgetary expenditures at the time of acquisition or construction and are not recorded on the statement of assets and liabilities.

Annually, on or before Dec. 31 or, if Parliament is not then in session, within fifteen days after the commencement of the ensuing session, the *Public Accounts* is laid before the House of Commons by the Minister of Finance. The *Public Accounts* contains a survey of the financial transactions of the fiscal year, statements of the revenues and expenditures for the year and of the assets and direct and contingent liabilities as at the end of the year, together with such other accounts and information as are necessary to show the financial

transactions and financial position of Canada or which are required by law to be reported in the *Public Accounts*. Monthly financial statements are also published in the *Canada Gazette*.

The Auditor General.—The Government's accounts are subject to an independent examination by the Auditor General who is an officer of Parliament. With respect to expenditures, this examination is a post-audit for the purposes of reporting whether the accounts have been faithfully and properly kept and whether the money has been expended for the purposes for which it was appropriated by Parliament and the expenditures have been made as authorized; any audit before payment is the responsibility of the Comptroller of the Treasury. With respect to revenues, the Auditor General is required to ascertain that all public money is fully accounted for and that the rules and procedures applied are sufficient to ensure an effective check on the assessment, collection and proper allocation of the revenue. With respect to public property, he is required to satisfy himself that essential records are maintained and that the rules and procedures applied are sufficient to safeguard and control such property. The Auditor General reports to Parliament the results of his examination, calling attention to any case which he considers should be brought to the notice of the House. He also reports to Ministers, the Treasury Board or the Government any matter which in his opinion calls for attention so that remedial action may be taken promptly.

Public Accounts Committee.—It is the usual practice to refer the *Public Accounts* and the *Auditor General's Report* to the Public Accounts Committee of the House of Commons, which may review them and report its findings and recommendations to the House of Commons.

Section 2.—Departments, Boards, Commissions, etc.*

The following paragraphs indicate the functions of the various departments of government and the special boards and commissions in connection with the work of government.

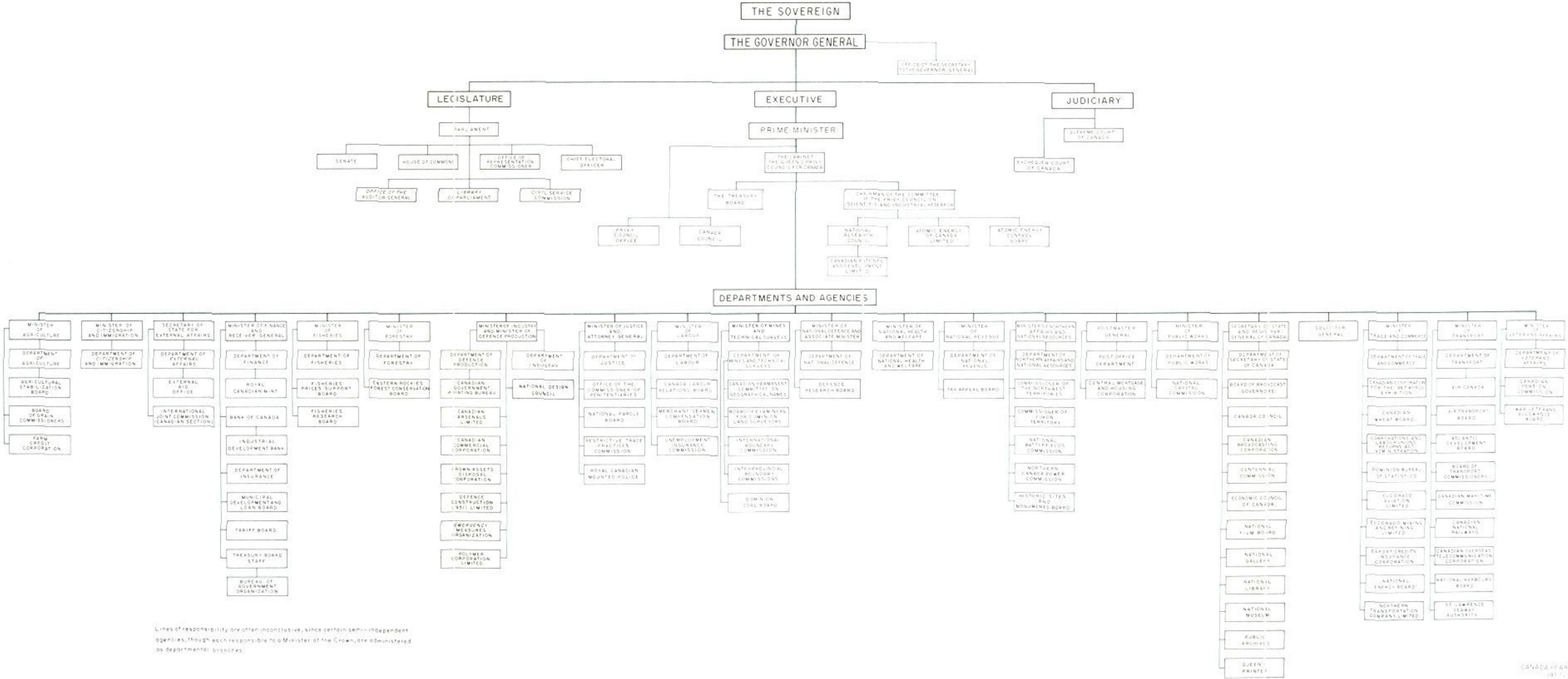
Though it is not possible, owing to the limitations of space, to enumerate in this Section the details of each service or the divisions or sections of all departments, the main branches are given along with those services that differ in some quality from the larger class of subjects handled by a department. The work of many of these departments and boards is given in detail in later Chapters of this volume. The Index will be useful in locating required information.

Department of Agriculture.—This Department was established in 1867 (SC 1868, c. 53) and undertakes work on all phases of agriculture. Research and experimentation are carried out by the Research Branch; the maintenance of standards and protection of products by the Production and Marketing Branch and the Health of Animals Branch; the Canada Grain Act, as it pertains to the inspection, weighing, storage and transportation of grain, is administered by the Board of Grain Commissioners; reclamation and development is carried out by the Prairie Farm Rehabilitation Administration; and security and price stability are provided under the Crop Insurance Act, the Prairie Farm Assistance Act and the Agricultural Stabilization Act. The Farm Credit Corporation and the Board of Grain Commissioners report to Parliament through the Minister of Agriculture.

Air Transport Board.—The Air Transport Board was established in 1944 by amendment of the Aeronautics Act. The Board is responsible for the economic regulation of commercial air services in Canada and for advising the Minister in the exercise of his duties and powers under the Act in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad, and to foreign air services operating into Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. The Board reports to Parliament through the Minister of Transport.

* As at Apr. 30, 1964; any major changes taking place between that date and the time of going to press will be carried in an Appendix to this volume.

THE GOVERNMENT OF CANADA



Lines of responsibility are often inconclusive, since certain semi-independent agencies, though each responsible to a Minister of the Crown, are administered as departmental branches.

Auditor General's Office.—This Office originated in 1878 (SC 1878, c. 7) and currently functions under the Financial Administration Act (RSC 1952, c. 116). The Auditor General is responsible for examining accounts relating to the Consolidated Revenue Fund and to public property, and for reporting annually to the House of Commons the results of his examinations. He also audits the accounts of various Crown corporations and other instrumentalities.

Board of Broadcast Governors.—This Board, established under the provisions of the Broadcasting Act which was assented to on Sept. 6, 1958, is given authority to regulate radio and television broadcasting in Canada. The Board has authority to regulate the establishment and operation of both public and private broadcasting stations and networks of stations. Applications for licences to establish new broadcasting stations, for changes in the facilities of existing stations or for changes in the ownership or in the share structure of licensees are referred to the Board by the Minister of Transport for a recommendation before being dealt with. The Board has three full-time and twelve part-time members and reports to Parliament through the Secretary of State.

Board of Grain Commissioners.—Constituted in 1912 under the Canada Grain Act (RSC 1952, c. 25), the Board of Grain Commissioners provides general supervision over the physical handling of grain in Canada by licensing elevator operators, inspecting and weighing grain received at and shipped from terminal elevators, and other services. The Board, comprising a Chief Commissioner and two Commissioners, has authority to inquire into any matter relating to the grading and weighing of grain, deductions for dockage or shrinkage, deterioration of any grain during storage or treatment, unfair or discriminatory operation of a grain elevator, etc. The Board publishes its regulations in the *Canada Gazette* and reports to Parliament through the Minister of Agriculture.

Board of Transport Commissioners.—The powers of this Board, which was organized as the Board of Railway Commissioners in 1904, have been extended from time to time until today it has regulatory and judicial functions dealing with almost all aspects of railway activity including location, construction and operation of lines, rates and charges. It is also entrusted with the regulation of other transportation and communication agencies, including express companies, telegraph companies, telephone companies other than those provincially or municipally controlled, international bridges and tunnels and inland shipping. The Board reports to Parliament through the Minister of Transport.

Bureau of Government Organization.—The Bureau was established by Order in Council dated Feb. 12, 1963, as a branch of the Privy Council Office (and designated as a "Department" for the purposes of the Civil Service Act and the Financial Administration Act), to facilitate the implementation of the recommendations of the Royal Commission on Government Organization. The responsible Minister is the Minister of Finance.

Canadian Government Printing Bureau.—The printing functions formerly provided by the Department of Public Printing and Stationery were transferred by Order in Council (PC 1963—1254) dated Aug. 21, 1963, to the Department of Defence Production. The latter Department, on Apr. 1, 1964, authorized the organization of the Canadian Government Printing Bureau as a distinct function under that Department, to be separated from the former Publications Branch and the Purchasing Stationery and Stores Branch of the Department of Public Printing and Stationery.

The Canadian Government Printing Bureau, under the direction of a General Manager, provides a variety of printing services, such as House of Commons Debates, Votes and Proceedings, Orders of the Day and other parliamentary papers for both Houses of Parliament, and other printing requirements of government departments and agencies. The main plant is located in Hull, Que.; smaller field units are located in the Ottawa area and in other major centres to provide government departments with quick service for their duplicating requirements.

Canadian Government Specifications Board.—This is an interdepartmental body composed of the Deputy Heads of 24 Federal Government departments and agencies. The Board operates under the auspices of the National Research Council through the medium of committees in which government and industry co-operate on a voluntary basis. The Board prepares specifications in commodity fields and for materials, processes and equipment required by government agencies, and arranges for necessary testing and research. An Index of Specifications is available on request to the CGSB Secretary, National Research Council, Ottawa.

Canadian Pension Commission.—This Commission, established in 1933 by amendments to the Pension Act (RSC 1952, c. 207), replaced the Board of Pension Commissioners, the first organization created to deal solely with war pensions for service in Canada's Armed Forces. The Commission's main function is the administration of the Pension Act under which it adjudicates upon all claims for pension in respect of disability or death arising out of service in Canada's Armed Forces; and Parts I to X inclusive of the Civilian War Pensions and Allowances Act, which provide for the payment of pensions in respect of death or disability arising out of civilian service related to the World War II effort. It also adjudicates on claims for pension under various other measures, including the Flying Accidents Compensation Order and the RCMP Continuation Act; authorizes and pays monetary grants accompanying certain gallantry awards bestowed on members of the Armed Forces; and administers various trust funds established by private individuals for the benefit of veterans and their dependants.

It consists of eight to twelve Commissioners and up to five *ad hoc* Commissioners appointed by the Governor in Council. Its chairman has the rank and powers of a Deputy Head of a department and the Commission reports to Parliament through the Minister of Veterans Affairs.

Chief Electoral Office.—This Office was established in 1920 under the provisions of the Dominion Elections Act, now the Canada Elections Act (RSC 1960, c. 39, and amendments thereto), and is responsible for the conduct of all federal elections as well as the elections of members of the Northwest Territories Council and of the Yukon Territory Council. In addition, it conducts any vote taken under the Canada Temperance Act. The Chief Electoral Officer reports to Parliament through the Secretary of State.

Department of Citizenship and Immigration.—This Department was constituted in December 1949 (RSC 1952, c. 67) and came into existence on Jan. 18, 1950 under the Minister of Citizenship and Immigration. Most departmental work is carried on through four branches. The Canadian Citizenship Branch assists governmental and non-governmental agencies engaged or interested in facilitating the adjustment and integration of newcomers and in making Canadians conscious of their privileges and responsibilities as citizens. The Canadian Citizenship Registration Branch administers the Canadian Citizenship Act and is the custodian of all records under that Act and all Naturalization Acts previously in force. The Immigration Branch administers the Immigration Act and Regulations and is responsible for the selection, examination and movement of immigrants, the exclusion or deportation of undesirables and the settlement or establishment of immigrants in Canada. The activities of the Indian Affairs Branch include management of all Indian affairs. Its organization consists of a headquarters office at Ottawa, a regional supervisory staff, and 89 local agencies in the field.

Civil Service Commission.—The Civil Service Commission of Canada dates from the Civil Service Act of 1908. Under this Act the Commission was given the responsibility of applying, wherever possible, the principle of appointment by merit in filling permanent positions within departmental headquarters at Ottawa, termed the "inside service". The Civil Service Act of 1918 extended the competitive system of appointments to cover the outside service and temporary appointments. It also gave the Commission other responsibilities in the field of personnel administration including responsibility for promotion, for classification of positions and for recommending rates of pay.

The Civil Service Act of 1961, which came into force on Apr. 1, 1962, has three main features. First, it preserves the independence of the Civil Service Commission and carries forward and strengthens all the fundamental principles of the merit system. Secondly, it clarifies the role of the Civil Service Commission in those other areas of personnel administration with which it is concerned but which do not bear directly upon the merit system. Thirdly, it confers on staff associations the right to be consulted on matters that have to do with remuneration and conditions of employment.

The Civil Service Commission is responsible only to Parliament and not to the executive government and reports to Parliament through the Secretary of State. It consists of three members, one of whom is chairman. Each member of the Commission is appointed by the Governor in Council for a term of ten years and has the rank and standing of a Deputy Minister. The Commission has a staff of more than 700 persons located in its headquarters at Ottawa and in its field offices at St. John's, Nfld., Halifax, N.S., Moncton and Saint John, N.B., Quebec and Montreal, Que., Toronto and London, Ont., Winnipeg, Man., Regina and Saskatoon, Sask., Edmonton and Calgary, Alta., and Vancouver and Victoria, B.C.

Department of Defence Production.—This Department was established on Apr. 1, 1951 under the provisions of the Defence Production Act (RSC 1952, c. 62, as amended). Under this Act the Minister of Defence Production (in practice the Minister of Industry) is given, with certain exceptions, authority to buy defence supplies and construct defence projects required by the Department of National Defence. The Minister may, if authorized by the Governor General in Council, undertake for an associated government anything he may undertake for the Canadian Government. In addition, all powers, duties and functions that theretofore were vested in the Minister of Trade and Commerce under any contract, agreement, lease or other writing entered into pursuant to the Department of Munitions and Supply Act, 1935, or the Defence Supplies Act, 1950, are vested in the Minister of Defence Production.

Broadly, the Department's functions are to procure military goods, to construct defence installations and to organize industry for defence as required on behalf of the Department of National Defence, other government departments, and associated governments; to promote the expansion of defence production facilities and the development of defence-supporting industries, particularly of strategic resources important for the defence of Canada and its allies; and to ensure adequate supplies of essential materials and services for defence requirements. Under the provisions of the Department of Industry Act the Minister of Industry now exercises all the duties, powers, etc., of the Minister of Defence Production.

The main operating units of the Department correspond to the ten line branches of the Department of Industry—Aircraft, Chemicals, Clothing and Textiles, Electrical and Electronics, Food Products, Machinery, Materials, Mechanical Transport, Shipbuilding and Wood Products. Major

offices for foreign procurement are located at London, England, and Washington, U.S.A. The Regional Purchasing Branch has 14 district purchasing offices located throughout Canada for local or urgent procurement. In addition, the Department contains the International Programs Branch, the Canadian Government Printing Bureau, Procurement Purchasing and Stores Branch and the following staff and support branches which service both the Departments of Defence Production and Industry—Comptroller's, Financial Adviser's, General Services, Legal, Management Control, Management Services, and Personnel. The Emergency Supply Planning Branch is responsible for planning the arrangements necessary to permit a War Supplies Agency to be brought into immediate existence in the event of a nuclear war.

As a result of a Cabinet decision on Sept. 4, 1963, the Department has been designated as the central purchasing agency for all civil departments and agencies, other than the commercially oriented Crown corporations. Branches that have been formed to carry out these new responsibilities are—Cataloguing, Quality Assurance, Specifications and Standards, Traffic Management, and Warehousing and Distribution.

Crown corporations and agencies reporting to Parliament through the Minister of Industry in his capacity as Minister of the Department of Defence Production are the Canadian Government Printing Bureau, Canadian Arsenals Limited, Canadian Commercial Corporation, Crown Assets Disposal Corporation, Defence Construction (1951) Limited, Emergency Measures Organization and Polymer Corporation Limited.

Dominion Bureau of Statistics.—The Dominion Bureau of Statistics was set up by statute in 1918 as a central statistical department for Canada (SC 1918, c. 43). In 1948 this statute, which had been consolidated as the Statistics Act (RSC 1927, c. 190), was repealed and replaced by the Statistics Act (RSC 1952, c. 257); it was amended by SC 1952-53, c. 18, assented to Mar. 31, 1953.

The function of the Dominion Bureau of Statistics is to compile, analyse and publish statistical information relative to the commercial, industrial, financial, social and general condition of the people and to conduct a census of population and agriculture of Canada as required under the Act.

The Bureau is a major publication agency of the Federal Government; its reports cover all aspects of the national economy. The administrative head of the Bureau is the Dominion Statistician who reports to Parliament through the Minister of Trade and Commerce.

Emergency Measures Organization.—This organization was established in June 1957 for the purpose of co-ordinating civil emergency planning at the federal level. On Sept. 1, 1959, the Federal Government, in revising the assignments in the field of civil emergency planning, gave the Departments of National Defence, National Health and Welfare, and Justice, responsibility for certain specific civil defence functions, and the Emergency Measures Organization responsibility for overall co-ordination of all aspects of civil emergency planning, assistance to provincial governments and municipalities, and general liaison with other countries. On July 1, 1963, the Organization was given the further responsibility of directing and administering the Civil Defence College at Arnprior, Ont., a responsibility previously discharged by the Department of National Health and Welfare. The organization reports to Parliament through the Minister of Industry.

Department of External Affairs.—This Department was established in 1909 by "An Act to create a Department of External Affairs" (RSC 1952, c. 68). Its main function is the protection and advancement of Canadian interests abroad. The Minister responsible for the Department is the Secretary of State for External Affairs. The senior permanent officer (Deputy Minister) of the Department, the Under-Secretary of State for External Affairs, is assisted by a Deputy Under-Secretary and by four Assistant Under-Secretaries and is advised by the officers in charge of the various divisions. The divisional heads are each responsible for a part of the work of the Department and they are assisted by Foreign Service Officers, administrative officers and an administrative staff. Officers serving abroad are formally designated as High Commissioners, Ambassadors, Ministers, Counsellors, First Secretaries, Second Secretaries, Third Secretaries and Attachés at diplomatic posts and Consuls General, Consuls and Vice-Consuls at consular posts. There are 77 diplomatic, consular and other missions maintained abroad by the Department. In 30 additional countries, Canada is represented by non-resident Ambassadors or High Commissioners.

The work of the Department at Ottawa is performed by 25 units, comprising 24 divisions and one section. The divisions may be grouped into three categories—area, functional and administrative. There are six area divisions—African and Middle Eastern, Commonwealth, European, Far Eastern, Latin American and United States; thirteen functional divisions—Communications, Consular, Defence Liaison (1), Defence Liaison (2), Disarmament, Economic, Historical, Information, Legal, Passport, Press and Liaison, Protocol and United Nations; and five administrative divisions —Administrative Services, Finance, Personnel, Registry, and Supplies and Properties. The one section is the Inspection Service.

The International Joint Commission reports to the Secretary of State for External Affairs of Canada as well as to the Secretary of State of the United States.

Department of Finance.—This Department was created by Act of Parliament in 1869 and now operates under the Financial Administration Act (RSC 1952, c. 116). The Department is responsible for the financial administration of Canada including the raising of money required for

the various governmental activities by way of taxation or borrowing. The Comptroller of the Treasury, an officer of the Department, is responsible for all government disbursements. The work of the Department is organized in five principal divisions: Financial Affairs, Economic Affairs, Taxation, Federal-Provincial-Municipal Relations, and Treasury Board. The Royal Canadian Mint is a branch of the Department and the Inspector General of Banks is an officer of the Department. The Tariff Board, the Municipal Development and Loan Board, the Bank of Canada and the Bureau of Government Organization report to Parliament through the Minister of Finance.

Department of Fisheries.—The Department of Fisheries was first organized under a Minister of Fisheries in 1930. Prior to that date the federal fisheries services were maintained by the former Department of Marine and Fisheries, established in 1868. The provinces, under various arrangements, have certain administrative responsibilities in the fisheries but the legislative authority for the regulations of coastal and freshwater fisheries is with the federal Department of Fisheries.

The work of the Department includes: conservation and development of the fisheries through the enforcement of fishing regulations, the operation of fish culture establishments, management and improvement of spawning streams and control of predators; inspection of fish products for quality control and the encouragement of industrial development; promotion of the greatest utilization of fishery products and a proper public understanding of the resource and the industry. The Department administers the Fishermen's Indemnity Plan to assist fishermen in the event of loss or serious damage to their fishing vessels or lobster traps.

Agencies connected with the Department are the Fisheries Prices Support Board and the Fisheries Research Board of Canada. The Department is represented on the following international commissions: Pacific Salmon Fisheries, Pacific Halibut, the Northwest Atlantic Fisheries, North Pacific Fisheries, Whaling, Great Lakes Fishery, and North Pacific Fur Seal.

Fisheries Research Board.—The Fisheries Research Board operates under the Fisheries Research Board Act of 1937 (amended in 1947 and 1952-53). It has been active as a fisheries research body since 1898, first as the Board of Management of the Canadian Marine Biological Station and later (1912) as the Biological Board of Canada.

The Board operates under the Minister of Fisheries and membership consists of a full-time chairman and not more than 18 other members. The majority of Board members are university scientists, and other members are representative of the fishing industry and the Department of Fisheries.

The Board operates four biological stations and an Arctic Unit across Canada, and three technological stations with two technological application units and two oceanographic groups. It serves as the scientific arm of the Department of Fisheries and its principal objective is to increase the scope and value of Canadian fisheries through scientific research.

Department of Forestry.—Established in October 1960, the Department of Forestry conducts comprehensive programs of research relating to forest management, silviculture and protection against fire, insects and diseases, and relating to the utilization of forest products. It also carries out economic studies relating to forest resources and the forest industries. Through a developing information program it seeks to promote greater public understanding of the proper management, protection and use of the forest resources. Financial assistance is offered to the provinces under agreements authorized by the Governor in Council in order to expedite progress in specific forestry programs. It carries out forest surveys and provides technical advice and assistance to other agencies of the Federal Government which are responsible for the administration of forest lands. The Department co-operates with international organizations concerned with forestry and in which Canada maintains membership, and the Minister of Forestry reports to Parliament for the Eastern Rockies Forest Conservation Board.

Department of Industry.—In 1963 legislation was introduced into Parliament to establish the Department of Industry. On July 22, 1963, Royal Assent was given to the Department of Industry Act and, with the proclamation on July 25, 1963, the new Department came into existence. Under the Act, the duties, powers and functions of the Minister of Industry are "to include all matters relating to manufacturing industries in Canada over which the Parliament of Canada has jurisdiction, not by law assigned to any other branch or agency of the Government of Canada". The Department is responsible for promoting the establishment, growth, efficiency and improvement of manufacturing industries in Canada through the development and implementation of programs to assist manufacturers to adjust to changing market conditions, to help them develop new lines of production and enter new markets, and to promote greater industrial research and development as well as good design within Canadian industry.

The Area Development Agency—part of the Department of Industry—is responsible for undertaking research and investigations on an area or regional basis and preparing programs of development for designated areas of high unemployment and slow economic growth in co-operation with the provinces. The Agency administers the various Federal Government incentive measures intended to foster the economic growth of designated areas.

Department of Insurance.—The Minister of Finance is responsible for the Department of Insurance which originated in 1875 as a branch of the Department of Finance but was constituted

a separate Department in 1910. It is authorized and governed by the Department of Insurance Act (RSC 1952, c. 70). Under the Superintendent of Insurance, who has the status of a Deputy Head, the Department administers the statutes of Canada applicable to: insurance, loan and trust companies incorporated by the Parliament of Canada; provincially incorporated insurance companies registered with the Department; British and foreign insurance companies operating in Canada; small loans companies and money-lenders; co-operative credit societies registered under the Co-operative Credit Associations Act; and civil service insurance.

Under the relevant provincial statutes the Department examines trust companies incorporated in the Provinces of Manitoba and New Brunswick and loan and trust companies incorporated in the Province of Nova Scotia.

International Joint Commission.—This Commission was established under a Britain-United States treaty signed Jan. 11, 1909 and ratified by Canada in 1911. The Commission, composed of six members (three appointed by the President of the United States and three by the Government of Canada) is governed by five specific Articles of the Boundary Waters Treaty of 1909. The Commission's approval is required for any use, obstruction or diversion of boundary waters affecting the natural level or flow of boundary waters in the other country; and for any works in waters flowing from boundary waters or below the boundary in rivers flowing across the boundary which raise the natural level of waters on the other side of the boundary.

Problems arising along the common frontier are also referred to the Commission by either country for examination and report, such report to contain appropriate conclusions and recommendations. In addition, questions or matters of difference between the two countries may be referred to the Commission for decision, provided both countries consent.

The Commission reports to the Secretary of State for External Affairs of Canada and to the Secretary of State of the United States.

Department of Justice.—This Department, established by SC 1868, c. 39, now operates under authority of the Department of Justice Act (RSC 1952, c. 71). It provides legal services to the Government and various government departments including preparing and settling government legislation, settling instruments issued under the Great Seal of Canada, regulating and conducting litigation for or against the Crown, superintending the acquisition of property and prosecutions under federal legislation other than the Criminal Code, administering federal statutes dealing with legal matters and providing administrative services for the Supreme Court of Canada and the Exchequer Court. The Department also superintends the penitentiaries and administers the prison system of Canada, and administers the provisions of Canadian anti-combine legislation.

The Commissioner of the Royal Canadian Mounted Police operates under the direction of the Minister of Justice who also reports to Parliament for the National Parole Board and the Restrictive Trade Practices Commission.

Department of Labour.—The Department of Labour was established in 1900 by Act of Parliament (SC 1900, c. 24) and now operates under authority of the Department of Labour Act (RSC 1952, c. 72). The Department administers, under the Minister of Labour, legislation dealing with: industrial relations, investigation of disputes, etc.; fair employment practices; the regulation of fair wages and hours of labour; reinstatement in civil employment; female employee equal pay; government annuities; government employee compensation; merchant seamen compensation; technical and vocational training assistance; vocational rehabilitation of disabled persons; annual vacations with pay. It promotes joint consultation in industry through labour-management committees; organizes manpower utilization programs, e.g., farm labour; and operates a Women's Bureau. The Department publishes the *Labour Gazette* and other publications, as well as general information on labour-management, employment, manpower and related subjects.

The National Technical and Vocational Training Advisory Council and the National Advisory Council on Rehabilitation of Disabled Persons act in an advisory capacity to the Minister of Labour, and the Merchant Seamen Compensation Board reports to the Minister of Labour. The Department is the official liaison agency between the Canadian Government and the International Labour Organization. The Unemployment Insurance Commission reports to Parliament through the Minister of Labour. The Canada Labour Relations Board administers certain provisions of the Industrial Relations and Disputes Investigation Act.

Library of Parliament.—The Library of Parliament as such was established in 1871 (SC 1871, c. 21) although it existed earlier. It currently functions under RSC 1952, c. 166 and SC 1955, c. 35. The Library of Parliament keeps all books, maps and other articles that are in the joint possession of the Senate and the House of Commons. The Parliamentary Librarian is also responsible for the House of Commons Reading Room. Persons entitled to borrow books from the Library of Parliament are the Governor General, Members of the Privy Council, Members of the Senate and the House of Commons, Officers of the two Houses, Justices of the Supreme Court of Canada and the Exchequer Court, and members of the Press Gallery. In addition, books are lent to other libraries and government agencies and reference service is given to scholars. The Parliamentary Librarian has the rank of a Deputy Head of a department and is responsible for the control and management of the Library under the Speaker of the Senate and the Speaker of the House of Commons assisted by a Joint Committee appointed by the two Houses.

Department of Mines and Technical Surveys.—This Department was created by an Act of Parliament (SC 1949, c. 17) which received Royal Assent on Dec. 10, 1949. Its establishment resulted from the reorganization of certain former departments. A primary function of the Department is to provide technological assistance in the development of Canada's mineral resources through investigations and research in the fields of geology, mineral dressing and metallurgy. The Department establishes the framework of surveys throughout the country that provides control for all surveying and mapping in Canada. It produces the base maps used in the development of Canada's natural resources, conducts all the charting of Canada's coastal and inland waters, and issues official sailing directions and Canadian sea and air navigation charts. To this has been added recently the study of coastal waters and of the country's continental shelf as well as of the deep ocean for defence and resource assessment purposes. The Department is divided into six branches: the Surveys and Mapping Branch, the Marine Sciences Branch, the Geological Survey of Canada, the Mines Branch, the Dominion Observatories, and the Geographical Branch. The Mineral Resources Division, a unit of head office, gives its whole attention to matters concerned with the economics of mineral resources development.

The Department administers the Explosives Act which regulates the manufacture, testing, sale, storage and importation of explosives, and the Emergency Gold Mining Assistance Act which provides cost-aid to the Canadian gold mining industry.

Boards and Commissions are: the Canadian Permanent Committee on Geographical Names; the Board of Examiners for Dominion Land Surveyors; the International Boundary Commission; and the Interprovincial Boundary Commissions. The Minister of Mines and Technical Surveys reports to Parliament for the Dominion Coal Board.

Department of National Defence.*—The Department of National Defence was established on Jan. 1, 1923 by the Department of National Defence Act, 1922, and was an amalgamation of the Department of Militia and Defence, the Naval Service and the Air Board. The Department and the Canadian Forces (the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force) now operate under the National Defence Act, 1950 (RSC 1952, c. 184).

In 1940 additional Ministers for Naval and Air Services were appointed and the Department was organized under a Minister of National Defence and two additional Ministers so that there was a Minister and staff for each of the Armed Services. Upon demobilization of the wartime Forces the appointment of Ministers of National Defence for Naval Services and Air Services ceased, and the Armed Forces were, in 1946, again administered by the Minister of National Defence without additional Ministers. Under the National Defence Act, the Canadian Forces are being administered solely by the Minister of National Defence and the Associate Minister of National Defence.

The Defence Research Board, created in 1947 to carry out research relating to national defence and to advise the Minister on all relevant matters of a scientific or technical nature, now functions under the National Defence Act. The Chairman of the Board has a status equivalent to that of a Chief of Staff of one of the Canadian Forces.

National Energy Board.—This Board was established under the National Energy Board Act, 1959 for the broad purpose of assuring the best use of energy resources in Canada. The Board, composed of five members, is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipelines, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The Board is also required to study and keep under review all matters relating to energy under the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary and advisable on the subject. The Board reports to Parliament through the Minister of Trade and Commerce.

National Film Board.—The National Film Board, established in 1939, operates under the National Film Act (RSC 1952, c. 185) which provides for a Board of Governors of nine members—a Government Film Commissioner, appointed by the Governor in Council, who is Chairman of the Board, three members from the public service of Canada and five members from outside the public service. The Board reports to Parliament through the Secretary of State. The Board is responsible for advising the Governor in Council on film activities and is authorized to produce and distribute films in the national interest and, in particular, films "designed to interpret Canada to Canadians and to other nations".

Department of National Health and Welfare.—This Department was established in October 1944 under authority of the Department of National Health and Welfare Act (RSC 1952, c. 74). It was originally formed as the Department of Health in 1919 and later became part of the Department of Pensions and National Health. That Department was replaced in 1944 by the Department of National Health and Welfare and the Department of Veterans Affairs.

* Changes pending at Apr. 30, 1964 will appear in the Appendix, if made effective before this volume goes to press.

The Department, headed by the Minister of National Health and Welfare, is composed of three branches—Administration, Health and Welfare—and is administered by two Deputy Ministers.

The Department has charge of all matters relating to the promotion or preservation of the health, social security and social welfare of the people of Canada over which the Federal Parliament has jurisdiction. It administers the Acts listed in Sect. 4, p. 125, and is also responsible for: the administration of the National Health Program under which grants are made available to the provinces for the development and extension of health services; the federal aspects of emergency health and welfare services; health and safety in the peaceful uses of atomic energy and other sources of radiation affecting the population; the provision of health, medical and hospital services to Indians and Eskimos and to other elements of the population in the Yukon and Northwest Territories; the provision of assistance and consultative services to the provinces upon request on blindness control, child and maternal health, mental health, dental health, nursing, medical rehabilitation, nutrition and hospital design; the inspection and medical care of immigrants and seamen and the administration of marine hospitals; the supervision of public health facilities on railway, water and other forms of transportation; the enforcement of regulations of the International Joint Commission relating to public health; the promotion and conservation of the health of civil servants and other government employees; the collection, publication and distribution, subject to the provisions of the Statistics Act, of information relating to public health, improved sanitation and social and industrial conditions affecting the health of Canadians. It co-ordinates and assists international welfare activities in which Canada is engaged and administers a system of grants to the provinces for professional welfare training, welfare research and general welfare services.

National Library.—The National Library came formally into existence on Jan. 1, 1953, with the proclamation of the National Library Act (RSC 1952, c. 330). It publishes *Canadiana*, a monthly catalogue of new publications relating to Canada, with an annual cumulation. The Library also publishes other bibliographies. Its Reference Division maintains the *National Union Catalogue*, which embodies the author catalogues of the major libraries in the ten provinces and is thus a key to the book collections of the whole country. Its book collection is growing steadily and at the end of 1963 consisted of about 250,000 volumes. The National Librarian reports to Parliament through the Secretary of State.

National Parole Board.—The establishment of the National Parole Board, which was formed in January 1959, is authorized by the Parole Act (SC 1958, c. 38) by which it is given absolute jurisdiction over all matters of parole. It is composed of a chairman and three members appointed by Order in Council for a ten-year period. The Board reports to Parliament through the Minister of Justice.

Department of National Revenue.—From Confederation until May 1918, customs and inland revenue Acts were administered by separate departments; after that date they were amalgamated under one Minister as the Department of Customs and Inland Revenue. In 1921 the name was changed to the Department of Customs and Excise. In April 1924 collection of income taxes was placed under the Minister of Customs and Excise and, under the Department of National Revenue Act, 1927, the Department became known as the Department of National Revenue.

The Customs and Excise Division of the Department is responsible for the assessment and collection of customs and excise duties as well as of sales and excise taxes. The Taxation Division is responsible for the assessment and collection of income taxes, gift tax, old age security tax and estate taxes for Canada and all provinces, except Quebec, through its 29 district taxation offices and its Taxation Data Centre.

The Minister of National Revenue is responsible to Parliament for the Tax Appeal Board.

Department of Northern Affairs and National Resources.—The Department of Northern Affairs and National Resources was established in December 1953, superseding the Department of Resources and Development. In addition to the Administration Branch, which includes common service functions, the Department is divided into three branches: the National Parks Branch, which administers the National Parks and National Historic Parks of Canada, National Historic Sites, and wildlife matters coming within the jurisdiction of the Federal Government; the Water Resources Branch, which is responsible for the investigation of water power resources, for the administration of federal assistance to the provinces under the Canada Water Conservation Assistance Act and for federal interest in certain joint federal-provincial construction projects; and the Northern Administration Branch, which is responsible for the administration of various federal Acts, territorial ordinances and regulations pertaining to the government of the Northwest Territories, for the conduct of certain business arising from the general administration of the Yukon Territory, for the administration of natural resources in those Territories and for Eskimo affairs, as well as for certain other lands and mineral rights vested in the Crown in the right of Canada.

The Minister of Northern Affairs and National Resources is also responsible to Parliament for the Northern Canada Power Commission and the National Battlefields Commission. The Historic Sites and Monuments Board of Canada, an honorary body of recognized historians representing the various provinces, and the Advisory Committees on Northern Development and Water Use Policy, act in an advisory capacity to the Minister in their respective fields. The Deputy Minister is Chairman of the Northern Canada Power Commission.

Post Office Department.—Administration and operation of the Canada Post Office, by virtue of the Post Office Act (RSC 1952, c. 212) and under the Postmaster General, includes all phases of postal activity, personnel, mail handling, transportation of mails by land, water, rail and air and the direction and control of financial services including the operation of money order and savings bank business. The Central Mortgage and Housing Corporation reports to Parliament through the Postmaster General.

Privy Council Office.—For administrative purposes, the Privy Council Office is regarded as a Department of Government under the Prime Minister. The Clerk of the Privy Council, under whose direction its functions are carried out, is considered as a Deputy Head and takes precedence among the chief officers of the Public Service. The authority of the Privy Council Office is to be found in Sects. 11 and 130 of the British North America Act, 1867, which constituted a Council to aid and advise in the government of Canada to be styled the Queen's Privy Council for Canada. In 1940, upon the wartime development of cabinet committees and the consequent need for orderly secretarial procedures such as agenda, explanatory memoranda and minutes, the Principal Secretary in the Prime Minister's Office was designated Clerk of the Privy Council and First Secretary to the Cabinet. Since 1946, the Privy Council Office has been further re-organized, developed and enlarged and certain administrative functions of the Privy Council Office and the Prime Minister's Office have been closely integrated in the interests of efficiency and economy.

The organization of the Privy Council Office at present consists primarily of the Privy Council Section concerned with the examination of submissions to the Governor in Council, preparation of draft orders and regulations, circulation and filing of approved orders, administration of oaths of office and secrecy, and the duties of editing, registering and publishing the federal statutory regulations in Part II of the *Canada Gazette*; the Cabinet Section dealing with secretarial work for the Cabinet and for Cabinet committees and interdepartmental committees, such as the preparation and circulation of agenda and necessary documents to Ministers and recording and circulating decisions, liaison with departments and agencies of government, and the preparation of material for the Prime Minister; and the Office of the Prime Minister organized as a Secretariat with officers responsible for general secretarial duties, the drafting of letters, the arrangement of appointments to interview the Prime Minister or for his public appearances or for the release of his statements on matters of public interest, and assisting the Prime Minister in his parliamentary duties.

Public Archives.—The Public Archives was founded in 1872 and is administered under the Public Archives Act (RSC 1952, c. 222) by the Dominion Archivist who has the rank of a Deputy Minister and reports to Parliament through the Secretary of State. Its purpose is to assemble and make available to the public a comprehensive collection of historical source material relating to the history of Canada. Major emphasis is placed on official records of the Government and the personal papers of political leaders and other prominent figures. These are supplemented by copies of many records in the British and French archives that relate to Canada, a fine map collection, a historical library, and many prints, paintings and photographs. The Archives operates a large Records Centre which provides accommodation for departmental records that are seldom used and also serves as a sorting centre, preserving papers of long-term interest from obsolete files and marking useless material for destruction. The Government's Central Microfilm Unit is housed in the Records Centre.

Under the terms of the Laurier House Act (RSC 1952, c. 163) the Public Archives is responsible for the administration of Laurier House as a museum and study centre.

Department of Public Works.—The Department was constituted in 1867 and operates under the legislative authority of the Public Works Act and other Acts of Parliament. It is responsible for the management and direction of the public works of Canada and, except as specifically provided in other Acts, attends to the construction and maintenance of public buildings, wharves, piers, roads and bridges and the undertaking of dredging and navigable waters protection work. Federal Government interest in the Trans-Canada Highway and the Northwest Highway System is also handled by the Department. The Department maintains district offices at key points across the country. The Branches and Divisions of the Department are: Harbours and Rivers Engineering, Building Construction, Development Engineering, Property and Building Management, Purchasing and Stores, Administrative Services, Economic Studies, Financial Services, Fire Prevention, Information Services, Legal Services and Personnel.

The Minister of Public Works is also responsible to Parliament for the National Capital Commission.

Royal Canadian Mounted Police.—The Royal Canadian Mounted Police, a civil force maintained by the Federal Government, was organized in 1873 as the North West Mounted Police. It now operates under the Royal Canadian Mounted Police Act, 1959 and is responsible for enforcing federal laws throughout Canada. By agreement with certain provincial governments, it is also responsible for enforcing provincial laws within those provinces and for policing many district municipalities, cities and towns. The Force is controlled and administered by the Minister of Justice.

Department of the Secretary of State.—The Secretary of State and Registrar General of Canada is the official medium of communication with the Throne through the Governor General,

and is the custodian of the Great Seal of Canada and of the Privy Seal of the Governor General. He is responsible for the preparation and tabling of returns in Parliament. He is also the Custodian of Enemy Property.

The Department administers affairs relating to patents of invention, trade marks, industrial designs, timber marking, copyright, companies, boards of trade, the registration of trade unions, public officers, public documents, governmental and parliamentary translations, and the National Museum.

The Secretary of State has certain responsibilities with respect to civilian decorations, precedence and ceremonial. The Committee on the use of Parliament Hill and the National War Memorial falls within his purview. He is the Minister responsible for the Centennial Commission and the office of the Queen's Printer (Publisher) and is the spokesman in Cabinet and Parliament for the Board of Broadcast Governors, the Canada Council, the Canadian Broadcasting Corporation, the Chief Electoral Officer, the Civil Service Commission, the Economic Council of Canada, the National Film Board, the National Gallery, the National Library, the Public Archives and the Representation Commissioner.

Tariff Board.—Constituted in 1931 under the Tariff Board Act (SC 1931, c. 55), the Board derives its duties and powers from three statutes: the Tariff Board Act (RSC 1952, c. 261, as amended); the Customs Act (RSC 1952, c. 58, as amended); and the Excise Tax Act (RSC 1952, c. 100, as amended).

Under the Tariff Board Act, the Board makes inquiry into and reports upon any matter in relation to goods that, if brought into Canada, are subject to or exempt from duties of customs or excise taxes. Reports of the Board are tabled in Parliament by the Minister of Finance. It is also the duty of the Board to hold an inquiry under Sect. 14 of the Customs Tariff and to inquire into any other matter in relation to the trade and commerce of Canada that the Governor in Council sees fit to refer to the Board for inquiry and report.

Under the provisions of the Customs Act and the Excise Tax Act, the Tariff Board acts as a court to hear appeals from rulings of the Department of National Revenue, Customs and Excise Division, in respect of excise taxes, tariff classification, value for duty, and drawback of customs duties. Declarations of the Board on appeals on questions of fact are final and conclusive but the Acts contain provisions for appeal on questions of law to the Exchequer Court of Canada.

Tax Appeal Board.—The Tax Appeal Board (created in 1946 as the Income Tax Appeal Board) now operates under the Income Tax Act (RSC 1952, c. 148 as amended). The Board is declared by statute to be a court of record and has jurisdiction to hear and determine appeals by taxpayers against their assessment under the Income Tax Act and also appeals under the Estate Tax Act. An appeal lies from the Board to the Exchequer Court of Canada and a further appeal from that court to the Supreme Court of Canada. The Board consists of a chairman and five other members. Its offices are located at Ottawa and it hears appeals at the principal centres throughout Canada approximately twice a year and at the main centres, such as Montreal and Toronto, six times a year. The Board is under the jurisdiction of the Minister of National Revenue but is completely separate and independent of the Department of National Revenue.

Department of Trade and Commerce.—The Department of Trade and Commerce was established by Act of Parliament on June 23, 1887, but did not function until Dec. 5, 1892, when an Order in Council to this effect was passed. Before the formation of the Department, assistance in the development of Canada's external trade was provided by eight Canadian Commercial Agents—five in the West Indies, two in Great Britain and one in France—who served on a part-time basis and were responsible to the Minister of Finance. A Canadian Commercial Agent was appointed at Sydney, Australia, in 1895, as the first full-time salaried agent of the Department.

The framework of the present Trade Commissioner Service emerged during the next decade or so, the Commercial Agents gradually giving place to career Trade Commissioners. There are now 173 Trade Commissioners serving at Headquarters and abroad in 63 posts (including Assistant Trade Commissioners and agricultural, fisheries and timber specialists). Where a Trade Commissioner is a member of a mission maintained by the Department of External Affairs, he holds diplomatic status and is known as a Minister (Commercial), Commercial Counsellor or Commercial Secretary.

The Department provides a wide range of services to Canadian business men through the Agriculture and Fisheries Branch, the Canadian Government Exhibition Commission, the Canadian Government Travel Bureau, the Industrial Raw Materials Branch, the Manufactured and Engineering Products Branch, the Office of Trade Relations and Trade Policy, the Trade Services Branch, the Trade Commissioner Service, the Trade Fairs and Missions Branch, the Trade Publicity Branch, the Standards Branch, the Economics Branch and the Grain Division.

The following boards, commissions, Crown corporations and agencies report to Parliament through the Minister of Trade and Commerce: the Dominion Bureau of Statistics, the Export Credits Insurance Corporation, the National Energy Board, the Canadian Wheat Board, the Northern Transportation Company Limited, Eldorado Aviation Limited, Eldorado Mining and Refining Limited and the Canadian Corporation for the 1967 World Exhibition.

Department of Transport.—The Department was created on Nov. 2, 1936 from the former Departments of Marine and of Railways and Canals, and the Civil Aviation Branch of the Department of National Defence (RSC 1952, c. 79).

The work of the Department consists of two main Services—Marine and Air. Marine Service operations include aids to navigation, nautical and pilotage services, marine agencies, secondary canals, steamship inspection, the Canadian Coast Guard, and direct supervision over 300 public harbours; 11 other harbours come under supervision of the Department but are administered by commissions. Air Services cover the operation of the Telecommunications and Electronics, Civil Aviation, and Meteorological Branches. The work of the Telecommunications and Electronics Branch includes the administration of national and international radio laws, regulations and agreements; it is also responsible for the construction, installation, maintenance and operation of aeronautical, marine and meteorological radio-communication stations and of radio and electronics aids to marine and air navigation.

The Minister of Transport is responsible to Parliament for the following boards, commissions and Crown companies: Air Canada, the Air Transport Board, the Board of Transport Commissioners, the Canadian Maritime Commission, the National Harbours Board, the St. Lawrence Seaway Authority, the Canadian Overseas Telecommunication Corporation, the Canadian National Railways, and the Atlantic Development Board.

Treasury Board.—The Treasury Board was first established by Order in Council PC 3 of July 2, 1867 and was made statutory in 1869. Its powers and duties are now governed by the Financial Administration Act (RSC 1952, c. 116 as amended). Serving as a committee of the Queen's Privy Council for Canada and consisting of the Minister of Finance as Chairman and five other members of the Privy Council, it deals with all matters relating to finance, revenues, estimates, expenditures and financial commitments, accounts and personnel establishments referred to the Board by the Governor in Council or on which the Board considers it necessary to act under the Financial Administration Act or any other Act. The practice of having a Board of Ministers co-ordinating financial measures and reviewing constantly the Government's spending program is unique.

The administrative staff of the Treasury Board constitutes a main division of the Department of Finance and is directed by an Assistant Deputy Minister of Finance named to be the Secretary of the Treasury Board.

Department of Veterans Affairs.—This Department, established in 1944 (RSC 1952, c. 80), is concerned exclusively with the welfare of veterans and with the dependants of veterans and of those who died on active service. The Department provides treatment services (hospital, medical, dental and prosthetic), welfare services, education assistance, life insurance, and land settlement and home construction assistance. The Veterans' Bureau assists veterans in the preparation and presentation of pension claims.

The Canadian Pension Commission established by the Pension Act (RSC 1952, c. 207), and the War Veterans Allowance Board established by the War Veterans Allowance Act (RSC 1952, c. 340) also report to Parliament through the Minister of Veterans Affairs.

The Department has treatment institutions and facilities in a number of urban centres. It also maintains, in large cities across Canada, administrative offices, which are shared with the Canadian Pension Commission and the War Veterans Allowance Board, and an office in London, England.

War Veterans Allowance Board.—This Board, established under the authority of the War Veterans Allowance Act, 1930 (RSC 1952, c. 340), is a statutory body responsible to the Minister of Veterans Affairs for the administration of the Act and for the administration of Part XI of the Civilian War Pensions and Allowances Act relating to certain groups of civilians who performed meritorious service in either World War I or II. It consists of three to ten members (three to five permanent, up to three temporary, and up to two additional without pay) appointed by the Governor in Council. Its functions include the responsibility of ensuring that all 19 District Authorities located in various regions throughout Canada interpret the legislation in a fair, reasonable and equitable manner. It is also an appeal body and may consider an appeal of an appellant against the decision of a District Authority.

Section 3.—Crown Corporations

The Crown corporation form of public enterprise is not a new type of organization in Canada but in recent years, as the work of government has become more complex, greater reliance has been placed on it as the appropriate instrument for administering and managing many public services in which business enterprise and public accountability must be combined.

The use of the corporate device to harmonize public responsibility in the development of economic resources and the provision of public services with the pursuit of commercial

and industrial objectives has led to the adoption of many different forms and formulas of management. The most usual practice has been to set up a corporation under the provisions of a special Act of Parliament which defines its purposes and sets forth its powers and responsibilities. However, during World War II the Minister of Munitions and Supply was authorized to procure the incorporation of companies under the federal Companies Act, 1934, or under any provincial Companies Act to which he might delegate any of the powers conferred on him under the Department of Munitions and Supply Act or any Order in Council. Under this legislation about 28 companies were created to serve a wide variety of purposes; most of these companies have since been wound up.

Following the successful experience during the war years in relying on the Companies Act for the establishment of Crown companies, similar incorporating powers were granted by an amendment to the Research Council Act and have been incorporated in the Atomic Energy Control and the Defence Production Acts.

In 1946 the Government Companies Operation Act was passed to regulate the operation of companies formed under the Companies Act. However, it was applicable only to a relatively small number of companies and, in order to establish a more uniform system of financial and budgetary control and of accounting, auditing and reporting for Crown corporations generally, Part VIII of the Financial Administration Act was enacted in 1951 and brought into operation by proclamation on Oct. 1, 1952. Upon its enactment the financial provisions of the Government Companies Operation Act were repealed.

One of the more interesting features of the later legislation is the attempt that has been made to define and classify Crown corporations.* The Act defines a Crown corporation as a corporation that is ultimately accountable, through a Minister, to Parliament for the conduct of its affairs and establishes three classes of corporation—departmental, agency and proprietary.

Departmental Corporations.—A departmental corporation is defined as a Crown corporation that is a servant or agent of Her Majesty in right of Canada and is responsible for administrative, supervisory or regulatory services of a governmental nature. Twelve departmental corporations are listed in Schedule B to the Act:—

Agricultural Stabilization Board (formerly Agricultural Prices Support Board)
Atomic Energy Control Board
Canadian Maritime Commission
Director of Soldier Settlement
The Director, The Veterans' Land Act
Dominion Coal Board
Economic Council of Canada
Fisheries Prices Support Board
Municipal Development and Loan Board
National Gallery of Canada
National Research Council
Unemployment Insurance Commission.

Agency Corporations.—An agency corporation is defined as a Crown corporation that is an agent of Her Majesty in right of Canada and is responsible for the management of trading or service operations on a quasi-commercial basis or for the management of procurement, construction or disposal activities on behalf of Her Majesty in right of

* Not all Crown corporations are subject to the provisions of the Financial Administration Act. For example, the Canadian Wheat Board, the Bank of Canada and its subsidiary the Industrial Development Bank, because of the special nature of their functions, are excluded from operations of the Crown corporations Part of the Act and are governed by their own Acts of incorporation as is also the Eastern Rockies Forest Conservation Board, a joint federal-provincial enterprise. The Canada Council was set up under the Canada Council Act (assented to Mar. 28, 1957) as a Crown corporation but has been declared not an agency of the Crown and hence is not included in the Schedules to the Financial Administration Act; the same situation applies to the Atlantic Development Board set up under the Atlantic Development Board Act (assented to Dec. 20, 1962).

Canada. The following agency corporations are listed in Schedule C to the Financial Administration Act or have been subsequently added to that Schedule by the Governor in Council:—

Atomic Energy of Canada Limited
Canadian Arsenals Limited
Canadian Commercial Corporation
Canadian National (West Indies) Steamships Limited
Canadian Patents and Development Limited
Centennial Commission
Crown Assets Disposal Corporation
Defence Construction (1951) Limited
National Battlefields Commission
National Capital Commission (formerly Federal District Commission)
National Harbours Board
Northern Canada Power Commission (formerly Northwest Territories Power Commission)
Park Steamship Company Limited.

Two corporations, Canadian Sugar Stabilization Corporation Limited and Commodity Prices Stabilization Corporation Limited, listed in Schedule C when the Financial Administration Act was proclaimed, have since discontinued operations and surrendered their charters. By an Order in Council of June 15, 1955, the name of the Northwest Territories Power Commission (now Northern Canada Power Commission) was deleted from Schedule D and added to Schedule C, effective Apr. 1, 1954.

Proprietary Corporations.—A proprietary corporation is defined as a Crown corporation that (1) is responsible for the management of lending or financial operations, or for the management of commercial or industrial operations involving the production of or dealing in goods and the supplying of services to the public, and (2) is ordinarily required to conduct its operations without parliamentary appropriations. The following proprietary corporations are listed in Schedule D to the Act or have been subsequently added to that Schedule by the Governor in Council:—

Air Canada (formerly Trans-Canada Air Lines)
Canadian Broadcasting Corporation
Canadian Overseas Telecommunication Corporation
Central Mortgage and Housing Corporation
Eldorado Aviation Limited
Eldorado Mining and Refining Limited
Export Credits Insurance Corporation
Farm Credit Corporation (formerly Canadian Farm Loan Board)
National Railways, as defined in the Canadian National-Canadian Pacific Act, 1933
Northern Transportation Company Limited
Polymer Corporation Limited
St. Lawrence Seaway Authority
Seaway International Bridge Corporation Limited (formerly Cornwall International Bridge Company Limited), subsidiary to the St. Lawrence Seaway Authority.

Departmental corporations are governed by the provisions of the Financial Administration Act that are applicable to departments generally. Agency and proprietary corporations, however, are subject to the provisions of the Crown corporations Part of the Act although, if there is any inconsistency between the provisions of that Part and those of any other Act applicable to a corporation, the Act provides that the latter prevail. There is provision in the Part for the control and regulation of such matters as corporation budgets and bank accounts, the turning over to the Receiver General of surplus money, limited loans for working-capital purposes, the awarding of contracts and the establishment of reserves, the keeping and auditing of accounts, and the preparation of financial statements and reports and their submission to Parliament through the appropriate Minister.

A further form of control is exercised by Parliament through the power to vote financial assistance. This may take different forms. For some corporations, capital may be provided by parliamentary grants, loans or advances that may subsequently be converted into capital stock or bonds; for others it may be by the issue of capital stock to be subscribed and paid for by the Government; or by the sale of bonds to either the Government or the public. A few corporations have financed all or a portion of their requirements from their own resources or earnings.

Prior to 1952, Crown corporations did not pay corporate income taxes. However, the Income Tax Act was later amended so that, in respect of financial years commencing after Jan. 1, 1952, proprietary Crown corporations pay taxes on income earned in the same manner as any privately owned corporation. One desirable result of this amendment is that the financial statements of these Crown companies are now more comparable with those of private industry, with which in some instances they are in competition, and thus it is easier to assess the relative efficiency of their operations.

The functions of the various Crown corporations are given briefly in the following paragraphs. For a number of them, further details are included in the Chapters dealing with the subjects concerned (see Index).

Agricultural Stabilization Board.—The Board was established in 1958 (SC 1957-58, c. 22) to administer the provisions of the Agricultural Stabilization Act, which replaced the Agricultural Prices Support Act. The Board reports to Parliament through the Minister of Agriculture and routine administrative matters are handled through departmental channels.

Air Canada.—Formerly Trans-Canada Air Lines, the Corporation was incorporated by Act of Parliament in 1937 to provide a publicly owned air transportation service, with powers to carry on its business throughout Canada and outside of Canada. Air Canada now maintains passenger, mail and commodity traffic services over nation-wide routes and also services to the United States, England, Scotland, Ireland, France, Switzerland, West Germany, Austria, Bermuda, the Bahamas, Jamaica, Antigua, Barbados and Trinidad. Air Canada is responsible to Parliament through the Minister of Transport.

Atlantic Development Board.—The Act establishing this Board (SC 1962-63, c. 10) received Royal Assent on Dec. 20, 1962. The Board is composed of a chairman and four other members appointed by Order in Council and reports to Parliament through the Minister of Transport. Its functions are to inquire into and report upon measures and projects for fostering the economic growth and development of the Atlantic Region of Canada and to assess and make recommendations with respect to particular projects referred to it by the Minister.

Atomic Energy Control Board.—By Act of Parliament (RSC 1952, c. 11) proclaimed October 1946, the regulation and control of atomic energy in Canada was placed under the Atomic Energy Control Board. The Board reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Atomic Energy of Canada Limited.—This Crown company was incorporated in February 1952 under the Atomic Energy Control Act, 1946 (RSC 1952, c. 11) to take over from the National Research Council on Apr. 1, 1952 the operation of the Chalk River project. The main activities of the company are (*a*) the development of economic nuclear power, (*b*) scientific research and development in the atomic energy field, (*c*) the operation of nuclear reactors and (*d*) the production of radioactive isotopes and associated equipment such as Cobalt-60 beam therapy units for the treatment of cancer. The company reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Bank of Canada.—Legislation of 1934 (RSC 1952, c. 13) provided for the establishment of a central bank in Canada, the function of which is to regulate credit and currency, to control and protect the external value of the Canadian dollar and to stabilize the level of production, trade, prices and employment so far as may be possible within the scope of monetary action. The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. The Bank is managed by a Board of Directors appointed by the Government and composed of a Governor, a Deputy Governor and 12 Directors; the Deputy Minister of Finance is also a member of the Board. The Bank reports to Parliament through the Minister of Finance and is governed by its own Act of incorporation. (See footnote, p. 115.)

The Canada Council.—Established by Order in Council dated Apr. 15, 1957, this corporation of a Chairman, a Vice-Chairman and 19 other members, a Director and an Associate Director

operates under the terms of the Canada Council Act, assented to Mar. 28, 1957. The function of the Council is to encourage the arts, humanities and social sciences in Canada; its work is financed by a $50,000,000 University Capital Grants Fund and the earnings from a $50,000,000 Endowment Fund. In the making, managing and disposing of investments under the Act, the Council has the advice of an Investment Committee of five, including the Chairman and another member of the Council. The proceedings of the Council are reported each year to Parliament through the Secretary of State. (See footnote, p. 115.)

Canadian Arsenals Limited.—This company was established under the Companies Act by Letters Patent dated Sept. 20, 1945 and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and certain provisions of the Financial Administration Act (RSC 1952, c. 116). The company was set up to take over and operate Crown-owned plants and equipment. Among the items it now manufactures are propellants and explosives, small arms and a wide variety of ammunition and components. Its divisions, together with the locations of their plants, are as follows: Dominion Arsenal Division (Quebec City and Val Rose, Que.); Explosives Division (Valleyfield, Que.); Filling Division (St. Paul l'Ermite, Que.); Small Arms Division (Long Branch, Ont.). The Company is responsible to Parliament through the Minister of Industry.

Canadian Broadcasting Corporation.—The new Broadcasting Act, 1958 continues the CBC as a Crown corporation for the purpose of operating a national broadcasting service. It has the authority to maintain and operate broadcasting stations and networks and to originate and secure programs from within and outside Canada. This national radio and television service is financed through annual grants from Parliament and revenues from commercial operations.

The Corporation consists of 11 Directors appointed by the Governor in Council and chosen to give representation to the principal geographical divisions of the country. The Corporation reports to Parliament through a Minister of the Crown (at present the Secretary of State). The President and Vice President are full-time executives appointed for a period of seven years; the other nine Directors are appointed for periods of three years and may serve two consecutive terms. The President is the chief executive of the Corporation and, with the Vice President, is responsible for the conduct of the affairs of the Corporation. As the chief executive, the President receives, interprets and applies the policies and directives of the Directors of the Corporation and establishes administrative and operating policies to control the activities of all operating units—English Networks, French Networks, Regional Broadcasting and the International Service, and of corporate staff departments, i.e., Programming, Personnel and Operations, Corporate Affairs, Engineering and Technical Services, and Finance.

In practice, attention of the President is primarily directed at the broader operating and administrative policy fields including reporting on activities to the Directors of the Corporation and the conduct of relations with Parliament, the Board of Broadcast Governors and the public; the Vice President assists the President in his role of chief executive by assuming primary responsibility for the current operations of the Corporation.

The Corporation's Head Office is situated in Ottawa with Headquarters for English Networks in Toronto and for French Networks in Montreal and with Regional Headquarters in St. John's for Newfoundland, Halifax for the Maritime Provinces, Winnipeg for the Prairie Provinces, and Vancouver for British Columbia. Headquarters for the Northern and Armed Forces Services is in Ottawa and for the International Service in Montreal.

Canadian Commercial Corporation.—This Corporation was established on May 1, 1946, by the Canadian Commercial Corporation Act (RSC 1952, c. 35). Its principal purpose is to assist in the development of trade between Canada and other nations by acting on behalf of the Canadian Government as the contracting agency when other countries wish to purchase defence or other supplies and services from Canada on a government-to-government basis. The Corporation may enter into transactions under the provisions of the Act for any department or agency of the Government of Canada.

The Corporation is responsible to Parliament through the Minister of Industry. Management and staff are provided by the Department of Defence Production.

Canadian Corporation for the 1967 World Exhibition.—This Corporation was established by Act of Parliament (SC 1962-63, c. 12) to plan, organize, hold and administer the Canadian Universal and International Exhibition, Montreal 1967, to be held on the occasion of the Centenary of Canadian Confederation. The Exhibition is one of the First Category, and Canada is the first country in the Americas to hold such an exhibition under a franchise of the International Bureau of Exhibitions.

The Exhibition, known as EXPO '67, will be held in Montreal Apr. 28 to Oct. 27, 1967, on a site prepared by the City in three main areas grouped around historic St. Helen's Island in the middle of the St. Lawrence River. The theme, "Man and His World", is purported to demonstrate how, through the ages, man has met the challenge of his environment.

The Corporation is headed by a Commissioner General and President; a Deputy Commissioner General and Vice President; and a General Manager. It reports to Parliament through the Minister of Trade and Commerce. The present address of the Corporation is Place Ville-Marie, Montreal; the telephone number is EXPosition 1967; and the cable address is Montexpo.

Canadian Maritime Commission.—This Commission was created in 1947 by the Canadian Maritime Commission Act (RSC 1952, c. 38). It considers and recommends policies and measures necessary for the operation, maintenance, manning and development of a merchant marine and a shipbuilding and ship-repairing industry. The Commission administers the Ship Construction Assistance Regulations established by Order in Council PC 1961-1290 passed Sept. 8, 1961 and the Canadian Vessel Construction Assistance Act (RSC 1952, c. 43). It also administers steamship subsidies voted by Parliament. Other functions include advice to other government departments on their shipbuilding requirements, consultation with the Department of National Revenue in the administration of the laws relating to the coasting trade of Canada and the co-ordination of the overseas movement of men and material for the Department of National Defence. It has responsibility in international matters relating to merchant shipping, such as NATO, IMCO and other international bodies. The Chairman has the status of a Deputy Minister and the Commission reports to Parliament through the Minister of Transport.

Canadian National Railways.—The Canadian National Railway Company was incorporated (SC 1919, c. 13) to operate and manage a national system of railways, including the Canadian Northern Railway System, the Canadian Government Railways and all lines entrusted to it by Order in Council. In 1923 the Grand Trunk Railway Company of Canada was amalgamated with the Canadian National Railway Company and since 1923 a number of railway lines acquired by the Government have been entrusted to the Company for operation and management, including the Newfoundland Railway and steamship services in 1949, the Temiscouata Railway in 1950, and the Hudson Bay Railway and the Northwest Communication System in 1958. The Canadian National Railways Act, 1919 was repealed in 1955 and the Canadian National Railways Act (SC 1955, c. 29) substituted therefor.

The Canadian National Railway Company is controlled by a Chairman and Board of Directors appointed by the Governor in Council, who report to Parliament through the Minister of Transport.

Canadian Overseas Telecommunication Corporation.—This Crown company was created on Dec. 10, 1949 by Act of Parliament (RSC 1952, c. 42) to acquire for public operation external telecommunication assets in Canada, in keeping with the Commonwealth Telegraph Agreement signed May 11, 1948. This Agreement was designed to bring about the consolidation and strengthening of the radio and cable communication systems of the Commonwealth. The Corporation is responsible to Parliament through the Minister of Transport.

Canadian Patents and Development Limited.—Canadian Patents and Development Limited is a Crown corporation established in 1948, pursuant to authority granted in an amendment to the Research Council Act passed in 1946. The primary purpose of the Company, which is a subsidiary of the National Research Council, is to make available to industry, through licensing arrangements, commercial inventions originating in the NRC laboratories. The Company also handles inventions referred to it from the research establishments of Federal Government departments and agencies, Canadian universities, and provincial research councils. Any profits that the Company may derive from licensing arrangements are used for further research and development. The Company's Board of Directors is composed of representatives of the National Research Council, government departments and agencies, industry and the universities. The Company reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Canadian Wheat Board.—The Board was incorporated in 1935 under the Canadian Wheat Board Act to market, in an orderly manner, in the interprovincial and export trade, grain grown in Canada. Its powers include authority to buy, take delivery of, store, transfer, sell, ship or otherwise dispose of grain. Except as directed by the Governor in Council, the Board was not originally authorized to buy grain other than wheat but, since Aug. 1, 1949, it may also buy oats and barley if authorized to do so by Regulation approved by the Governor in Council. Only grain produced in the designated area, which includes Manitoba, Saskatchewan, Alberta and parts of British Columbia and Ontario, is purchased by the Board, which controls the delivery of grain into elevators and railway cars in that area as well as the interprovincial movement and export of wheat, oats and barley generally. The Board is governed by its own Act of incorporation (see footnote, p. 115). It reports to Parliament through the Minister of Trade and Commerce.

Centennial Commission.—The Centennial Commission is a Crown corporation established by Parliament (SC 1960-61, c. 60 as amended) and responsible for the co-ordination and administration of projects relating to the Centennial of Confederation in Canada. It consists of a Commissioner, an Associate Commissioner and not more than 12 directors, each of whom is appointed by the Governor in Council. The Commission is responsible to Parliament through the Secretary of State.

Central Mortgage and Housing Corporation.—This Corporation was incorporated by Act of Parliament (RSC 1952, c. 46) in December 1945 to administer the National Housing Acts. Under the National Housing Act, 1954 (SC 1953-54, c. 23, as amended), the Corporation insures mortgage loans made by approved lenders and makes direct loans for home-ownership and rental housing; guarantees home improvement loans made by banks; undertakes subsidized rental housing projects and land assembly developments under federal-provincial arrangements; offers loans and

subsidies for public housing projects; makes loans for land assembly projects to be used for public housing; makes loans for limited-dividend, low-rental housing projects; makes loans for university housing projects and to provinces and municipalities for sewage treatment projects designed to eliminate water and soil pollution; makes contributions and loans to provinces and municipalities for urban renewal operations; conducts housing research; encourages urban planning and owns and manages rental housing units including those built for war workers and veterans. The Corporation arranges for and supervises construction of housing projects on behalf of the Department of National Defence and other government departments and agencies. The Corporation is responsible to Parliament through the Postmaster General.

Crown Assets Disposal Corporation.—This Corporation is established under the Surplus Crown Assets Act (RSC 1952, c. 260) and is subject to the Financial Administration Act (RSC 1952, c. 116). In June 1944, War Assets Corporation was established by statute to replace War Assets Corporation Limited which had been incorporated in 1943. In 1949 the name of War Assets Corporation was changed to Crown Assets Disposal Corporation. The Corporation's function is to dispose of surplus Crown assets. It is responsible to Parliament through the Minister of Industry.

Defence Construction (1951) Limited.—This company was established by letters patent in 1951 to take over the general undertakings of Defence Construction Limited. It is primarily responsible for the calling and review of tenders, the award of contracts, and the supervision of work in the field for all major defence construction contracts. This covers five broad phases of work in the following categories: (1) defence projects in Canada for the Department of National Defence; (2) defence projects in France, Belgium and Germany for the Department of National Defence under the NATO agreement; (3) maintenance and repair contracts at Department of National Defence sites throughout Canada; (4) defence construction for the United States Government in Canada (except on leased bases and the DEW Line); and (5) advice and assistance concerning capital assistance projects of the Department of Defence Production and projects for the External Aid Office of the Department of External Affairs. It is responsible to Parliament through the Minister of Industry.

Director of Soldier Settlement and Director of the Veterans' Land Act.—The Director of Soldier Settlement (under the Act of 1919) is also the Director of the Veterans' Land Act, and in each capacity is legally a corporation sole. For administrative purposes, however, the programs carried on under both Acts constitute integral parts of the services provided by the Department of Veterans Affairs.

Dominion Coal Board.—The Board, established as a department in 1947 by the Dominion Coal Board Act (RSC 1952, c. 86), has the responsibility of studying and recommending to the Government policies concerning the production, import, distribution and use of coal. The Chairman has the status of a Deputy Minister and the Board reports to Parliament through the Minister of Mines and Technical Surveys. The Board administers transportation and other subventions relating to coal, including those under the Atlantic Provinces Power Development Act (SC 1957-58, c. 25). It also administers loans authorized under the Coal Production Assistance Act (RSC 1952, c. 173, as amended).

Eastern Rockies Forest Conservation Board.—The Board was appointed in 1947 under the Eastern Rocky Mountain Forest Conservation Act which authorized an agreement between the Government of Canada and the Province of Alberta relating to the protection and conservation of the forests of that portion of the eastern slope of the Rocky Mountains which gives rise to the major tributaries of the Saskatchewan River. The function of the Board is to determine the policy necessary to obtain the greatest possible flow of water in the Saskatchewan River system. The planning of programs of forest use and conservation is a joint duty of the Board and the provincial Forest Service; the administration of the conservation area is a function of the province. In April 1962, a Technical Co-ordinating Committee for Watershed Research was established to undertake study of the related needs defined by the Board. The Committee's programs, undertaken by seven co-operating agencies of the federal and Alberta governments, are co-ordinated by the federal Department of Forestry.

Funds for capital expenditures during the first seven years of the agreement were provided by the Federal Government with maintenance expenditures being paid by the Province of Alberta. In 1955 the province undertook the responsibility of financing both capital improvements and maintenance work. Currently, one member of the three-man Board is appointed by the Federal Government and the province has the right to appoint two members. The choice of one of the three members as Board chairman is vested in the province. The Board reports to Parliament through the Minister of Forestry. (See footnote, p. 115.)

Economic Council of Canada.—This Corporation, established under legislation passed on Aug. 2, 1963 (SC 1963, c. 11), consists of a full-time Chairman and two full-time Directors appointed for a term not to exceed seven years and not more than 25 additional members to serve part-time and without remuneration. The Council is to be as representative as possible of labour, agriculture and primary industries, secondary industry and commerce, and the general public. Its functions are to advise and recommend measures that will achieve in Canada the highest possible levels of employment and efficient production so that the country may enjoy a high and consistent rate of

economic growth and that all Canadians may share in rising living standards; to carry on the duties of the former National Productivity Council which were to promote and expedite continuing improvement in productive efficiency in the various aspects of Canadian economic activity; and to publish an annual review of medium and long-term economic prospects and problems. The Council reports to Parliament through the Secretary of State.

Eldorado Aviation Limited.—This company was incorporated Apr. 23, 1953 to carry air traffic, both passenger and freight, for Eldorado Mining and Refining Limited and its wholly owned subsidiary, Northern Transportation Company Limited. It reports to Parliament through the Minister of Trade and Commerce.

Eldorado Mining and Refining Limited.—Set up in 1944 under the name of Eldorado Mining and Refining (1944) Limited (the date was omitted from the name in June 1952), the company's business is the mining and refining of uranium and the production of nuclear fuels in Canada. The company has also entered into contracts for the purchase of uranium concentrates from private producers in Canada. It reports to Parliament through the Minister of Trade and Commerce.

Export Credits Insurance Corporation.—This Corporation commenced operations in 1945 under the Export Credits Insurance Act, 1944 (RSC 1952, c. 105, as amended) and is administered by a Board of Directors (including the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance) with the advice of an Advisory Council. Its function is to insure Canadian exporters against non-payment by foreign buyers arising out of credit and political risks involved in foreign trade. The Corporation is also authorized to provide financing in respect of an export transaction involving extended credit terms. It reports to Parliament through the Minister of Trade and Commerce.

Farm Credit Corporation.—This Corporation was established on Oct. 5, 1959 (SC 1959, c. 43) for the purpose of providing for the extension of long-term mortgage credit to farmers. The Corporation is responsible to Parliament through the Minister of Agriculture.

Fisheries Prices Support Board.—The Board was set up in July 1947 (RSC 1952, c. 120) to recommend to the Government price support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a Chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry. The Board has authority to buy fishery products and to sell or otherwise dispose of them or to pay producers the difference between a price prescribed by the Board and the average price the product actually commands.

Industrial Development Bank.—The Bank, a subsidiary of the Bank of Canada, was incorporated in 1944 to provide loans to industrial enterprises where financing is not available through recognized lending organizations. (See footnote, p. 115.)

Municipal Development and Loan Board.—The Act establishing this Board (SC 1963, c. 13) received Royal Assent on Aug. 2, 1963. The Board comprises a Chairman and four other members, appointed by the Governor in Council, and reports to Parliament through the Minister of Finance. The Board makes loans to municipalities to assist in the construction of additional municipal capital projects, providing increased employment. In four provinces, by agreement, the Board makes these loans to the province, which makes similar loans to its municipalities.

National Battlefields Commission.—This Commission was established by Act of Parliament in 1908 to preserve the historic battlefields at Quebec City. The Commission is composed of nine members, seven appointed by the Federal Government and one each by the Provinces of Ontario and Quebec. The Commission is supported by annual appropriations of the Federal Government and is responsible to Parliament through the Minister of Northern Affairs and National Resources.

National Capital Commission.—This Commission is a Crown agency created by the National Capital Act (SC 1958, c. 37), proclaimed Feb. 6, 1959. It is the lineal descendant of the Federal District Commission. The Commission is served by a full-time paid Chairman and comprises a total of 20 members representative of the ten provinces of Canada. There is a staff of seven officials reporting to a general manager, and a work force that fluctuates between 500 and 700, depending on the season.

Co-ordination and development of public lands in the National Capital Region are undertaken by direct planning and construction by the Commission's staff; by co-operation with municipalities; by provision of planning aid or financial assistance in municipal projects; and by advising the Department of Public Works on the siting and appearance of all Federal Government buildings in the 1,800-sq. mile National Capital Region. The Commission reports to Parliament through the Minister of Public Works.

National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquis of Lorne, then

Governor General, had recommended and assisted the founding of the Academy. One of the three tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. By Act of Parliament in 1913, re-enacted in 1951, the National Gallery was placed under the management of a Board of Trustees appointed by the Governor General in Council and now operates under the National Gallery Act (RSC 1952, c. 186). It is responsible to Parliament through the Secretary of State.

The first charge of the National Gallery is the development, care and display of the national art collections. Its services to the public include the operation of a large reference library on the history of art and related subjects; the operation of an Exhibition Extension Service through which travelling exhibitions, lectures and the showing of art films, and guided tours of the Gallery at Ottawa are conducted; and the production of art publications and reproductions.

National Harbours Board.—The Board was established by Act of Parliament in 1936. It is responsible for the administration of port facilities at the harbours of Halifax, N.S.; Saint John, N.B.; Chicoutimi, Quebec, Trois Rivières and Montreal, Que.; Vancouver, B.C.; and Churchill, Man.; the Jacques Cartier and Champlain Bridges at Montreal, Que.; and the grain elevators at Prescott and Port Colborne, Ont. The Board reports to Parliament through the Minister of Transport.

National Research Council.—This is an agency of the Canadian Government established in 1916 to promote scientific and industrial research. The Council operates science and engineering laboratories in Ottawa, Halifax and Saskatoon; gives direct financial support to research carried out in Canadian university and industrial laboratories; sponsors Associate Committees co-ordinating research on specific problems of national interest; and develops and maintains the nation's primary physical standards. Other activities include the provision of free technical information to manufacturing concerns; the publication of research journals; and representation of Canada in International Scientific Unions. The Council also has the duty of advising the Committee of the Privy Council on Scientific and Industrial Research on questions of scientific and technological methods affecting the expansion of Canadian industries or the utilization of the country's natural resources. Patentable inventions developed in the Council's laboratories are made available for manufacture through a subsidiary company, Canadian Patents and Development Limited (see p. 119). The National Research Council consists of a President, three Vice Presidents, and 17 members representing Canadian universities, industry and labour. The Council is incorporated under the Research Council Act (RSC 1952, c. 239, as amended), and reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Northern Canada Power Commission.—The Commission was established by Act of Parliament in 1948 to provide electric power to points in the Northwest Territories where a need developed and where power could be supplied on a self-sustaining basis; the Act was amended in 1950 to give authority to the Commission to provide similar services in the Yukon Territory. The name of the Commission, formerly Northwest Territories Power Commission, was changed in 1956. The Commission is composed of a Chairman and two members appointed by the Governor in Council. The Commission operates four hydro-electric plants, two of which are located in the Northwest Territories on the Snare River near Yellowknife, and two in the Yukon Territory on the Yukon River at Whitehorse and on the Mayo River near Mayo, and diesel electric plants at Fort Smith, Fort Simpson, Fort Resolution, Aklavik and Frobisher Bay, N.W.T., and Field, B.C., and a diesel power and central heating plant and water supply and sewerage systems at Inuvik, N.W.T.; the Commission also operates, on behalf of the Department of Northern Affairs and National Resources, a small diesel electric and heating plant at Fort McPherson, N.W.T., and a central heating plant and domestic water supply system at Fort Simpson, N.W.T.

The Minister of Northern Affairs and National Resources reports to Parliament for the Commission.

Northern Transportation Company Limited.—This Company was incorporated in 1947 under the title of Northern Transportation Company (1947) Limited, the date being omitted from the name in 1952. Previously a company chartered under an Alberta statute, it has been a wholly owned subsidiary of Eldorado Mining and Refining Limited since that Crown company was established and carries out the business of a common carrier in the Mackenzie River watershed. The Company is responsible to Parliament through the Minister of Trade and Commerce.

Office of the Representation Commissioner.—This Office was established in 1963 under the provisions of the Representation Commissioner Act (SC 1963, c.40) and is responsible for preparing maps showing the distribution of population in each province and setting out alternative proposals respecting the boundaries of electoral districts in each province. In addition, it is required to make a review and study methods of registration of electors and absentee voting used in elections of other countries; it reports to Parliament through the Secretary of State.

Park Steamship Company Limited.—After World War II this Company acted as an agent for Crown Assets Disposal Corporation in the sale and delivery to purchasers of government war-built ships. This work is completed but the Company remains available to carry out any appro-

priate duties. It has no staff of its own, any necessary work being done by the staff of the Canadian Maritime Commission (see p. 119). The Company reports to Parliament through the Minister of Transport.

Polymer Corporation Limited.—This Corporation was established in 1942 by Letters Patent under the Companies Act and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and the Financial Administration Act (RSC 1952, c. 116). It was set up to construct and operate a synthetic rubber plant which now produces a variety of synthetic rubber products and some chemicals. The Corporation's principal plant is located at Sarnia, Ont., with specialty rubber and butyl plants in France and Belgium, respectively. The Corporation is responsible to Parliament through the Minister of Industry.

St. Lawrence Seaway Authority.—The St. Lawrence Seaway Authority was established by Act of Parliament in 1951 (RSC 1952, c. 242) and came into force by proclamation on July 1, 1954. The Authority was incorporated for the purposes of constructing, maintaining and operating all such works as may be necessary to provide and maintain, either wholly in Canada or in conjunction with works undertaken by an appropriate authority in the United States, a deep waterway between the Port of Montreal and Lake Erie. The Authority is composed of a President, a Vice President and a member, and reports to Parliament through the Minister of Transport.

Unemployment Insurance Commission.—The Commission was appointed on Sept. 24, 1940 under the provisions of the Unemployment Insurance Act, 1940 (RSC 1952, c. 273) for the purpose of administering the Act and providing a National Employment Service. It is composed of three Commissioners appointed by the Governor in Council, of whom one is designated Chief Commissioner. One Commissioner, other than the Chief Commissioner, is appointed after consultation with organizations representative of workers and the other after consultation with organizations representative of employers. The Chief Commissioner is appointed to hold office for a period of ten years and each of the other Commissioners to hold office for a period not exceeding ten years. The Commission is responsible to Parliament through the Minister of Labour.

Section 4.—Acts Administered by Federal Departments*

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada

NOTE.—Copies of individual Acts of Parliament may be obtained from the Queen's Printer, Ottawa, at prices of from 10 cents to $1.50 per copy, according to number of pages. Where duplications of certain Acts appear in the list, parts of these Acts are administered under the Departments given.

Department, Year and Chapter of Statute	Name of Act
Agriculture—	
RSC 1952 4	Agricultural Products Board
5	Agricultural Products Co-operative Marketing
6	Agricultural Products Marketing
9	Animal Contagious Diseases
22, 305	Canada Dairy Products
25, 308	Canada Grain
47	Cheese and Cheese Factory Improvement
52, 313	Cold Storage
66	Department of Agriculture
81	Destructive Insect and Pest
101	Experimental Farm Stations
126	Fruit, Vegetables and Honey
141	Hay and Straw Inspection
155	Inspection and Sale
167	Live Stock and Live Stock Products
168	Live Stock Pedigree.
172	Maple Products Industry
177	Meat and Canned Foods
180	Milk Test
209	Pest Control Products
213	Prairie Farm Assistance
214	Prairie Farm Rehabilitation (amended 1955, c.39)
294	Wheat Co-operative Marketing
Agriculture— concluded	
1955 27	Canada Agricultural Products Standards
36	Meat Inspection
1957 27	Fertilizers
1957-58 22	Agricultural Stabilization
1959 35	Seeds
42	Crop Insurance
43	Farm Credit (amended 1960-61, c.36, 1962-63, c.7 and 1964, c.12)
44	Humane Slaughter of Food Animals
1960 14	Feeds
Auditor General—	
RSC 1952 116	Financial Administration
Citizenship and Immigration—	
1924 48	Indian Reserve Lands in Ontario
1927 37	St. Regis Indian Reservation
1934 29	Caughnawaga Indian Reserve
1943 19	British Columbia Indian Reserves Mineral Resources
RSC 1952 33	Canadian Citizenship

* Compiled from information supplied by the respective Departments.

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act
Citizenship and Immigration—concluded	
RSC 1952 67	Department of Citizenship and Immigration
146	Immigration Aid Societies
149	Indian
325	Immigration
Civil Service Commission—	
1960-61 57	Civil Service
Defence Production—	
RSC 1952 35	Canadian Commercial Corporation
62	Defence Production
260	Surplus Crown Assets
External Affairs—	
1911 28	Respecting the International Boundary Waters Treaty and the existence of the International Joint Commission (amended 1914, c. 5, and 1922, c. 43)
1948 71	Carrying into effect the Treaties of Peace between Canada and Italy, Romania, Hungary and Finland
1952 50	Carrying into effect the Treaty of Peace between Canada and Japan
RSC 1952 68	Department of External Affairs
122	Food and Agriculture Organization of the United Nations
142	High Commissioner in the United Kingdom
218	Privileges and Immunities (NATO)
219	Privileges and Immunities (UN)
275	United Nations
1953-54 54	Diplomatic Immunities (Commonwealth Countries)
Finance—	
	Appropriation (Annual)
	Canadian National Railways Financing and Guarantee (Annual)
RSC 1952 12	Bank
13	Bank of Canada
15	Bills of Exchange
19	Bretton Woods Agreements
82	Diplomatic Service (Special) Superannuation
110	Farm Improvement Loans
116	Financial Administration
131	Gold Export
151, 326	Industrial Development Bank
156	Interest
182	Municipal Grants
183	Municipal Improvements Assistance
204	Pawnbrokers
221	Provincial Subsidies
232	Quebec Savings Banks
245	Satisfied Securities
261, 336	Tariff Board
278	Veterans Business and Professional Loans
296	Winding-up

Department, Year and Chapter of Statute	Name of Act
Finance—concluded	
RSC 1952 315	Currency, Mint and Exchange Fund
1952-53 47	Public Service Superannuation
1953-54 28	Fire Losses Replacement Account
1955 31	Canadian National Railways Refunding
46	Fisheries Improvement Loans
1956 1	Prairie Grain Producers Interim Financing
2	Temporary Wheat Reserves
29	Federal-Provincial Tax Sharing Arrangements
1957-58 26	Beechwood Power Project
1959 32	Public Service Pension Adjustment
1960 1	Prairie Grain Loans
32	International Development Association
1960-61 5	Small Businesses Loans
Fisheries—	
RSC 1952 61	Deep Sea Fisheries
69	Department of Fisheries
118	Fish Inspection
119	Fisheries
120	Fisheries Prices Support
121	Fisheries Research Board
177	Meat and Canned Foods
194	Northern Pacific Halibut Fishery (Convention)
244	Salt Fish Board
293	Whaling Convention
1952-53 15	Coastal Fisheries Protection
44	North Pacific Fisheries Convention
1953-54 18	Northwest Atlantic Fisheries Convention
1955 34	Great Lakes Fisheries Convention
1957 11	Pacific Salmon Fisheries Convention
31	The Pacific Fur Seals Convention
Forestry—	
1947 59	Eastern Rocky Mountain Forest Conservation
1960 41	Department of Forestry
Industry—	
1960-61 24	National Design Council
1963 3	Department of Industry
Insurance—	
RSC 1952 31	Canadian and British Insurance Companies
49	Civil Service Insurance
70	Department of Insurance
100	Excise Tax (Part I)
125	Foreign Insurance Companies
170	Loan Companies
251	Small Loans
272	Trust Companies
296	Winding-up (Part III)
1952-53 28	Co-operative Credit Associations
Justice—	
1940 43	Treachery
RSC 1952 1	Admiralty
14	Bankruptcy

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act
Justice—concluded	
RSC 1952 28	Canada Prize
71	Department of Justice
98	Exchequer Court
106	Expropriation
111	Farmers' Creditors Arrangement
116	Financial Administration
127	Fugitive Offenders
144	Identification of Criminals
154	Inquiries
158	Interpretation
159	Judges
160	Juvenile Delinquents
171	Lord's Day
198	Official Secrets
210	Petition of Right
217, 333	Prisons and Reformatories
234	Railway
253	Solicitor General
259, 335	Supreme Court
266	Tobacco Restraint
299	Yukon Administration of Justice
307	Canada Evidence
314	Combines Investigation
322	Extradition
1952-53 30	Crown Liability
1953-54 51	Criminal Code
1958 38	Parole
1959 34	Royal Canadian Mounted Police Superannuation
54	Royal Canadian Mounted Police
1960 44	Canadian Bill of Rights
1960-61 53	Penitentiary
Labour—	
RSC 1927 110	Conciliation and Labour
RSC 1952 72	Department of Labour
108	Fair Wages and Hours of Labour
132	Government Annuities
134, 323	Government Employees Compensation
152	Industrial Relations and Disputes Investigation
178	Merchant Seamen Compensation
236	Reinstatement in Civil Employment
295	White Phosphorous Matches
1952-53 19	Canada Fair Employment Practices
1955 50	Unemployment Insurance
1956 38	Female Employees Equal Pay
1957-58 24	Annual Vacations
1960-61 6	Technical and Vocational Training Assistance
26	Vocational Rehabilitation of Disabled Persons
Mines and Technical Surveys—	
1951 26	Canada Lands Survey
RSC 1952 73	Department of Mines and Technical Surveys
95, 318	Emergency Gold Mining Assistance
102	Explosives
National Defence—	
RSC 1952 63	Defence Services Pension Continuation
184	National Defence

Department, Year and Chapter of Statute	Name of Act
National Defence—concluded	
RSC 1952 283	Visiting Forces (British Commonwealth)
284	Visiting Forces (North Atlantic Treaty)
1959 21	Canadian Forces Superannuation
National Health and Welfare—	
RSC 1952 74	Department of National Health and Welfare
National Health—	
RSC 1952 29	Canada Shipping (Part V, Sick Mariners and Marine Hospitals)
165	Leprosy
220	Proprietary or Patent Medicine
229	Public Works Health
231	Quarantine
1952-53 38	Food and Drugs
1957 28	Hospital Insurance and Diagnostic Services
1960-61 35	Narcotic Control
Welfare—	
RSC 1952 17	Blind Persons
109	Family Allowances
199	Old Age Assistance
200	Old Age Security
1953-54 55	Disabled Persons
1956 26	Unemployment Assistance
1958 30	Excise Tax (Sect. 47)
1960-61 59	Fitness and Amateur Sport
National Library—	
RSC 1952 330	National Library
National Revenue—	
Taxation—	
1940 32	Excess Profits Tax
1940-41 15	
1942-43 26	
1943-44 13	
1944-45 38	
1945 19	
1946 47	
1947 32	
1943-44 21	Canada-U.S. Tax Convention (Income Tax)
1950 27	
1951 5	
1956 35	Canada-U.S. Tax Convention (Succession Duties)
1944-45 31	
1950 27	
1946 38	Canada-U.K. Income Tax Agreement
39	Canada-U.K. Succession Duty Agreement
1948 34	Canada-N.Z. Income Tax Agreement
1950-51 40	Canada-France Income Tax Convention
1952 18	
1950-51 41	Canada-France Succession Duty Convention
42	Canada-Sweden Income Tax Agreement
RSC 1952 89	Dominion Succession Duty
317	
1956-57 22	

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act
National Revenue—continued	
Taxation—concl.	
1958 29	Estate Tax
1960 29	
RSC 1952 148	Income Tax
1952-53 40	
1953-54 57	
1955 54	
55	
1956 39	
1957 29	
1957-58 17	
1958 32	
1959 45	
1960 43	
1960-61 17	
49	
1962 8	
1963 21	
1964 13	
1955 10	Canada - Ireland Income Tax Agreement
11	Canada - Ireland Succession Duties Agreement
1956 5	Canada - Denmark Income Tax Agreement
33	Canada - Germany Income Tax Agreement
1956-57 17	Canada - South Africa Death Duties Agreement
18	Canada - South Africa Income Tax Agreement
1957 16	Canada-Netherlands Income Tax Agreement (amended 1960, c. 18)
1957-58 27	Canada - Australia Income Tax Agreement
1959 20	Canada - Finland Income Tax Agreement
1960-61 19	Canada - United States of America Estate Tax Convention
Customs and Excise—	
RSC 1952 58	Customs
60	Customs Tariff (amended by 316)
75	Department of National Revenue
99	Excise (amended by 319)
100	Excise Tax (amended by 320)
Administered in Part—	
1925 54	United States Treaty (smuggling)
RSC 1952 2	Aeronautics (amended by 302)
9	Animal Contagious Diseases
11	Atomic Energy Control
22	Canada Dairy Products (amended by 305)
29	Canada Shipping
30	Canada Temperance
44	Canadian Wheat Board
55	Copyright
81	Destructive Insect and Pest
102	Explosives
103	Export
113	Feeding Stuffs
114	Ferries
115	Fertilizers
118	Fish Inspection
119	*Fisheries*
126	Fruit, Vegetables and Honey
128	Game Export

Department, Year and Chapter of Statute	Name of Act
National Revenue—concluded	
Administered in Part—concl.	
RSC 1952 131	Gold Export
135	Government Harbours and Piers
145	Immigration (amended by 325)
147	Importation of Intoxicating Liquors
155	Inspection and Sale
167	Live Stock and Live Stock Products
168	Live Stock Pedigree
169	Live Stock Shipping
172	Maple Products Industry
177	Meat and Canned Foods
187	National Harbours Board
193	Navigable Waters Protection
194	Northern Pacific Halibut Fishery (*Convention*)
209	Pest Control Products
212	Post Office
215	Precious Metals Marking
220	Proprietary or Patent Medicine
231	Quarantine
233	Radio
248	Seeds
271	Transport
292	Weights and Measures
295	White Phosphorous Matches
1952-53 15	Coastal Fisheries Protection
38	Food and Drugs
1953-54 27	Export and Import Permits
51	Criminal Code
1955 27	Canada Agricultural Products Standards
36	Meat Inspection
1957 31	Pacific Fur Seal Convention
1960-61 35	Narcotic Control
Northern Affairs and National Resources—	
1908 57, 58	National Battlefields at Quebec
1927 51	Respecting certain debts due the Crown
RSC 1927 87	Seed Grain
88	Seed Grain Sureties
116	Railway Belt
124	Manitoba Supplementary Provisions
180	Saskatchewan and Alberta Roads
211	Railway Belt Water
1928 32	Lac Seul Conservation
1930 3	Alberta Natural Resources
29	Manitoba Natural Resources
37	Railway Belt and Peace River Block
41	Saskatchewan Natural Resources
1932 35	Refunds (*Natural Resources*)
55	Waterton - Glacier International Peace Park
1939 33	Rainy Lake Watershed Emergency Control
RSC 1952 90	Dominion Water Power
128	Game Export
162	Land Titles
179	Migratory Birds Convention
189	National Parks

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute			Name of Act
Northern Affairs and National Resources— concluded			
RSC	1952	192	National Wildlife Week
		196	Northern Canada Power Commission
		224	Public Lands Grants
		263	Territorial Lands
		300	Yukon Placer Mining
		301	Yukon Quartz Mining
		331	Northwest Territories
	1952-53	21	Canada Water Conservation Assistance
		39	Historic Sites and Monuments
		53	Yukon
	1953-54	4	Department of Northern Affairs and National Resources
	1955	47	International River Improvements
	1957-58	25	Atlantic Provinces Power Development
Post Office—			
RSC	1952	212	Post Office
Public Archives—			
RSC	1952	163	Laurier House
		222	Public Archives
Public Works—			
RSC	1952	91	Dry Docks Subsidies
		114	Ferries
		135	Government Harbours and Piers (Sect. 5)
		138	Government Works Tolls
		161	Kingsmere Park (in part)
		163	Laurier House
		187	National Harbours Board (Sect. 38, in part)
		193	Navigable Waters Protection (Parts I and III)
		216	Prime Minister's Residence
		228	Public Works
		234	Railway (Sect. 251)
		269	Trans-Canada Highway
		324	Government Property Traffic (in part)
	1959	46	National Energy Board (Sect. 76)
Secretary of State—			
RSC	1929	55	Reparation Payment
	1947	24	Trading with the Enemy (Transitional Powers)
	1948	71	Italy, Romania, Hungary and Finland Treaties of Peace
RSC	1952	18	Boards of Trade
		23, 306	Canada Elections
		30	Canada Temperance
		53	Companies
		54	Companies Creditors Arrangement
		55	Copyright
		62	Defence Production
		77	Department of State
		83	Disfranchising
		87	Dominion Controverted Elections
		149	Indian
		195	Northwest Territories
		203	Patent
		208	Pension Fund Societies
Secretary of State— concluded			
RSC	1952	223	Public Documents
		225	Public Officers
		234	Railway
		235	Regulations
		247	Seals
		263	Territorial Lands
		265	Timber Marking
		267	Trade Unions
		270	Translation Bureau
		295	White Phosphorous Matches
		298	Yukon
		307	Canada Evidence
	1952-53	49	Trade Marks
Trade and Commerce—			
RSC	1952	44	Canadian Wheat Board
		78	Department of Trade and Commerce
		92	Electrical and Photometric Units
		94	Electricity Inspection
		103	Export
		105	Export Credits Insurance
		129	Gas Inspection
		191	National Trade Mark and True Labelling
		215	Precious Metals Marking
		257	Statistics
		292	Weights and Measures
	1953-54	27	Export and Import Permits
	1956	2	Temporary Wheat Reserves
	1957-58	2	Prairie Grain Advance Payments
	1959	46	National Energy Board
	1962	26	Corporations and Labour Unions Returns
	1962-63	12	Canadian Corporation for the 1967 World Exhibition
Transport—			
			Auditors for National Railways (Annual)
			Canadian National Railways Financing and Guarantee (Annual)
	1907	22	Intercolonial Railway and Prince Edward Island Railway Employees Provident Fund
	1908	46	Meaford Harbour
	1911	26	Toronto Harbour Commissioners
	1912	55	Winnipeg and St. Boniface Harbour Commissioners
		98	Hamilton Harbour Commissioners
	1913	158	New Westminster Harbour Commissioners
		162	North Fraser Harbour Commissioners
	1922	50	Trenton Harbour
	1927	29	Canadian National (West Indies) Steamship Company
	1929	12	Canadian National Montreal Terminals
		48	Northern Alberta Railways
	1931	19, 20	Beauharnois Light, Heat and Power
	1940	20	Beauharnois Light, Heat and Power
	1947	26	Beauharnois Light, Heat and Power
		42	Port Alberni Harbour Commissioners

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—concluded

Department, Year and Chapter of Statute	Name of Act
Transport—continued	
1952 34	Belleville Harbour Commissioners
RSC 1952 2, 302	Aeronautics
16	Bills of Lading
20	Bridges
29	Canada Shipping
38	Canadian Maritime Commission
39	Canadian National - Canadian Pacific
42	Canadian Overseas Telecommunication Corporation
43	Canadian Vessel Construction Assistance
45	Carriage by Air
79	Department of Transport
135	Government Harbours and Piers
136	Government Railways
137	Government Vessels Discipline
157	International Rapids Power Development
169	Live Stock Shipping
174	Maritime Freight Rates
187	National Harbours Board
193	Navigable Waters Protection
202	Passenger Tickets
233	Radio
234	Railway
242	St. Lawrence Seaway Authority
262	Telegraphs
268	Trans-Canada Air Lines (Air Canada by 1964, c. 2)
271	Transport (Board of Transport Commissioners)
276	United States Wreckers
291	Water Carriage of Goods
311	Canadian National Railways Capital Revision
1955 15	Foreign Aircraft Third Party Damage
29	Canadian National Railways
31	Canadian National Refunding
1957 38	Windsor Harbour Commissioners
1958 34	Lakehead Harbour Commissioners
1960 19	Nanaimo Harbour Commissioners
21	Oshawa Harbour Commissioners
Transport—concluded	
1960 26	Canadian National Toronto Terminals
1963 39	Ontario Harbours Agreement
Veterans Affairs—	
1920 54	Returned Soldiers' Insurance (as amended)
RSC 1927 188	Soldier Settlement (as amended)
RSC 1952 8	Allied Veterans Benefits
51, 312	Civilian War Pensions and Allowances (amended 1962, c. 11) (Sects. I to X, Canadian Pension Commission); (Sect. XI, War Veterans Allowance Board)
80	Department of Veterans Affairs
117	Fire Fighters War Service Benefits
207, 332	Pension (amended 1953-54, c. 62; 1957-58, c. 19; 1960-61, c. 10) (Canadian Pension Commission)
256	Special Operators War Service Benefits
258	Supervisors War Service Benefits
279, 338	Veterans Insurance (amended 1958, c. 43; 1962, c. 6)
280	Veterans' Land (amended 1953-54, c. 66; 1959, c. 37; 1962, c. 29)
281	Veterans Rehabilitation (amended 1959, c. 17)
289	War Service Grants (amended 1953-54, c. 46; 1959, c. 18; 1962, c. 7)
297	Women's Royal Naval Services and the South African Military Nursing Service (Benefits)
340	War Veterans Allowance (amended 1955, c. 13; 1957-58, c. 7; 1960, c. 36; 1960-61, c. 39) (War Veterans Allowance Board)
1952-53 27	Children of War Dead (Education Assistance) (amended 1953-54, c. 2; 1958, c. 25; 1962, c. 10)
1953-54 65	Veterans Benefit (amended 1955, c. 43)

PART IV.—FEDERAL GOVERNMENT EMPLOYMENT

The Civil Service Commission.—As the central personnel agency of the Federal Government, the Civil Service Commission is the custodian of the merit system in the Civil Service of Canada and is also concerned with many other aspects of personnel administration. The Civil Service Commission was established in 1908 under the provisions of the Civil Service Amendment Act of that year which introduced the principle of selection by order of merit for positions in Ottawa. Prior to that, a Board of Examiners (established in 1882) held qualifying examinations for appointment to the service but it did not have the power to appoint. In 1918, the Civil Service Amendment Act was superseded by a Civil Service Act which had the effect, among other things, of bringing positions outside of Ottawa, as well as those at headquarters, under the jurisdiction of the Act and consequently the Commission. This Act served Canada and the civil service well for over four decades until with the passage of time it, too, was in need of substantial amendment. This was accomplished through a new Civil Service Act which received Royal Assent in September 1961 and which came into effect on Apr. 1, 1962.

The new Act applies to about 138,000 employees in all the departments and certain agencies of government and this constitutes the 'civil service' within the legal meaning of that term. The 'public service' is defined as those departments and agencies listed in Schedule A of the Public Service Superannuation Act which embrace about 190,000 employees including the 138,000 under the Civil Service Act and Schedule A of the Financial Administration Act. This definition of public service does not include certain Crown corporations—for example, the Canadian Broadcasting Corporation, the Central Mortgage and Housing Corporation, the Canadian National Railways and Air Canada. Agencies outside the civil service make their own arrangements, in accordance with various statutes, for the selection and employment of staff.

Recruitment.—The recruitment of civil servants under the Civil Service Act is conducted by means of open competitive examinations through which every citizen has the opportunity to compete for positions in the service of his country. Examinations are held periodically as staff requirements of the civil service dictate. Ordinarily, any Canadian citizen may apply for headquarters positions at Ottawa but applicants for local positions must normally be residents of the locality in which the vacancy occurs. Competitive examinations are announced through the press and through posters displayed on the public notice boards of the larger post offices, offices of the National Employment Service, offices of the Civil Service Commission and elsewhere. The examinations may be written, oral, a demonstration of skill, or any combination of these.

The names of persons successful in civil service examinations, arranged in order of rank, are recorded on eligible lists. Examination results are formally announced by publication in the *Canada Gazette* and each candidate—successful or unsuccessful—is advised of his standing. Appointments are made as required from the eligible lists which usually remain valid for one year.

The rank of the various successful candidates on eligible lists is influenced by the veterans' preference. The preference is limited largely, in accordance with its definition by law, to members of the Armed Forces who have served overseas in World Wars I or II or in the Korean theatre of operations. The highest order of preference is the disability preference accorded to pensioners of the Armed Forces.

The operations of the Civil Service Commission are decentralized to a considerable degree and the Commission now has ten district offices and six sub-offices across the country. These offices have a significant measure of autonomy enabling them to give quick and efficient service to the field agencies of departments which comprise almost three quarters of the civil service.

Each year the Civil Service Commission conducts about 10,000 competitions, receives about 180,000 applications and makes about 23,000 appointments, mainly to offset the turnover occasioned by deaths, retirements, resignations and the other forms of attrition. One feature of its recruiting program is the annual selection of 600 or more university graduates. There are some 10,000 university graduates in the civil service and, of course, many more in agencies and corporations not under the Civil Service Act.

Promotion.—It is a prime feature of the Civil Service Act to create a career service. The result is that promotion, like entrance, is based on merit and a sound promotion system is in operation. Promotion competitions are of two kinds, inter-departmental and departmental. The former are open to employees of all departments and agencies and are conducted by the Civil Service Commission. The latter, the departmental competitions, are restricted to employees of one department or a portion of a department and are conducted by the departments themselves subject to the provisions of the Act and its Regulations. The Commission maintains liaison with departments to ensure this and to advise departments on administration in this area. It is also provided in the Act that persons employed in the public service outside the civil service, and members of the Armed Forces and the Royal Canadian Mounted Police, may also be considered in promotion competitions where it is thought necessary to do so to attract persons with a high level of skill or ability

to positions in the civil service. Each year approximately 6,000 promotion competitions are conducted and about 20,000 employees are promoted, including 5,500 reclassifications. For those employees who feel that their qualifications have not been properly assessed, appeals are conducted under the jurisdiction of the Commission.

Position Classification.—Provision is made in the Civil Service Act for the classifying of positions in the civil service. Positions with like duties and responsibilities are classified alike and remunerated equally; each has a title, a set of tasks or duties which are proper to it in the organization in which it occurs and, arising out of these duties, a set of qualifications appropriate for their performance. Positions with duties of a similar kind are grouped together under a common title to form a class and grades within the class reflect the level of responsibility. There are some 1,500 classes and grades in the civil service and the Commission is constantly reviewing them to ensure that the specifications are accurate. Position classification is a mainspring in the Commission's primary function of recruitment, involving as it does the fixing of standards of qualification for each class of position.

Salary Determination.—It is also a responsibility of the Civil Service Commission to recommend to the Governor in Council rates of pay for each class and grade in the civil service. In order that its recommendations may be soundly based, the Commission has established a Pay Research Bureau which provides objective information on compensation and working conditions for various occupations in government, business and industry. These data are studied in relation to comparable classes in the civil service and in combination with other relevant factors—such as the need to recruit and retain sufficient staff, and in the light of the relationship of one class to another—and after this process is complete a recommendation is submitted to the Governor in Council for consideration. The Governor in Council also fixes the salaries for those employees who are not under the Civil Service Act.

Organization and Methods.—In recent years there has been an increasing awareness of the extent to which economical administration depends on the adoption of modern management techniques and devices. To meet this need the Commission has created a Management Analysis Division and an Organization Division to study problems of management in collaboration with officials directly responsible for major areas of administration. These Divisions afford practical assistance to departments and other agencies of the Government through the systematic examination of structures, operations, procedures and work methods. Their facilities are offered free of charge to all departments.

Staff Training.—In 1947 the Commission set up a Staff Development and Training Division to promote and guide a systematic service-wide training scheme. The training scheme sponsored by the Commission is a joint venture undertaken in co-operation with the various departments, most of which have parallel training divisions. The Commission's Staff Development and Training Division is primarily a co-ordinating agency. It promotes and organizes training activities, trains departmental instructors in the presentation of courses, prepares and gives certain courses of general application to all departments, publishes booklets and other training aids, assists departments in developing training to meet specialized needs and acts as a general clearing-house for the exchange of information on training matters.

Employee Relations.—The Civil Service Act confers on appropriate staff associations the right to be consulted on matters of remuneration and conditions of employment. This consultation may be initiated by either the official or staff sides and may take three forms. On questions of remuneration, which include certain allowances as well as pay, the consultation takes place between the associations and the Minister of Finance or such members of the public service as he may designate and this may, of course, include members of the Commission. On terms and conditions of employment as enumerated in Sect. 68 (1) of the Civil Service Act (which are mainly those with a fiscal effect, such as leave), the consultation takes place between the associations and the Commission and such members

of the public service as the Minister of Finance may designate. On those terms and conditions of employment that come within the exclusive jurisdiction of the Commission, the consultation takes place between the associations and the Commission alone. This form of tripartite consultation was introduced on Apr. 1, 1962 when the new Civil Service Act came into force and is designed to be consistent with the distribution of authority in the Act.

Statistics of Federal Government Employment.*—The current monthly survey of Federal Government employment, started in 1952, covers all employees of the Government of Canada; employees in this sense exclude the Governor General and Lieutenant-Governors, Ministers of the Crown and Members of Parliament, judges, persons under contract and members of the Armed Forces, but include Force members of the Royal Canadian Mounted Police. The survey is divided into two main categories: (1) departmental branches, services and corporations, and (2) agency and proprietary corporations and other agencies. Table 1 combines the two groups; Tables 2 to 6 cover employees in the first category and Table 7 covers employees in the second category.

1.—Total Federal Government Employees, by Province, as at Mar. 31, 1963, and Earnings for the Year Ended Mar. 31, 1963

Item and Province or Territory	Departments	Departmental Corporations	Agency Corporations	Proprietary Corporations	Other Agencies	Total
	No.	No.	No.	No.	No.	No.
Employees—						
Newfoundland	3,547	213	—	5,646	8	9,414
Prince Edward Island	1,112	51	—	845	—	2,008
Nova Scotia	13,038	371	333	4,697	44	18,483
New Brunswick	6,490	567	107	7,009	41	14,214
Quebec	29,370	3,022	3,091	29,367	266	65,116
Ontario	79,041	7,152	4,593	33,030	1,047	124,863
Manitoba	9,362	606	57	13,031	570	23,626
Saskatchewan	6,198	417	31	4,338	36	11,020
Alberta	12,605	540	36	6,473	81	19,735
British Columbia	18,617	1,122	170	5,957	79	25,945
Yukon and Northwest Territories	2,514	8	150	61	—	2,733
Abroad	2,838	20	11	8,603	11	11,483
Totals, Employees	**184,732**	**14,089**	**8,579**	**119,057**	**2,183**	**328,640**
	$	$	$	$	$	$
Totals, Earnings	**826,395,748**	**63,739,669**	**45,995,824**	**622,225,940**	**9,755,130**	**1,568,112,311**

Departmental Branches, Services and Corporations.—The salaries of employees in this group are paid from the Consolidated Revenue Fund. Definitions of classifications are as follows. "Salaried" employees include all persons paid on the basis of an annual salary rate with the exception of ships' officers who, though paid an annual salary rate, are subject to special treatment under the regulations made pertaining to the Financial Administration Act. The salaried staff are employed in departmental branches, services and corporations which are subject to regulation by the Treasury Board and for which the positions are outlined in the *Estimates of Canada*, or are established by means of supplementary Treasury Board Minutes. Thus, this category of employees includes persons subject to the provisions of the Civil Service Act plus salaried persons employed on the staffs of Cabinet Ministers and appointed by statute or by Order in Council, and also the salaried staffs of certain administrative branches of the Government that do not fall under the jurisdiction of the Civil Service Act.

* Prepared in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

"Prevailing Rate" employees are those who occupy continuing positions that are subject to prevailing rate regulations and are therefore paid on the basis of standard wage rates for similar work in the area in which the individual is employed. Regulations made under authority of the Financial Administration Act govern the third group entitled "Ships' Officers and Crews".

These three groups comprise what may be called the "regular" employees of the government service. "Casuals and Others" are principally persons employed on a non-continuing basis.

2.—Employees in Departmental Branches, Services and Corporations of the Federal Government, by Province and Sex, as at Mar. 31, 1963

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Province or Territory		Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
		No.	No.	No.	No.	No.
Newfoundland	T.	2,821	449	229	3,499	249
	M.	*2,503*	*387*	*229*	*3,119*	*224*
	F.	*318*	*62*	—	*380*	*25*
Prince Edward Island	T.	771	144	99	1,014	109
	M.	*648*	*124*	*99*	*871*	*102*
	F.	*123*	*20*	—	*143*	*7*
Nova Scotia	T.	8,024	2,695	936	11,655	1,339
	M.	*6,240*	*2,412*	*936*	*9,588*	*1,297*
	F.	*1,784*	*283*	—	*2,067*	*42*
New Brunswick	T.	5,449	894	135	6,478	434
	M.	*4,399*	*715*	*135*	*5,249*	*324*
	F.	*1,050*	*179*	—	*1,229*	*110*
Quebec	T.	26,023	3,782	617	30,422	1,964
	M.	*20,247*	*3,043*	*617*	*23,907*	*1,464*
	F.	*5,776*	*739*	—	*6,515*	*500*
Ontario	T.	76,379	6,747	175	83,301	2,837
	M.	*52,860*	*4,475*	*171*	*57,506*	*1,618*
	F.	*23,519*	*2,272*	*4*	*25,795*	*1,194*
Manitoba	T.	8,055	1,265	10	9,330	520
	M.	*6,103*	*842*	*10*	*6,955*	*371*
	F.	*1,952*	*423*	—	*2,375*	*149*
Saskatchewan	T.	5,751	540	—	6,291	197
	M.	*4,718*	*445*	—	*5,163*	*106*
	F.	*1,033*	*95*	—	*1,128*	*91*
Alberta	T.	10,139	1,668	7	11,814	617
	M.	*7,702*	*1,291*	*7*	*9,000*	*391*
	F.	*2,437*	*377*	—	*2,814*	*226*
British Columbia	T.	15,211	2,487	710	18,408	969
	M.	*11,529*	*1,930*	*710*	*14,169*	*813*
	F.	*3,682*	*557*	—	*4,239*	*156*
Yukon and Northwest Territories	T.	1,435	443	19	1,897	184
	M.	*1,128*	*354*	*19*	*1,501*	*135*
	F.	*307*	*89*	—	*396*	*49*
Abroad	T.	2,657	—	—	2,657	201
	M.	*1,540*	—	—	*1,540*	*101*
	F.	*1,117*	—	—	*1,117*	*100*
Canada	**T.**	**162,715**	**21,114**	**2,937**	**186,766**	**9,620**
	M.	**119,617**	**16,018**	**2,933**	**138,568**	**6,971**
	F.	**43,098**	**5,096**	**4**	**48,198**	**2,649**

3.—Employees in Departmental Branches, Services and Corporations and Earnings, by Month, April 1962 to March 1963

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Month	Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
	EMPLOYEES AT THE END OF EACH MONTH				
	No.	No.	No.	No.	No.
April 1962	163,375	24,001	3,079	190,455	13,137
May	164,779	25,640	3,210	193,629	14,396
June	165,345	27,033	3,225	195,603	15,028
July	166,093	27,512	3,250	196,855	14,255
August	165,296	26,447	3,282	195,025	12,252
September	163,856	24,032	3,220	191,108	10,438
October	163,399	23,044	3,159	189,602	11,072
November	162,952	22,512	3,104	188,568	10,781
December	162,706	22,283	2,921	187,910	10,088
January 1963	163,277	22,645	2,855	188,777	10,430
February	162,825	22,520	2,883	188,228	10,652
March	162,715	22,757	2,937	188,409	10,412
	REGULAR EARNINGS				
	$	$	$	$	$
April 1962	59,482,284	6,488,554	1,018,583	66,989,421	3,187,646
May	59,749,168	7,356,711	1,057,063	68,162,942	3,797,395
June	60,025,263	7,321,866	1,074,042	68,421,171	3,882,513
July	60,442,325	7,720,308	1,091,341	69,253,974	3,901,698
August	60,355,989	7,813,938	1,079,013	69,248,940	3,639,403
September	59,814,594	6,599,107	1,054,554	67,468,255	2,835,942
October	60,011,574	6,921,748	1,053,592	67,986,914	2,997,956
November	59,967,879	6,589,768	1,017,200	67,574,847	2,772,088
December	59,986,262	6,252,127	965,973	67,204,362	2,498,673
January 1963	61,656,268	6,746,816	969,052	69,372,136	2,799,176
February	61,579,574	6,112,541	943,107	68,635,222	2,607,424
March	61,447,867	6,445,863	974,910	68,868,640	2,735,026
	OVERTIME PAYMENTS REPORTED				
	$	$	$	$	$
April 1962	932,311	278,022	74,820	1,285,153	69,509
May	783,992	277,698	119,588	1,181,278	81,113
June	888,904	275,528	156,750	1,321,182	134,032
July	698,308	297,785	165,806	1,161,899	122,681
August	636,136	235,601	141,356	1,013,093	133,602
September	524,118	225,767	140,104	889,989	118,138
October	736,093	201,719	171,951	1,109,763	100,436
November	591,760	172,993	124,380	889,133	64,502
December	978,251	203,941	77,628	1,259,820	69,344
January 1963	1,289,341[1]	338,416	44,577	1,672,334	31,405
February	1,219,178	207,152	80,411	1,506,741	24,958
March	417,348	311,266	59,397	788,011	35,637
	RETROACTIVE PAYMENTS REPORTED				
	$	$	$	$	$
April 1962	246,754	25,711	1,371	273,836	37,236
May	6,676	197,348	2,517	206,541	91,799
June	6,668	176,351	6,880	189,899	111,188
July	3,667	145,616	15,068	164,351	30,284
August	6,748	74,026	32,484	113,258	41,714
September	3,816	57,887	13,625	75,328	21,057
October	4,551	60,652	6,562	71,765	54,739
November	2,742	14,174	15,760	32,676	13,503
December	164,172	78,244	10,853	253,269	42,388
January 1963	15,753,610[2]	149,902	2,956	15,906,468	113,108
February	259,320	37,330	4,180	300,830	9,234
March	27,942	16,213	19,845	64,000	11,429

[1] Excludes Christmas overtime pay of Post Office employees.

[2] Includes retroactive payments resulting from the salary revision effective Oct. 1, 1961.

Table 4 presents metropolitan area data on staff employed in departmental branches, services and corporations. The 17 metropolitan areas listed are those defined for purposes of the 1961 Census of population. Included are employees who work within the boundaries of the metropolitan areas; employees residing within those areas but working outside are excluded.

4.—Federal Employees in Metropolitan Areas, by Sex, as at Sept. 30, 1963 and Earnings for September 1963

Area	Persons Employed at Sept. 30, 1963					Regular Earnings September 1963	
	Male	Female	Undistributed	Total	P.C. of Grand Total	Total	P.C. of Grand Total
	No.	No.	No.	No.		$'000	
Metropolitan Areas	**96,850**	**38,625**	**88**	**135,563**	**66.8**	**51,585**	**68.6**
Ottawa, Ont.–Hull, Que.	29,981	17,509	10	47,500	23.4	19,658	26.1
Montreal, Que.	14,744	4,354	—	19,098	9.4	6,869	9.1
Toronto, Ont.	11,390	4,310	—	15,700	7.7	5,647	7.5
Halifax, N.S.	7,377	1,622	43	9,042	4.5	3,130	4.2
Vancouver, B.C.	6,468	2,276	—	8,744	4.3	3,340	4.4
Winnipeg, Man.	4,747	1,646	—	6,393	3.2	2,400	3.2
Victoria, B.C.	4,430	1,024	—	5,454	2.7	2,084	2.8
Edmonton, Alta.	3,458	1,468	—	4,926	2.4	1,815	2.4
Quebec, Que.	3,170	876	17	4,063	2.0	1,425	1.9
London, Ont.	2,584	1,230	—	3,814	1.9	1,305	1.7
Calgary, Alta.	2,427	757	—	3,184	1.6	1,156	1.5
St. John's, Nfld.	2,006	256	17	2,279	1.1	744	1.0
Saint John, N.B.	1,141	489	1	1,631	0.8	581	0.8
Hamilton, Ont.	1,181	378	—	1,559	0.7	592	0.8
Windsor, Ont.	1,034	182	—	1,216	0.6	475	0.7
Kitchener-Waterloo, Ont.	484	130	—	614	0.3	236	0.3
Sudbury, Ont.	228	118	—	346	0.2	128	0.2
Non-metropolitan Areas	**52,789**	**11,441**	**3,245**	**67,475**	**33.2**	**23,615**	**31.4**
In Canada	51,166	10,121	3,245	64,532	31.8	22,579	30.0
Outside Canada	1,623	1,320	—	2,943	1.4	1,036	1.4
Grand Totals	**149,639**	**50,066**	**3,333**	**203,038**	**100.0**	**75,199**	**100.0**
	p.c.	p.c.	p.c.	p.c.		p.c.	
Proportion in—							
Metropolitan Areas	64.7	77.2	2.6	66.8	...	68.6	...
Non-metropolitan Areas	35.3	22.8	97.4	33.2	...	31.4	...
In Canada	*34.2*	*20.2*	*97.4*	*31.8*	...	*30.0*	...
Outside Canada	*1.1*	*2.6*	—	*1.4*	...	*1.4*	...
Grand Totals	**100.0**	**100.0**	**100.0**	**100.0**	...	**100.0**	...

Table 5 presents statistics for departmental branches, services and corporations on the basis of a classification by function. The purpose of such classification is to supply a means of studying the operation of government without the complication that results from differences in administrative establishment. This analysis is useful in three ways. First, it permits a detailed study of employment by the Government of Canada according to the main purposes or functions and, since these functions are not subject to the periodic changes that alter the administrative structure of the Government, it is possible to develop a statistical series which, with minor exceptions, is consistent over an extended period of time. Secondly, since differences in administrative establishment are eliminated, it is possible to make meaningful comparisons between Federal Government expenditures on employment and similar expenditures by other levels of government. Thirdly, an analysis of the relationship between expenditures on employment and total expenditures may be made with regard to each function.

Table 6 is an administrative analysis of departmental branches, services and corporations, showing data for these bodies as they were organized at Mar. 31, 1963. Because of periodic changes in the administrative structure of the Government, comparisons over a period of years should be based on the classification by function given in Table 5. Although most salaried staffs fluctuate little during the year, the Taxation Branch of the Department of National Revenue increases its staff considerably in March and April because of the heavy flow of income tax returns during that period, the Legislation branches employ extra staff during each session of Parliament, and several departments employ considerable numbers of students in the summer months. Prevailing rate and other types of employment generally reach a peak in numbers during summer and decline to a lower level in winter.

5.—Federal Government Employees as at Mar. 31, 1963, and Regular Earnings for the Year Ended Mar. 31, 1963, classified by Function

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in summary form in Table 7.

Function	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings
	No.	$	No.	$	No.	$	No.	$	No.	$
Defence Services	**31,935**	**130,474,833**	**13,427**	**51,087,021**	**653**	**2,642,432**	**46,015**	**184,204,286**	**4,160**	**19,127,481**
Veterans Pensions and Other Benefits	**11,107**	**45,798,028**	**1,983**	**4,865,453**	—	—	**13,090**	**50,663,481**	—	—
General Government	**28,832**	**129,674,708**	**2,817**	**9,036,133**	**1**	**6,610**	**31,650**	**138,717,451**	**297**	**861,549**
Executive and administrative	26,204	117,609,985	2,811	9,029,437	1	6,610	29,016	126,646,032	238	778,555
Legislative	547	2,990,753	6	6,696	—	—	553	2,997,449	—	—
Research, planning and statistics	2,081	9,073,970	—	—	—	—	2,081	9,073,970	59	82,994
Protection of Persons and Property	**12,601**	**57,740,370**	**67**	**17,636**	—	—	**12,668**	**57,758,006**	**5**	**25,691**
Law enforcement	216	1,171,766	—	—	—	—	216	1,171,766	—	—
Correction	2,827	12,289,535	—	—	—	—	2,827	12,289,535	5	17,568
Police protection	8,424	37,893,911	67	17,636	—	—	8,491	37,911,547	—	—
Other	1,134	6,385,158	—	—	—	—	1,134	6,385,158	—	8,123
Transportation and Communications	**10,155**	**50,413,619**	**911**	**4,189,125**	**1,896**	**8,042,481**	**12,962**	**62,645,225**	**983**	**4,613,990**
Airways	3,916	20,194,383	461	1,802,703	—	—	4,377	21,997,086	360	1,794,132
Highways, roads and bridges	230	1,541,208	98	999,742	—	—	328	2,540,950	2	46,239
Railways	159	1,061,006	—	—	—	—	159	1,061,006	—	—
Telephone, telegraph and wireless	2,653	12,993,453	26	85,290	—	—	2,679	13,078,743	20	197,974
Waterways	2,631	11,940,423	326	1,301,390	1,896	8,042,481	4,853	21,284,294	601	2,575,645
Other	566	2,683,146	—	—	—	—	566	2,683,146	—	—
Health	**2,774**	**12,913,036**	**514**	**1,062,446**	—	—	**3,288**	**13,975,482**	**323**	**795,188**
General	390	1,914,977	4	14,765	—	—	394	1,929,742	2	9,064
Public health	709	3,998,676	48	169,095	—	—	757	4,167,771	16	23,756
Hospital care	1,675	6,999,383	462	878,586	—	—	2,137	7,877,969	305	762,368
Social Welfare	**10,720**	**47,217,313**	**17**	**45,395**	**5**	**17,158**	**10,742**	**47,279,866**	**1,484**	**2,320,598**
Aid to aged persons	23	131,912	—	—	—	—	23	131,912	—	—
Family allowances	707	2,688,727	—	—	—	—	707	2,688,727	—	—
Labour	404	2,145,728	—	—	—	—	404	2,145,728	10	15,973
National employment services	8,652	37,445,447	3	11,294	—	—	8,655	37,456,741	1,423	2,265,201
Other social welfare	934	4,805,499	14	34,101	5	17,158	953	4,856,758	51	39,424
Recreational and Cultural Services	**1,584**	**8,804,765**	**1,251**	**5,041,276**	—	—	**2,835**	**13,846,041**	**785**	**2,417,845**
Archives, art galleries, museums and libraries	312	1,567,746	6	22,368	—	—	318	1,590,114	13	36,499

5.—Federal Government Employees as at Mar. 31, 1963, and Regular Earnings for the Year Ended Mar. 31, 1963, classified by Function —concluded

Function	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings
	No.	$	No.	$	No.	$	No.	$	No.	$
Recreational and Cultural Services—concluded										
Parks, beaches and other recreational areas	530	2,756,908	1,245	5,018,908	—	—	1,775	7,775,816	729	2,243,443
Physical culture	6	33,671	—	—	—	—	6	33,671	2	377
Other	736	4,446,440	—	—	—	—	736	4,446,440	41	137,526
Education	**1,858**	**8,317,865**	**16**	**40,016**	—	—	**1,874**	**8,357,881**	**346**	**187,931**
Indian and Eskimo schools and schools in N.W.T.	1,840	8,199,893	16	40,016	—	—	1,856	8,239,909	346	187,931
Universities, colleges and other schools	18	117,972	—	—	—	—	18	117,972	—	—
Natural Resources and Primary Industries	**13,553**	**72,844,787**	**1,644**	**6,346,566**	**378**	**1,577,949**	**15,575**	**80,769,302**	**237**	**1,935,296**
Fish and game	1,815	9,365,431	26	353,376	378	1,577,949	2,219	11,296,756	87	560,368
Forests	966	5,665,491	65	329,046	—	—	1,031	5,994,537	24	70,457
Lands—settlement and agriculture	7,764	40,313,331	1,081	4,397,347	—	—	8,845	44,710,678	65	746,183
Minerals and mines	1,316	8,418,131	72	316,473	—	—	1,388	8,734,604	—	—
Water resources	225	1,305,277	5	17,618	—	—	230	1,322,895	15	47,935
Other	1,467	7,777,126	395	932,706	—	—	1,862	8,709,832	46	510,353
Trade and Industrial Development	**1,220**	**6,357,744**	—	—	—	—	**1,220**	**6,357,744**	**55**	**235,738**
Public Service and Trading Enterprises	**151**	**642,746**	—	—	—	—	**151**	**642,746**	**35**	**91,700**
Other	**36,225**	**153,277,722**	**110**	**400,333**	**4**	**14,642**	**36,339**	**153,692,697**	**1,702**	**5,003,584**
Civil Defence	124	652,907	32	86,282	—	—	156	739,189	—	1,350
International co-operation and assistance	108	586,071	—	—	—	—	108	586,071	—	—
Immigration and Citizenship	2,532	11,924,775	31	86,095	4	14,642	2,567	12,025,512	59	65,399
External Affairs	2,049	9,363,968	—	—	—	—	2,049	9,363,968	174	112,540
Bullion and coinage	271	1,129,999	—	—	—	—	271	1,129,999	—	—
Post Office	26,520[1]	102,680,039[1]	24	133,887	—	—	26,544	102,813,926	867[2]	1,515,169[2]
Other	4,621	26,939,963	23	94,069	—	—	4,644	27,034,032	602	3,309,126[3]
Grand Totals[4]	**162,715**[5]	**724,477,536**[5]	**22,757**	**82,131,400**	**2,937**	**12,301,272**	**188,409**	**818,910,208**	**10,412**	**37,616,591**

[1] Excludes 14,054 employees paid from postal revenues, earning $25,797,419. [2] Excludes Christmas helpers, earning $3,159,131. [3] Excludes payments of $11,111 for part-time work as weather observers for the period Jan.-Mar. 1963. [4] Excludes field parties of the Department of Mines and Technical Surveys—prevailing rate employees with earnings of $283,388; and ships' officers and crews with earnings of $685,457. [5] Excludes the Governor General and 10 Lieutenant-Governors with earnings amounting to $139,668; 349 judges, earning $4,875,921; and 21 Ministers of the Crown, earning $341,391.

6.—Federal Government Employees as at Mar. 31, 1963, and Regular Earnings for the Year Ended Mar. 31, 1963, classified by Department and Principal Branch or Service

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in summary form in Table 7.

Department and Branch or Service	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings
	No.	$	No.	$	No.	$	No.	$	No.	$
Agriculture	**7,908**	**40,920,752**	**1,081**	**4,397,347**	—	—	**8,989**	**45,318,099**	**100**	**837,883**
Administration Branch	393	2,042,707	—	—	—	—	393	2,042,707	—	—
Research Branch	2,457	14,077,249	878	3,662,141	—	—	3,335	17,739,390	—	—
Production and Marketing Branch	3,203	16,167,699	69	262,692	—	—	3,272	16,430,391	26	63,352
Board of Grain Commissioners	1,017	4,493,510	—	2,268	—	—	1,017	4,495,778	37	99,070
Land rehabilitation, irrigation and water storage projects	790	3,935,766	134	470,246	—	—	924	4,406,012	20	423,887
Special	48	203,821	—	—	—	—	48	203,821	17	251,574
Atomic Energy—Atomic Energy Control Board	**14**	**103,819**	—	—	—	—	**14**	**103,819**	—	—
Auditor General's Office	**154**	**1,033,940**	—	—	—	—	**154**	**1,033,940**	—	—
Board of Broadcast Governors	**37**	**235,183**	—	—	—	—	**37**	**235,183**	—	—
Chief Electoral Officer, Office of the	**19**	**180,003**	—	—	—	—	**19**	**180,003**	—	—
Citizenship and Immigration	**4,434**	**20,087,184**	**59**	**155,260**	**5**	**17,158**	**4,498**	**20,259,602**	**452**	**279,029**
Departmental Administration	171	807,716	1	3,679	—	—	172	811,395	3	1,244
Citizenship	181	903,417	—	—	—	—	181	903,417	—	—
Immigration Branch	1,813	8,042,883	28	77,464	—	—	1,841	8,120,347	52	50,430
Indian Affairs Branch	2,269	10,333,168	30	74,117	5	17,158	2,304	10,424,443	397	227,355
Civil Service Commission	**680**	**3,874,087**	—	—	—	—	**680**	**3,874,087**	—	**7,674**
Defence Production	**1,496**	**8,424,735**	—	—	—	—	**1,496**	**8,424,735**	**10**	**46,400**
External Affairs	**2,148**	**9,897,318**	—	—	—	—	**2,148**	**9,897,318**	**174**	**112,540**
Departmental Administration	829	4,764,097	—	—	—	—	829	4,764,097	—	—
Representation Abroad[1]	1,224	4,634,160	—	—	—	—	1,224	4,634,160	174	112,540
External Aid Office	85	430,293	—	—	—	—	85	430,293	—	—
International Joint Commission	10	68,768	—	—	—	—	10	68,768	—	—

For footnote, see end of table, p. 141.

6.—Federal Government Employees as at Mar. 31, 1963, and Regular Earnings for the Year Ended Mar. 31, 1963, classified by Department and Principal Branch or Service—continued

Department and Branch or Service	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings
	No.	$	No.	$	No.	$	No.	$	No.	$
Finance	**5,007**	**21,019,029**	—	—	—	—	**5,007**	**21,019,029**	**106**	**162,814**
General Administration—										
Departmental Administration	265	1,792,750	—	—	—	—	265	1,792,750	2	1,020
Comptroller of the Treasury	4,230	17,012,654	—	—	—	—	4,230	17,012,654	102	159,180
Administration of various Acts	493	2,151,336	—	—	—	—	493	2,151,336	—	—
Contingencies and miscellaneous	19	62,289	—	—	—	—	19	62,289	2	2,614
Fisheries	**1,729**	**8,876,009**	**26**	**353,376**	**378**	**1,577,949**	**2,133**	**10,807,334**	**86**	**553,481**
General Services	1,190	5,520,244	22	328,363	278	1,234,179	1,490	7,082,786	72	483,500
Special	32	140,385	4	25,013	13	46,692	49	212,090	—	25,455
Fisheries Research Board of Canada	507	3,215,380	—	—	87	297,078	594	3,512,458	14	44,526
Forestry	**966**	**5,665,491**	**65**	**329,046**	—	—	**1,031**	**5,994,537**	**24**	**70,457**
Departmental Administration	139	750,787	2	35,963	—	—	141	786,750	15	8,883
Forest Research Branch	228	1,362,184	54	240,094	—	—	282	1,602,278	5	41,925
Forest Entomology and Pathology Branch	457	2,655,384	—	8,935	—	—	457	2,664,319	4	19,649
Forest Products Research Branch	142	897,136	9	44,054	—	—	151	941,190	—	—
Governor General—Office of the Secretary	**16**	**67,411**	—	—	—	—	**16**	**67,411**	—	—
Insurance	**99**	**643,268**	—	—	—	—	**99**	**643,268**	—	—
Justice	**3,219**	**14,482,968**	—	—	—	—	**3,219**	**14,482,968**	**5**	**25,691**
Department	392	2,193,433	—	—	—	—	392	2,193,433	—	8,123
Penitentiaries	2,827	12,289,535	—	—	—	—	2,827	12,289,535	5	17,568
Labour	**9,251**	**40,451,485**	**3**	**11,294**	—	—	**9,254**	**40,462,779**	**1,434**	**2,290,749**
General Administration	544	2,723,412	—	—	—	—	544	2,723,412	11	25,548
Special Services	16	72,185	—	—	—	—	16	72,185	—	—
Technical and Vocational Training Assistance	18	117,972	—	—	—	—	18	117,972	—	—
Government Employees Compensation	21	92,469	—	—	—	—	21	92,469	—	—
Unemployment Insurance Commission	8,652	37,445,447	3	11,294	—	—	8,655	37,456,741	1,423	2,265,201
Legislation	**512**	**2,743,344**	**6**	**6,696**	—	—	**518**	**2,750,040**	—	—
The Senate	84	507,072	—	—	—	—	84	507,072	—	—
House of Commons	389	2,033,017	—	—	—	—	389	2,033,017	—	—
Library of Parliament	39	203,255	6	6,696	—	—	45	209,951	—	—

Mines and Technical Surveys	**2,722**	**16,106,239**	**77**[2]	**342,789**[2]	**62**[2]	**311,794**[2]	**2,861**[2]	**16,760,822**[2]	—	—
Administration Services	228	1,241,965	2	8,355	—	—	230	1,250,320	—	—
Surveys and Mapping Branch	783	4,007,917	1	3,350	—	—	784	4,011,267	—	—
Marine Sciences Branch	369	2,024,109	—	1,200	62	311,794	431	2,337,103	—	—
Geological Survey of Canada	542	3,390,463	10	31,270	—	—	552	3,421,733	—	—
Mines Branch	543	3,784,302	60	276,848	—	—	603	4,061,150	—	—
Geographical Branch	64	396,469	—	—	—	—	64	396,469	—	—
Dominion Observatories	144	974,804	2	10,574	—	—	146	985,378	—	—
General	33	199,740	2	11,192	—	—	35	210,932	—	—
Dominion Coal Board	16	86,470	—	—	—	—	16	86,470	—	—
National Defence	**30,360**	**121,578,781**	**13,427**	**51,324,968**	**653**	**2,639,590**	**44,440**	**175,543,339**	**4,150**	**19,119,430**
Departmental Administration	581	2,932,565	13	42,319	—	—	594	2,974,884	—	—
Inspection Services	1,222	5,750,844	42	148,239	—	—	1,264	5,899,083	—	894
Royal Canadian Navy	6,356	25,796,563	3,686	15,581,322	653	2,639,590	10,695	44,017,475	1,479	6,202,394
Canadian Army	11,133	41,306,478	4,422	18,145,674	—	—	15,555	59,452,152	951	5,696,027
Royal Canadian Air Force	8,678	31,851,540	4,982	16,236,284	—	—	13,660	48,087,824	1,565	6,601,434
Defence Research and Development	2,390	13,940,791	282	1,171,130	—	—	2,672	15,111,921	155	618,681
National Film Board	**699**	**4,211,258**	—	—	—	—	**699**	**4,211,258**	**41**	**137,526**
National Gallery of Canada	**56**	**298,458**	**1**	**3,471**	—	—	**57**	**301,929**	**2**	**8,327**
National Health and Welfare	**3,980**	**18,479,426**	**548**	**1,153,680**	**4**	**14,642**	**4,532**	**19,647,748**	**329**	**810,640**
Departmental Administration	318	1,414,344	4	14,765	—	—	322	1,429,109	2	9,064
National Health Branch	2,802	13,557,867	512	1,052,633	4	14,642	3,318	14,625,142	325	799,849
Welfare Branch	736	2,854,308	—	—	—	—	736	2,854,308	2	377
General	124	652,907	32	86,282	—	—	156	739,189	—	1,350
National Research Council including the Medical Research Council	**2,516**	**15,571,431**	—	—	—	—	**2,516**	**15,571,431**	**598**	**3,192,922**
National Revenue	**14,376**	**67,989,598**	**7**	**30,475**	**1**	**6,610**	**14,384**	**68,026,683**	—	—
Customs and Excise Divisions	7,211	34,868,013	7	30,475	1	6,610	7,219	34,905,098	—	—
Taxation Division	7,152	33,007,769	—	—	—	—	7,152	33,007,769	—	—
Tax Appeal Board	13	113,816	—	—	—	—	13	113,816	—	—
Northern Affairs and National Resources	**1,915**	**10,341,167**	**1,643**	**5,960,761**	—	—	**3,558**	**16,301,928**	**792**	**2,812,825**
Departmental Administration	168	876,225	—	—	—	—	168	876,225	—	—
Northern Co-ordination and Research	13	82,632	—	—	—	—	13	82,632	—	—
National Parks Branch	616	3,246,330	1,245	5,018,908	—	—	1,861	8,265,238	730	2,250,330
Water Resources Branch	225	1,305,277	5	17,618	—	—	230	1,322,895	15	47,935
Northern Administration Branch	806	4,345,186	392	918,164	—	—	1,198	5,263,350	46	510,353
National Museum of Canada	87	485,517	1	6,071	—	—	88	491,588	1	4,207

For footnote, see end of table, p. 141.

6.—Federal Government Employees as at Mar. 31, 1963, and Regular Earnings for the Year Ended Mar. 31, 1963, classified by Department and Principal Branch or Service—concluded

Department and Branch or Service	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings	Employees	Regular Earnings
	No.	$	No.	$	No.	$	No.	$	No.	$
Post Office	**26,520**	**102,680,039**	**24**	**133,887**	—	—	**26,544**	**102,813,926**	**867**	**1,515,169**
Departmental Administration	294	1,456,680	—	—	—	—	294	1,456,680	—	—
Operations	25,770[3]	99,187,870[3]	24	133,887	—	—	25,794	99,321,757	867[4]	1,515,169[4]
Transportation	86	507,000	—	—	—	—	86	507,000	—	—
Financial Services	370	1,528,489	—	—	—	—	370	1,528,489	—	—
Privy Council	**273**	**1,457,404**	—	—	—	—	**273**	**1,457,404**	—	—
Privy Council Office	96	521,765	—	—	—	—	96	521,765	—	—
Prime Minister's Residence	5	16,702	—	—	—	—	5	16,702	—	—
Emergency Measures Organization	79	512,827	—	—	—	—	79	512,827	—	—
Special	93	406,110	—	—	—	—	93	406,110	—	—
Public Archives and National Library	**169**	**783,768**	**4**	**12,826**	—	—	**173**	**796,594**	**10**	**23,965**
Public Archives	122	562,226	4	12,826	—	—	126	575,052	10	23,965
National Library	47	221,542	—	—	—	—	47	221,542	—	—
Public Printing and Stationery	**585**	**2,744,517**	**1,125**	**4,860,928**	—	—	**1,710**	**7,605,445**	**7**	**7,938**
Public Works	**5,891**	**24,001,296**	**1,787**	**5,194,569**	**148**	**982,263**	**7,826**	**30,178,128**	**389**	**1,712,585**
General Administration	1,527	8,979,109	25	85,076	—	—	1,552	9,064,185	—	3,329
Public Buildings Construction and Services	4,162	14,081,761	1,643	3,993,023	—	—	5,805	18,074,784	91	499,488
Harbours and Rivers Engineering Services	69	290,524	10	56,793	148	982,263	227	1,329,580	262	1,066,217
Development Engineering Services	133	649,902	109	1,059,677	—	—	242	1,709,579	36	143,551
Royal Canadian Mounted Police	**8,424**	**37,893,911**	**67**	**17,636**	—	—	**8,491**	**37,911,547**	—	—
Secretary of State	**738**	**4,009,205**	—	—	—	—	**738**	**4,009,205**	—	—
General Services	416	2,295,661	—	—	—	—	416	2,295,661	—	—
Patent and Copyright Office	322	1,713,544	—	—	—	—	322	1,713,544	—	—
Trade and Commerce	**3,738**	**17,971,570**	—	—	—	—	**3,738**	**17,971,570**	**114**	**318,732**
Departmental Administration	524	2,968,549	—	—	—	—	524	2,968,549	—	—
Trade Commissioner Service	556	2,715,320	—	—	—	—	556	2,715,320	—	—
Exhibitions Branch	44	248,158	—	—	—	—	44	248,158	55	235,403
Standards Branch	421	2,141,182	—	—	—	—	421	2,141,182	—	—

Dominion Bureau of Statistics	2,037	9,011,630	—	—	—	—	2,037	9,011,630	59	82,994
Canadian Government Travel Bureau	96	425,715	—	—	—	—	96	425,715	—	335
National Energy Board	60	461,016	—	—	—	—	60	461,016	—	—
Transport	**10,957**	**53,896,926**	**824**	**3,214,885**	**1,686**	**6,748,424**	**13,467**	**63,860,235**	**722**	**3,608,163**
Departmental Administration	566	2,683,146	—	—	—	—	566	2,683,146	—	—
Marine Services—										
Marine Services Administration, including Agencies	236	1,081,397	—	—	—	—	236	1,081,397	—	—
Aids to Navigation	914	2,756,606	218	839,955	—	21,957	1,132	3,618,518	113	379,215
Canals	308	1,178,945	98	399,027	18	64,052	424	1,642,024	127	277,113
St. Lawrence and Saguenay Rivers Ship Channels	34	219,740	—	4,415	—	220,965	34	445,120	2	103,742
Canadian Marine Service	55	359,253	—	—	1,653	6,366,790	1,708	6,726,043	97	749,358
Marine Regulations	312	1,673,401	—	—	15	74,660	327	1,748,061	—	—
Railway and Steamship Services	8	32,160	—	—	—	—	8	32,160	—	—
Air Services—										
Air Services Administration	409	1,743,047	—	—	—	—	409	1,743,047	1	1,660
Construction Services Administration	497	3,079,659	1	5,497	—	—	498	3,085,156	44	434,731
Civil Aviation Branch	2,932	14,892,770	460	1,797,206	—	—	3,392	16,689,976	315	1,357,741
Telecommunications and Electronics Branch	2,653	12,993,453	26	85,290	—	—	2,679	13,078,743	20	197,974
Meteorological Branch	1,771	9,530,080	21	83,495	—	—	1,792	9,613,575	3	94,993 [5]
Air Transport Board	78	478,909	—	—	—	—	78	478,909	—	11,636
Board of Transport Commissioners for Canada	159	1,061,006	—	—	—	—	159	1,061,006	—	—
Canadian Maritime Commission	25	133,354	—	—	—	—	25	133,354	—	—
Veterans Affairs	**11,107**	**45,798,027**	**1,983**	**4,865,453**	**—**	**—**	**13,090**	**50,663,480**	**—**	**—**
Departmental Administration	484	2,085,847	1	4,743	—	—	485	2,090,590	—	—
District Services	580	2,466,300	115	462,518	—	—	695	2,928,818	—	—
Veterans Welfare Services	689	3,312,464	—	—	—	—	689	3,312,464	—	—
Treatment Services	7,997	30,903,350	1,867	4,398,192	—	—	9,864	35,301,542	—	—
Prosthetic Services	212	928,937	—	—	—	—	212	928,937	—	—
Veterans' Bureau	120	636,938	—	—	—	—	120	636,938	—	—
War Veterans Allowance Board	25	144,111	—	—	—	—	25	144,111	—	—
Canadian Pension Commission	341	1,973,669	—	—	—	—	341	1,973,669	—	—
Soldier Settlement and Veterans' Land Act	659	3,346,411	—	—	—	—	659	3,346,411	—	—
Grand Totals	**162,715** [6]	**724,519,047** [7]	**22,757**	**82,369,347**	**2,937**	**12,298,430**	**188,409**	**819,186,824**	**10,412**	**37,654,940**

[1] Includes North Atlantic Treaty Organization and Canada's civilian participation as a member of the International Commission for Supervision and Control in Indo-China. [2] Excludes field parties—prevailing rate employees with earnings of $283,388; and ships' officers and crews with earnings of $685,457. [3] Excludes 14,054 employees paid from postal revenues, earning $25,797,419. [4] Excludes Christmas helpers, earning $3,159,131. [5] Excludes payments of $11,111 for part-time work as weather observers for the period Jan.-Mar. 1963. [6] Excludes the Governor General and 10 Lieutenant-Governors with earnings amounting to $139,668; 349 judges, earning $4,875,921; and 21 Ministers of the Crown, earning $341,391.

Agency and Proprietary Corporations and Other Agencies.—The following are organizations owned by the Federal Government as at Mar. 31, 1963. Employees and earnings are shown by month in Table 7; a provincial distribution of employees and a summary of the total payroll in each of the three groups is given in Table 1, p. 131.

Agency Corporations

Atomic Energy of Canada Limited
Canadian Arsenals Limited
Canadian Commercial Corporation
Canadian Patents and Development Limited*
Crown Assets Disposal Corporation
Defence Construction (1951) Limited
National Battlefields Commission
National Capital Commission
Centennial Commission†
National Harbours Board
Northern Canada Power Commission

Proprietary Corporations

Canadian Broadcasting Corporation
Canadian National Railways
Canadian Overseas Telecommunication Corporation
Central Mortgage and Housing Corporation
Eldorado Aviation Limited
Eldorado Mining and Refining Limited
Export Credits Insurance Corporation
Farm Credit Corporation
Northern Transportation Company Limited
Polymer Corporation Limited
St. Lawrence Seaway Authority
The Seaway International Bridge Corporation Limited
Air Canada

Other Agencies

Bank of Canada
Canadian Wheat Board
Industrial Development Bank
Northern Ontario Pipe Line Crown Corporation‡
Office of the Custodian

7.—Employees and Earnings in Agency and Proprietary Corporations and Other Agencies by Month, Years Ended Mar. 31, 1962 and 1963

Month	1961-62		1962-63	
	Employees	Earnings	Employees	Earnings
	No.	$'000	No.	$'000
April	133,691	50,103	133,179	53,925
May	137,101	55,452	137,504	57,215
June	142,139	63,225	142,292	57,833
July	146,253	59,705	145,511	60,708
August	145,914	58,653	144,574	60,406
September	143,568	56,131	142,164	56,497
October	140,501	56,384	139,892	58,970
November	138,609	54,344	135,054	55,278
December	134,770	53,428	132,035	55,274
January	132,351	53,587	131,083	55,623
February	132,215	51,665	129,635	52,477
March	132,622	53,830	129,819	53,770

PART V.—CANADA'S EXTERNAL RELATIONS§

Canada's Status in the Commonwealth.—The Imperial Conference held in London in 1926 marked a turning point in the history of the then British Empire and was an important step in the evolution from an Empire to a Commonwealth. At the 1926 Conference the self-governing countries, consisting of Britain and the Dominions, were described as being "autonomous countries within the British Empire, equal in status, in no way subordinate one to another in any aspect of their domestic or external affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations". The Governors General of the Dominions were recognized as having in all essential respects the same constitutional position as the Crown in Britain. It was also stated by the Conference that "it is the right of the Government

* Staffed by employees of the National Research Council.
† Included from March 1963.
‡ Staffed by employees of the Defence Research Board and Defence Construction (1951) Limited.
§ Prepared (June 1964) by the Department of External Affairs, Ottawa.

of each Dominion to advise the Crown in all matters relating to its own affairs". Subsequent to this important meeting, Canada's stature and status in the international community continued to grow. Following from the earlier (1923) Imperial Conference, Canada exercised the powers of treaty-making and had established its own diplomatic missions overseas. The Statute of Westminster in 1931 provided more explicit recognition of the principles of equality of status by removing the remaining limitations on the legislative autonomy of Commonwealth countries. As a further development of Canada's independent position, all legal cases started in Canada after Dec. 23, 1949, can no longer be appealed to the Privy Council in London. The Supreme Court of Canada has become, therefore, the final court of appeal for all Canadian legal cases.

Canada's International Status.—The growth of Canada's international status is reflected in the development of the Department of External Affairs. A review of the organization and development of that Department is given in the 1952-53 Year Book, pp. 101-104; a brief outline is given at p. 107 of this volume.

The following Section 1 covers Canadian diplomatic representation abroad and representation of other countries in Canada. Section 2 deals with Canada's main international activities during 1963 and early 1964 with respect specifically to the Commonwealth, the United Nations, and the North Atlantic Treaty Organization. International economic aid programs are covered separately. Although these fields are considered to be the most significant for the purposes of this publication, it should be noted that Canada's activities in other areas are also of importance. The *External Affairs Monthly Bulletin*† covers all activities of the Department.

† Obtainable from the Queen's Printer, Ottawa, $1 per year.

Section 1.—Diplomatic Representation as at Apr. 30, 1964

NOTE.—Changes in this listing subsequent to Apr. 30, 1964 and names of current representatives are given in *Canadian Representatives Abroad and Representatives of Other Countries in Canada*, published thrice yearly and obtainable from the Queen's Printer, Ottawa, price 35 cents per copy.

1.—Canadian Representation Abroad

Country and Year Representation Established	Present Status of Representative	Address
Argentina....1941	Ambassador	Bärtolomé Mitre 478, Buenos Aires
Australia....1939	High Commissioner	Commonwealth Ave., Canberra
Austria....1952	Ambassador	Karntnerring 5, Vienna
Belgium....1939	Ambassador	35, rue de la Science, Brussels
Bolivia....1961	*Ambassador	c/o Canadian Embassy, Edificio Boza, Carabaya 831, Plaza San Martin, Lima, Peru
Brazil....1941	Ambassador	Avenida Presidente Wilson 165, Rio de Janeiro
Britain....1880	High Commissioner	Canada House, Trafalgar Square, London S.W.1
Burma....1958	*Ambassador	c/o Office of the High Commissioner for Canada, 44 Ampang Rd., Kuala Lumpur, Malaysia
Cameroon....1962	Ambassador	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde
Central African Republic....1962	*Ambassador	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Ceylon....1953	High Commissioner	6 Gregory's Road, Cinnamon Gardens, Colombo
Chad....1962	*Ambassador	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Chile....1942	Ambassador	Agustinas 1225, 5th floor, Santiago
Colombia....1953	Ambassador	Carrera 10, 16-92, 8th floor, Bogota
Congo (Brazzaville)....1962	*Ambassador	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Congo (Leopoldville).....1962	Chargé d'affaires *ad interim* and Consul.....	Building C.C.C.I., Boulevard Albert 1er, Leopoldville
Costa Rica.....1961	Ambassador.....	4th floor, Edificio Banco Anglo Costarricense Avenida 2y, Calle 3, San José
Cuba.....1945	Ambassador.....	Calle 30, No. 518, Esquina A7A, Miramar, Havana
Cyprus.....1961	*High Commissioner.....	c/o Canadian Embassy, Farmers' Bldg., 8 Rehov Kaplan, Tel Aviv, Israel
Czechoslovakia 1943	Ambassador.....	Mickiewiczova 6, Prague 6
Dahomey.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Denmark.....1946	Ambassador.....	Princesse Maries Allé 2, Copenhagen
Dominican Republic.....1954	Ambassador.....	Edificio Copello, 408 Calle El Conde, Santo Domingo
Ecuador.....1961	Ambassador.....	Edificio I.C.S.A., 120 Diagonal Seminario Mendr y Avenida 10 de Agosto, 3rd floor, Quito
El Salvador.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio Banco Anglo Costarricense, Avenida 2y, Calle 3, San José, Costa Rica
Finland.....1949	Ambassador.....	Pohjois Esplanaadikatu 25B, Helsinki
France.....1928	Ambassador.....	35 avenue Montaigne, Paris VIII
Gabon.....1962	*Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Germany.....1950	Ambassador.....	Zitelmannstrasse 22, Bonn
Ghana.....1957	High Commissioner.....	E 115/3 Independence Ave., Accra
Greece.....1943	Ambassador.....	31, avenue Vassilissis Sofias, Athens 138
Guatemala.....1961	*Ambassador.....	5a Avenida 11-70 Zona I, Guatemala City
Guinea.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Avenue, Accra, Ghana
Haiti.....1954	Ambassador.....	Route du Canapé Vert, St. Louis de Turgeau, Port-au-Prince
Honduras.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y, Calle 3, San José, Costa Rica
Iceland.....1949	*Ambassador.....	c/o Canadian Embassy, Fridtjof Nansens Plass 5, Oslo, Norway
India.....1947	High Commissioner.....	4 Aurangzeb Road, New Delhi
Indonesia.....1953	Ambassador.....	Djalan Budi Kemuliaan No. 6, Djakarta
Iran.....1958	Ambassador.....	Bezrouke House corner of Takhte Djamchid Avenue and Forsat Street, Tehran
Iraq.....1961	*Ambassador.....	c/o Canadian Embassy, Immeuble Alpha, rue Clémenceau, Beirut, Lebanon
Ireland.....1940	Ambassador.....	92 Merrion Square West, Dublin
Israel.....1953	Ambassador.....	Farmers' Bldg., 8 Rehov Kaplan, Tel Aviv
Italy.....1947	Ambassador.....	Via G.B. de Rossi 27, Rome
Ivory Coast.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Jamaica.....1962	High Commissioner.....	32 Duke St., Kingston
Japan.....1929	Ambassador.....	16 Omote-Machi, 3-Chome, Akasaka Minato-Ku, Tokyo
Lebanon.....1954	Ambassador.....	Immeuble Alpha, rue Clémenceau, Beirut
Luxembourg.....1945	*Ambassador.....	c/o Canadian Embassy, rue de la Science, Brussels, Belgium
Malaysia.....1958	High Commissioner.....	Great Eastern Life Assurance Bldg., 44 Ampang Rd., Kuala Lumpur
Mexico.....1944	Ambassador.....	Melchor Ocampo 463-7, Mexico 5, D.F.
Morocco.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio España, Plaza de España 2, Madrid, Spain
Netherlands.....1939	Ambassador.....	5-7 Sophialaan, The Hague
New Zealand.....1940	High Commissioner.....	Government Life Insurance Bldg., Customhouse Quay C.I., Wellington
Nicaragua.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y, Calle 3, San José, Costa Rica
Niger.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Nigeria.....1960	High Commissioner.....	4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos
Norway.....1943	Ambassador.....	Fridtjof Nansens Plass 5, Oslo

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Pakistan.....1950	High Commissioner.....	Metropole Hotel, Victoria Road, Karachi
Panama.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y, Calle 3, San José, Costa Rica
Paraguay.....1962	*Ambassador.....	c/o Canadian Embassy, Bartolomé Mitre 478, Buenos Aires, Argentina
Peru.....1944	Ambassador.....	Edificio Boza, Carabaya 831, Plaza San Martin, Lima
Poland.....1943	Ambassador.....	Ulica Katowicka 31, Saska Kepa, Warsaw
Portugal.....1952	Ambassador.....	Rua Marques da Fronteira No. 8, Lisbon
Senegal.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Sierra Leone.....1961	*High Commissioner.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
South Africa.....1940	Ambassador.....	Suite 66, Kerry Bldg., 238 Vermeulen St., Pretoria
Spain.....1953	Ambassador.....	Edificio España, Plaza de España 2, Madrid
Sudan.....1961	*Ambassador.....	c/o Canadian Embassy, 6 Sharia Roustom Pasha, Garden City, Cairo, United Arab Republic
Sweden.....1947	Ambassador.....	Strandvagen 7-C, Stockholm
Switzerland.....1947	Ambassador.....	88 Kirchenfeldstrasse, Berne
Thailand.....1961	*Ambassador.....	c/o Office of the High Commissioner for Canada, Great Eastern Life Assurance Co. Bldg., 44 Ampang Rd., Kuala Lumpur, Malaysia
Togo.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Trinidad and Tobago.....1962	High Commissioner.....	72 South Quay, Port-of-Spain, Trinidad
Tunisia.....1961	*Ambassador.....	c/o Canadian Embassy, 88 Kirchenfeldstrasse, Berne, Switzerland
Turkey.....1947	Ambassador.....	Ahmet Agaoglu Sokagi, No. 32, Cankaya, Ankara
Uganda.....1962	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Gailey and Roberts Bldg., Independence Ave., Dar-es-Salaam, Tanganyika
Union of Soviet Socialist Republics.....1943	Ambassador.....	23 Starokonyushenny Pereulok, Moscow
United Arab Republic 1954	Ambassador.....	6 Sharia Roustom Pasha, Garden City, Cairo
United Republic of Tanganyika and Zanzibar.....1962 (1964)	High Commissioner.....	Gailey and Roberts Bldg., Independence Ave., Dar-es-Salaam, Tanganyika
United States of America.....1927	Ambassador.....	1746 Massachusetts Ave. N.W., Washington 6, D.C.
Upper Volta.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Uruguay.....1952	Ambassador.....	1409 Avenida Agraciada, 7th floor, Montevideo
Venezuela.....1952	Ambassador.....	Avenida La Estancia No. 10, Ciudad Commercial Tamanaco, Caracas
Yugoslavia.....1943	Ambassador.....	Proliterskih Brigada 69, Belgrade
Other Missions		
Canadian Military Mission....1946	Head of Mission.....	Perthshire Block, Olympic Stadium, British Headquarters, Berlin (British Sector)
Delegation of Canada to the North Atlantic Council.....1952	Permanent Representative and Ambassador.....	Place du Maréchal de Lattre de Tassigny, Paris XVI
Organization for Economic Co-operation and Development 1961	Permanent Representative....	Place du Maréchal de Lattre de Tassigny, Paris XVI
Mission of Canada to European Communities.....1960	Head of Mission and Ambassador.....	35, rue de la Science, Brussels 4

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—concluded

Country and Year Representation Established	Present Status of Representative	Address
Other Missions—concluded		
Permanent Delegation of Canada to the United Nations. 1948	Permanent Representative and Ambassador	750 Third Ave., New York, N.Y.
Permanent Delegation of Canada to European Office of the United Nations.....1948	Permanent Reprcsentative and Ambassador	16, Parc du Chateau Banquet, Geneva
Canadian Delegation to the Conference of the Eighteen-Nation Committee on Disarmament.....1962	Ambassador and Adviser to the Government on Disarmament	2, Parc du Chateau Banquet, Geneva
Permanent Delegation of Canada to the United Nations Educational, Scientific and Cultural Organization.....1960	Permanent Delegate	1, rue Chanez, Paris XVI
Consulates		
Brazil.....1947	Consul	Rua 7 de Abril 252, São Paulo
Germany.....1956	Consul General	Ferdinandstrasse 69, Hamburg
" 1961	Consul	4 Duesseldorf 1, Bismarckstrasse 95, Duesseldorf
Italy.....1963	Consul General	Via Pirelli 19, Milan
Republic of the Philippines...1949	Consul General	Third Floor, L and S Bldg., 1414 Dewey Blvd., Manila
United States of America.....1948	Consul General	607 Boylston St., Boston 16, Mass.
" 1947	Consul General	310 South Michigan Ave., Chicago, Ill.
" 1948	Consul	1139 Penobscot Bldg., Detroit 26, Mich.
" 1953	Consul General	510 W. Sixth St., Los Angeles 14, Cal.
" 1952	Consul General	Suite 1710, 225 Baronne St., New Orleans 12, La.
" 1943	Consul General	680 Fifth Ave., New York, N.Y.
" 1948	Consul General	333 Montgomery St., San Francisco 4, Cal.
" 1953	Consul General	1407 Tower Bldg., 7th Ave. at Olive Way, Seattle 1, Wash.
" 1961	Consul	3 Penn Center Plaza, Philadelphia 2, Pa.

2.—Representation of Other Countries in Canada

Country and Year Representation Established	Present Status of Representative	Address
Algeria.....1964	Ambassador	c/o Embassy of Algeria, 1600 New Hampshire Ave. N.W., Washington, D.C. 20009, U.S.A.
Argentina.....1941	Ambassador	211 Stewart St., Ottawa
Australia.....1940	High Commissioner	90 Sparks St., Ottawa
Austria.....1952	Ambassador	85 Range Road, Ottawa
Belgium.....1937	Ambassador	168 Laurier Ave. E., Ottawa
Brazil.....1941	Ambassador	305 Stewart St., Ottawa
Britain.....1928	High Commissioner	80 Elgin St., Ottawa
Burma.....1958	Ambassador	116 Albert St., Ottawa
Cameroon.....1962	Ambassador	c/o Embassy of Cameroon, 5420 Colorado Ave. N.W., Washington, D.C. 20011, U.S.A.
Ceylon.....1957	High Commissioner	448 Daly Ave., Ottawa
Chile.....1942	Ambassador	56 Sparks St., Ottawa
China.....1942	Ambassador	201 Wurtemburg St., Ottawa
Colombia.....1953	Ambassador	The Roxborough, Ottawa
Costa Rica.....1963	Ambassador	c/o Embassy of Costa Rica, 2112 S St. N.W., Washington, D.C. 20008, U.S.A.
Cuba.....1945	Ambassador	112 Sherwood Drive, Ottawa
Cyprus.....1964	High Commissioner	c/o Embassy of Cyprus, 2211 R St. N.W., Washington, D.C. 20008, U.S.A.
Czechoslovakia.....1942	Ambassador	171 Clemow Ave., Ottawa
Denmark.....1946	Ambassador	446 Daly Ave., Ottawa

2.—Representation of Other Countries in Canada—concluded

Country and Year Representation Established	Present Status of Representative	Address
Dominican Republic....1954	Ambassador	85 Range Road, Ottawa
Ecuador....1961	Ambassador	200 Rideau Terrace, Ottawa
Finland....1948	Ambassador	85 Range Road, Ottawa
France....1928	Ambassador	42 Sussex Drive, Ottawa
Gabon....1962	Ambassador	c/o Embassy of Gabon, 1625 Varnum St. N.W., Washington, D.C. 20011, U.S.A.
Germany....1951	Ambassador	1 Waverley St., Ottawa
Ghana....1961	High Commissioner	75 Albert St., Ottawa
Greece....1942	Ambassador	Chateau Laurier Hotel, Ottawa
Guatemala....1961	Ambassador	2220 R St. N.W., Washington, D.C. 20008, U.S.A.
Guinea....1962	Ambassador	c/o Embassy of Guinea, 2112 Leroy Pl.N.W., Washington 8, D.C., U.S.A.
Haiti....1954	Ambassador	150 Driveway, Ottawa
Iceland....1948	Ambassador	c/o Embassy of Iceland, 1906 23rd St. N.W., Washington, D.C., U.S.A.
India....1947	High Commissioner	200 MacLaren St., Ottawa
Indonesia....1953	Ambassador	275 MacLaren St., Ottawa
Iran....1956	Ambassador	85 Range Road, Ottawa
Iraq....1961	Ambassador	1801 P St. N.W., Washington, D.C. 20008, U.S.A.
Ireland....1939	Ambassador	The Roxborough, Ottawa
Israel....1953	Ambassador	45 Powell Ave., Ottawa
Italy....1947	Ambassador	172 MacLaren St., Ottawa
Ivory Coast....1964	Ambassador	c/o Embassy of Ivory Coast, 2424 Massachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Jamaica....1962	High Commissioner	90 Sparks St., Ottawa
Japan....1928	Ambassador	75 Albert St., Ottawa
Korea....1963	Ambassador	c/o Office of the Permanent Observer of the Republic of Korea to the United Nations, 750 Third Ave., New York 17, N.Y., U.S.A.
Lebanon....1955	Ambassador	The Roxborough, Ottawa
Luxembourg....1950	Ambassador	c/o Embassy of Luxembourg, 2210 Massachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Mali....1963	Ambassador	c/o Embassy of Mali, 2130 R St. N.W., Washington, D.C. 20008, U.S.A.
Mexico....1944	Ambassador	88 Metcalfe St., Ottawa
Morocco....1962	Ambassador	c/o Embassy of Morocco, 1601–21st St. N.W., Washington, D.C. 20009, U.S.A.
Netherlands....1939	Ambassador	12 Marlborough Ave., Ottawa
New Zealand....1942	High Commissioner	77 Metcalfe St., Ottawa
Niger....1963	Ambassador	c/o Embassy of Niger, 2013 Q St. N.W., Washington, D.C. 20009, U.S.A.
Norway....1942	Ambassador	140 Wellington St., Ottawa
Pakistan....1949	High Commissioner	505 Wilbrod St., Ottawa
Panama....1962	Ambassador	c/o Embassy of Panama, 2862 McGill Ter. N.W., Washington, D.C. 20008, U.S.A.
Peru....1944	Ambassador	539 Island Park Drive, Ottawa
Poland....1942	Ambassador	10 Range Road, Ottawa
Portugal....1952	Ambassador	285 Harmer Ave., Ottawa
Senegal....1963	Ambassador	c/o Embassy of Senegal, 2112 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.
South Africa....1938	Ambassador	9 Rideau Gate, Ottawa
Spain....1953	Ambassador	124 Springfield Road, Ottawa
Sweden....1943	Ambassador	140 Wellington St., Ottawa
Switzerland....1946	Ambassador	5 Marlborough Ave., Ottawa
Thailand....1962	Ambassador	119 Range Road, Ottawa
Trinidad and Tobago....1962	High Commissioner	75 Albert St., Ottawa
Tunisia....1957	Ambassador	c/o Tunisian Permanent Mission to the United Nations, Tunisia House, 40 East 71st St., New York 22, N.Y., U.S.A.
Turkey....1944	Ambassador	197 Wurtemburg St., Ottawa
Uganda....1964	High Commissioner	c/o Permanent Mission of Uganda to the United Nations, 801 Second Ave., New York 17, N.Y., U.S.A.
Union of Soviet Socialist Republics....1942	Ambassador	285 Charlotte St., Ottawa
United Arab Republic....1954	Ambassador	The Roxborough, Ottawa
United States of America....1927	Ambassador	100 Wellington St., Ottawa
Uruguay....1948	Chargé d'Affaires *ad interim*	The Roxborough, Ottawa
Venezuela....1953	Ambassador	The Roxborough, Ottawa
Yugoslavia....1942	Ambassador	17 Blackburn Ave., Ottawa

Section 2.—International Activities, 1963-64

Subsection 1.—Canada and Commonwealth Relations

Membership in the Commonwealth is one of the cornerstones upon which Canadian foreign policy is built, for Canada supports the extension and developments of a strong Commonwealth of Nations and believes that no other association throughout the world has a greater influence for good. Commonwealth membership allows Canada to enjoy an especially close, if perhaps undefinable, relationship with a group of important nations which, despite a diversity of ethnic, economic, racial, religious, cultural and political backgrounds, find usefulness in shared ideals and traditions. Exchanges taking place between Commonwealth countries are characterized by a readiness to understand if not always to agree. Consultations and exchanges of views are the very lifeblood of the Commonwealth; these exchanges are continuous, not only in the capitals of Commonwealth countries but in other capitals, at the United Nations and at international gatherings.

In addition to these continuing consultations at many levels, two special Commonwealth meetings are to be held in 1964. The Third Commonwealth Education Conference is to be held in Ottawa in August of this year, on the invitation of the Canadian Government. This conference is the third of a series of conferences convened primarily to discuss government programs of educational co-operation within the Commonwealth. The Second Conference was held in New Delhi in January of 1962. The Prime Ministers of the Commonwealth will meet in London in July, the twelfth in a series of Prime Ministers' Meetings which have been held at intervals since the end of the Second World War.

During 1963 and early 1964, membership of the Commonwealth increased from 16 to 17 members. Kenya became a member when its independence was achieved in December. Zanzibar achieved independence also in 1963, but in early 1964 joined Tanganyika to form the United Republic of Tanganyika and Zanzibar. In addition, the Federation of Malaya which had become a member of the Commonwealth in 1957, upon the accession of Sarawak, Sabah and Singapore in 1963 became known as Malaysia. At the end of April 1964, Canada had High Commissioners accredited to all member countries of the Commonwealth.

Canada's overseas aid for developing countries continued to be directed, in the main, to Commonwealth countries through the Colombo Plan, the Canada-West Indies Aid Program, and the Special Commonwealth Africa Aid Program (SCAAP). Canada's total contribution under the Colombo Plan since the Plan's inception exceeds $400,000,000. Canada aided Commonwealth countries in Africa through SCAAP to a total of $10,500,000 for the period 1960-63. Approximately $12,000,000 was made available for aid and technical assistance to Commonwealth Caribbean countries from 1958 to 1963.

Canada is also an active participant in the Commonwealth Scholarship and Fellowship Plan. At the end of April 1964, there were approximately 220 Commonwealth students in Canada under this Plan and many Canadians were studying in other Commonwealth countries. Canada has also played a significant part in the training and provision of teachers for service in Commonwealth countries and has assisted in plans for co-operation in technical education. As of the end of April 1964, 183 Canadian teachers were serving under Canadian Government aid programs in the less-developed countries of Southeast Asia, Africa and the Caribbean area.

Any chronicle of Commonwealth events for the year 1963-64 must include the visits paid to Canada by distinguished citizens of other Commonwealth countries. In addition to the visit of H.R.H. Princess Alice in September 1963, Commonwealth visitors included the Prime Minister of Britain, the Rt. Hon. Sir Alec Douglas-Home; the Prime Minister of Australia, the Rt. Hon. Sir Robert Menzies; the Prime Minister of Trinidad and Tobago, the Rt. Hon. Dr. Eric Williams; His Excellency the Governor of the Eastern Region of Nigeria, Sir Francis Ibiam; the Deputy Prime Minister of Malaya, Mr. Tun Razak; the Deputy Prime Minister of Australia, the Rt. Hon. J. McEwen; the Secretary of State for Foreign Affairs of Britain, the Rt. Hon. R. A. Butler; the Secretary of State for Common-

wealth Relations of Britain, the Rt. Hon. Duncan Sandys; the Minister of Economic and Defence Co-ordination of India, Mr. T. T. Krishnamachari; the Minister for External Affairs of Pakistan, Mr. Z. A. Bhutto; and the Minister of Education of Southern Rhodesia, the Hon. J. H. Howman.

Subsection 2.—Canada and the United Nations

During 1963, developments at the United Nations reflected the improved international atmosphere. In contrast to the mood of crisis which pervaded the United Nations during the Cuba crisis of 1962, the mood of the eighteenth regular session was optimistic and relaxed, due in part to the partial test-ban treaty, the agreement against stationing weapons of mass destruction in outer space and the general lessening of east-west tensions. In the course of the year, the United Nations operation in West New Guinea was successfully concluded. The Yemen Observation Mission (UNYOM), with a Canadian component, was established on Security Council authority.

The United Nations General Assembly convened twice in 1963; the fourth special session in May-June, and the eighteenth regular session starting on Sept. 19. The special session was called to consider the report of the Working Group of 21 on peace-keeping finances, and to study the critical financial problems facing the organization. At the eighteenth session, two new Commonwealth members were admitted, Kenya and Zanzibar; their applications for membership were co-sponsored by Canada.

The continuing increase in the membership of the United Nations has generated a need to reconsider certain aspects of the organization of the United Nations, especially the composition of the Security Council and the Economic and Social Council (ECOSOC). Canada's Prime Minister, in his address to the General Assembly on Sept. 19, spoke vigorously in support of the enlargement of these councils, in order to adequately reflect the present membership of the United Nations. He also advanced a number of practical proposals for strengthening the peace-keeping capacity of the United Nations.

The gravest problem facing the United Nations at both the special session and the regular session was that of the Organization's financial situation. Certain member states continued to refuse to pay their assessments to the United Nations peace-keeping operations in the Congo (ONUC) and the Middle East (UNEF), bringing the United Nations to the brink of financial insolvency. Canada played an active and leading role in the search for a solution to this problem, both in the Working Group of 21 and at both sessions of the Assembly. Canada argued vigorously for long-term financing arrangements based on collective responsibility and capacity to pay. The question was not resolved at the eighteenth session and remains the most serious difficulty facing the United Nations.

Members of the General Assembly welcomed the partial test-ban treaty and adopted a resolution calling on all states to become parties to it and, as well, unanimously adopted a resolution intended to prevent the orbiting of nuclear weapons in outer space. In the Special Political Committee, Canada initiated a resolution to continue study of the effects of atomic radiation on man and his environment, which was adopted by the Committee and the Plenary. Canada continued to stress the need for international co-operation to reduce the hazard from atomic radiation.

Colonial questions continue to preoccupy the United Nations. In 1963, the Special Committee of 24 considered the implementation of the Colonial Declaration in relation to 26 dependent territories. The General Assembly adopted seven resolutions dealing with Aden, British Guiana and seven other dependent territories. In a further resolution, the Special Committee was asked to continue to find the best way to apply the Colonial Declaration to all territories that had not yet attained independence.

During 1963, Canada was a member of a Preparatory Committee established to study the desirability of designating 1965, the twentieth anniversary of the United Nations, as International Co-operation Year (ICY). A resolution to that effect was passed unanimously at the eighteenth session, and Canada was named to the Committee for ICY.

Social questions were actively considered at the eighteenth session. At that time, the General Assembly unanimously adopted a declaration on the elimination of all forms of racial discrimination. Canada, as a member of the Commission on Human Rights, participated actively in discussions on international covenants on human rights. Canada sought, however, to ensure that in the pursuit of these aims no other basic rights should be infringed.

At the eighteenth session, the Assembly adopted a number of resolutions on economic questions. The dominating economic theme was the approaching United Nations Conference on Trade and Development (UNCTD), and the developing countries in a 75-nation draft resolution called on the participating states to give consideration to the Joint Declaration of Developing Countries on trade questions. This resolution was adopted unanimously. Increased confidence was shown in the various United Nations voluntary aid and technical assistance programs during the year, with Canada, for example, doubling its pledge to the Special Fund.

Canada submitted detailed comments on four principles of international law under study by the Sixth (Legal) Committee, namely, the principles of non-use of force, peaceful settlement of disputes, non-intervention, and sovereign equality of states. These comments stressed the paramount importance of the United Nations Charter in the progressive development of international law and in the promotion of the role of law among nations.

Despite the United Nations grave financial situation, above-mentioned (aggravated by the failure of certain member states to pay their share of UN peace-keeping operations in the Congo and the Middle East), and its hesitancy to assume additional financial and political burdens, the Cyprus conflict of violence, bloodshed and distrust engendered in the two communities inhabiting the island had reached a very critical stage by the early spring of 1964. The Security Council, on Mar. 4, decided to establish a peace-keeping force in Cyprus. Canada, among the countries approached for assistance, was the first to commit itself definitely to provide troops. Following intense diplomatic activity of Canadian representatives with other national representatives (Sweden, Finland, Ireland and Britain) and with the Secretary-General during the first two weeks of March, the Canadian contingent comprising troops of the 1st Battalion, Royal 22nd Regiment and the Reconnaissance Squadron of the Royal Canadian Dragoons responded speedily and by Mar. 19 were in camp near Nicosia, Cyprus, proudly serving Canada and the United Nations as part of yet another peace-keeping force.

Although Canada has responded promptly to requests, on an *ad hoc* basis, for military assistance in all theatres of United Nations peace-keeping, it is latterly drawing increasingly upon its own considerable experience in this field to provide leadership and encouragement to other member states to consider jointly what can be done to strengthen the long-term capacity of the United Nations to engage in peace-keeping operations.

Canadian Financial Contributions to the United Nations.—Canada's share of the costs of United Nations peace-keeping operations in the Congo and the Middle East amounted to approximately $2,082,000 (U.S.) in 1963. Canada's share of the remaining expenses of the United Nations in 1963 was 3.12 p.c. of a net budget of $77,686,050 or some $2,423,800 (U.S.). During the year, Canada contributed to other programs of the United Nations, to the Specialized Agencies, to the International Atomic Energy Agency, and to the United Nations Association in Canada as follows:—

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Special Programs (pledged for 1963)—	
Expanded Program of Technical Assistance	2,150,000 (U.S.)
Special Fund	2,350,000 (U.S.)
United Nations High Commissioner for Refugees	290,000
United Nations Children's Fund	800,000
United Nations Relief and Works Agency	1,000,000
Specialized Agencies—	
Food and Agriculture Organization	774,000
International Civil Aviation Organization	223,000
International Labour Organization	562,000

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Specialized Agencies—concluded	
Inter-Governmental Maritime Consultative Organization	8,000 (U.S.)
United Nations Educational, Scientific and Cultural Organization	612,000
World Health Organization	1,041,000
Universal Postal Union	41,000
World Meteorological Organization	25,000
International Telecommunication Union	148,000
Others—	
International Atomic Energy Agency	243,000
United Nations Association in Canada	12,000
Total	**10,279,000**

Specialized Agencies.—Canada is a member of each of the 13 Specialized Agencies of the United Nations. As well, Canada holds membership in the International Atomic Energy Agency (IAEA), an autonomous international organization under the aegis of the United Nations. These Agencies are bodies with wide international responsibilities established by intergovernmental agreement, which act in relationship with the United Nations to carry out the terms of the Charter. Co-ordination of their activities is promoted by the Administrative Committee on Co-ordination established by the Economic and Social Council. The Committee is composed of the Secretary-General of the United Nations and the executive heads of the Specialized Agencies and the Director-General of IAEA. It considers not only administrative questions common to them all, but planned projects on problems of special urgency to be undertaken jointly by several Agencies.

Food and Agriculture Organization.—The Food and Agriculture Organization (FAO) came into being in 1945, the first Conference being held in that year in Quebec City. The objectives of the Organization are to raise the levels of nutrition and living standards of its members and to improve the techniques of the production and distribution of food and agricultural, fishery and forestry products. To this end, the FAO Secretariat collects, analyses and distributes technical and economic information and encourages appropriate national and international action. A 25-member Council meets twice a year to give direction and policy guidance to the Secretariat; the FAO Conference, which is the governing body of the Organization, meets every other year. Headquarters are in Rome, Italy.

Canada has participated actively in FAO activities and is a member of the Council, the Committee on Commodity Problems (CCP), the Consultative Sub-Committee on Surplus Disposal, the FAO Group on Grains, the North American Forestry Commission and other FAO bodies. A number of Canadians are on the staff at Rome headquarters, and many Canadians have undertaken assignments under FAO technical assistance programs. Canadian membership in the Organization is provided for by an Act of the Canadian Parliament passed in 1945. A committee of officials from Canadian Government departments (the Canadian Interdepartmental FAO Committee) has been established to maintain liaison between the FAO Secretariat and the Canadian Government. Canada's annual contribution to FAO in 1964 and 1965 is to be $737,247.

The FAO and the United Nations are jointly responsible for the World Food Program, a three-year experimental project that went into operation at the beginning of 1963. The Program provides food aid on a multilateral basis for emergency relief and to promote economic development.

United Nations Educational, Scientific and Cultural Organization.—The United Nations Educational, Scientific and Cultural Organization (UNESCO) was established in 1946 "to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law, for human rights and fundamental freedoms".

Total membership in the Organization at the end of 1963 was 113 states and three associate members. The Organization is made up of three principal organs—the General Conference, which is the policy-making body, the Executive Board and the Secretariat. Representatives from member states make up the General Conference which meets every two years to consider applications for membership, elect the Executive Board, plan the program and approve the budget for the ensuing two-year period. The latest General

Conference was held at the Headquarters of the Organization in Paris in November and December 1962. It approved a budget of $39,000,000, nearly one third of which is to be devoted to the educational needs of the developing countries. The Canadian assessment rate is 2.98 p.c. The next General Conference will take place in Paris in October 1964. (See also Sect. 5 of Part II of the Education Chapter of this volume.)

International Bank for Reconstruction and Development.—The IBRD or World Bank was founded at the same time as the International Monetary Fund at the Bretton Woods Conference in 1944 to assist the development of productive resources in member countries by extending loans where private capital is not available on reasonable terms and by providing technical assistance. The loans are made from the paid-up subscriptions of member states, from the surplus accumulated by the Bank and from loans raised in the markets of member states. The subscribed capital is $21,130,000,000 (U.S.). The Bank's first loans were for European postwar reconstruction but in 1948 the Bank turned to lending for development and an increasing proportion of its funds has been directed to the less-developed areas of the world. By Mar. 31, 1964, the Bank had made 376 loans totalling some $7,738,000,000 (U.S.) in 64 countries or territories. About $5,853,000,000 of this had been disbursed, and $2,481,000,000 had been either repaid to the Bank or sold to other investors. Up to that date, the Bank had used or been able to allocate for lending the equivalent of approximately $1,704,000,000 from paid-in capital, including the full $75,000,000 of the paid-in portion of Canada's subscription.

The International Finance Corporation.—The function of the International Finance Corporation, which is an affiliate of the IBRD, is to promote the growth of productive private enterprise by assisting private capital, by acting as a clearing house in bringing together investment opportunities and private capital and by helping to enlist managerial skill and experience when not otherwise available to a project. Of a total capital subscription of $99,000,000 (U.S.), Canada has provided $3,600,000.

International Development Association.—The IDA, also an affiliate of the IBRD, was established in September 1960 to meet the situation of a growing number of less-developed countries whose need for and ability to make use of outside capital is greater than their ability to service conventional loans. Consequently, the terms of IDA development credits are designed to impose far less burden on the balance of payments of borrowing countries than conventional loans. Credits extended to date have each been for a term of 50 years, bearing no interest. As of Mar. 31, 1964, total initial subscriptions amounted to $986,000,000, of which $767,000,000 was to be paid in convertible form including Canada's share of $37,800,000 (U.S.). Additional contributions to be paid in over the three years 1965-68 (subject to legislative authorization) will amount to $750,000,000 (U.S.), of which Canada's share will be $41,700,000 (U.S.). IDA began operations in November 1960 and extended its first development credit in May 1961. By the end of March 1964, it had extended a total of 50 development credits amounting to $604,350,000 to 20 countries in Africa, Asia, the Middle East and the Western Hemisphere, and some $160,000,000 of this had been disbursed.

International Civil Aviation Organization.—The International Civil Aviation Organization (ICAO), with headquarters in Montreal, is the only Specialized Agency of the United Nations with headquarters in Canada. Canada is a member of the 27-nation Council which meets in almost continuous session in Montreal.

International Labour Organization.—The International Labour Organization (ILO) was originally established with the League of Nations in 1919 and became a Specialized Agency of the United Nations in 1946. It brings together representatives of governments, employers and workers from 110 member states in an attempt to promote social justice by improving working and living conditions in all parts of the world. To further this goal, numerous meetings are held each year, including the regular International Labour

Conference each June in Geneva. ILO is responsible for a number of technical programs, financed by the United Nations Special Fund and the Expanded Program of Technical Assistance, as well as training projects under its regular budget.

Inter-Governmental Maritime Consultative Organization.—Canada, as a member of the Inter-Governmental Maritime Consultative Organization (IMCO) with headquarters in London, England, was represented at the regular sessions of the Council held in London during 1963 and at the Third Assembly of the Organization which was held in October 1963.

International Monetary Fund.—The International Monetary Fund, set up by the Bretton Woods Conference in 1944, came into being in 1945. It provides machinery for international consultation and collaboration on monetary, payment and exchange problems. Included in these purposes are the promotion of exchange stability, the elimination of exchange restrictions, the establishment of a multilateral system of current payments and the expansion and balanced growth of international trade. Also, member countries under certain conditions may draw on the regular resources of the Fund, which now amount to some $15,620,000,000 (of which the equivalent of approximately $10,000,000,000 is in gold and convertible currencies) or on the supplementary resources of $6,000,000,000 made available in 1962 under the General Arrangement to Borrow.

International Telecommunication Union.—Canada is a member of the International Telecommunication Union (ITU), a Specialized Agency of the United Nations, which traces its origin to the International Telegraph Convention of 1865 and the International Radio Telegraph Convention of 1906. The Administrative Council of the ITU met in Geneva in the spring of 1963; Canada was represented at that meeting and at meetings of subsidiary bodies which took place during the year.

Universal Postal Union.—One of the oldest and largest of the Specialized Agencies, the Universal Postal Union (UPU), was founded in Berne in 1874 with the principal aim of improving postal services throughout the world and promoting international collaboration. The Universal Postal Congress is the supreme authority of the UPU and normally meets every five years to review the Universal Postal Convention and its subsidiary instruments. In the interim, activities of the Union are carried on by an Executive and Liaison Committee, a Consultative Committee on Postal Studies and an International Bureau. At the Congress held in Ottawa in 1957, Canada was elected to the Executive and Liaison Committee. The fifteenth Congress which should have been convened in 1962 was held in Vienna from May 29 to July 10, 1964.

World Health Organization.—The World Health Organization (WHO) came into being in 1948 and is one of the largest of the Specialized Agencies of the United Nations, having a membership of 108. Functioning through the World Health Assembly (an organization composed of an Executive Board, a Secretariat and six Regional Committees), WHO acts as a directing and co-ordinating authority on international health matters. In addition, it provides advisory and technical services to help countries develop and improve their health services. The fourteenth World Health Assembly was held in Geneva in May-June 1962. (See also the item "International Health" in Subsect. 5, Sect. 1, Part I of the Public Health, Welfare and Social Security Chapter of this volume.)

World Meteorological Organization.—Canada is a member of the World Meteorological Organization (WMO), a Specialized Agency of the United Nations since 1951 but developed from the International Meteorological Organization, which was founded in 1878. The Director of Meteorological Services, Department of Transport, is an elected member of the Executive Committee of WMO. The World Meteorological Conference is the main body of the Organization and meets at intervals of about four years. The Fourth WMO Congress met during April 1963 and Canada was represented by a delegation led by the Director of Meteorological Services.

The International Atomic Energy Agency.—Formed in 1957, the International Atomic Energy Agency (IAEA) is an autonomous international organization under the aegis of the United Nations. The Agency was given a mandate to seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world in a variety of ways.

Because Canada is considered to be one of the five members most advanced in nuclear technology, including the production of source materials, this country has served on the Board of Governors since the inception of the Agency. The latest meeting of the IAEA General Conference was held at the headquarters in Vienna in September 1963.

In 1963, as part of Canada's support of Agency activities, Atomic Energy of Canada Limited arranged to donate a $30,000 Gammacell for research purposes at the Agency laboratories in Vienna.

The International Law Commission.—By Article 13(1) of the Charter of the United Nations, one of the purposes of the UN General Assembly is to encourage the progressive development of international law and its codification. In order to implement and to assist in this function, the International Law Commission was created by a General Assembly resolution dated Nov. 21, 1947. It is composed of 25 members who are elected in their individual capacity. They serve for terms of five years and, in general, represent the main forms of civilization and principal legal systems of the world. On Nov. 28, 1961, Canada's Under-Secretary of State for External Affairs, was elected to membership of this Commission. The 25 countries whose nationals form, at present, the International Law Commission are: Afghanistan, Argentina, Austria, Brazil, Cameroon, Canada, China, Dahomey, Ecuador, Finland, France, Britain, India, Iraq, Israel, Italy, Japan, Nigeria, Poland, Spain, the Union of Soviet Socialist Republics, the United Arab Republic, the United States of America, Uruguay and Yugoslavia.

Subsection 3.—Canada and the North Atlantic Treaty Organization*

There were two Ministerial Meetings held during 1963 and meetings at NATO Headquarters in Paris of the Permanent Representatives of the North Atlantic Council were held continuously throughout the year.

Ottawa was the site for the annual Spring Ministerial Meeting which was held from May 22 to 24 and attended by Foreign Ministers and Defence Ministers of the NATO Alliance. Canada was represented by the Secretary of State for External Affairs and the Minister of National Defence. The Ministers reviewed the international situation and, in particular, the continuing threat to Germany and Berlin, the repercussions of the situation in Cuba, and the recent disquieting events in Laos. The Ministers reaffirmed the importance, in building a peaceful world, of progress toward general and complete disarmament by stages and under effective international control.

The Ministers discussed NATO defence policy and approved the steps taken to organize the nuclear forces assigned or to be assigned to the Supreme Allied Commander Europe (SACEUR). These include notably: (*a*) assignment of Britain's V-bomber force and three United States Polaris submarines to SACEUR; (*b*) establishment by SACEUR on his staff of a Deputy responsible to him for nuclear affairs; (*c*) arrangements for broader participation by officers of NATO member countries in nuclear activities in Allied Command Europe and in co-ordination of operational planning at Omaha; and (*d*) fuller information to national authorities, both political and military.

The Ministers welcomed these measures to increase the effectiveness of the nuclear capability at the disposal of the Alliance and to improve co-ordination and control of its nuclear deterrent forces and recognized the need to achieve a satisfactory balance between

* The terms of the Treaty and the organization of the Council and subordinate committees are dealt with in the 1954 Year Book at pp. 113-115. A short review of the events leading up to the establishment of NATO and its subsequent membership is given in the 1960 Year Book at p. 167.

nuclear and conventional arms. They directed the Council in Permanent Session to undertake, with the advice of the NATO military authorities, further studies of the interrelated questions of strategy, force requirements and the resources available to meet them.

The annual Ministerial Meeting held in Paris Dec. 16 and 17, 1963, was attended by a Canadian Delegation led by the Secretary of State for External Affairs and the Minister of National Defence. In reviewing the international situation, the Ministers noted that there had been no major crisis since the confrontation over Cuba. They emphasized that the unity and military strength of the Alliance had contributed substantially to this result and to the international atmosphere now prevailing. At the same time the Ministers emphasized the importance not only of seeking agreement on limited measures which would help to reduce tension, but of achieving a genuine and fundamental improvement in East-West relations. They expressed the hope that Soviet policy would not limit the possibilities of making progress in this direction and of reaching solutions for the problems that are the real causes of tension in the world, in particular those of Berlin and Germany. Despite recent incidents, freedom of access to Berlin had been upheld; in this connection the Ministers reiterated their determination, as expressed in the Declaration of Dec. 16, 1958, to defend and maintain the freedom of West Berlin and its people.

The Ministers reaffirmed their determination to improve and intensify their political consultation on subjects of common concern. They also agreed on the necessity of maintaining and strengthening the defensive capability of the Alliance, having regard to the constant advances in science and technology. They reviewed the implementation of decisions reached at Ottawa regarding fuller information on nuclear questions for national authorities and broader participation by member countries in the organization and operational planning functions of SACEUR's nuclear forces. Finally, they took note of the progress achieved to give effect to the decisions made at Ottawa to pursue the study of the interrelated questions of strategy, force requirements, and the resources available to meet them.

In the economic field, the Ministers noted that the economies of the NATO countries have been expanding steadily and, in contrast to what has been happening in the communist world, the economic systems of the West have shown themselves capable of flexible adaptation to circumstances. Not only has this permitted an increase in the standards of living of their own peoples but it has also enabled large-scale assistance to be extended to the developing countries.

Canadian Contributions to NATO.—Support for NATO during 1963 continued to be one of the foundations of Canadian foreign policy. As its contribution to the military strength of the Alliance, Canada maintains an army brigade and an air division in Europe and supporting forces in Canada. It has assigned a substantial naval force to the Supreme Allied Commander Atlantic (SACLANT) for the defence of the Canada–United States region in case of emergency and participates with the United States in the defence of the North American Continent through the North American Air Defence Command (NORAD).

Since 1950, Canada has contributed approximately $1,800,000,000 in mutual aid to European members of NATO. The aid program, consisting of contributions to NATO infrastructure and military costs, transfers of equipment to member countries and aircrew training in Canada of NATO forces, continued throughout 1963. This program has decreased in magnitude with the changing conditions and the increasing ability of the European members to meet their individual defence requirements.

Subsection 4.—Canadian External Aid Programs

The Colombo Plan.—The Colombo Plan for Co-operative Economic Development in South and Southeast Asia was conceived at the Commonwealth Meeting of Foreign Ministers held at Colombo, Ceylon, in January 1950. Although the Plan was initiated by Commonwealth governments, it is not exclusively a Commonwealth program. It is designed to assist in the economic development and the raising of living standards of all

countries and territories in the general area of South and Southeast Asia. Its membership now includes Australia, Bhutan, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Malaysia, Nepal, New Zealand, Pakistan, the Philippines, Afghanistan, Maldive Islands, South Korea, Thailand, Britain and Viet Nam, as well as the United States, which is also engaged in a substantial program of economic aid in the same region. Afghanistan and the Maldive Islands were admitted to membership in 1963.

The Colombo Plan is supervised by a Consultative Committee composed of Ministers of the member countries, who meet once a year to review projects and exchange views on policy matters. As a consultative body, it makes no collective policy decisions binding member countries; a Council for Technical Co-operation, on which Canada is represented, meets regularly in Ceylon to develop the technical co-operation program of the Plan. Consultative Committee meetings were held at Singapore in 1955, at Wellington in 1956, at Saigon in 1957, at Seattle in 1958, at Jogjakarta in 1959, at Tokyo in 1960, at Kuala Lumpur in 1961, at Melbourne in 1962 and at Bangkok in 1963. At the Jogjakarta meeting it was agreed to extend the Colombo Plan for another five years from June 1961. Reports of the Committee on progress and future plans are published after each annual meeting; each report also contains sections describing the activities of member countries.

From the inception of the Plan in 1950 through April 1964, Canada made available a total of $464,670,000 for capital and technical assistance projects in South and Southeast Asia; Parliament appropriated $41,500,000 for Canadian participation in 1963-64. While ten countries are now receiving capital assistance from Canada, the largest contributions have so far been made to India, Pakistan and Ceylon. The Canadian contribution has consisted primarily of direct assistance to various development projects, including equipment for multi-purpose irrigation and hydro-electric projects, power-generating plants, construction and fisheries projects and resources surveys, as well as educational and laboratory equipment and books. It has also included gifts of raw materials, commodities and foodstuffs such as industrial metals, asbestos, fertilizer, wheat, flour and butter, from the sale of which recipient governments have been able to raise funds to meet local costs of economic development projects.

Under the Technical Assistance Program, up to March 1964 more than 2,500 persons from all countries in the area had come to Canada for training in a variety of fields, the major ones being public administration and finance, agriculture, co-operatives, engineering, mining and geology, statistics, health education and social welfare. More than 300 Canadian experts had been sent abroad for service in Colombo Plan countries in such fields as fisheries, agriculture, engineering, mining and prospecting, co-operatives, public administration, education and vocational training, and public health. Other Canadians were employed on aerial resources survey teams and on the installation and operation of capital equipment.

Commonwealth Caribbean Program.—In 1958, when the Federation of the West Indies was being formed, Canada undertook a five-year, $10,000,000 program of economic and technical assistance and continued aid to the area after the dissolution of the Federation; in 1963-64 an amount of $2,100,000 was made available for Jamaica, Trinidad and Tobago, Barbados, the Leeward and Windward Islands, British Guiana and British Honduras. The Canadian Government announced in November 1963 that a more sizable program for the Commonwealth Caribbean would be introduced in 1964-65.

The major project undertaken by Canada at the request of the federal authorities was the provision of two passenger-cargo ships for inter-island transportation at a cost of nearly $6,000,000. The vessels were commissioned in the summer of 1961 and handed over to the West Indies Government. Other projects included a deep-water wharf in St. Vincent, a residence hall for the University of the West Indies in Trinidad, port handling equipment for five harbours, schools in three islands, warehouses at two sites and freshwater systems in four islands.

Canada has also given a substantial amount of technical assistance. As of Mar. 31, 1964, training programs had been arranged in Canada for 123 students from the Commonwealth Caribbean. Their fields of study included agriculture, engineering, fisheries, forestry, medicine and public administration. In addition, 64 Canadians were sent to the Commonwealth Caribbean; they included teachers, soil surveyors and advisers in statistics, legal drafting, housing, films, radio broadcasting, postal services and harbour management.

Special Commonwealth Africa Aid Program.—In the Fall of 1960 the Canadian Government undertook, subject to parliamentary approval, to contribute $10,500,000 to a Special Commonwealth Africa Aid Program over a three-year period beginning Apr. 1, 1961. The program, known as SCAAP, arose from discussions at the meeting of Commonwealth Prime Ministers in 1960. Roughly speaking SCAAP is a counterpart in Africa of the Colombo Plan in Asia, although it is entirely a Commonwealth scheme. The main donor countries are Britain, Canada, Australia and New Zealand; some of the newer Commonwealth members, particularly India and Pakistan, have been able to provide limited amounts of technical assistance in the fields in which they have experience and specialized knowledge. All of the Commonwealth areas of Africa, both independent countries and dependent territories, qualify for assistance under this program.

The major endeavour under the SCAAP program has been the provision of technical assistance. Up to Mar. 31, 1964, scholarships and training programs had been provided for study in Canada under SCAAP for 290 African students, and 238 Canadian teachers and technical assistance advisers had served on assignments in ten Commonwealth African countries—Basutoland, Bechuanaland, Gambia, Ghana, Kenya, Mauritius, Nigeria, Sierra Leone, Tanganyika and Uganda. On that date 148 students from Africa were in Canada under SCAAP auspices and 96 teachers and university professors and 47 technical assistance advisers were serving in Commonwealth countries of Africa.

In addition, Canada has participated in several capital projects: an aerial mapping and airborne geophysics survey in Nigeria which began in October 1961 and for which Canada has allocated $1,850,000; a forest inventory in Kenya for which $400,000 has been allocated; provision of architectural and engineering services, construction materials and equipment for a trades training centre in Ghana and a secondary school in Sierra Leone; and supply of various types of vehicles and equipment in Ghana, Kenya, Nigeria, Sierra Leone, Tanganyika, Uganda and Zanzibar.

Educational Assistance to French-Speaking States in Africa.—In April 1961, the Canadian Government announced an offer of assistance in the educational field to the French-speaking states in Africa, and subsequently appropriated $300,000 for this purpose for each of the years ended Mar. 31, 1962, 1963 and 1964. It was decided at the commencement of this program that emphasis should be placed on the provision of Canadian teachers for Africa and this has continued to be the main priority in the program. Up to Mar. 31, 1964, 30 secondary school teachers and university staff had served in six countries—Cameroon (12), Rwanda (7), Mali (4), Congo (Brazzaville) and Togo (3 each) and Morocco (1); 19 were on assignments at that date. Four training awards for study in Canada have been made available under the program—one each to students from Cameroon, Central African Republic, Congo (Brazzaville) and Niger. Other forms of assistance related to education include provision of Canadian paper worth $50,000 for a UN textbook production centre in Cameroon and the provision of a number of mobile film units and audio-visual equipment to six countries in Francophone Africa.

The Commonwealth Scholarship and Fellowship Plan.—The Commonwealth Scholarship and Fellowship Plan was first discussed at the Trade and Economic Conference held at Montreal in September 1958. The delegates, in stressing the importance of education and training in the participating countries, expressed the hope that they would be able to share with each other the advantages of education of all kinds and at all levels. The Conference envisaged a scheme of 1,000 scholarships of which Britain undertook to

provide one half and Canada one quarter. The details of the plan were worked out at the Commonwealth Education Conference at Oxford in 1959 and $1,000,000 has been allocated annually for the implementation of the Plan in Canada.

Since the Plan first became operational during the 1960-61 academic year, 379 scholars have come to Canada for advanced study. As of Mar. 31, 1964, there were approximately 210 scholars in Canada; about one third of these students are expected to return to their home countries before September 1964.

Co-operation with the United Nations and its Specialized Agencies, and with Other International Aid Programs.—In addition to the annual contributions made to the United Nations Expanded Program of Technical Assistance, Canada assists by arranging training programs in Canada for individuals studying under the auspices of the different Specialized Agencies. This service is also extended to the technical assistance program of the International Co-operation Administration of the United States as well as to other international aid organizations. Up to Mar. 31, 1964, approximately 2,000 individuals had come to Canada through the various agencies from more than 100 countries in all parts of the world. Assistance is also given by recruiting Canadians for service with the Specialized Agencies on specific technical assistance assignments in under-developed countries.

Organization.—As of Nov. 9, 1960, the operation and administration of Canada's external assistance programs became the responsibility of the External Aid Office, established by Order in Council of that date, and placed in charge of an officer known as the Director General of External Aid Programs. The Director General is directly responsible to the Secretary of State for External Affairs for all matters connected with Canadian external assistance programs, including the Colombo Plan, the Commonwealth Caribbean Program, the Special Commonwealth Africa Aid Program, the Commonwealth Technical Assistance Program, the Commonwealth Scholarship and Fellowship Plan and the Program for French-Speaking African States as well as for operational liaison with aid programs administered by the United Nations and other international agencies.

CHAPTER III.—POPULATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Census of Population

This Section presents only a limited summary of the voluminous data on population recorded by the 1961 Census of Canada, with certain comparable data from earlier censuses. More detailed information is published in a series of reports which are obtainable from the Queen's Printer or the Dominion Bureau of Statistics. A list of these publications is available on request from the Information and Public Relations Division of the Dominion Bureau of Statistics.

Subsection 1.—Growth and Movement of Population*

Population Growth.—Canada's population stood at 18,238,000 in 1961 as against 10,377,000 in 1931 and 5,371,000 in 1901. In the first decade of the century, the gain of 34 p.c. was greater than in any censal period up to 1961. Growth was associated with the opening up of the West for settlement and massive immigration from overseas. During the 1901-11 period, about 1,760,000 immigrants entered the country and natural increase amounted to an estimated 1,000,000. As the total increase in population was 1,835,328, it is evident that there was substantial emigration during the period. In the 1911-21 period, population growth dropped to 22 p.c. Military losses in the First World War and losses during the influenza epidemic, which together amounted to about 120,000, were a factor in this decline. Although the flow of immigrants was reduced during the war years, it had been very heavy immediately preceding the War, so that the total number for the period (1,612,000) was very close to that for the previous censal period. However, emigration was also extremely high and the increase in population amounted to 1,581,306, representing 2 p.c. per annum compared with 3 p.c. in the 1901-11 period.

In the decade 1921-31, the rate of increase dropped to 18 p.c. Immigration fell to 1,200,000 and emigration was estimated at 1,000,000. Thus the increase in population, which amounted to 1,588,837, was only 229,000 greater than the natural increase. A

*An outline of the growth of population in Canada since the beginning of the seventeenth century may be found in Vol. I of the 1931 Census. Other accounts of population growth prior to the present century are included in Vol. I of the 1941 Census and Vol. X of the 1951 Census.

feature of this period was the rapid growth of population in Western Canada, partly the result of immigration and partly the result of an influx of people from Eastern Canada. During 1931-41, the population increase was just under 11 p.c. During the depressed conditions of the 1930's, marriage and birth rates were significantly lower and only 150,000 immigrants came to Canada, although, in addition, 75,000 Canadians returned from the United States. Emigration was also much lower than in the previous decades, amounting to an estimated 250,000. Natural increase was only 1,220,000, the crude birth rate falling from 27 per thousand of the population in the 1921-25 period to 24 per thousand in the succeeding five-year period and to 20 per thousand during much of the 1931-41 decade. During 1941-51, population growth was restored to pre-depression levels. Excluding Newfoundland which became part of Canada in 1949, it amounted to 19 p.c.; including Newfoundland it was 22 p.c. Much of the increase took place in the second half of the decade, reflecting heavy postwar immigration and a sharp rise in the marriage and birth rates.

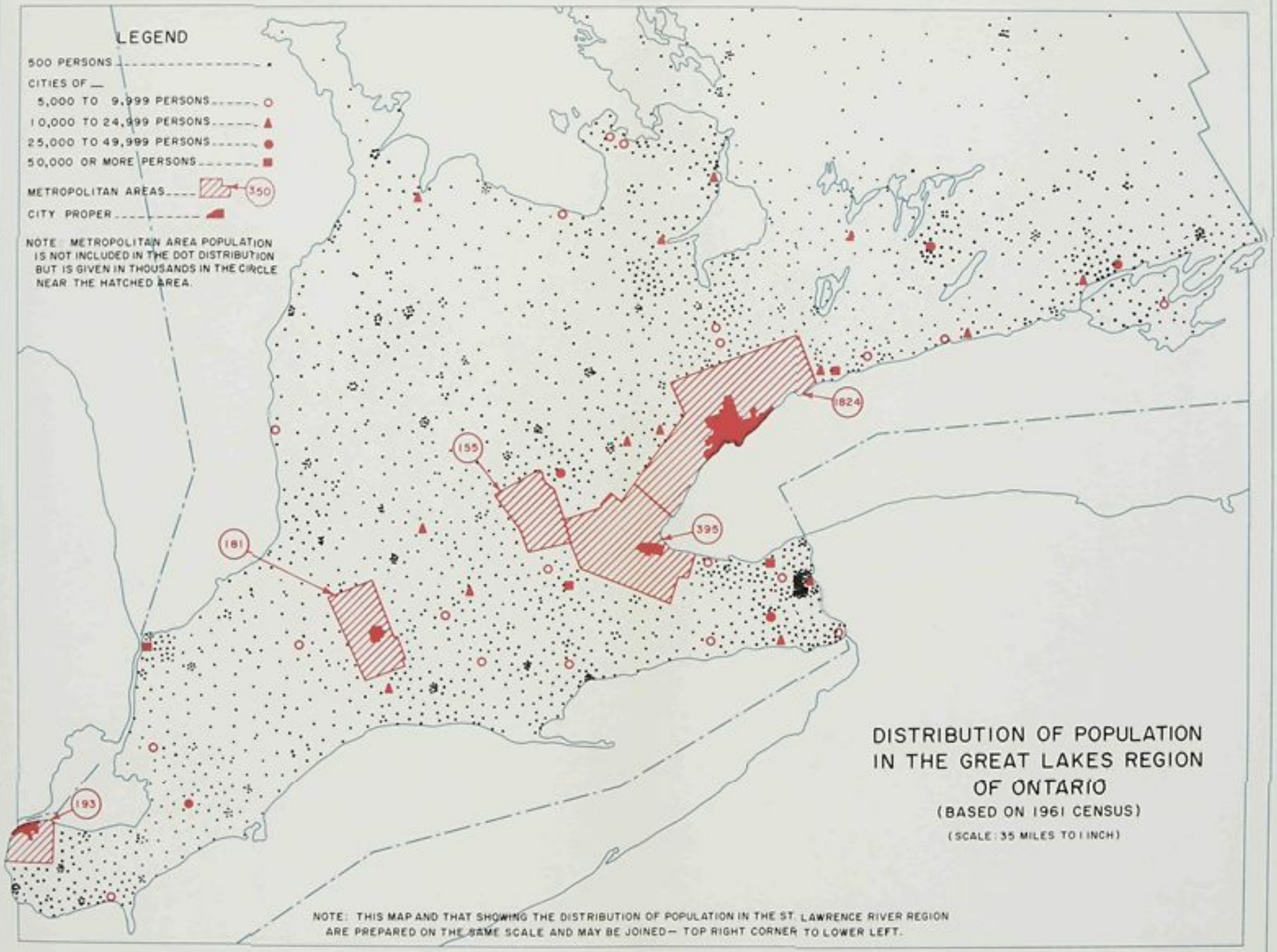
In the 1951-61 period, the population growth rate at 30 p.c. came close to approaching the extremely high rate of the first decade of the century. However, the two periods contrast in many ways. In the early period there was a wider dispersal of population increases as whole regions across the Continent were opened up; in the recent period there was a concentration of growth in urban communities although some spreading of population into newly developed northern areas took place. Natural increase accounted for about 75 p.c. of the growth. While there was some decline in the death rate, the trend of natural increase reflected very closely that of the crude birth rate which began to rise during the War and remained high throughout the period. Net immigration accounted for the remainder of the increase; during the decade, 1,542,853 immigrants entered the country, more than double the estimated emigration. While all provinces gained in population during 1951-61, the rates of increase varied widely. The greatest increases resulted from a combination of natural increase and net migration which in the two large provinces of Central Canada and the two most westerly provinces accounted for over 87 p.c. of the total actual increase. In contrast, increases in the other six provinces were entirely accounted for by natural increase.

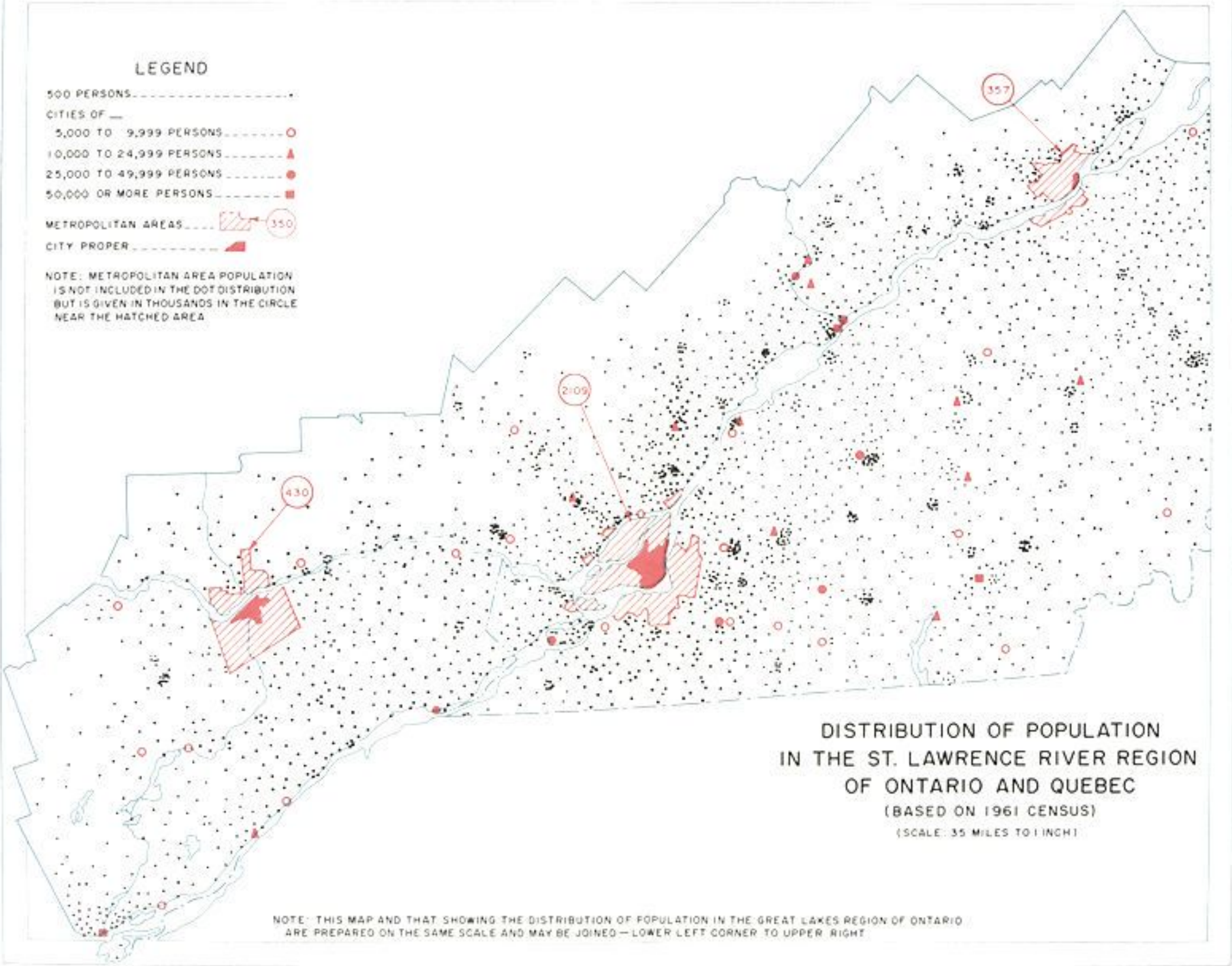
1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Decennial Census Years 1901-61

NOTE.—Populations for the decennial census years 1871, 1881 and 1891 are given in the 1956 Year Book, p. 149. The populations of the Prairie Provinces in 1906, 1916, 1926, 1936 and 1946 will be found in the 1951 edition, p. 131, and census populations for 1956 in the 1961 edition, p. 146.

Province or Territory	1901	1911	1921	1931	1941	1951	1961
	NUMERICAL DISTRIBUTION						
Nfld.	[1]	[1]	[1]	[1]	[1]	361,416	457,853
P.E.I.	103,259	93,728	88,615	88,038	95,047	98,429	104,629
N.S.	459,574	492,338	523,837	512,846	577,962	642,584	737,007
N.B.	331,120	351,889	387,876	408,219	457,401	515,697	597,936
Que.	1,648,898	2,005,776	2,360,510	2,874,662	3,331,882	4,055,681	5,259,211
Ont.	2,182,947	2,527,292	2,933,662	3,431,683	3,787,655	4,597,542	6,236,092
Man.	255,211	461,394	610,118	700,139	729,744	776,541	921,686
Sask.	91,279	492,432	757,510	921,785	895,992	831,728	925,181
Alta.	73,022	374,295	588,454	731,605	796,169	939,501	1,331,944
B.C.	178,657	392,480	524,582	694,263	817,861	1,165,210	1,629,082
Y.T.	27,219	8,512	4,157	4,230	4,914	9,096	14,628
N.W.T.	20,129	6,507	8,143	9,316	12,028	16,004	22,998
Canada	**5,371,315**	**7,206,643**	**8,787,949**[2]	**10,376,786**	**11,506,655**	**14,009,429**	**18,238,247**

For footnote, see end of table.


LEGEND
500 PERSONS
CITIES OF —
5,000 TO 9,999 PERSONS
10,000 TO 24,999 PERSONS
25,000 TO 49,999 PERSONS
50,000 OR MORE PERSONS
METROPOLITAN AREAS
350
CITY PROPER
NOTE METROPOLITAN AREA POPULATION IS NOT INCLUDED IN THE DOT DISTRIBUTION BUT IS GIVEN IN THOUSANDS IN THE CIRCLE NEAR THE HATCHED AREA.
824
155
395
181
193
DISTRIBUTION OF POPULATION IN THE GREAT LAKES REGION OF ONTARIO
(BASED ON 1961 CENSUS)
(SCALE: 35 MILES TO 1 INCH)
NOTE: THIS MAP AND THAT SHOWING THE DISTRIBUTION OF POPULATION IN THE ST. LAWRENCE RIVER REGION ARE PREPARED ON THE SAME SCALE AND MAY BE JOINED— TOP RIGHT CORNER TO LOWER LEFT.


LEGEND
500 PERSONS
CITIES OF —
5,000 TO 9,999 PERSONS
10,000 TO 24,999 PERSONS
25,000 TO 49,999 PERSONS
50,000 OR MORE PERSONS
METROPOLITAN AREAS
CITY PROPER
NOTE: METROPOLITAN AREA POPULATION IS NOT INCLUDED IN THE DOT DISTRIBUTION BUT IS GIVEN IN THOUSANDS IN THE CIRCLE NEAR THE HATCHED AREA
357
209
430
350
DISTRIBUTION OF POPULATION
IN THE ST. LAWRENCE RIVER REGION
OF ONTARIO AND QUEBEC
(BASED ON 1961 CENSUS)
(SCALE: 35 MILES TO 1 INCH)
NOTE: THIS MAP AND THAT SHOWING THE DISTRIBUTION OF POPULATION IN THE GREAT LAKES REGION OF ONTARIO ARE PREPARED ON THE SAME SCALE AND MAY BE JOINED — LOWER LEFT CORNER TO UPPER RIGHT

1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Decennial Census Years 1901-61—concluded

Province or Territory	1901	1911	1921	1931	1941	1951	1961
	Percentage Change from Preceding Census						
Nfld.	[1]	[1]	[1]	[1]	[1]	[1]	26.7
P.E.I.	−5.3	−9.2	−5.5	−0.7	8.0	3.6	6.3
N.S.	2.0	7.1	6.4	−2.1	12.7	11.2	14.7
N.B.	3.1	6.3	10.2	5.2	12.0	12.7	15.9
Que.	10.8	21.6	17.7	21.8	15.9	21.7	29.7
Ont.	3.2	15.8	16.1	17.0	10.4	21.4	35.6
Man.	67.3	80.8	32.2	14.8	4.2	6.4	18.7
Sask.	—	439.5	53.8	21.7	−2.8	−7.2	11.2
Alta.	—	412.6	57.2	24.3	8.8	18.0	41.8
B.C.	82.0	119.7	33.7	32.3	17.8	42.5	39.8
Y.T.	—	−68.7	−51.2	1.8	16.2	85.1	60.8
N.W.T.	−79.7	−67.7	25.1	14.4	29.1	33.1	43.7
Canada	**11.1**	**34.2**	**21.9**	**18.1**	**10.9**	**21.8**	**30.2**

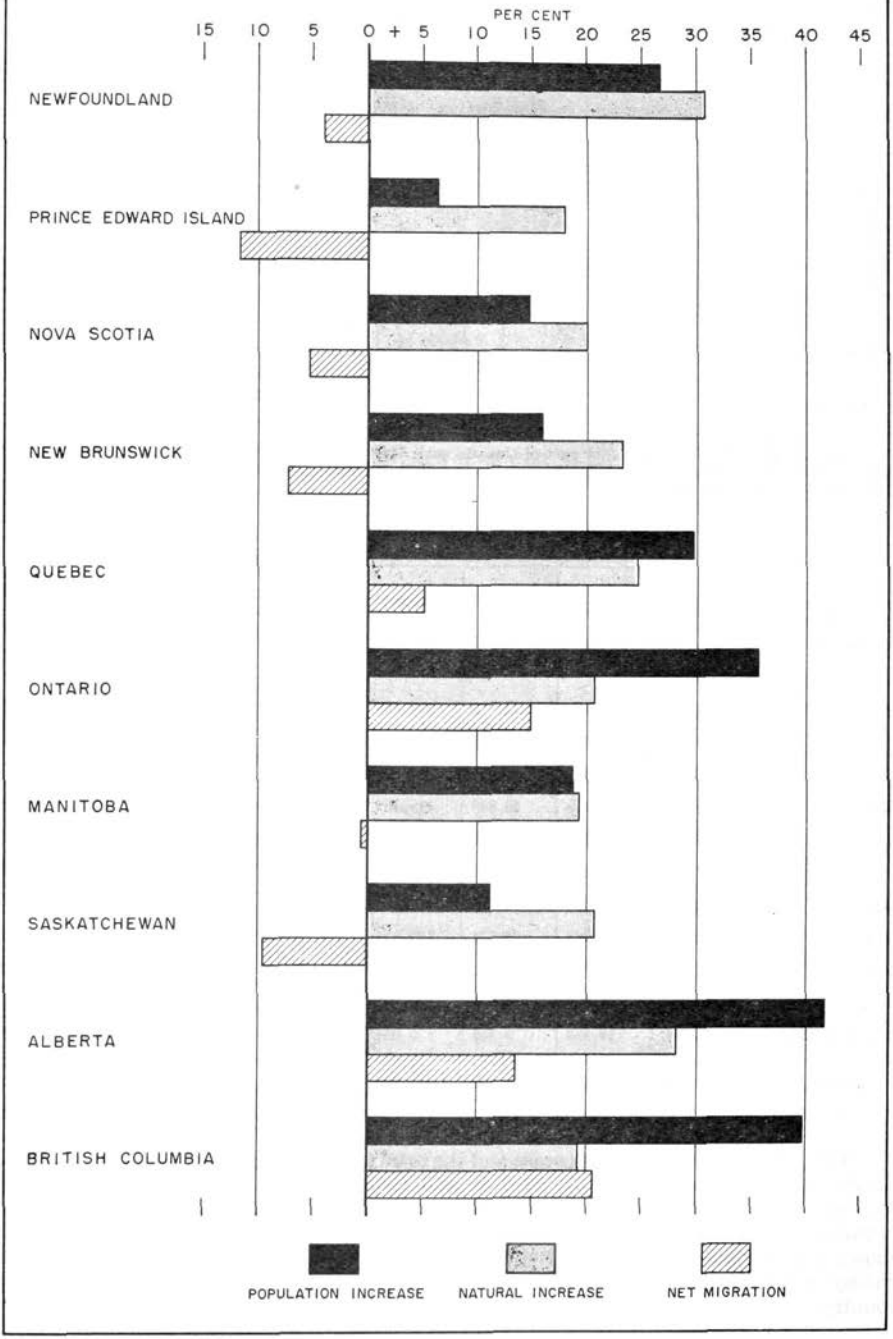
[1] Populations of Newfoundland (not part of Canada until 1949) were: 1901, 220,984; 1911, 242,619; 1921, 263,033; 1931, 281,500 (estimated); 1941, 303,300 (estimated); and 1945, 321,819. [2] Includes 485 members of the Royal Canadian Navy recorded separately in 1921.

2.—Factors in the Growth of Population, 1951-61

Province or Territory	Population 1951 Census	Births	Deaths	Natural Increase	Immigration	Actual Increase	Net Migration	Population 1961 Census
	No.	No.	No.	No.	No.	No.	No.	No.
Nfld.	361,416	141,165	30,169	110,996	4,200	96,437	−14,559	457,853
P.E.I.	98,429	26,990	9,369	17,621	1,451	6,200	−11,421	104,629
N.S.	642,584	187,571	59,278	128,293	19,148	94,423	−33,870	737,007
N.B.	515,697	165,299	45,838	119,461	9,718	82,239	−37,222	597,936
Que.	4,055,681	1,348,440	350,140	998,300	325,329	1,203,530	205,230	5,259,211
Ont.	4,597,542	1,426,211	472,718	953,493	817,292	1,638,550	685,057	6,236,092
Man.	776,541	220,016	70,326	149,690	66,344	145,145	−4,545	921,686
Sask.	831,728	238,998	66,674	172,324	30,715	93,453	−78,871	925,181
Alta.	939,501	345,025	79,830	265,195	112,520	392,443	127,248	1,331,944
B.C.	1,165,210	355,736	131,945	223,791	155,052	463,872	240,081	1,629,082
Y.T. and N.W.T.	25,100	12,889	3,855	9,034	1,084	12,526	3,492	37,626
Canada	**14,009,429**	**4,468,340**	**1,320,142**	**3,148,198**	**1,542,853**	**4,228,818**	**1,080,620**	**18,238,247**

Table 3 shows the natural increase and the total population increase for Canada and the provinces in the periods 1941-51, 1951-56 and 1956-61. The balance between the total increase in population and the natural increase during a period represents the difference between inward and outward movements, i.e., net migration. The net migration data shown for provinces indicate the net movement of population arising partly from interchange of population between provinces and partly from persons entering and leaving the country.

PERCENTAGE POPULATION INCREASE, NATURAL INCREASE AND NET MIGRATION CHANGE, BY PROVINCE, 1951-61



3.—Numerical Changes in the Population of the Provinces through Natural Increase and Migration 1941-51, 1951-56 and 1956-61

Province	Natural Increase			Population Increase according to Census			Net Migration		
	1941-51	1951-56	1956-61	1941-51	1951-56	1956-61	1941-51	1951-56	1956-61
Nfld.	...	51,851	59,145	...	53,658	42,779	...	+1,807	−16,366
P.E.I.	15,802	8,959	8,662	3,382	856	5,344	−12,420	−8,103	−3,318
N.S.	103,512	63,133	65,160	64,622	52,133	42,290	−38,890	−11,000	−22,870
N.B.	99,904	59,774	59,687	58,296	38,919	43,320	−41,608	−20,855	−16,367
Que.	736,058	476,627	521,673	723,799	572,697	630,833	−12,259	+96,070	+109,160
Ont.	505,034	430,386	523,107	809,887	807,391	831,159	+304,853	+377,005	+308,052
Man.	107,510	73,684	76,006	46,797	73,499	71,646	−60,713	−185	−4,360
Sask.	135,106	86,030	86,294	−64,264	48,937	44,516	−199,370	−37,093	−41,778
Alta.	150,303	120,961	144,234	143,332	183,615	208,828	−6,971	+62,654	+64,594
B.C.	116,527	98,206	125,585	347,349	233,254	230,618	+230,822	+135,048	+105,033
Canada[1]	**1,972,394**	**1,473,211**	**1,674,987**	**2,141,358**	**2,071,362**	**2,157,456**	**+168,964**	**+598,151**	**+482,469**

[1] Includes the Yukon and Northwest Territories.

The earlier movement of population in Canada from east to west has not been apparent since the 1920's. Although British Columbia has continued to show population gains from migration since 1931, much of this gain has been at the expense of the Prairie Provinces. While the three Prairie Provinces lost by migration about 267,000 persons between 1941 and 1951, they gained 25,000 in the period 1951-56 and 18,000 in the period 1956-61. Manitoba lost almost 61,000 people between 1941 and 1951 but only 5,000 persons since then. Saskatchewan has been a consistent loser since 1941, losing on the average almost 20,000 a year during the 1940's and around 8,000 a year during the 1950's. Alberta lost only about 7,000 in the decade 1941-51 and gained close to 65,000 in each of the five-year periods 1951-56 and 1956-61. British Columbia gained through migration at the rate of about 23,000 a year during the 1940's, about 27,000 a year in the first half of the 1950's and 21,000 annually in the 1956-61 period. On an absolute basis, Ontario received more people through migration than did British Columbia but, in relation to its larger population, the gain was only about one third as important. Most of Ontario's growth through migration was from immigration rather than interprovincial movement of population. Quebec had a slight loss between 1941 and 1951 and a considerable gain in the next ten years, due also to immigration. The Maritimes as a whole lost 175,000 persons over the quarter-century.

Subsection 2.—Density of Population

Table 4 shows the density of population in the different provinces and territories of Canada in the census years 1951, 1956 and 1961. Omitting the Yukon and Northwest Territories where population density is exceedingly low, there were 8.66 persons per square mile in Canada as a whole in 1961 compared with 6.65 per square mile in 1951. The greatest increase in the ten years was shown by Ontario where there were 4.76 more persons per square mile, followed by Nova Scotia with an increase of 4.62. However, it should be remembered that all provinces with the exception of the Maritimes have large areas almost devoid of population and that concentrations in other areas are very high.

4.—Land Area and Density of Population, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Land Area	Population 1951		Population 1956		Population 1961	
		Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
	sq. miles	No.	No.	No.	No.	No.	No.
Newfoundland (incl. Labrador)	143,045	361,416	2.53	415,074	2.90	457,853	3.20
Prince Edward Island	2,184	98,429	45.07	99,285	45.46	104,629	47.91
Nova Scotia	20,402	642,584	31.50	694,717	34.05	737,007	36.12
New Brunswick	27,835	515,697	18.53	554,616	19.93	597,936	21.48
Quebec	523,860	4,055,681	7.74	4,628,378	8.84	5,259,211	10.04
Ontario	344,092	4,597,542	13.36	5,404,933	15.71	6,236,092	18.12
Manitoba	211,775	776,541	3.67	850,040	4.01	921,686	4.35
Saskatchewan	220,182	831,728	3.78	880,665	4.00	925,181	4.20
Alberta	248,800	939,501	3.78	1,123,116	4.51	1,331,944	5.35
British Columbia	359,279	1,165,210	3.24	1,398,464	3.89	1,629,082	4.53
Canada (Exclusive of the Territories)	**2,101,454**	**13,984,329**	**6.65**	**16,049,288**	**7.64**	**18,200,621**	**8.66**
Yukon Territory	205,346	9,096	0.04	12,190	0.06	14,628	0.07
Northwest Territories	1,253,438	16,004	0.01	19,313	0.02	22,998	0.02
Canada	**3,560,238**	**14,009,429**	**3.93**	**16,080,791**	**4.52**	**18,238,247**	**5.12**

The density of each county and census division is given in DBS Census Report 1.1–11 (Catalogue No. 92–540); the density in each of the five largest metropolitan areas is as follows:—

Metropolitan Area	*1951*		*1961*	
	Population	*Density per Sq. Mile*	*Population*	*Density per Sq. Mile*
	No.	*No.*	*No.*	*No.*
Montreal—				
City proper	1,021,520	20,268	1,191,062	25,256
Fringe area	450,331	2,754	918,447	2,057
Toronto—				
City proper	675,754	19,374	672,407	19,234
Fringe area	534,599	2,583	1,152,074	1,493
Vancouver—				
City proper	344,833	7,891	384,522	8,298
Fringe area	217,127	767	405,643	872
Winnipeg—				
City proper	235,710	9,428	265,429	10,803
Fringe area	121,103	645	210,560	879
Ottawa—				
City proper	202,045	4,446	268,206	5,902
Fringe area	90,431	2,475	161,544	558

Subsection 3.—Rural and Urban Population

For the 1961 Census, all cities, towns and villages of 1,000 or more population, whether incorporated or not, were classed as urban; also classed as urban were the urbanized fringes of census metropolitan and other large urban areas, and the urbanized fringes of certain smaller cities where the city and fringe totalled 10,000 or more persons. The remainder of the population was classed as rural.

Table 5 classifies the 1961 rural population according to farm and non-farm residence and the urban population by size groups; in the latter classification, each municipality (or part) in an urbanized area is allocated to the same size group as the total urbanized area of which it forms a part. The figures show that, in 1961, almost 70 p.c. of Canada's population were urban dwellers and 53 p.c. lived in or on the fringes of urban centres having a population of 30,000 or more. Only about 12 p.c. lived on farms.

5.—Rural Population classified by Farm and Non-farm, and Urban Population classified by Size Group, by Province, Census 1961

Province or Territory	Rural			Urban				
	Farm[1]	Non-farm	Total	1,000 to 9,999	10,000 to 29,999	30,000 to 99,999	100,000 or Over	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	9,077	216,756	225,833	98,614	48,214	85,192	—	232,020
Prince Edward Island	34,514	36,206	70,720	15,591	18,318	—	—	33,909
Nova Scotia	56,832	279,663	336,495	75,163	49,065	—	276,284	400,512
New Brunswick	62,265	257,658	319,923	80,287	61,815	135,911	—	278,013
Quebec	564,826	787,981	1,352,807	606,355	277,549	384,628	2,637,872	3,906,404
Ontario	505,699	906,864	1,412,563	631,870	297,834	934,870	2,958,955	4,823,529
Manitoba	171,472	161,407	332,879	71,995	51,100	—	465,712	588,807
Saskatchewan	304,672	222,418	527,090	109,076	48,142	128,732	112,141	398,091
Alberta	285,823	202,910	488,733	158,319	44,096	35,454	605,342	843,211
British Columbia	77,540	369,617	447,157	161,256	152,978	—	867,691	1,181,925
Yukon Territory	47	9,550	9,597	5,031	—	—	—	5,031
Northwest Territories	18	14,042	14,060	8,938	—	—	—	8,938
Canada	**2,072,785**	**3,465,072**	**5,537,857**	**2,022,495**	**1,049,111**	**1,704,787**	**7,923,997**	**12,700,390**

[1] Excludes 55,615 persons living on farms in localities classed as urban.

Subsection 4.—Populations of Incorporated Urban Centres and Metropolitan Areas

The population of all incorporated urban centres is classified by size group in Table 6 for the census years 1951, 1956 and 1961. During the ten-year period, the number of such urban centres increased by 178 and the proportion of the total population living in them rose from 56.7 p.c. to 60.7 p.c. Although there was a slight decrease in the number of centres having fewer than 1,000 persons, the number with over 50,000 increased from 19 to 29 and the proportion of the total population in these larger centres went up from 27.5 p.c. to 29.0 p.c.; the proportion in centres of from 1,000 to 50,000 increased from 26.1 p.c. to 29.3 p.c. in the same comparison.

6.—Populations of Incorporated Urban Centres, classified by Size Group, Census Years 1951, 1956 and 1961

Size Group	1951			1956			1961		
	Urban Centres	Population	P.C. of Total Population	Urban Centres	Population	P.C. of Total Population	Urban Centres	Population	P.C. of Total Population
	No.	No.		No.	No.		No.	No.	
Over 500,000	2	1,697,274	12.1	2	1,777,145	11.1	2	1,863,469	10.2
Between—									
400,000 and 500,000	—	—	—	—	—	—	—	—	—
300,000 and 400,000	1	344,833	2.5	1	365,844	2.3	1	384,522	2.1
200,000 and 300,000	3	646,076	4.6	4	942,849	5.9	5	1,338,294	7.3
100,000 and 200,000	4	572,756	4.1	4	576,156	3.6	4	568,056	3.1
50,000 and 100,000	9	588,436	4.2	12	769,323	4.8	17	1,134,214	6.2
25,000 and 50,000	24	802,380	5.7	27	929,624	5.8	41	1,431,909	7.9
15,000 and 25,000	34	636,713	4.5	43	853,341	5.3	43	862,101	4.7
10,000 and 15,000	29	347,410	2.5	44	527,802	3.3	61	743,474	4.1
5,000 and 10,000	100	720,077	5.1	117	820,289	5.2	132	932,936	5.1
3,000 and 5,000	119	457,492	3.3	130	497,818	3.1	151	579,201	3.2
1,000 and 3,000	409	698,092	5.0	450	772,013	4.8	465	793,465	4.4
Under 1,000	1,049	429,683	3.1	1,039	443,922	2.8	1,039	437,207	2.4
Totals	**1,783**	**7,941,222**	**56.7**	**1,873**	**9,286,126**	**57.7**	**1,961**	**11,068,848**	**60.7**

The Canadian cities having a population of over 50,000 in 1961 are listed in Table 7. Included also are the years of their incorporation as cities and comparative figures for 1951 and 1956 which are given according to the city boundaries at these respective dates.

7.—Incorporated Cities with Populations of Over 50,000 at the 1961 Census, with Comparable Data for 1951 and 1956

NOTE.—The asterisk (*) indicates a boundary change since the preceding census. Population totals are based on areas as incorporated at each of these dates.

City and Province	Year of Incorporation as City	1951	1956	1961
		No.	No.	No.
Brantford, Ont.	1877	36,727	51,869*	55,201*
Calgary, Alta.	1893	129,060	181,780*	249,641*
Edmonton, Alta.	1904	159,631	226,002*	281,027*
Halifax, N.S.	1841	85,589	93,301	92,511
Hamilton, Ont.	1846	208,321	239,625*	273,991*
Hull, Que.	1875	43,483	49,243*	56,929*
Kingston, Ont.	1846	33,459	48,618*	53,526
Kitchener, Ont.	1912	44,867	59,562*	74,485*
London, Ont.	1855	95,343	101,693*	169,569*
Montreal, Que.	1832	1,021,520	1,109,439*	1,191,062*
Oshawa, Ont.	1924	41,545	50,412	62,415
Ottawa, Ont.	1854	202,045	222,129	268,206
Quebec, Que.	1832	164,016	170,703	171,979
Regina, Sask.	1903	71,319	89,755*	112,141*
Saint John, N.B.	1785	50,779	52,491	55,153
St. Catharines, Ont.	1876	37,984	39,708*	84,472*
St. John's, Nfld.	1888	52,873	57,078	63,633
St. Michel, Que.	1952	10,539	24,706	55,978
Sarnia, Ont.	1914	34,697	43,447	50,976
Saskatoon, Sask.	1906	53,268	72,858*	95,526*
Sherbrooke, Que.	1875	50,543	58,668*	66,554
Sudbury, Ont.	1930	42,410	46,482	80,120*
Toronto, Ont.	1834	675,754	667,706*	672,407
Trois Rivières, Que.	1857	46,074	50,483*	53,477*
Vancouver, B.C.	1886	344,833	365,844*	384,522
Verdun, Que.	1912	77,391	78,262*	78,317
Victoria, B.C.	1862	51,331	54,584	54,941
Windsor, Ont.	1892	120,049	121,980	114,367*
Winnipeg, Man.	1873	235,710	255,093*	265,429

Census metropolitan areas have been established for groups of urban communities that are in close economic, geographic and social relationship. Table 8 shows the 1961 population of each area with the corresponding 1951 and 1956 figures for the same area as in 1961. As indicated by the last column, most of these metropolitan areas have shown remarkable increases in population during the decade. In 1961 they accounted for 44.8 p.c. of the total population as compared with 40.2 p.c. in 1951.

8.—Populations of Census Metropolitan Areas, 1951, 1956 and 1961

(Areas as of 1961)

Census Metropolitan Area	1951	1956	1961	P.C. Increase 1951-61
	No.	No.	No.	
Calgary, Alta.	142,315	201,022	279,062	96.1
Edmonton, Alta.	176,782	254,800	337,568	91.0
Halifax, N.S.	133,931	164,200	183,946	37.3
Hamilton, Ont.	280,293	338,294	395,189	41.0
Kitchener, Ont.	107,474	128,722	154,864	44.1
London, Ont.	128,977	154,453	181,283	40.6
Montreal, Que.	1,471,851	1,745,001	2,109,509	43.3
Ottawa, Ont.	292,476	345,460	429,750	46.9
Quebec, Que.	276,242	311,604	357,568	29.4
Saint John, N.B.	78,337	86,015	95,563	22.0
St. John's, Nfld.	68,620	79,153	90,838	32.4
Sudbury, Ont.	73,826	97,945	110,694	49.9
Toronto, Ont.	1,210,353	1,502,253	1,824,481	50.7
Vancouver, B.C.	561,960	665,017	790,165	40.6
Victoria, B.C.	113,207	133,829	154,152	36.2
Windsor, Ont.	163,618	185,865	193,365	18.2
Winnipeg, Man.	356,813	412,248	475,989	33.4

The 922 incorporated urban centres in Canada having a population of 1,000 or more at the time of the 1961 Census are listed alphabetically by province in Table 9 and their populations given for the two census years 1956 and 1961. Each population figure is for the boundary in effect at the time of the respective census.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961

NOTE.—Population totals are based on areas as incorporated at each of these dates; a change in municipal boundary since the preceding census is indicated by an asterisk (*). Urban centres are designated in this table by the following abbreviations: c.=city, t.=town, and v.=village.

Province and Incorporated Centre	1956	1961
	No.	No.
Newfoundland—		
Bay Roberts, t.	1,306	1,328
Botwood, t.	[1]	3,680
Burgeo, t.	1,138	1,454
Burin, t.	1,116	1,144
Carbonear, t.	3,955	4,234
Catalina, t.	[1]	1,110
Channel-Port aux Basques, t.	3,320	4,141
Clarenville, t.	1,195	1,541
Corner Brook, c.	23,225	25,185
Deer Lake, t.	3,481	3,998
Fogo, t.	1,184	1,152
Fortune, t.	1,194	1,360
Freshwater, t.	1,048	1,396
Gander, t.	[1]	5,725
Glovertown, t.	604	1,197*
Grand Bank, t.	2,430	2,703*
Harbour Breton, t.	[1]	1,076
Harbour Grace, t.	2,545	2,650
Lewisporte, t.	2,076	2,702
Marystown, t.	1,460	1,691
Mount Pearl, t.	1,979	2,785
Placentia, t.	1,233	1,610
St. Anthony, t.	1,761	1,820
St. John's, c.	57,078	63,633
St. Lawrence, t.	1,837	2,095
Stephenville, t.	3,762	6,043
Stephenville Crossing, t.	[1]	2,209
Wabana, t.	7,873*	8,026
Wesleyville, t.	1,313	1,285
Windsor, t.	4,520	5,505
Prince Edward Island—		
Charlottetown, c.	16,707	18,318*
Montague, t.	1,152	1,126
Parkdale, v.	1,422	1,735
St. Eleanors, v.	[1]	1,002
Sherwood, v.	[1]	1,580
Souris, t.	1,449	1,537
Summerside, t.	7,242	8,611
Nova Scotia—		
Amherst, t.	10,301	10,788
Antigonish, t.	3,592*	4,344
Berwick, t.	1,134	1,282
Bridgetown, t.	1,041	1,043
Bridgewater, t.	4,445	4,497
Canso, t.	1,261	1,151
Dartmouth, c.	21,093	46,966*
Digby, t.	2,145*	2,308
Dominion, t.	2,964	2,999
Glace Bay, t.	24,416	24,186
Halifax, c.	93,301	92,511
Hantsport, t.	1,298	1,381
Inverness, t.	2,026	2,109
Kentville, t.	4,937[2]	4,612
Liverpool, t.	3,500	3,712*
Lockeport, t.	1,207	1,231

Province and Incorporated Centre	1956	1961
	No.	No.
Nova Scotia—concluded		
Louisburg, t.	1,314	1,417
Lunenburg, t.	2,859	3,056
Mahone Bay, t.	1,109	1,103
Middleton, t.	1,769	1,921
Mulgrave, t.	1,227	1,145
New Glasgow, t.	9,998	9,782
New Waterford, t.	10,381	10,592
North Sydney, t.	8,125	8,657
Oxford, t.	1,545	1,471
Parrsboro, t.	1,849	1,834
Pictou, t.	4,564	4,534
Port Hawkesbury, t.	1,078	1,346*
Shelburne, t.	2,337	2,408
Springhill, t.	7,348	5,836
Stellarton, t.	5,445	5,327
Stewiacke, t.	1,024	1,042
Sydney, c.	32,162	33,617
Sydney Mines, t.	8,731	9,122
Trenton, t.	3,240	3,140
Truro, t.	12,250	12,421
Westville, t.	4,247	4,159
Windsor, t.	3,651	3,823
Wolfville, t.	2,497	2,413
Yarmouth, t.	8,095	8,636
New Brunswick—		
Bathurst, t.	5,267	5,494*
Campbellton, c.	8,389	9,873*
Chatham, t.	6,332	7,109
Dalhousie, t.	5,468	5,856
Dieppe, t.	3,876*	4,032
Edmundston, c.	11,997	12,791
Fredericton, c.	18,303	19,683
Grand Falls, t.	3,672	3,983
Hartland, t.	1,022	1,025
Lancaster, c.	12,371	13,848
Marysville, t.	2,538	3,233
Milltown, t.	1,975	1,892
Moncton, c.	36,003*	43,840*
Newcastle, t.	4,670	5,236
Oromocto, t.	661	12,170*
St. Andrews, t.	1,534	1,531
St. George, t.	1,322	1,133
Saint John, c.	52,491	55,153
St. Leonard, t.	1,593	1,666
St. Stephen, t.	3,491	3,380*
Sackville, t.	2,849	3,038
Shediac, t.	2,173	2,159
Shippegan, t.	1,362	1,631
Sussex, t.	3,403	3,457
Woodstock, t.	4,308	4,305
Quebec—		
Acton Vale, t.	3,547	3,957
Alma, c.	10,822*	13,309*
Amos, t.	5,145	6,080
Amqui, v.	3,247	3,659

For footnotes, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961
	No.	No.
Quebec—continued		
Anjou, t.	2,140	9,511
Arthabaska, t.	2,399*	2,977
Arvida, c.	12,919	14,460
Asbestos, t.	8,969*	11,083*
Auteuil, t.	[1]	2,603
Ayersville, v.	2,348	2,957
Aylmer, t.	5,294	6,286
Bagotville, t.	4,822	5,629
Baie Comeau, t.	4,332	7,956*
Baie de Shawinigan, v.	1,137	1,085
Baie d'Urfé, t.	1,838*	3,549
Baie St. Paul, v.	4,052	4,674
Barraute, v.	1,081	1,199
Beaconsfield, t.	5,496	10,064
Beauceville, t.	1,459*	1,645*
Beauceville E., t.	1,740*	1,920
Beauharnois, c.	6,774	8,704*
Beauport, t.	6,735*	9,192*
Beaupré, v.	2,381	2,587
Bedford, t.	2,272	2,855*
Beebe Plain, v.	1,363	1,363
Beloeil, t.	3,966*	6,283
Bernierville, v.	2,431	2,706
Berthierville, t.	3,504	3,708*
Bic, v.	1,142	1,177
Black Lake, t.	3,685	4,180
Bois des Filion, v.	1,648	2,499
Boucherville, t.	3,911*	7,403
Bourlamaque, t.	3,018	3,344
Bromptonville, t.	2,316	2,726
Brossard, t.	[1]	3,778
Brownsburg, v.	3,412	3,617
Buckingham, t.	6,781*	7,421*
Cabano, v.	2,350	2,695
Cadillac, t.	1,281	1,077
Campbell's Bay, v.	1,029	1,024
Candiac, t.	[1]	1,050
Cap Chat, v.	1,954	2,035
Cap de la Madeleine, c.	22,943	26,925
Causapscal, v.	2,957	3,463*
Chambly, t.	2,817	3,737*
Chambord, v.	1,091	1,188
Chandler, t.	3,338*	3,406
Chapais, t.	380	2,363
Charlemagne, v.	2,428	3,068
Charlesbourg, c.	8,202	14,308*
Charny, v.	3,639	4,189
Château d'Eau, t.	918	1,057
Châteauguay, t.	3,265	7,570
Châteauguay Centre, t.	[1]	7,591
Châteauguay Heights, t.	1,146	1,231
Chibougamau, t.	1,262	4,765
Chicoutimi, c.	24,878	31,657*
Chicoutimi N., c.	6,446*	11,229*
Chomedey, c.[3]	16,677	30,445
Chute aux Outardes, v.	923	1,336
Clermont, v.	2,628	3,114
Coaticook, t.	6,492	6,906
Contrecoeur, v.	1,662	2,007
Cookshire, t.	1,315	1,412
Côte St. Luc, c.	5,914*	13,266*
Courville, t.	3,772	4,670
Cowansville, t.	5,242	7,050*
Crabtree, v.	1,103	1,313
Danville, t.	2,296	2,562
Delson, t.	816	2,075*
Desbiens, t.	2,014	1,970
Deschaillons sur St. Laurent, v.	1,266	1,283
Deschambault, v.	1,002	1,056
Deschênes, v.	1,680	2,090
Disraëli, v.	2,473	3,079
Dolbeau, t.	5,079	6,052
Dollard des Ormeaux, t.	[1]	1,248
Donnacona, t.	4,147	4,812*
Dorion, t.	3,089*	4,996*
Dorval, c.	14,055*	18,592*
Drummondville, c.	26,284*	27,909*
Drummondville W., v.	1,606	2,057
Duvernay, t.	[1]	10,939
East Angus, t.	4,239	4,756
East Broughton Station, v.	1,060	1,136
Fabreville, t.	[1]	5,213*
Farnham, c.	5,843*	6,354
Ferme Neuve, v.	1,891	1,971
Forestville, t.	1,117	1,529
Fort Chambly, t.	1,885	1,987
Fort Coulonge, v.	1,633	1,823
Gagnon, t.	[1]	1,900
Gaspe, t.	2,194	2,603
Gatineau, t.	8,423	13,022*
Giffard, c.	9,964	10,129*
Granby, c.	27,095*	31,463*
Grande Rivière, v.	1,024	1,176
Grand'Mère, c.	14,023	15,806
Greenfield Park, t.	4,417	7,807*
Grenville, v.	1,277	1,330
Hampstead, t.	4,355	4,557
Hauterive, t.	1,762*	5,980
Hébertville Station, v.	1,214	1,257
Hudson, v.	1,549	1,671
Hudson Heights, v.	1,289	1,540
Hull, c.	49,243*	56,929*
Huntingdon, t.	2,995*	3,134
Iberville, t.	6,270	7,588
Île Perrot, t.	2,600	3,106
Isle Maligne, t.	1,761*	2,070
Jacques Cartier, c.	33,132	40,807*
Joliette, c.	16,940*	18,088
Jonquière, c.	25,550*	28,588*
Kénogami, c.	11,309*	11,816
Knowlton, v.	1,328	1,396
Labelle, v.	1,150	1,224
Lac au Saumon, v.	1,681	1,548
Lac Etchemin, v.	[1]	2,297
Lachine, c.	34,494	38,630*
Lachute, t.	6,911	7,560
Lac Mégantic, t.	6,864	7,015
Lacolle, v.	1,141	1,187
Laflèche, c.	9,958	10,984*
Lafontaine, v.	[1]	1,556
La Guadeloupe, v.	1,487	1,728
La Malbaie, t.	2,817	2,580
L'Annonciation, v.	783*	1,042*
La Pérade, v.	1,282	1,184
La Petite Rivière, t.	1,353	4,707
La Prairie, t.	5,372	7,328*
La Providence, v.	3,826*	4,251
LaSalle, c.	18,973	30,904
La Sarre, t.	3,155*	3,944
L'Assomption, t.	3,683	4,448*
La Station du Coteau, v.	986	1,032
La Tuque, t.	11,096	13,023
Laurentides, t.	1,513	1,698*
Lauzon, c.	10,255	11,533
Laval des Rapides, t.	11,248	19,227*
Laval W., t.	3,818	5,440*
Lavaltrie, v.	917	1,034
LeMoyne, t.	5,662	8,057*
Lennoxville, t.	3,149	3,699
L'Epiphanie, v.	2,671	2,663

For footnotes, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961
	No.	No.
Quebec—continued		
Léry, t.	1,573	1,957
Les Saules, t.	[1]	4,098
Lévis, c.	13,644	15,112
Linière, v.	1,149	1,269
L'Isletville, v.	1,051	1,184
L'Isle Verte, v.	1,456	1,517
Longueuil, c.	14,332	24,131*
Loretteville, t.	4,957	6,522
Louiseville, t.	4,392	4,138
Luceville, v.	1,265	1,419
Macamic, t.	1,388	1,614
Magog, c.	12,720*	13,139
Malartic, t.	6,818	6,998
Maniwaki, t.	5,399*	6,349
Maple Grove, t.	1,115	1,412
Marieville, t.	3,478*	3,809
Masson, v.	1,656	1,933
Matane, t.	8,069	9,190*
McMasterville, v.	1,738	2,075*
Melocheville, v.	1,422	1,666
Mistassini, t.	2,912	3,461
Montebello, v.	1,287	1,486*
Mont Joli, t.	6,179	6,178*
Mont Laurier, t.	5,486	5,859
Montmagny, t.	6,405	6,850
Montmorency, t.	6,077	5,985
Montreal, c.	1,109,439*	1,191,062*
Montreal E., t.	4,607	5,884
Montreal N., c.	25,407	48,433
Montreal W., t.	4,370*	6,446
Mount Royal, t.	16,990*	21,182
Murdochville, t.	1,694	2,951
Napierville, v.	1,510*	1,812
Naudville, t.	2,894*	4,475
Nicolet, t.	3,771	4,441*
Noranda, c.	10,323	11,477
Normandin, v.	1,918	1,838
Notre Dame de Lorette, v.	3,464	3,961
Notre Dame d'Hébertville, v.	1,542	1,604
Notre Dame de Portneuf, v.	1,251	1,380
Notre Dame du Lac, v.	1,512	1,695
Omerville, v.	907	1,094
Ormstown, v.	1,347	1,527
Orsainville, t.	[1]	4,236
Outremont, c.	29,990	30,753
Papineauville, v.	1,141	1,300
Parent, v.	1,443	1,298
Pierrefonds, t.	[1]	12,171*
Pierreville, v.	1,589	1,559
Pincourt, t.	1,437	2,685
Plessisville, t.	5,829	6,570
Pointe au Pic, v.	1,220	1,333
Pointe aux Trembles, c.	11,981	21,926
Pointe Claire, c.	15,208*	22,709
Pointe Gatineau, t.	6,175	8,854
Pont Rouge, v.	2,631	2,988
Pont Viau, c.	8,218	16,077*
Port Alfred, t.	7,968*	9,066*
Port Cartier, t.	[1]	3,458
Préville, t.	496	1,001
Price, v.	3,140	3,094
Princeville, v.	2,841	3,174
Quebec, c.	170,703	171,979
Quebec W., t.	7,945	8,733
Rawdon, v.	2,049	2,388
Repentigny, t.	[1]	9,139
Richelieu, v.	1,398	1,612
Richmond, t.	3,849	4,072
Rigaud, t.	1,784	1,990
Rimouski, t.	14,630	17,739
Quebec—continued		
Rimouski E., v.	1,209	1,581
Rivière des Prairies, t.	6,806	10,054*
Rivière du Loup, c.	9,964	10,835
Rivière du Moulin, v.	4,138	4,386
Robertsonville, v.	1,030	1,156
Roberval, c.	6,648	7,739*
Rock Island, t.	1,608	1,608*
Rosemere, t.	[1]	6,158
Rouyn, c.	17,076*	18,716
Roxboro, t.	1,910*	6,298*
Ste. Adèle, v.	1,309	1,331
St. Agapitville, v.	1,079	1,117
Ste. Agathe des Monts, t.	5,173	5,725
St. Ambroise, v.	1,305	1,576
St. André Avellin, v.	923	1,066
St. André E., v.	[1]	1,183
Ste. Anne de Beaupré, v.	1,865	1,878
Ste. Anne de Bellevue, t.	3,647	4,044
Ste. Anne de la Pocatière, v.	[1]	3,086
St. Anselme, v.	1,086	1,121
St. Antoine des Laurentides, v.	2,092	3,005
St. Basile S., v.	1,635*	1,709
St. Bruno, v.	913	1,158
St. Bruno de Montarville, t.	[1]	6,760
St. Casimir, v.	1,447	1,386
St. Césaire, v.	1,739	2,097
St. Coeur de Marie, v.	1,282	1,302
Ste. Croix, v.	1,241	1,363
St. Cyrille, v.	1,198	1,138
St. Denis, v.	944	1,063
Ste. Dorothée, t.	1,158	5,297*
St. Elzéar, t.	2,589	4,150
St. Emile, v.	1,645	1,806
St. Eustache, t.	3,740*	5,463*
St. Eustache sur le Lac, t.	5,830*	7,274
St. Félicien, t.	4,152*	5,132
Ste. Félicité, v.	812	1,057
St. Félix de Valois, v.	1,323	1,399
Ste. Foy, c.	14,615	29,716*
St. François, t.	[1]	5,122*
St. Fulgence, v.	1,054	1,094
St. Gabriel de Brandon, v.	3,265*	3,425
Ste. Geneviève, t.	2,041	2,397
St. Georges (Beauce Co.), t.	3,197	4,082*
St. Georges (Champlain Co.), v.	1,454*	1,775
St. Georges W., t.	3,643	4,755*
St. Germain de Grantham, v.	919	1,015
St. Hilaire, v.	2,000	2,911
St. Honoré, v.	891	1,009
St. Hubert, t.	[1]	14,380
St. Hyacinthe, c.	20,439*	22,354
St. Jacques, v.	1,979	2,038
St. Jean, c.	24,367*	26,988
St. Jean de Boischatel, v.	1,461	1,576
St. Jean Eudes, v.	2,560	2,873
St. Jérôme (Lac St. Jean Co.), v.	1,505	1,962
St. Jérôme (Terrebonne Co.), c.	20,645	24,546*
St. Joseph (Beauce Co.), v.	2,484	2,484
St. Joseph (St. Hyacinthe Co.), v.	2,708	3,799
St. Joseph de la Rivière Bleue, v.	1,481	1,540
St. Joseph de Sorel, t.	3,571	3,588
St. Jovite, v.	1,613	2,692*
St. Lambert, c.	12,224	14,531
St. Laurent, c.	38,291*	49,805*
St. Léonard de Port Maurice, t.	925	4,893
St. Marc des Carrières, v.	2,457	2,622
Ste. Marie, t.	3,094	3,662
St. Michel, c.	24,706	55,978
St. Noël, v.	1,027*	1,124
St. Pacôme, v.	1,283	1,242

For footnote, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961
	No.	No.
Quebec—concluded		
St. Pascal, v.	1,962	2,144
St. Pie, v.	1,228	1,434
St. Pierre, t.	5,276*	6,795*
St. Raphaël, v.	1,059	1,134
St. Raymond, t.	3,502	3,931
St. Rédempteur, v.	872	1,035*
St. Rémi, t.	2,303	2,276
Ste. Rosalie, v.	1,142*	1,255
Ste. Rose, t.	5,378*	7,571*
St. Sauveur des Monts, v.	1,316*	1,702*
St. Siméon, v.	1,114	1,197
Ste. Thècle, v.	1,499	2,009*
Ste. Thérèse, c.	8,266	11,771*
St. Timothée, v.	688	1,003
St. Tite, t.	3,183	3,250
St. Ulric, v.	980	1,021
St. Vincent de Paul, t.	6,784	11,214
St. Zacharie, v.	[1]	1,361
Sacré Coeur de Jésus, v.	896	1,108
Sayabec, v.	2,281	2,314
Schefferville, t.	1,632	3,178
Scotstown, t.	1,347	1,038
Senneterre, t.	2,197	3,246*
Senneville, v.	979	1,262
Sept Îles, c.	5,592	14,196*
Shawbridge, v.	680	1,034
Shawinigan, c.	28,597*	32,169*
Shawinigan S., v.	10,947*	12,683
Shawville, v.	1,281	1,534
Sherbrooke, c.	58,668*	66,554
Sillery, c.	13,154	14,109*
Sorel, c.	16,476	17,147
Stanstead Plain, v.	1,134	1,116
Sutton, v.	1,407	1,755*
Tadoussac, v.	1,066	1,083
Temiscaming, t.	2,694	2,517
Templeton, v.	2,475	2,965
Terrebonne, t.	4,097	6,207*
Thetford Mines, c.	19,511*	21,618
Thurso, v.	2,324	3,310
Tracy, t.	6,542	8,171
Tring Jonction, v.	1,083*	1,214
Trois Pistoles, t.	4,039	4,349
Trois Rivières, c.	50,483*	53,477*
Val David, v.	1,016	1,118*
Val d'Or, t.	9,876	10,983*
Vallée Jonction, v.	1,340*	1,405
Valleyfield (Salaberry de), c.	23,584*	27,297*
Val St. Michel, t.	1,140	1,290
Varennes, v.	2,047	2,240*
Verchères, v.	1,412	1,768
Verdun, c.	78,262*	78,317
Victoriaville, t.	16,031*	18,720*
Ville Marie, v.	1,409	1,710
Villeneuve, t.	1,417	1,934
Warwick, t.	2,248	2,487
Waterloo, t.	4,266	4,543
Waterville, v.	1,373	1,330
Weedon Centre, v.	1,287	1,426
Westmount, c.	24,800	25,012
Windsor, t.	5,886*	6,589
Yamachiche, v.	900	1,186*
Ontario—		
Acton, t.	3,578*	4,144*
Ajax, t.	5,683	7,755
Alexandria, t.	2,487	2,597*
Alfred, v.	1,257	1,195
Alliston, t.	2,426*	2,884*

Province and Incorporated Centre	1956	1961
	No.	No.
Ontario—continued		
Almonte, t.	2,960	3,267
Amherstburg, t.	4,099	4,452
Arnprior, t.	5,137*	5,474
Arthur, v.	1,124	1,200
Athens, v.	935	1,015
Aurora, t.	3,957	8,791*
Aylmer, t.	4,201*	4,705*
Ayr, v.	939	1,016
Bancroft, v.	1,669*	2,615*
Barrie, c.	16,851*	21,169*
Barry's Bay, v.	1,366	1,439
Beamsville, v.	2,198	2,537
Beaverton, v.	1,099	1,217
Belle River, v.	1,814*	1,854
Belleville, c.	20,605	30,655*
Blenheim, t.	2,844	3,151*
Blind River, t.	3,633*	4,093*
Bobcaygeon, v.	1,242	1,210
Bolton, v.	1,093	2,104
Bowmanville, t.	6,544	7,397*
Bracebridge, t.	2,849	2,927
Bradford, t.	2,010	2,342
Brampton, t.	12,587*	18,467*
Brantford, c.	51,869*	55,201*
Bridgeport, v.	1,402	1,672*
Brighton, v.	2,182	2,403
Brockville, t.[4]	13,885*	17,744*
Burlington, t.	9,127*	47,008*
Caledonia, t.	2,078*	2,198
Campbellford, t.	3,425	3,478*
Cannington, v.	926	1,024
Capreol, t.	2,394	3,003*
Cardinal, v.	1,994	1,944
Carleton Place, t.	4,790*	4,796
Casselman, v.	1,241	1,277
Chalk River, v.	986	1,135
Chatham, c.	22,262*	29,826*
Chelmsford, t.	2,142*	2,559*
Chesley, t.	1,629	1,697
Chesterville, v.	1,169	1,248
Chippawa, v.	2,039*	3,256
Clinton, t.	2,896*	3,491*
Cobalt, t.	2,367*	2,209
Cobourg, t.	9,399	10,646*
Cochrane, t.	3,695	4,521*
Colborne, v.	1,240	1,336
Collingwood, t.	7,978	8,385
Coniston, t.	2,478	2,692*
Copper Cliff, t.	3,801*	3,600
Cornwall, c.	18,158	43,639*
Crystal Beach, v.	1,850	1,886
Deep River, t.	[1]	5,377
Delhi, t.	3,002*	3,427*
Deseronto, t.	1,729	1,797
Dresden, t.	2,260	2,346
Dryden, t.	4,428*	5,728*
Dundas, t.	9,507*	12,912*
Dunnville, t.	4,776*	5,181
Durham, t.	2,067	2,180
Eastview, t.[5]	19,283	24,555
Eganville, v.	1,598	1,549
Elmira, t.	2,916*	3,337*
Elora, v.	1,457	1,486
Englehart, t.	1,705	1,786
Erin, v.	885	1,005
Espanola, t.	[1]	5,353
Essex, t.	3,348	3,428
Exeter, t.	2,655	3,047
Fenelon Falls, v.	1,137	1,359
Fergus, t.	3,677	3,831

For footnotes, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Ontario—continued			**Ontario**—continued		
Fonthill, v.	1,872	2,324*	Niagara, t.	2,740	2,712
Forest, t.	2,035	2,188	Niagara Falls, c.	23,563	22,351
Forest Hill, v.	19,480	20,489	North Bay, c.	21,020*	23,781
Fort Erie, t.	8,632	9,027*	Norwich, v.	1,611	1,703
Fort Frances, t.	9,005	9,481	Norwood, v.	1,017	1,060
Fort William, c.	39,464	45,214	Oakville, t.	9,983	10,366
Frankford, v.	1,491	1,642	Orangeville, t.	3,887	4,593
Galt, c.	23,738*	27,830*	Orillia, t.	13,857	15,345*
Gananoque, t.	4,981	5,096	Oshawa, c.	50,412	62,415
Georgetown, t.	5,942*	10,298	Ottawa, c.	222,129	268,206
Geraldton, t.	3,263	3,375	Owen Sound, c.	16,976	17,421*
Glencoe, v.	1,044	1,156	Palmerston, t.	1,550	1,554
Goderich, t.	5,886*	6,411	Paris, t.	5,504*	5,820*
Gravenhurst, t.	3,014	3,077	Parkhill, t.	1,043	1,169
Grimsby, t.	3,805*	5,148*	Parry Sound, t.	5,378	6,004
Guelph, c.	33,860*	39,838*	Pembroke, t.	15,434	16,791*
Hagersville, v.	1,964	2,075	Penetanguishene, t.	5,420	5,340
Haileybury, t.	2,654	2,638	Perth, t.	5,145*	5,360
Hamilton, c.	239,625*	273,991*	Petawawa, v.	[1]	4,509
Hanover, t.	3,943	4,401*	Peterborough, c.	42,698*	47,185*
Harriston, t.	1,592	1,631	Petrolia, t.	3,426	3,708
Harrow, t.	1,851	1,787	Pickering, v.	1,150	1,755
Havelock, v.	1,205	1,260	Picton, t.	4,998	4,862
Hawkesbury, t.	7,929	8,661	Point Edward, v.	2,558	2,744
Hearst, t.	2,214	2,373	Port Arthur, c.	38,136	45,276
Hespeler, t.	3,876*	4,519*	Port Colborne, t.	14,028*	14,886
Huntsville, t.	3,051	3,189	Port Credit, t.	6,350	7,203*
Ingersoll, t.	6,811	6,874	Port Dover, t.	2,790*	3,064*
Iroquois, v.	1,078	1,136	Port Elgin, t.	1,597	1,632
Iroquois Falls, t.	1,478	1,681	Port Hope, t.	7,522*	8,091*
Kapuskasing, t.	5,463*	6,870	Port McNicoll, v.	932	1,053
Keewatin, t.	1,949	2,197	Port Perry, v.	2,121	2,262
Kemptville, v.[6]	1,730	1,959	Port Stanley, v.	1,480	1,460*
Kenora, t.	10,278	10,904	Powassan, t.	935	1,064
Kincardine, t.	2,667	2,841	Prescott, t.	4,920*	5,366
Kingston, c.	48,618*	53,526	Preston, t.	9,387*	11,577*
Kingsville, t.	2,884*	3,041	Rainy River, t.	1,354	1,168
Kitchener, c.	59,562*	74,485*	Renfrew, t.	8,634	8,935
Lakefield, v.	1,938	2,167*	Richmond, v.	794	1,215
Leamington, t.	7,856*	9,030*	Richmond Hill, t.	6,677*	16,446*
Leaside, t.	16,538*	18,579	Ridgetown, t.	2,483*	2,603*
Levack, t.	2,929*	3,178	Riverside, t.	13,335	18,089
Lindsay, t.	10,110	11,399*	Rockcliffe Park, v.	2,097	2,084
Listowel, t.	3,644	4,002	Rockland, t.	2,757	3,037
Little Current, t.	1,514	1,527	Rodney, v.	1,026	1,041
Lively, t.	2,840	3,211	St. Catharines, c.	39,708*	84,472*
London, c.	101,693*	169,569*	St. Clair Beach, v.	834	1,460*
Long Branch, v.	10,249*	11,039*	St. Mary's, t.	4,185	4,482
L'Orignal, v.	1,067	1,189	St. Thomas, c.	19,129*	22,469*
Lucknow, v.	962	1,031	Sarnia, c.	43,447	50,976
Madoc, v.	1,325	1,347	Sault Ste. Marie, c.	37,329	43,088*
Markdale, v.	986	1,090	Seaforth, t.	2,128	2,255
Markham, v.	2,873*	4,294	Shelburne, v.	1,245	1,239
Marmora, v.	1,428*	1,381	Simcoe, t.	8,078*	8,754*
Massey, t.	1,068	1,324	Sioux Lookout, t.	2,504	2,453
Mattawa, t.	3,208	3,314	Smiths Falls, t.	8,967*	9,603*
Meaford, t.	3,643*	3,834*	Smooth Rock Falls, t.	1,104	1,131
Midland, t.	8,250	8,656	Southampton, t.	1,640	1,818
Milton, t.	4,294*	5,629*	South River, v.	995	1,044
Milverton, v.	1,070	1,111	Stayner, t.	1,429	1,671
Mimico, t.	13,687	18,212	Stirling, v.	1,191	1,315
Mitchell, t.	2,146	2,247	Stittsville, v.	[1]	1,508
Morrisburg, v.	2,131	1,820	Stoney Creek, t.	4,506*	6,043
Mount Forest, t.	2,438	2,623	Stouffville, v.	2,307*	3,188
Napanee, t.	4,273	4,500	Stratford, c.	19,972*	20,467*
Newcastle, v.	1,098	1,272	Strathroy, t.	4,240	5,150
New Hamburg, v.	1,939*	2,181	Streetsville, v.	2,648*	5,056*
New Liskeard, t.	4,619	4,896	Sturgeon Falls, t.	5,874	6,288
Newmarket, t.	7,368	8,932*	Sudbury, c.	46,482	80,120*
New Toronto, t.	11,560	13,384	Sutton, v.	1,310	1,470*

For footnotes, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961
	No.	No.
Ontario—concluded		
Swansea, v.	8,595	9,628
Tavistock, v.	1,155	1,232
Tecumseh, t.	4,209	4,476
Thamesville, v.	1,074*	1,054
Thessalon, t.	1,716	1,725
Thornbury, t.	1,037	1,097
Thorold, t.	8,053	8,633
Tilbury, t.	3,138	3,030
Tillsonburg, t.	6,216	6,600
Timmins, t.	27,551	29,270
Toronto, c.	667,706*	672,407*
Trenton, t.	11,492*	13,183*
Tweed, v.	1,634	1,791
Uxbridge, t.	2,065	2,316
Vankleek Hill, t.	1,647	1,735
Victoria Harbour, v.	1,012	1,066
Walkerton, t.	3,698*	3,851
Wallaceburg, t.	7,892*	7,881
Waterdown, v.	1,754	1,844
Waterford, t.	1,908	2,221*
Waterloo, c.	16,373*	21,366*
Watford, v.	1,217	1,293
Welland, c.	16,405	36,079*
Wellington, v.	1,077	1,064
West Lorne, v.	1,088	1,070
Weston, t.	9,543*	9,715
Wheatley, v.	1,196	1,362
Whitby, t.	9,995	14,685
Wiarton, t.	1,954	2,138
Winchester, v.	1,338	1,429
Windsor, c.	121,980	114,367*
Wingham, t.	2,766	2,922
Woodbridge, v.	1,958	2,315
Woodstock, c.	18,347*	20,486
Manitoba—		
Altona, t.	1,698	2,026
Beauséjour, t.	1,523	1,770
Boissevain, t.	1,115	1,303
Brandon, c.	24,796	28,166
Brooklands, v.	3,941	4,369
Carberry, t.	1,065	1,113
Carman, t.	1,884	1,930
Dauphin, t.	6,190	7,374
East Kildonan, c.	[1]	27,305
Flin Flon, t. (Man. and Sask.)	10,234	11,104
Gimli, t.	1,660	1,841
Grandview, t.	963	1,057
Killarney, t.	1,434	1,729
Melita, t.	926	1,038
Minnedosa, t.	2,306	2,211
Morden, t.	2,237*	2,793
Morris, t.	1,260	1,370
Neepawa, t.	3,109	3,197
Portage la Prairie, c.	10,525	12,388*
Rivers, t.	1,422	1,574
Roblin, v.	1,173	1,368
Russell, t.	1,227	1,263
St. Boniface, c.	28,851	37,600
St. James, c.	26,502	33,977
Selkirk, t.	7,413	8,576
Souris, t.	1,759	1,841
Steinbach, t.	2,688	3,739*
Stonewall, t.	1,110	1,420
Swan River, t.	2,644	3,163
The Pas, t.	3,971	4,671*
Transcona, t.	8,312	14,248
Tuxedo, t.	1,163	1,627*
Virden, t.	3,225	2,708
Manitoba—concluded		
West Kildonan, c.	[1]	20,077
Winkler, t.	1,634	2,529*
Winnipeg, c.	255,093*	265,429*
Saskatchewan—		
Assiniboia, t.	2,027	2,491*
Battleford, t.	1,498	1,627
Biggar, t.	2,424	2,702
Broadview, t.	978	1,008*
Canora, t.	1,873	2,117
Creighton, t.	1,659	1,729
Esterhazy, t.	748	1,114*
Estevan, c.	5,264	7,728*
Eston, t.	1,625*	1,695*
Flin Flon, t.	[7]	[7]
Fort Qu'Appelle, t.	1,130	1,521
Gravelbourg, t.	1,434	1,499
Grenfell, t.	1,080*	1,256
Gull Lake, t.	1,052	1,038
Herbert, t.	958	1,008
Hudson Bay, t.	1,421	1,601
Humboldt, t.	2,916	3,245
Indian Head, t.	1,721	1,802*
Kamsack, t.	2,843*	2,068
Kerrobert, t.	1,037	1,220
Kindersley, t.	2,572	2,990
Leader, t.	1,085*	1,211
Lloydminster, c. (Sask. and Alta.)	5,077*	5,667*
Maple Creek, t.	1,974	2,291
Meadow Lake, t.	2,477	2,803
Melfort, t.	3,322	4,039
Melville, c.	4,948	5,191
Moose Jaw, c.	29,603*	33,206*
Moosomin, t.	1,390	1,781
Nipawin, t.	3,337	3,836*
North Battleford, c.	8,924	11,230*
Outlook, t.	885	1,340
Oxbow, t.	783	1,359*
Prince Albert, c.	20,366	24,168*
Radville, t.	1,087	1,067
Regina, c.	89,755*	112,141*
Rosetown, t.	2,262	2,450
Rosthern, t.	1,268	1,264*
Saskatoon, c.	72,858*	95,526*
Shaunavon, t.	1,959	2,154
Shellbrook, t.	907*	1,042
Swift Current, c.	10,612	12,186
Tisdale, t.	2,104	2,402
Unity, t.	1,607	1,902
Wadena, t.	1,154	1,311
Watrous, t.	1,340	1,461
Weyburn, c.	7,684*	9,101
Wilkie, t.	1,630	1,612
Wolseley, t.	1,001	1,031
Wynyard, t.	1,522	1,686
Yorkton, c.	8,256	9,995
Alberta—		
Athabasca, t.	1,293	1,487
Barrhead, t.	1,610*	2,286*
Bellevue, v.	[1]	1,323
Beverly, t.	4,602	9,041
Black Diamond, t.	991*	1,043
Blairmore, t.	1,973*	1,980
Bonnyville, t.	1,495*	1,736
Bow Island, t.	1,001	1,122*
Bowness, t.	6,217	9,184
Brooks, t.	2,320*	2,827

For footnotes, see end of table, p. 173.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961—concluded

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Alberta—concluded			**British Columbia**—		
Calgary, c.	181,780*	249,641*	Alberni, c.	3,947	4,616
Camrose, c.	5,817	6,939*	Armstrong, c.	1,197	1,288
Cardston, t.	2,607	2,801	Burns Lake, v.	1,016	1,041*
Castor, t.	958	1,025	Campbell River, v.	3,069*	3,737
Claresholm, t.	2,431	2,143	Castlegar, v.	1,705	2,253*
Coaldale, t.	2,327*	2,592	Chilliwack, c.	7,297	8,259
Cold Lake, t.	1,097	1,307	Comox, v.	1,151*	1,756
Coleman, t.	1,566	1,713	Courtenay, c.	3,025	3,485
Devon, t.	1,429*	1,418*	Cranbrook, c.	4,562*	5,549
Didsbury, t.	1,227	1,254*	Creston, v.	1,844*	2,460*
Drayton Valley, t.	2,588	3,854*	Cumberland, v.	1,039	1,303*
Drumheller, c.	2,632*	2,931	Dawson Creek, c.	7,531*	10,946*
Edmonton, c.	226,002*	281,027*	Duncan, c.	3,247	3,726*
Edson, t.	2,560	3,198	Enderby, c.	965	1,075
Fairview, t.	1,260*	1,506	Fernie, c.	2,808*	2,661
Forest Lawn, t.	3,150*	12,263*	Fort St. James, v.	615	1,081
Fort Macleod, t.	2,103	2,490	Fort St. John, t.	1,908	3,619*
Fort Saskatchewan, t.	2,582*	2,972*	Fruitvale, v.	870	1,032
Grand Centre, t.	[1]	1,493	Gibson's Landing, v.	990	1,091
Grande Prairie, c.	6,302*	8,352*	Golden, v.	[1]	1,776
Grimshaw, t.	904*	1,095*	Grand Forks, c.	1,995	2,347
Hanna, t.	2,327	2,645	Hope, v.	2,226	2,751
High Prairie, t.	1,743*	1,756*	Kamloops, c.	9,096*	10,076*
High River, t.	2,102	2,276	Kelowna, c.	9,181	13,188*
Hinton, t.	[1]	3,529	Kimberley, c.	5,774	6,013*
Innisfail, t.	1,883*	2,270*	Kinnaird, v.	1,305	2,123*
Jasper Place, t.	15,957	30,530	Ladysmith, v.	2,107	2,173
Lac La Biche, t.	967	1,314*	Lake Cowichan, v.	1,949	2,149*
Lacombe, t.	2,747	3,029*	Langley, c.	2,131	2,365
Leduc, t.	2,008*	2,356*	Lillooet, v.	1,083*	1,304*
Lethbridge, c.	29,462*	35,454*	Marysville, v.	930	1,057
Lloydminster, c.	[8]	[8]	Merritt, v.	1,790	3,039
Magrath, t.	1,382	1,338	Mission City, t.	3,010	3,251*
McLennan, t.	1,092*	1,078*	Nanaimo, c.	12,705*	14,135
McMurray, t.	1,110	1,186	Nelson, c.	7,226	7,074
Medicine Hat, c.	20,826*	24,484*	New Westminster, c.	31,665	33,654
Montgomery, t.	[1]	5,077	North Kamloops, v.	4,398*	6,456*
Nanton, t.	1,047	1,054	North Vancouver, c.	19,951	23,656
Okotoks, t.	764	1,043*	Oliver, v.	1,147	1,774*
Olds, t.	1,980	2,433	Osoyoos, v.	860	1,022
Peace River, t.	2,034*	2,543*	Parksville, v.	1,112*	1,183
Pincher Creek, t.	1,729	2,961*	Penticton, c.	11,894	13,859
Ponoka, t.	3,387	3,938	Port Alberni, c.	10,373	11,560
Provost, t.	878	1,022*	Port Coquitlam, c.	4,632	8,111
Raymond, t.	2,399	2,362*	Port Moody, c.	2,713	4,789
Redcliff, t.	2,001	2,221	Prince George, c.	10,563*	13,877*
Red Deer, c.	12,338*	19,612*	Prince Rupert, c.	10,498	11,987
Redwater, t.	1,065*	1,135	Princeton, v.	2,245	2,163
Rimbey, t.	980*	1,266	Quesnel, t.	4,384*	4,673*
Rocky Mountain House, t.	1,285	2,360*	Revelstoke, c.	3,469	3,624
St. Albert, t.	1,320	4,059	Rossland, c.	4,344	4,354
St. Paul, t.	2,229*	2,823	Salmon Arm, v.	1,344	1,506*
Stettler, t.	3,359	3,638*	Sidney, v.	1,371	1,558*
Stony Plain, t.	1,098	1,311	Smithers, v.	1,962	2,487
Sylvan Lake, t.	1,114	1,381	Squamish, v.	1,292*	1,557*
Taber, t.	3,688	3,951	Trail, c.	11,395	11,580
Three Hills, t.	1,095*	1,491	Vancouver, c.	365,844*	384,522
Valleyview, t.	973	1,077	Vanderhoof, v.	1,085*	1,460
Vegreville, t.	2,574	2,908	Vernon, c.	8,998	10,250*
Vermilion, t.	2,196	2,449	Victoria, c.	54,584	54,941
Viking, t.	897*	1,043*	Warfield, v.	2,051	2,212
Vulcan, t.	1,204	1,310*	White Rock, c.	[1]	6,453
Wainwright, t.	2,653	3,351	Williams Lake, v.	1,790*	2,120*
Westlock, t.	1,136*	1,838*			
Wetaskiwin, c.	4,476*	5,300*	**Yukon Territory**—		
Whitecourt, v.	[1]	1,054	Whitehorse, c.	2,570	5,031

[1] Incorporated after June 1, 1956. [2] Includes residents of the Nova Scotia Sanatorium located outside the town limits, numbering 435. [3] Amalgamation of the towns of L'Abord à Plouffe, St. Martin and the rural municipality of St. Martin (Renaud). [4] Brockville became a city on Apr. 1, 1962. [5] Eastview became a city on Jan. 1, 1963. [6] Kemptville became a town on Jan. 1, 1963. [7] See Manitoba. [8] See Saskatchewan.

Subsection 5.—Sex and Age Distribution

The sex and age distributions of a population are basic to most, if not all, other analyses, as they influence employment, marriage, birth and death rates and a multitude of other factors that are of great importance in the national life.

Sex.—The Canadian population has always been characterized by an excess of males, although this excess has been greatly modified in recent years. Since Confederation, the peak sex ratio for Canada as a whole was 113 reached in 1911, a census year that fell within a period of heavy immigration; the 1961 ratio was 102. In the older settled provinces east of Manitoba, the ratio varied between 104 in 1911 and 101 in 1961 but in the western provinces which were being opened to settlement in the early years of the century the ratio changed from a high of 146 in 1911 to 105 in 1961.

The sex distributions and variations in ratio among the provinces are given for the census years 1951, 1956 and 1961 in Table **10.**

10.—Sex Distribution of the Population and Sex Ratio, by Province, Census Years 1951, 1956 and 1961

Province or Territory	1951			1956			1961		
	Males	Females	Males to 100 Females	Males	Females	Males to 100 Females	Males	Females	Males to 100 Females
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	185,143	176,273	105	213,905	201,169	106	234,924	222,929	105
Prince Edward Island	50,218	48,211	104	50,510	48,775	104	53,357	51,272	104
Nova Scotia	324,955	317,629	102	353,182	341,535	103	374,244	362,763	103
New Brunswick	259,211	256,486	101	279,590	275,026	102	302,440	295,496	102
Quebec	2,022,127	2,033,554	99	2,317,677	2,310,701	100	2,631,856	2,627,355	100
Ontario	2,314,170	2,283,372	101	2,721,519	2,683,414	101	3,134,528	3,101,564	101
Manitoba	394,818	381,723	103	432,478	417,562	104	468,503	453,183	103
Saskatchewan	434,568	397,160	109	458,428	422,237	109	479,564	445,617	108
Alberta	492,192	447,309	110	585,921	537,195	109	689,383	642,561	107
British Columbia	596,961	568,249	105	720,516	677,948	106	829,094	799,988	104
Yukon Territory	5,457	3,639	150	6,924	5,266	131	8,178	6,450	127
Northwest Territories	9,053	6,951	130	11,229	8,084	139	12,822	10,176	126
Canada	**7,088,873**	**6,920,556**	**102**	**8,151,879**	**7,928,912**	**103**	**9,218,893**	**9,019,354**	**102**

Age.—Recent trends in vital rates and immigration have had a considerable effect on the age composition of the Canadian people. A high birth rate together with a low death rate among children added nearly 2,000,000 to the number of persons under 15 years of age between 1951 and 1961, an increase of 46 p.c. The proportion of this group to the total population increased from 30.3 p.c. to 34.0 p.c. in the ten-year period. The population of working age—those of 15 to 64 years of age—increased more slowly at 22.9 p.c. in the decade and the relative proportion of this group declined from 61.9 p.c. to 58.4 p.c. Without the influence of immigration in the 1951-61 period, the proportion of this group would have been much lower since a large part of it consisted of persons born in the low birth rate period of the 1930's. The proportion of persons 65 years of age or over in 1961 was 7.6 p.c. compared with 7.8 p.c. in 1951.

Table **11** shows the population of Canada classified by five-year age groups and by sex for the census years 1951, 1956 and 1961. The provincial distribution by specified age group is given for 1961 in Table **12.**

11.—Male and Female Populations, by Age Group, Census Years 1951, 1956 and 1961

Age Group	1951		1956		1961	
	Male	Female	Male	Female	Male	Female
	No.	No.	No.	No.	No.	No.
0 - 4 years	879,063	843,046	1,011,835	971,728	1,154,091	1,102,310
5 - 9 "	713,873	683,952	919,952	887,101	1,063,840	1,015,682
10 - 14 "	575,122	555,661	732,032	702,562	948,160	907,839
15 - 19 "	532,180	525,792	586,635	575,666	729,035	703,524
20 - 24 "	537,535	551,106	567,179	561,931	587,139	596,507
25 - 29 "	552,812	578,403	605,836	592,301	613,897	595,400
30 - 34 "	512,557	530,177	602,535	613,750	644,407	627,403
35 - 39 "	503,571	495,562	555,763	558,622	631,072	639,852
40 - 44 "	445,800	422,767	522,615	502,784	559,996	558,965
45 - 49 "	387,708	356,971	455,827	422,988	515,516	499,800
50 - 54 "	340,461	322,195	381,835	351,215	442,909	420,279
55 - 59 "	292,564	278,126	321,973	307,271	362,145	343,690
60 - 64 "	264,324	241,828	265,652	259,265	292,569	291,066
65 - 69 "	228,076	205,421	237,551	226,562	239,685	247,417
70 - 74 "	160,398	154,674	187,490	183,218	196,076	206,099
75 - 79 "	94,130	94,261	113,550	113,948	134,186	140,051
80 - 84 "	45,963	50,828	55,636	61,460	69,046	77,771
85 - 89 "	17,539	22,060	21,688	26,670	27,178	33,606
90 years or over	5,197	7,726	6,295	9,870	7,946	12,093
Totals	**7,088,873**	**6,920,556**	**8,151,879**	**7,928,912**	**9,218,893**	**9,019,354**

12.—Age Distribution of the Population, by Province, Census 1961

Province or Territory	0–4 Years	5–9 Years	10–14 Years	15–19 Years	20–24 Years	25–34 Years
	No.	No.	No.	No.	No.	No.
Newfoundland	67,695	64,404	59,464	43,829	30,238	52,290
Prince Edward Island	13,221	12,216	12,264	8,875	6,344	11,049
Nova Scotia	91,239	84,760	80,329	64,239	49,311	87,316
New Brunswick	78,560	75,882	72,745	53,514	37,419	67,477
Quebec	671,256	624,074	568,065	467,426	369,633	735,825
Ontario	740,193	674,519	593,037	436,883	386,966	882,476
Manitoba	107,574	101,382	91,150	70,808	59,007	117,317
Saskatchewan	113,755	106,886	94,273	72,864	56,996	113,556
Alberta	179,888	159,053	130,383	99,004	89,154	192,571
British Columbia	186,793	171,661	150,689	112,653	95,230	214,269
Yukon Territory	2,337	1,761	1,187	765	1,109	2,956
Northwest Territories	3,890	2,924	2,413	1,699	2,239	4,005
Canada	**2,256,401**	**2,079,522**	**1,855,999**	**1,432,559**	**1,183,646**	**2,481,107**

Province or Territory	35–44 Years	45–54 Years	55–64 Years	65–69 Years	70+ Years	Total
	No.	No.	No.	No.	No.	No.
Newfoundland	48,964	39,343	24,731	9,684	17,211	457,853
Prince Edward Island	11,407	10,501	7,822	3,582	7,348	104,629
Nova Scotia	89,618	75,881	50,897	21,341	42,076	737,007
New Brunswick	69,809	56,676	38,937	16,216	30,701	597,936
Quebec	665,734	511,334	339,563	116,923	189,378	5,259,211
Ontario	866,563	670,544	476,838	180,063	328,010	6,236,092
Manitoba	120,774	100,500	69,886	28,169	55,119	921,686
Saskatchewan	115,833	97,430	68,018	28,208	57,362	925,181
Alberta	172,623	128,547	87,643	31,724	61,354	1,331,944
British Columbia	223,813	184,823	123,535	50,752	114,864	1,629,082
Yukon Territory	2,118	1,243	677	180	295	14,628
Northwest Territories	2,629	1,682	923	260	334	22,998
Canada	**2,389,885**	**1,878,504**	**1,289,470**	**487,102**	**904,052**	**18,238,247**

Subsection 6.—Marital Status

After age and sex, marital status analysis is probably next in importance from a vital, economic and social viewpoint. The number of married females between 15 and 45 years of age is a most significant factor in the fertility of a population. If the proportion of females in this group is low, the expected birth rate will be low. In 1961, 62.9 p.c. of all married females were in the 15-44 age group compared with 64.3 p.c. in 1956, 61.2 p.c. in 1941 and 63.5 p.c. in 1931.

The high birth rate in the 1951-61 period, besides having a notable effect on the general population growth and age composition, has been an influence on the 32.7-p.c. increase in the single population. During the same period, the married population increased by 28.2 p.c. and the widowed by 21.0 p.c. Other striking features are the excess of married males (largely consisting of male immigrants whose wives had not yet joined them) and the great preponderance of widows over widowers.

The marital status of the population in 1961 is shown in Table **13.**

13.—Marital Status of the Population, by Age Group and Sex, Census 1961

Age Group and Sex		Single	Married	Widowed	Divorced	Total
		No.	No.	No.	No.	No.
Under 15 years	M.	3,166,091	—	—	—	3,166,091
	F.	3,025,831	—	—	—	3,025,831
	T.	6,191,922	—	—	—	6,191,922
15 - 19 "	M.	719,727	9,198	88	22	729,035
	F.	642,007	61,197	262	58	703,524
	T.	1,361,734	70,395	350	80	1,432,559
20 - 24 "	M.	408,005	178,618	233	283	587,139
	F.	241,435	353,215	931	926	596,507
	T.	649,440	531,833	1,164	1,209	1,183,646
25 - 34 "	M.	293,298	959,702	1,864	3,440	1,258,304
	F.	158,119	1,051,198	7,407	6,079	1,222,803
	T.	451,417	2,010,900	9,271	9,519	2,481,107
35 - 44 "	M.	143,174	1,034,645	7,527	5,722	1,191,068
	F.	108,573	1,052,760	28,258	9,226	1,198,817
	T.	251,747	2,087,405	35,785	14,948	2,389,885
45 - 54 "	M.	100,426	834,787	17,128	6,084	958,425
	F.	91,012	751,129	69,415	8,523	920,079
	T.	191,438	1,585,916	86,543	14,607	1,878,504
55 - 64 "	M.	74,357	540,934	35,390	4,033	654,714
	F.	65,697	439,436	125,540	4,083	634,756
	T.	140,054	980,370	160,930	8,116	1,289,470
65 - 69 "	M.	26,251	185,739	26,516	1,179	239,685
	F.	25,019	136,933	84,579	886	247,417
	T.	51,270	322,672	111,095	2,065	487,102
70 years or over	M.	46,235	276,102	110,761	1,334	434,432
	F.	47,871	158,711	262,324	714	469,620
	T.	94,106	434,813	373,085	2,048	904,052
All Ages	**M.**	**4,977,564**	**4,019,725**	**199,507**	**22,097**	**9,218,893**
	F.	**4,405,564**	**4,004,579**	**578,716**	**30,495**	**9,019,354**
	T.	**9,383,128**	**8,024,304**	**778,223**	**52,592**	**18,238,247**

Subsection 7.—Ethnic Groups and Birthplaces

Ethnic Group.—A population made up of diverse ethnic groups gives rise to political, social and economic problems quite different in nature from those of one with a more homogeneous ethnic composition. These problems are mitigated, however, to the extent

that certain groups are more easily integrated than others. It is equally true that the different backgrounds of various ethnic groups lend variety and diversity to the national life.

The two basic groups in the Canadian population are the French and British Isles ethnic groups. The influence of the French in Canada covers a longer period and, with the exception of the 1921 Census, this group has always exceeded in number any of the components of the British Isles ethnic group.

In 1961, each person was asked the question: "To what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this Continent?". The language spoken at the time by the person, or his paternal ancestor, was used as an aid in determining the person's ethnic group. The classification is given for 1961 in Table 14 with comparative figures for 1951 and 1941. Information on ethnic group was not collected in the 1956 Census.

14.—Distribution of the Population by Ethnic Group, Census Years 1941, 1951 and 1961

Ethnic Group	1941[1]	1951	1961	
	No.	No.	No.	p.c.
British Isles	**5,715,904**	**6,709,685**	**7,996,669**	**43.8**
English	2,968,402	3,630,344	4,195,175	23.0
Irish	1,267,702	1,439,635	1,753,351	9.6
Scottish	1,403,974	1,547,470	1,902,302	10.4
Other	75,826	92,236	145,841	0.8
Other European	**5,526,964**	**6,872,889**	**9,657,195**	**53.0**
French	3,483,038	4,319,167	5,540,346	30.4
Austrian	37,715	32,231	106,535	0.6
Belgian	29,711	35,148	61,382	0.3
Czech and Slovak	42,912	63,959	73,061	0.4
Danish	37,439	42,671	85,473	0.5
Finnish	41,683	43,745	59,436	0.3
German	464,682	619,995	1,049,599	5.8
Greek	11,692	13,966	56,475	0.3
Hungarian	54,598	60,460	126,220	0.7
Icelandic	21,050	23,307	30,623	0.2
Italian	112,625	152,245	450,351	2.5
Jewish	170,241	181,670	173,344	1.0
Lithuanian	7,789	16,224	27,629	0.2
Netherlands	212,863	264,267	429,679	2.4
Norwegian	100,718	119,266	148,681	0.8
Polish	167,485	219,845	323,517	1.8
Romanian	24,689	23,601	43,805	0.2
Russian	83,708	91,279	119,168	0.7
Swedish	85,396	97,780	121,757	0.7
Ukrainian	305,929	395,043	473,337	2.6
Yugoslavic	21,214	21,404	68,587	0.4
Other	9,787	35,616	88,190	0.5
Asiatic	**74,061**	**72,827**	**121,753**	**0.7**
Chinese	34,627	32,528	58,197	0.3
Japanese	23,149	21,663	29,157	0.2
Other	16,288	18,636	34,399	0.2
Other Origins	**189,723**	**354,028**	**462,630**	**2.5**
Native Indian and Eskimo	125,521	165,607	220,121	1.2
Negro	22,174	18,020	32,127	0.2
Other and not stated	42,028[2]	170,401	210,382	1.2

[1] Excludes Newfoundland. [2] Includes 35,416 half-breeds.

Birthplace.—Table 15 gives the total population of Canada classified by country of birth for the census years 1941, 1951 and 1961, and Table 16 shows the province of birth of Canadian-born persons for the same years. For immigrants, the country of birth was recorded according to boundaries existing at the date of the census. Information on birthplaces was not collected in the 1956 Census.

15.—Country of Birth of the Population, Census Years 1941, 1951 and 1961

Country	1941[1]	1951	1961	
	No.	No.	No.	p.c.
Canada	9,487,808	11,949,518	15,393,984	84.4
British Isles	960,125[2]	912,482	969,715	5.3
Other Commonwealth	43,644	20,567	47,887	0.3
Europe	653,705	801,618	1,468,058	8.0
Austria	50,713	37,598	70,192	0.4
Czechoslovakia	25,564	29,546	35,743	0.2
France	13,795	15,650	36,103	0.2
Germany	28,479	42,693	189,131	1.0
Greece	5,871	8,594	38,017	0.2
Hungary	31,813	32,929	72,900	0.4
Italy	40,432	57,789	258,071	1.4
Netherlands	9,923	41,457	135,033	0.7
Poland	155,400	164,474	171,467	0.9
Scandinavian countries[3]	72,473	64,522	74,616	0.4
Union of Soviet Socialist Republics	124,402	188,292	186,653	1.0
Yugoslavia	17,416	20,912	50,826	0.3
Other European	77,424	97,162	149,306	0.8
Asia	44,443	37,145	57,761	0.3
China	29,095	24,166	36,724	0.2
Other Asian	15,348	12,979	21,037	0.1
United States	312,473	282,010	283,908	1.6
Other countries	3,512	6,089	16,934	0.1
Totals	**11,506,655[4]**	**14,009,429**	**18,238,247**	**100.0**

[1] Excludes Newfoundland. [2] Includes the Republic of Ireland. [3] Includes Denmark, Iceland, Norway and Sweden. [4] Includes persons whose birthplace was not stated.

16.—Province of Birth of Canadian-Born Persons, Census Years 1941, 1951 and 1961

Province	1941	1951	1961	Province or Territory	1941	1951	1961
	No.	No.	No.		No.	No.	No.
Nfld.	..	397,623	497,591	Sask.	667,832	817,404	1,030,755
P.E.I.	108,423	117,310	130,123	Alta.	479,098	649,594	965,425
N.S.	568,797	660,150	783,848	B.C.	335,554	514,651	843,596
N.B.	463,127	549,984	655,066	Yukon and N.W.T.	12,267	16,654	26,028
Que.	3,155,549	3,881,487	4,916,024				
Ont.	3,123,810	3,645,074	4,667,159				
Man.	570,349	699,587	878,369	**Canada**	**9,487,808[1]**	**11,949,518**	**15,393,984**

[1] Includes persons born in Canada whose province of birth was not stated.

Subsection 8.—Religious Denominations

In the 1961 Census, enumerators were instructed to record the specific religious body, denomination, sect or community reported in answer to the question: "What is your religion?" Thus it should be noted that census figures do not measure church membership or indicate the degree of affiliation with any religious body. As shown in Table 17, close to eight out of ten persons in Canada stated that they belonged to one of the three numerically largest denominations—Roman Catholic, United Church and Anglican—in 1961. The table gives comparative figures for the census years 1941 and 1951; this information was not collected in the 1956 Census.

17.—Principal Religious Denominations of the Population, Census Years 1941, 1951 and 1961

Religious Denomination	1941	1951	1961	
	No.	No.	No.	p.c.
Adventist	18,485	21,398	25,999	0.1
Anglican Church of Canada	1,754,368	2,060,720	2,409,068	13.2
Baptist	484,465	519,585	593,553	3.3
Greek Orthodox	139,845	172,271	239,766	1.3
Jehovah's Witnesses	7,007	34,596	68,018	0.4
Jewish	168,585	204,836	254,368	1.4
Lutheran	401,836	444,923	662,744	3.6
Mennonite[1]	111,554	125,938	152,452	0.8
Mormon	25,328	32,888	50,016	0.3
Pentecostal	57,742	95,131	143,877	0.8
Presbyterian	830,597	781,747	818,558	4.5
Roman Catholic	4,806,431	6,069,496	8,342,826	45.7
Salvation Army	33,609	70,275	92,054	0.5
Ukrainian (Greek) Catholic[2]	185,948	191,051	189,653	1.0
United Church of Canada	2,208,658	2,867,271	3,664,008	20.1
Other	272,197	317,303	531,287	2.9
Totals	**11,506,655**[3]	**14,009,429**	**18,238,247**	**100.0**

[1] Includes "Hutterites". [2] Includes "Other Greek Catholic". [3] Exclusive of Newfoundland.

Subsection 9.—Languages and Mother Tongues

The term "official language" used by the census refers only to the English and French languages.* "Mother tongue" is the language a person first learned in childhood and still understands. It should be noted that persons indicated as speaking "English only" or "French only" with respect to official language may also speak other languages and have a mother tongue other than English or French. The use of the English and French languages in Canada at the time of the 1961 Census is discussed in the following special article. Mother tongues of the population are shown in Table **18.** The proportion reporting English as their mother tongue in 1961 was 58.5 p.c. (compared with 59.1 p.c. in 1951), French 28.1 p.c. (29.0 p.c. in 1951) and all other mother tongues 13.5 p.c. (11.8 p.c. in 1951).

* The British North America Act, 1867 (Sect. 133) makes provision for the use of the English and French languages as follows:—

"Either the English or the French Language may be used by any Person in the Debates of the Houses of the Parliament of Canada and of the Houses of the Legislature of Quebec; and both those Languages shall be used in the respective Records and Journals of those Houses; and either of those Languages may be used by any Person or in any Pleading or Process in or issuing from any Court of Canada established under this Act, and in or from all or any of the Courts of Quebec.

The Acts of the Parliament of Canada and of the Legislature of Quebec shall be printed and published in both those Languages."

18.—Mother Tongues of the Population, Census 1961

Mother Tongue	Number	Percentage of Total	Mother Tongue	Number	Percentage of Total
English	10,660,534	58.45	Danish	35,035	0.19
French	5,123,151	28.09	Swedish	32,632	0.18
German	563,713	3.09	Serbo-Croatian	28,866	0.16
Ukrainian	361,496	1.98	Japanese	17,856	0.10
Italian	339,626	1.86	Lithuanian	14,997	0.08
Netherlands	170,177	0.93	Flemish	14,304	0.08
Indian and Eskimo	166,531	0.91	Lettish	14,062	0.08
Polish	161,720	0.89	Estonian	13,830	0.08
Magyar	85,939	0.47	Syrian and Arabic	12,999	0.07
Yiddish	82,448	0.45	Romanian	10,165	0.06
Chinese	49,099	0.27	Icelandic	8,993	0.05
Finnish	44,785	0.25	Gaelic	7,533	0.04
Russian	42,903	0.24	Welsh	3,040	0.02
Slovak	42,546	0.23	Other	48,758	0.27
Greek	40,455	0.22			
Norwegian	40,054	0.22	**Canada**	**18,238,247**	**100.00**

USE OF THE ENGLISH AND FRENCH LANGUAGES IN CANADA*

At each decennial census, every member of the population is asked whether he or she is able to speak (*a*) English and (*b*) French. The information on this subject as recorded on the census schedules is tabulated to show the number of persons who reported ability to speak English but not French, the number speaking French but not English, those able to speak both English and French and, finally, the number unable to speak either of these two languages. In the course of the tabular program, the totals in these four categories are classified by age and sex, by ethnic group and, for the foreign born, by period of immigration.

Out of a total population of 18,238,247 in Canada on the census date, June 1, 1961, 12,284,762 or 67.4 p.c. reported ability to speak English but not French, 3,489,866 or 19.1 p.c. spoke French but not English, 2,231,172 or 12.2 p.c. reported ability to speak both languages, and 232,447 or 1.3 p.c. were unable to speak either English or French. If the 12.2 p.c. of the population who were bilingual (English-French) is added to the number speaking English but not French, and to the group speaking French but not English, it will be found that approximately 80 p.c. of Canada's population in 1961 could speak English and slightly over 30 p.c. were able to speak French.

There has been little change over the past two or three decades in the relative proportions of the English-speaking, the French-speaking, and the bilingual elements in the Canadian population despite the substantial numbers of postwar immigrants, the large-scale population movements within the country, rising levels of education and other factors that might have been expected to have altered the composition of the population with respect to official language. At each census since 1931, just over two thirds of Canada's population have reported ability to speak English but not French, between 17 and 19 p.c. French but not English, and between 12 and 13 p.c. ability to speak both languages.

Regional differences in the ability of the population to speak English, French or both these languages are, of course, rather closely related to the location of Canadians of French and all other ethnic groups, and their relative numbers in specific areas of Canada. A large proportion of the population of French ethnic origin resides in the Provinces of Quebec, New Brunswick and Ontario. Thus, while at the 1961 Census 38 p.c. of the population of New Brunswick were able to speak French, less than 10 p.c. of the people residing in each of the Provinces of Newfoundland, Prince Edward Island and Nova Scotia of the Atlantic region spoke this language. Expressed in another way, although over 90 p.c. of the population of each of the Atlantic Provinces of Newfoundland, Prince Edward Island and Nova Scotia spoke English but not French, the percentage (62 p.c.) in this particular category in New Brunswick was considerably less. If to this category is added persons who were able to speak both English and French it will be seen that 81 p.c. of New Brunswick's population was able to speak English.

In Quebec, precisely the same percentage (62 p.c.) of the population as in New Brunswick spoke one of these languages but not the other, but in this province the situation was reversed with the 62 p.c. speaking French but not English. Only 12 p.c. of Quebec's population spoke English but not French while one quarter or 1,339,000 spoke both languages. Thus 87 p.c. of the population of this province spoke French and 37 p.c. spoke English at the time of the latest census.

The number of French-speaking residents of Ontario at the 1961 Census was 588,506 as compared with 225,549 residing in New Brunswick. Although there were more than twice as many French-speaking persons in Ontario as in New Brunswick, the number in Ontario constituted just under 10 p.c. of the total population of that province in

* Prepared by A. H. LeNeveu, Chief of the Analysis, Immigration and Citizenship Statistics Section of the Census Division, Dominion Bureau of Statistics.

contrast to the 38 p.c. of New Brunswick's population. Consequently in Ontario, as in Manitoba, around 90 p.c. of the population reported ability to speak English but were unable to speak French. It is thus not unexpected that, as in the population as a whole, a high percentage of the postwar immigrants residing in Ontario—which province accounted for well over half of all the 1946-61 immigrants to Canada recorded in the 1961 Census—were able to speak English but only a small number spoke French, the relative numbers in 1961 being 771,482 speaking English and 42,543 speaking French.

In each of the three western provinces of Saskatchewan, Alberta and British Columbia, close to 95 p.c. of the population were able to speak English but not French; in Manitoba the proportion was about 90 p.c. Approximately 95 p.c. of the population of the Yukon spoke English but not French and in the Northwest Territories the proportion was 59 p.c. Because of the substantial numbers of Eskimos in the population of the Northwest Territories, over one third of the population was reported as unable to speak either of these languages.

19.—Numerical Distribution of the Population Speaking One, Both or Neither of the "Official" Languages, by Sex and by Province, Census 1961

NOTE.—See text and footnote *re* the term "official language" on p. 179.

Province or Territory	English Only			French Only		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Newfoundland	230,794	220,151	450,945	349	173	522
Prince Edward Island	48,610	46,686	95,296	627	592	1,219
Nova Scotia	347,298	337,507	684,805	2,865	3,073	5,938
New Brunswick	187,328	183,594	370,922	53,943	58,111	112,054
Quebec	293,219	315,416	608,635	1,531,255	1,723,595	3,254,850
Ontario	2,789,067	2,759,699	5,548,766	44,913	50,323	95,236
Manitoba	421,302	404,653	825,955	3,751	4,203	7,954
Saskatchewan	450,335	415,486	865,821	1,780	2,073	3,853
Alberta	649,989	603,835	1,253,824	2,713	2,821	5,534
British Columbia	790,174	762,386	1,552,560	1,272	1,287	2,559
Yukon Territory	7,573	6,106	13,679	16	22	38
Northwest Territories	7,875	5,679	13,554	52	57	109
Canada	**6,223,564**	**6,061,198**	**12,284,762**	**1,643,536**	**1,846,330**	**3,489,866**

Province or Territory	English and French			Neither		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Newfoundland	3,252	2,047	5,299	529	558	1,087
Prince Edward Island	4,033	3,905	7,938	87	89	176
Nova Scotia	23,444	21,543	44,987	637	640	1,277
New Brunswick	60,417	53,078	113,495	752	713	1,465
Quebec	782,702	556,176	1,338,878	24,680	32,168	56,848
Ontario	259,995	233,275	493,270	40,553	58,267	98,820
Manitoba	35,202	33,166	68,368	8,248	11,161	19,409
Saskatchewan	21,920	20,154	42,074	5,529	7,904	13,433
Alberta	30,444	26,476	56,920	6,237	9,429	15,666
British Columbia	30,737	26,767	57,504	6,911	9,548	16,459
Yukon Territory	545	280	825	44	42	86
Northwest Territories	1,009	605	1,614	3,886	3,835	7,721
Canada	**1,253,700**	**977,472**	**2,231,172**	**98,093**	**134,354**	**232,447**

20.—Percentage Distribution of the Population Speaking One, Both or Neither of the "Official" Languages, by Sex and by Province, Census 1961

NOTE.—See text and footnote *re* the term "official language" on p. 179.

Province or Territory	English Only			French Only		
	Males	Females	Total	Males	Females	Total
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland	98.2	98.8	98.5	0.1	0.1	0.1
Prince Edward Island	91.1	91.1	91.1	1.2	1.2	1.2
Nova Scotia	92.8	93.0	92.9	0.8	0.8	0.8
New Brunswick	61.9	62.1	62.0	17.8	19.7	18.7
Quebec	11.1	12.0	11.6	58.2	65.6	61.9
Ontario	89.0	89.0	89.0	1.4	1.6	1.5
Manitoba	89.9	89.3	89.6	0.8	0.9	0.9
Saskatchewan	93.9	93.2	93.6	0.4	0.5	0.4
Alberta	94.3	94.0	94.1	0.4	0.4	0.4
British Columbia	95.3	95.3	95.3	0.2	0.2	0.2
Yukon Territory	92.6	94.7	93.5	0.2	0.3	0.3
Northwest Territories	61.4	55.8	58.9	0.4	0.6	0.5
Canada	**67.5**	**67.2**	**67.4**	**17.8**	**20.5**	**19.1**

Province or Territory	English and French			Neither		
	Males	Females	Total	Males	Females	Total
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland	1.4	0.9	1.2	0.2	0.2	0.2
Prince Edward Island	7.6	7.6	7.6	0.2	0.2	0.2
Nova Scotia	6.3	5.9	6.1	0.2	0.2	0.2
New Brunswick	20.0	18.0	19.0	0.2	0.2	0.2
Quebec	29.7	21.2	25.5	0.9	1.2	1.1
Ontario	8.3	7.5	7.9	1.3	1.9	1.6
Manitoba	7.5	7.3	7.4	1.8	2.5	2.1
Saskatchewan	4.6	4.5	4.5	1.2	1.8	1.5
Alberta	4.4	4.1	4.3	0.9	1.5	1.2
British Columbia	3.7	3.3	3.5	0.8	1.2	1.0
Yukon Territory	6.7	4.3	5.6	0.5	0.7	0.6
Northwest Territories	7.9	5.9	7.0	30.3	37.7	33.6
Canada	**13.6**	**10.8**	**12.2**	**1.1**	**1.5**	**1.3**

Among the 2,231,000 persons reporting ability to speak both English and French, certain characteristics stand out. In the first place, a high percentage (80 p.c.) were residents of urban centres, close to 70 p.c. living in the larger cities of 100,000 population or over. Secondly, with three fifths of the bilingual population residing in the Province of Quebec, it is obvious that a substantial proportion of this group were of French ethnic background. Actually 1,666,000 or 75 p.c. of the population speaking both languages were recorded in the 1961 Census as of the French ethnic group. Thirdly, the study of language by age groups reveals a tendency for the percentage of persons able to speak both languages to rise steadily from childhood to around 45 years and decline gradually in the older age groups. This percentage rose from 4 p.c. among children under 15 years of age to 20 p.c. for males between 20 and 45 years. Largely because of the higher proportion of males than females over 15 years in the labour force, the percentage of the latter able to speak both English and French was somewhat lower than for males.

The 1961 Census showed 565,000 persons of other than French origin as able to speak both English and French. Just over 318,000 or 56 p.c. of these were of British Isles origins, 48,000 of Italian, 32,000 of Jewish, 27,000 of German, and 18,000 of Polish ethnic background. Smaller numbers were reported from among a variety of European and Asiatic ethnic groups. As would be expected, the extent to which members of these groups were able to speak both English and French depended quite largely upon the proportion of their number residing in the Province of Quebec or neighbouring communities in which there were large numbers of French-speaking persons. For example, just over half of the 318,000 bilingual persons of British Isles ethnic background resided in Quebec Province. Although only 4 p.c. of the total population in Canada of this numerically largest ethnic group were bilingual, about 30 p.c. of those living in the Province of Quebec could speak both French and English. Similarly, among residents of this province belonging to other ethnic groups those reporting the highest percentages able to speak both languages were: Russian, 38 p.c.; Asiatic, 37 p.c.; Jewish, 36 p.c.; Italian, 35 p.c.; Polish, 32 p.c. and Scandinavian, 31 p.c.

Among the foreign born population, 216,000 or around 8 p.c. had acquired a speaking knowledge of both English and French at the 1961 Census date. Ability to speak both languages among the foreign born was much more evident in Quebec Province than elsewhere, where 28 p.c. of this group reported ability to speak both English and French at the 1961 Census. Among the more recent arrivals in this country, i.e., those who had immigrated to Canada between 1951 and 1961, one quarter of the residents of this province were able to speak both English and French by the date of the latest census.

From what has been said it may be concluded that the degree to which the population of a given province, city, rural or urban area is able to speak both English and French depends to a considerable extent upon the ratio of people of French to non-French origin in the area under observation. In metropolitan centres where a substantial number of bilingual persons are found, this relationship is quite apparent. For example, if the three metropolitan areas of Montreal, Ottawa and Quebec—where the population of French ethnic group rises from around two fifths of the total in Ottawa, to almost two thirds in Montreal and close to 95 p.c. in Metropolitan Quebec—are examined, it will be found that the percentage of the French ethnic group able to speak both languages was highest in Metropolitan Ottawa at 60 p.c., declining to just over 40 p.c. in Metropolitan Montreal and to 23 p.c. in the Metropolitan Quebec area. Hence where there is a lower percentage of the French ethnic group in the total population of these metropolitan areas there is a higher proportion of bilingual persons in the group and, conversely, where a high percentage of the total population is of French ethnic background, such as in Metropolitan Quebec, there is a lower percentage of bilingual persons in that area.

Although the percentage of the population of non-French ethnic groups in these three metropolitan areas who were able to speak both English and French was not as high as for the French ethnic group, the same tendency may be observed. To illustrate, in Quebec Metropolitan Area, not much more than 5 p.c. of the population was of non-French ethnic background. Among this group 52 p.c. were able to speak both French and English at the 1961 Census and in this predominantly French-speaking area another 28 p.c. of this non-French ethnic group spoke French but not English. Thus, in this metropolitan area 80 p.c. of the population reporting ethnic origins other than French were able to speak French. In Metropolitan Montreal where the non-French ethnic groups accounted for around 35 p.c. of the total population, 30 p.c. were able to speak both languages, but in the Ottawa area where approximately 60 p.c. of the population was reported as belonging to non-French ethnic groups, the proportion who were able to speak both French and English was much lower at 11 p.c.

The importance of this factor of the ratio of the French to other ethnic groups in particular types of areas on the ability to speak both English and French is also evident when comparison is made of the extent of bilingualism among the population of the French, on the one hand, and other ethnic groups, on the other, in the rural areas of the Provinces of Ontario and Quebec. Although the population of French ethnic background in rural Ontario is concentrated largely in the eastern and in the northern parts of the province,

almost half of their number were able to speak both languages at the time of the latest census. By contrast, in the rural areas of the Province of Quebec, largely because of the high preponderance of people of the French ethnic group in these areas, less than 10 p.c. of this ethnic group were able to speak both languages. On the other hand, because of the fact that a large majority of the population of rural Ontario are of non-French ethnic groups, only about 2 p.c. of their number were able to speak both languages in 1961 whereas in rural Quebec, where the non-French ethnic group constituted a relatively small percentage of the population, 22 p.c. reported ability to speak both English and French.

It is not possible in this brief review to indicate other factors contributing to differences in the degree to which both English and French are spoken by the population of French and of other ethnic groups throughout Canada. It could well be, however, that for areas with higher or lower degrees of bilingualism among French or other ethnic groups an examination of the historical statistics of the census with respect to periods of settlement of various ethnic groups, educational levels, intermarriage between French and other ethnic groups, types of industries and occupations, and so forth, might help to identify other factors that contribute to differences in this regard.

Subsection 10.—Households and Families

This Subsection contains a summary of the principal statistics on households and families recorded at the 1961 Census; more detailed information may be found in 1961 Census reports relating to households and families (see also p. 159).

A household, as defined in the census, consists of a person or a group of persons occupying one dwelling.* It usually consists of a family with or without lodgers, employees, etc. However, it may consist of a group of unrelated persons, of two or more families sharing a dwelling, or of one person living alone. Every person is a member of some household and the number of households equals the number of occupied dwellings.

The total number and the average size of households are given by province for the census years 1951, 1956 and 1961 in Table **21.** The relatively stable average of persons per household indicates an almost equal rate of increase for the dwelling stock as for the population.

* A dwelling is defined as a structurally separate set of living quarters, with a private entrance either from outside the building or from a common hall, lobby, vestibule or stairway inside. The entrance must not be through another person's living quarters.

21.—Households and Persons per Household, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Households			Average Persons per Household		
	1951	1956	1961	1951	1956	1961
	No.	No.	No.	No.	No.	No.
Newfoundland	70,980	78,808	87,940	5.0	5.1	5.0
Prince Edward Island	22,454	22,682	23,942	4.3	4.2	4.2
Nova Scotia	149,555	162,854	175,341	4.2	4.1	4.0
New Brunswick	114,007	120,475	132,715	4.4	4.5	4.4
Quebec	858,784	1,001,264	1,191,469	4.6	4.4	4.2
Ontario	1,181,126	1,392,491	1,640,881	3.8	3.8	3.7
Manitoba	202,398	217,964	239,754	3.7	3.7	3.7
Saskatchewan	221,456	233,664	245,424	3.7	3.6	3.6
Alberta	250,747	294,047	349,816	3.6	3.7	3.7
British Columbia	337,777	392,403	459,534	3.3	3.4	3.4
Yukon and Northwest Territories	..	6,994	7,920	..	3.8	4.2
Canada	**3,409,284**[1]	**3,923,646**	**4,554,736**	**4.0**[1]	**3.9**	**3.9**

[1] Exclusive of the Yukon and Northwest Territories.

Table 22 shows that in 1961 there was a higher proportion of one- and two-person households than a decade previously and a correspondingly lower proportion of the largest-sized households.

22.—Households classified by Number of Persons, Census Years 1951, 1956 and 1961

Persons per Household	Households			Percentages of Total		
	1951[1]	1956	1961	1951[1]	1956	1961
	No.	No.	No.			
1 person	252,436	308,613	424,750	7.4	7.9	9.3
2 persons	711,110	859,109	1,012,068	20.9	21.9	22.2
3 "	688,025	739,390	809,182	20.2	18.8	17.8
4 "	645,512	742,363	836,912	18.9	18.9	18.4
5 "	439,873	513,821	604,261	12.9	13.1	13.3
6 "	268,238	314,040	372,914	7.9	8.0	8.2
7 "	158,900	180,603	209,247	4.7	4.6	4.6
8-9 "	154,540	169,723	189,447	4.5	4.3	4.2
10 or more persons	90,650	95,984	95,955	2.7	2.4	2.1
Totals, Households	**3,409,284**	**3,923,646**	**4,554,736**	**100.0**	**100.0**	**100.0**
Average Persons per Household	4.0	3.9	3.9	...	...	...

[1] Exclusive of the Yukon and Northwest Territories.

Table 23 gives two classifications of households. The first is by the number of families* they include. While the proportion of one-family households has remained relatively stable since 1951, that of doubled-up families shows a fairly sharp drop from 6.7 p.c. in 1951 to 3.7 p.c. in 1961, a possible indication of an easing in the housing situation. The proportion of non-family households has increased slightly over the ten-year period—from 11.3 p.c. to 13.3 p.c.

The second classification is by number of lodgers. The percentage of households with lodgers has continued to decrease but at a much slower pace between 1956 and 1961 than during the previous five-year period.

* A family, as defined in the census, consists of a husband and wife (with or without children who have never married) or a parent with one or more children never married, living together in the same dwelling. Adopted children and stepchildren are counted as own children and, in fact, a family may comprise a man or woman living with a guardianship child or ward under 21 years of age.

23.—Households classified by Number of Families and by Number of Lodgers, Census Years 1951, 1956 and 1961

Families or Lodgers	1951		1956		1961	
	No.	P.C. of Total	No.	P.C. of Total	No.	P.C of Total
Households with—						
0 family	385,010	11.3	459,420	11.7	605,801	13.3
1 family	2,794,860	82.0	3,259,499	83.1	3,780,992	83.0
2+families	229,425	6.7	204,727	5.2	167,943	3.7
0 lodger	3,081,085	90.4	3,610,238	92.0	4,210,953	92.4
1 lodger	171,310	5.0	162,067	4.1	207,518	4.6
2 lodgers	73,480	2.2	68,950	1.8	67,237	1.5
3+lodgers	83,420	2.4	82,391	2.1	69,028	1.5

The average size of the Canadian family made a further gain between 1956 and 1961, continuing the trend of the 1951-56 period. Every province except Quebec and Saskatchewan participated in this increase, as shown in Table 24.

24.—Families and Persons per Family, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Families			Average Persons per Family		
	1951	1956	1961	1951	1956	1961
	No.	No.	No.	No.	No.	No.
Newfoundland	74,858	82,128	89,267	4.4	4.6	4.7
Prince Edward Island	21,381	21,153	21,969	4.0	4.1	4.2
Nova Scotia	145,127	154,243	161,894	3.9	3.9	4.0
New Brunswick	111,639	116,623	124,653	4.1	4.2	4.3
Quebec	856,041	970,414	1,103,822	4.2	4.2	4.2
Ontario	1,162,772	1,342,572	1,511,478	3.4	3.5	3.6
Manitoba	191,268	204,414	215,831	3.6	3.6	3.7
Saskatchewan	196,188	205,135	211,776	3.7	3.8	3.8
Alberta	223,326	262,922	305,671	3.7	3.7	3.8
British Columbia	299,845	346,003	394,023	3.3	3.4	3.6
Yukon and Northwest Territories	4,939	5,893	7,060	3.9	4.1	4.3
Canada	**3,287,384**	**3,711,500**	**4,147,444**	**3.7**	**3.8**	**3.9**

Closely related to the number of families per household, and also an indicator of living conditions, is the type of family. In 1961, 94.3 out of every 100 families in Canada were maintaining their own households as compared with 92.3 in 1956 and 90.2 in 1951, an apparent steady improvement in living conditions. The families not maintaining their own households fell into two main sub-categories—families related to the head of the household and non-related lodging families. The few who did not fit either of these sub-categories were mostly families of employees living in their employer's household. Table 25 shows the 1961 distribution of families according to type.

25.—Families classified by Type and by Province, Census 1961

Province or Territory	Maintaining Own Household	Not Maintaining Own Household				Total Families
		Related	Lodging	Other	Total	
	No.	No.	No.	No.	No.	No.
Newfoundland	81,068	6,996	1,139	64	8,199	89,267
Prince Edward Island	20,294	1,455	177	43	1,675	21,969
Nova Scotia	149,876	9,626	2,012	380	12,018	161,894
New Brunswick	116,446	7,032	970	205	8,207	124,653
Quebec	1,051,891	42,777	8,222	932	51,931	1,103,822
Ontario	1,405,131	61,376	43,500	1,471	106,347	1,511,478
Manitoba	204,406	6,030	4,702	693	11,425	215,831
Saskatchewan	204,612	4,385	2,154	625	7,164	211,776
Alberta	293,609	7,197	3,431	1,434	12,062	305,671
British Columbia	377,596	9,936	5,973	518	16,427	394,023
Yukon and Northwest Territories	6,600	310	136	14	460	7,060
Canada	**3,911,529**	**157,120**	**72,416**	**6,379**	**235,915**	**4,147,444**

There were 7,777,137 children in families in 1961. These are limited by definition to children never married and under 25 years of age who were living with their parents or guardians at the time of the census. In Table 26, the number of children is classified to show the number in each of four separate age groups corresponding roughly to pre-school-age children, those of elementary school age, those at the secondary school level, and those of college or working age.

26.—Children Living at Home classified by Age Group and by Province, Census 1961

Province or Territory	Under 6 Years	6–14 Years	15–18 Years		19–24 Years		Total Children Living at Home
			Total	At School	Total	At School	
	No.	No.	No.	No.	No.	No.	No.
Newfoundland	80,245	109,020	32,582	21,004	16,827	1,522	238,674
Prince Edward Island	15,550	21,563	6,626	4,465	3,606	600	47,345
Nova Scotia	107,627	144,950	45,611	32,907	23,000	4,036	321,188
New Brunswick	93,231	131,102	39,668	27,329	19,746	3,660	283,747
Quebec	789,382	1,042,937	353,764	209,975	240,275	34,464	2,426,358
Ontario	874,318	1,111,981	321,482	245,421	179,622	45,625	2,487,403
Manitoba	127,250	169,016	51,530	39,156	26,775	5,883	374,571
Saskatchewan	134,502	176,645	53,033	41,991	23,396	5,736	387,576
Alberta	212,114	250,672	70,686	57,259	32,882	8,351	566,354
British Columbia	220,347	281,698	83,272	68,346	42,081	11,714	627,398
Yukon and Northwest Territories	7,158	6,985	1,554	861	826	91	16,523
Canada	**2,661,724**	**3,446,569**	**1,059,808**	**748,714**	**609,036**	**121,682**	**7,777,137**

Two additional family classifications are given in the 1963-64 Year Book at pp. 180-181—families classified by age of head, and families classified by marital status and sex of family head.

Section 2.—Intercensal Surveys

Intercensal estimates of the populations of Canada and of the provinces have many uses. They are necessary to the calculation of costs of certain economic and social legislation. Business, educational and welfare organizations utilize population estimates in planning future development. They constitute a base for vital statistics rates, per capita figures of production and trade, and other analyses. They also have been found useful for estimating labour force and other population characteristics of data collected in sample surveys.

Estimates are constructed for the total population of Canada and for each province and become available about the date to which they apply—June 1 of each year. Population estimates by province are also available on a quarter-year basis. The estimates of population begin with the preceding census counts, to which are added the births of the intervening census year or years and from which the deaths are subtracted; immigrants are added and emigrants subtracted. No complete information is available on emigration. The DBS receives yearly from the United States the number of persons who gave Canada as country of last permanent residence before entering the United States as immigrants (see Chapter on Immigration and Citizenship, Part I, Section 3) and from the Registrar-General of Britain the number of emigrants from Canada arriving by sea to take up permanent residence in that country. Such data, however, are not available from other countries but, as indicated by partial data from United Nations sources, the proportion of total emigrants to all other countries is small. Family allowance statistics showing the number of migrant families by provinces are used in estimating interprovincial shifts in population (see Table 3, p. 163).

The following statement shows the data used in preparing the revised population estimates for the years 1957 to 1960 and the annual estimates for 1962, 1963 and 1964. The next succeeding census serves as a basis for revision of the annual estimates of each intercensal period.

Year	Population at June 1	From June 1 to May 31 of Next Year			
		Births[1]	Deaths[1]	Immigrants	Residual[2]
	No.	No.	No.	No.	No.
1956 Census	16,081,000	461,000	132,000	255,000	55,000
1957	16,610,000	471,000	138,000	194,000	57,000
1958	17,080,000	474,000	139,000	116,000	48,000
1959	17,483,000	477,000	138,000	106,000	58,000
1960	17,870,000	479,000	141,000	89,000	59,000
1961 Census	18,238,000	472,000	143,000	70,000	67,000
1962	18,570,000	470,000	145,000	79,000	78,000
1963	18,896,000	462,000	149,000	102,000	80,000
1964	19,237,000	..	..	..	..

[1] Final figures used where available and registrations substituted for the remaining period. [2] Mainly emigration.

27.—Annual Estimates of Population, by Province, as at June 1, 1951-64

NOTE.—At every census the previous post-censal estimates, made at June 1 each year, are adjusted to the newly recorded population figures. Figures for 1951, 1956 and 1961 are census figures. Figures for 1867-1904 will be found in the 1936 Year Book, p. 141; for 1905-30 in the 1946 edition, p. 127; for 1931-40 in the 1952-53 edition, p. 143; and for 1941-50 in the 1961 edition, p. 165. Figures for 1867-1951 will also be found in *Census of Canada 1951*, Vol. X.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1951	**361**	**98**	**643**	**516**	**4,056**	**4,598**	**776**	**832**	**939**	**1,165**	**9**	**16**	**14,009**
1952	374	100	653	526	4,174	4,788	798	843	973	1,205	9	16	14,459
1953	383	101	663	533	4,269	4,941	809	861	1,012	1,248	9	16	14,845
1954	395	101	673	540	4,388	5,115	823	873	1,057	1,295	10	17	15,287
1955	406	100	683	547	4,517	5,266	839	878	1,091	1,342	11	18	15,698
1956	**415**	**99**	**695**	**555**	**4,628**	**5,405**	**850**	**881**	**1,123**	**1,399**	**12**	**19**	**16,081**
1957	424	99	701	562	4,769	5,636	862	880	1,164	1,482	12	19	16,610
1958	432	100	709	571	4,904	5,821	875	891	1,206	1,538	13	20	17,080
1959	441	101	719	582	5,024	5,969	891	907	1,248	1,567	13	21	17,483
1960	448	103	727	589	5,142	6,111	906	915	1,291	1,602	14	22	17,870
1961	**458**	**105**	**737**	**598**	**5,259**	**6,236**	**922**	**925**	**1,332**	**1,629**	**14**	**23**	**18,238**
1962	470	106	746	607	5,366	6,342	935	930	1,370	1,659	15	24	18,570
1963	481	107	756	614	5,468	6,448	950	933	1,405	1,695	15	24	18,896
1964	491	107	762	617	5,562	6,586	958	943	1,432	1,738	16	25	19,237

Because of the growing interest in the expanding population of the larger metropolitan areas of Canada, estimates for these areas have been prepared as of June 1, 1963. These are shown in Table 28 with the census counts for June 1, 1961; the estimates relate to the boundaries established for the 1961 Census. As in the preparation of intercensal population estimates for provinces, the births occurring in the metropolitan areas between June 1, 1961 and June 1, 1963 were added to the population at the census date, and deaths subtracted. Immigrants over this period reporting these metropolitan areas as places of destination were added and allowances were made for losses in population by emigration. Also, the net in-movement or out-movement caused by internal migration was calculated from family allowance and other data.

The falling off in the rate of population growth for the whole of Canada between June 1, 1961 and June 1, 1963, caused by declining immigration and a slight fall in the birth rate, is also reflected in the growth rate for the metropolitan areas.

28.—Estimated Population of Major Metropolitan Areas[1] as at June 1, 1963, compared with 1961 Census

Metropolitan Area[2]	Census June 1, 1961	Estimate June 1, 1963	Metropolitan Area[2]	Census June 1, 1961	Estimate June 1, 1963
	No.	No.		No.	No.
Calgary	279,062	300,000	Quebec	357,568	376,000
Edmonton	337,568	362,000	Toronto	1,824,481	1,925,000
Hamilton	395,189	408,000	Vancouver	790,165	809,000
London	181,283	188,000	Windsor	193,365	196,000
Montreal	2,109,509	2,205,000	Winnipeg	475,989	485,000
Ottawa	429,750	458,000			

[1] With 100,000 or more population in the city proper at the 1961 Census. [2] Areas as of the 1961 Census.

Table 29 gives estimates of the population of Canada and the provinces by age group and sex as at June 1, 1963. The method followed in preparing these estimates was much the same as that used in calculating the population estimates, described on p. 188. These estimates are subject to revision as soon as data from the next census are available.

29.—Estimated Population classified by Age Group and Sex, by Province, as at June 1, 1963

Province or Territory	0–4 Years		5–9 Years		10–14 Years		15–19 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland	36.5	34.8	32.7	32.1	31.7	30.7	25.4	25.0
Prince Edward Island	6.9	6.5	6.3	6.1	6.3	6.1	5.2	5.0
Nova Scotia	46.9	45.0	44.6	42.1	42.2	40.3	36.3	34.3
New Brunswick	40.3	38.3	39.0	37.2	38.0	36.8	31.3	29.9
Quebec	340.8	325.6	329.9	316.1	303.7	291.0	259.5	252.2
Ontario	388.7	370.2	356.7	340.3	324.8	308.8	254.1	241.6
Manitoba	56.3	52.8	52.7	50.3	49.0	47.1	40.2	38.4
Saskatchewan	58.0	55.9	55.3	52.5	50.2	48.3	40.4	38.7
Alberta	96.0	91.9	86.2	81.5	73.6	70.1	56.8	54.4
British Columbia	96.7	92.8	91.5	87.5	83.1	79.3	66.1	62.8
Yukon Territory	1.3	1.2	1.0	0.9	0.7	0.6	0.4	0.4
Northwest Territories	2.3	2.2	1.6	1.5	1.3	1.3	0.9	0.9
Canada	**1,170.7**	**1,118.2**	**1,097.5**	**1,048.1**	**1,004.6**	**960.4**	**816.6**	**783.6**

Province or Territory	20–24 Years		25–34 Years		35–44 Years		45–54 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland	17.3	17.2	27.6	25.3	25.7	23.4	22.2	19.6
Prince Edward Island	3.6	3.3	5.7	5.2	5.5	5.5	5.6	5.1
Nova Scotia	27.7	25.7	43.9	42.2	43.5	44.5	40.6	38.4
New Brunswick	21.0	20.3	32.8	32.7	34.3	34.8	30.2	28.7
Quebec	198.9	204.9	362.2	367.5	343.0	351.5	266.5	268.2
Ontario	196.9	200.6	428.2	420.2	447.1	449.1	353.1	343.1
Manitoba	31.4	30.7	58.9	55.9	59.9	61.6	52.7	51.8
Saskatchewan	29.6	28.5	54.6	51.0	57.4	55.7	51.3	48.3
Alberta	46.0	46.5	99.5	93.2	92.1	89.0	70.9	66.4
British Columbia	51.3	51.1	108.3	101.5	112.4	116.1	97.8	97.2
Yukon Territory	0.5	0.4	1.5	1.1	1.4	1.0	0.8	0.5
Northwest Territories	1.1	0.8	2.4	1.6	1.7	1.1	1.0	0.7
Canada	**625.3**	**630.0**	**1,225.6**	**1,197.4**	**1,224.0**	**1,233.3**	**992.7**	**968.0**

29.—Estimated Population classified by Age Group and Sex, by Province, as at June 1, 1963—concluded

Province or Territory	55-64 Years		65-69 Years		70+ Years		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland	13.6	12.5	4.9	4.9	9.0	8.9	246.6	234.4
Prince Edward Island	4.2	3.8	1.8	1.8	3.6	3.9	54.7	52.3
Nova Scotia	27.1	25.9	10.4	10.8	20.4	23.2	383.6	372.4
New Brunswick	20.4	19.9	7.9	8.2	15.2	16.8	310.4	303.6
Quebec	178.5	184.4	59.0	63.6	92.5	108.5	2,734.5	2,733.5
Ontario	248.5	249.2	88.1	97.0	150.2	191.5	3,236.4	3,211.6
Manitoba	37.5	35.8	14.0	14.1	28.9	29.0	481.5	468.5
Saskatchewan	37.5	32.8	14.5	13.0	32.6	26.9	481.4	451.6
Alberta	50.7	43.0	17.4	15.3	34.8	29.7	724.0	681.0
British Columbia	68.3	62.4	24.5	25.6	59.6	59.1	859.6	835.4
Yukon Territory	0.5	0.3	0.1	0.1	0.2	0.1	8.4	6.6
Northwest Territories	0.6	0.4	0.2	0.1	0.2	0.1	13.3	10.7
Canada	**687.4**	**670.4**	**242.8**	**254.5**	**447.2**	**497.7**	**9,534.4**	**9,361.6**

Section 3.—The Native Peoples of Canada

The Indians*

Approximately one of every hundred Canadians is registered as an Indian by the Department of Citizenship and Immigration. This number includes all persons descended in the male line from a paternal ancestor of Indian identity who have chosen to remain under Indian legislation. In the aggregate, the Indians are grouped into 559 bands and occupy or have access to 2,265 reserves or settlements having a total area of 5,985,107 acres.

About 26 p.c. of the Indians reside away from reserves, including those in the Yukon and Northwest Territories for whom reserves have not been set aside. Many Indians, both on and off reserves, have specialized in various professions, trades and agricultural pursuits. Others have fitted into the economy of the areas in which they live in a wide range of occupations. Some 265 Indians are employed by the Indian Affairs Branch of the Department of Citizenship and Immigration, 123 of them as teachers. In the northern and other outlying areas, hunting, fishing and trapping remain the important means of livelihood for Indians.

Subject to special provisions in the Indian Act, all laws of general application are applicable to Indians. Indians are liable for taxation of property held off a reserve as well as of any income they earn off a reserve. They may vote in federal elections on the same basis as other citizens and in provincial elections where the electoral laws of the provinces permit. Indians are free to enter into contractual obligations and may sue and be sued. However, their real and personal property situated on a reserve is exempt from seizure except on suit by another Indian.

* Revised in the Information Division, Department of Citizenship and Immigration, Ottawa.

30.—Indian Land in Reserves and Number of Bands, by Province, as at Mar. 31, 1964

Province or Territory	Bands	Reserves	Total Area
	No.	No.	acres
Prince Edward Island	1	4	2,741
Nova Scotia	11	39	25,404
New Brunswick	15	23	37,671
Quebec	41	39	188,143
Ontario	111	169	1,556,437
Manitoba	51	101	522,575
Saskatchewan	67	123	1,224,111
Alberta	41	95	1,603,475
British Columbia	192	1,618	817,754
Yukon Territory	13	25[1]	4,784
Northwest Territories	16	29[1]	2,012
Totals	**559**	**2,265[2]**	**5,985,107**

[1] Indian settlements only. [2] Includes 75 Indian settlements not officially classified as reserves—13 in Quebec, 4 in Ontario, 4 in Alberta, 25 in the Yukon Territory and 29 in the Northwest Territories.

A Departmental census of Indian population is taken every five years and the numbers recorded at the three latest censuses—1949, 1954 and 1959—are given in Table 31; the figures for 1960-63 are taken from band membership lists kept for administrative purposes by the Indian Affairs Branch.

31.—Indian Population, by Province, Departmental Censuses 1949, 1954 and 1959 and Estimates 1960-63

Province or Territory	1949	1954	1959[1]	1960[1]	1961[1]	1962[1]	1963[1]
	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island	273	272	341	343	348	363	374
Nova Scotia	2,641	3,002	3,561	3,630	3,746	3,834	3,935
New Brunswick	2,139	2,629	3,183	3,280	3,397	3,524	3,629
Quebec	15,970	17,574	20,453	21,154	21,793	22,373	23,043
Ontario	34,571	37,255	42,668	43,767	44,942	46,172	47,260
Manitoba	17,549	19,684	23,658	24,608	25,681	26,676	27,778
Saskatchewan	16,308	18,750	23,280	24,278	25,334	26,483	27,672
Alberta	13,805	15,715	19,287	20,053	20,931	21,807	22,738
British Columbia	27,936	31,086	36,229	37,375	38,616	39,784	40,990
Yukon Territory	1,443	1,568	1,868	1,923	2,006	2,096	2,142
Northwest Territories	3,772	4,023	4,598	4,758	4,915	5,108	5,235
Totals	**136,407**	**151,558**	**179,126**	**185,169**	**191,709**	**198,220**	**204,796**

[1] As at Dec. 31.

The Indian population in each province is classified by age group and sex in Table 32. The rapid growth of that population in recent years is indicated by the fact that in 1963 approximately 58 p.c. of the Indians were under 21 years of age compared with 43 p.c. of the population of Canada as a whole. Religious denominations of the Indian population are given in Table 33.

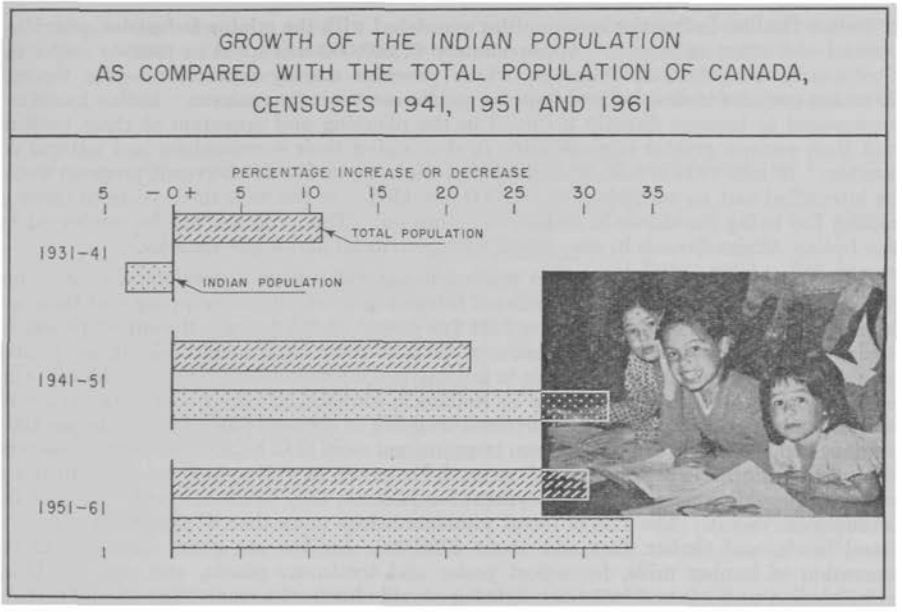
32.—Indian Population classified by Age Group and Sex, by Province, Dec. 31, 1963

Province or Territory	0–5 Years		6–15 Years		16–20 Years		21–64 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island	29	36	42	41	16	16	91	80
Nova Scotia	341	325	527	514	207	183	849	742
New Brunswick	362	378	511	486	169	163	751	641
Quebec	2,062	2,110	2,675	2,690	1,105	1,095	5,172	4,760
Ontario	4,451	4,375	6,031	5,808	2,334	2,327	10,042	8,971
Manitoba	3,407	3,373	3,742	3,721	1,385	1,297	5,237	4,487
Saskatchewan	3,565	3,562	3,819	3,805	1,278	1,275	4,893	4,455
Alberta	2,882	2,834	3,134	3,156	1,062	1,110	4,005	3,647
British Columbia	4,670	4,704	5,568	5,479	2,065	2,087	7,881	6,839
Yukon Territory	270	251	252	268	102	108	419	360
Northwest Territories	546	584	622	633	243	215	1,093	967
Totals	**22,585**	**22,532**	**26,923**	**26,601**	**9,966**	**9,876**	**40,433**	**35,949**

Province or Territory	65–69 Years		70 + Years		Not Stated		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island	4	2	4	4	3	6	189	185
Nova Scotia	28	24	61	44	35	55	2,048	1,887
New Brunswick	30	15	42	40	16	25	1,881	1,748
Quebec	225	192	399	376	42	140	11,680	11,363
Ontario	445	350	789	724	192	421	24,284	22,976
Manitoba	214	151	350	337	12	65	14,347	13,431
Saskatchewan	182	169	353	263	6	47	14,096	13,576
Alberta	170	101	296	232	36	73	11,585	11,153
British Columbia	382	245	546	462	7	55	21,119	19,871
Yukon Territory	12	15	39	44	—	2	1,094	1,048
Northwest Territories	56	50	96	92	15	23	2,671	2,564
Totals	**1,748**	**1,314**	**2,975**	**2,618**	**364**	**912**	**104,994**	**99,802**

33.—Religious Denominations of the Indian Population, by Province, Dec. 31, 1963

Province or Territory	Roman Catholic	Anglican	United Church	Baptist	Presbyterian	Pentecostal	Salvation Army	Other Christian Belief	Aboriginal	Not Stated	All Denominations
	No.	No	No.	No.	No.	No.	No.	No.	No.	No.	No.
P.E.I.	374	—	—	—	—	—	—	—	—	—	374
N.S.	3,891	—	6	—	—	—	—	4	—	34	3,935
N.B.	3,601	—	1	—	—	—	—	—	—	27	3,629
Que.	16,644	4,643	827	5	—	32	—	203	219	470	23,043
Ont.	16,377	13,616	7,637	3,232	884	384	3	411	2,658	2,058	47,260
Man.	10,800	8,113	6,935	—	1,209	263	—	119	86	253	27,778
Sask.	14,878	8,217	2,408	63	88	—	—	409	1,333	276	27,672
Alta.	16,257	2,947	2,520	168	6	11	—	539	67	223	22,738
B.C.	23,836	7,813	7,772	1	2	297	744	230	1	294	40,990
Yukon	527	1,489	—	119	—	—	—	—	—	7	2,142
N.W.T.	4,078	881	—	—	1	—	—	—	—	275	5,235
Totals	**111,263**	**47,719**	**28,106**	**3,588**	**2,190**	**987**	**747**	**1,915**	**4,364**	**3,917**	**204,796**



Administration.—Pursuant to the British North America Act, the administration of Indian Affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada. Since January 1950, Indian affairs have been the responsibility of a Branch of the Department of Citizenship and Immigration.

The Indian Affairs Branch is composed of a headquarters staff at Ottawa, eight regional offices, two district offices in the Province of Ontario and 88 field agencies. Specialists in such matters as education, economic development, resource management, social welfare, and engineering and construction are attached to headquarters and regional staffs. Liaison is maintained with the Indian and Northern Health Services of the Department of National Health and Welfare, the federal agency concerned with the medical care of Indians (see p. 277).

It is the primary function of the Indian Affairs Branch to administer the affairs of Indians in a manner that will enable them to participate fully in the social and economic life of the country. To this end, the Branch has brought into effect a wide range of programs in the fields of education, economic development, social welfare and community development. Underlying administrative duties of the Branch include the management of Indian reserves and surrendered lands, the administration of band funds, estates management, enfranchisement of Indians and the administration of treaty obligations.

Economic Development.—A number of self-help programs are in operation, intended to give all Indians the opportunity of earning satisfactory incomes. Special attention is given to the placement of Indians in employment; the promotion of agriculture and stock-raising on reserves; the fostering of Indian enterprise and the provision of loans; home industries and handicrafts; the management of fur, fish and wildlife resources; and assistance in developing other resources on or with access to the reserves.

Placement officers of the National Employment Service, located at a number of centres, help develop job opportunities for Indians and to promote their employment in a wider range of occupations, a program which includes vocational and trade training. The Indian Affairs Branch has arranged for community organizations to counsel Indians who are becoming established in urban centres outside reserves and it also fosters the relocation

of Indian families in frontier communities associated with the mining industries, providing counsel and other assistance. Approximately $1,200,000 was spent in 1963-64 under the Community Employment Program, which provides employment on reserves through financing projects to develop and improve public assets on the reserves. Indian bands are encouraged to become directly involved in the planning and operation of these projects and thus assume greater responsibility in developing their communities and natural resources. In mid-1964 it was announced that the community development program would be intensified and an additional $3,500,000 provided over the next three years to assist in raising the living standards in Indian communities. This program will be conducted by the Indian Affairs Branch in association with provincial and other agencies.

Certain provinces co-operate in renewable natural resources development programs. Slightly higher fur prices have stimulated interest and activity in trapping and there are indications that 1963-64 will be the best fur season in 15 years. Recent emphasis on tourism has resulted in several successful projects on reserves; through training and promotion, more opportunities are available in guiding and a preference for Indian guides is being shown in many areas. Participation by Indians in commercial fishing continues to increase and in some areas this occupation surpasses trapping in economic importance; during 1963, Indians earned close to $7,000,000 from trapping and more than $5,500,000 from commercial fishing operations. Forestry operations on the reserves, as well as in areas adjacent to the reserves, provide considerable employment for Indians; they produce about 90 p.c. of the annual reserve cut. The sale of forest products brings more than $7,000,000 annually to band funds, and timber dues add about $700,000. Indians are given assistance in the operation of lumber mills, fence-post peeler and treatment plants, and charcoal kilns; reforestation projects and forest fire-fighting provide further income. The annual revenue to band funds from the exploitation of mineral resources on reserve lands averages about $2,000,000 a year, most of it from oil and gas resources in Alberta.

During 1963, Indians made and sold about $900,000 worth of handicraft items. To encourage this important part-time occupation, the Indian Affairs Branch maintains a marketing service and provides basic materials and other types of assistance on a repayable basis. Indian farmers are eligible for assistance under the Prairie Farm Rehabilitation Act, the Prairie Farm Assistance Act, and other federal statutes of general application. In addition, the Branch provides financial assistance to encourage young Indians to engage in farming and to help those already so engaged. The Branch is prepared to help Indians to finance co-operatives and small businesses when competent management is provided and the Indians concerned are familiar with the business principles and practices involved and have a financial stake in the enterprise.

Indians maintain a number of projects through their band funds. During the year 1963-64, $41,500 was used to provide cattle for Indian farmers on a repayable basis. Agricultural assistance, nearly all of which was repayable, totalled $102,200 and machinery was provided at a cost of $90,100. Other expenditures included $589,000 for roads and bridges and $6,300 for reforestation. In addition, 52 band loans from capital funds, almost all of which were for the purchase of cattle and machinery, totalled $38,721.

Education.—More than 50,500 Indians are enrolled in schools throughout the country. Approximately one third of these attend provincial and private schools, the cost of tuition being assumed by the Federal Government. As a further encouragement to the attendance of Indian children in non-Indian schools, grants are made toward the cost of any new or supplementary construction required by their admission.

There are three types of Indian schools, all operated at the expense of the Government. On most reserves, day schools provide education for children who live at home. Residential schools care for orphaned children, children from broken homes, and for those who, because of isolation or other reasons, are unable to attend day schools. The third type of school gives instruction to children confined to hospital.

All standard classroom supplies and authorized textbooks are used in Indian schools. Financial assistance for pupils attending non-Indian schools varies from payment of tuition fees to full maintenance. Promising senior students are awarded scholarships to attend university or vocational school and scholarships are given to those who show promise in the arts.

34.—Enrolment of Indian Pupils in All Schools classified by Type of School and by Grade, School Year 1962-63

Classification	Grade				Technical	Professional and Other	Not Graded	Total
	Kindergarten	1–6	7–8	9–13				
	No.	No.	No.	No.	No.	No.	No.	No.
Day schools	2,498	16,810	1,864	89	15	...	302	21,578
Residential school boarders attending classes at residential schools	571	5,455	877	641	—	...	—	7,544
Day pupils attending classes at residential schools	338	1,997	263	7	—	...	—	2,605
Hospital schools	—	—	—	—	—	...	273	273
Provincial, private or territorial schools	352	9,773	2,768	3,093	97	542	1,924	18,549
All Schools	**3,759**	**34,035**	**5,772**	**3,830**	**112**	**542**	**2,499**	**50,549**

35.—Enrolment of Indian Pupils in Provincial, Private or Territorial Schools, classified by Grade or Type of Training, by Province, School Year 1962-63

Grade or Type of Training	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Kindergarten	—	19	—	47	117	25	42	—	20	1	81	352
Grade—												
1	6	18	8	106	262	208	252	174	677	45	205	1,961
2	1	14	7	99	259	178	215	136	561	51	212	1,733
3	2	25	4	143	285	182	186	154	493	24	175	1,673
4	—	21	13	93	283	130	168	159	467	32	130	1,496
5	—	34	21	114	319	116	136	153	433	63	120	1,509
6	—	38	21	137	282	120	116	165	404	44	74	1,401
7	1	16	42	180	341	141	95	211	403	47	57	1,534
8	1	24	25	156	308	95	80	124	372	22	27	1,234
9	—	36	29	118	441	88	111	134	415	20	22	1,414
10	—	14	12	102	238	66	72	66	285	8	14	877
11	—	8	6	59	144	30	43	28	152	4	4	478
12	—	7	3	12	85	10	25	42	105	1	4	294
13	—	—	—	—	22	—	—	—	8	—	—	30
University—												
1st year	—	6	—	11	9	1	3	2	2	—	1	35
2nd year	—	—	—	3	5	—	1	—	3	—	—	12
3rd year	—	—	1	—	—	1	—	—	—	—	—	2
4th year and up	—	—	—	1	2	—	1	—	1	—	—	5
Law	—	—	—	—	1	—	—	—	—	—	—	1
Medical	—	—	—	1	1	—	—	—	—	—	—	2
Teacher training	—	—	1	7	8	1	1	—	2	—	—	20
Nurse training	1	1	—	3	4	1	6	3	1	—	—	20
Nurses' aide	—	—	—	1	—	—	—	4	8	—	—	13
Commercial	—	4	1	14	17	12	18	8	18	—	1	93
Trades	—	11	3	39	13	39	13	7	23	—	—	148
Blind and deaf	—	—	1	1	7	8	1	3	5	—	2	28
Other	—	—	—	1	150	6	7	16	79	—	1	260
Not graded	27	61	—	340	1,049	77	149	21	171	—	29	1,924
Totals	**39**	**357**	**198**	**1,788**	**4,652**	**1,535**	**1,741**	**1,610**	**5,108**	**362**	**1,159**	**18,549**

Welfare.—Indians are eligible for all welfare assistance provided under federal legislation and financed by the Federal Government, including family allowances and old age security. They are also eligible to receive old age assistance, disabled persons' allowances and blind persons' allowances, which are financed jointly by the federal and provincial governments. In addition, the Indian Affairs Branch has an active interest in assisting Indian individuals and communities to achieve and maintain a standard of living comparable with that of non-Indians in similar socio-economic conditions. Although there is no federal legislation establishing Branch welfare programs, public assistance (food, clothing, fuel, house equipment) is provided on a means-test basis to indigent and dependent Indians living on reserves.

The Branch negotiates cost-sharing agreements with various governmental and private welfare agencies to ensure that existing programs of welfare assistance and social benefits are made available to Indians on the same basis as to non-Indians. In British Columbia a joint federal-provincial arrangement provides for the issuance of welfare assistance to Indians at point of need and application in the non-Indian community. The Indian Affairs Branch reimburses the province the cost of assistance for those Indians who have not lived for a full year on a self-supporting basis in the non-Indian community.

In Ontario, under the General Welfare Assistance Act, Indian bands may be considered as municipalities for purposes of relief administration under the provisions of that Act; 34 bands administer assistance under provincial regulations. When necessary, the Indian Affairs Branch assists bands with limited financial resources up to a maximum of 20 p.c. of the total costs of relief, which is the municipal share for which a band is responsible under this arrangement. In Ontario and Manitoba, departmental agreements with the respective provincial governments and Children's Aid Societies allow for the extension of child welfare services to Indian children on reserves. The Federal Government contributes financially to the administrative costs of the Children's Aid Society and pays the established per diem rate of maintenance for Indian children placed in foster homes and institutions as wards of the child care agency. The Federal Government has similar agreements with the Governments of the Yukon Territory and of Nova Scotia. In all provinces, to bridge the gap between the welfare needs of Indian communities and the availability of local resources, the Branch finances and administers a foster home care program for abandoned Indian children and a boarding home and institutional care program for dependent adults.

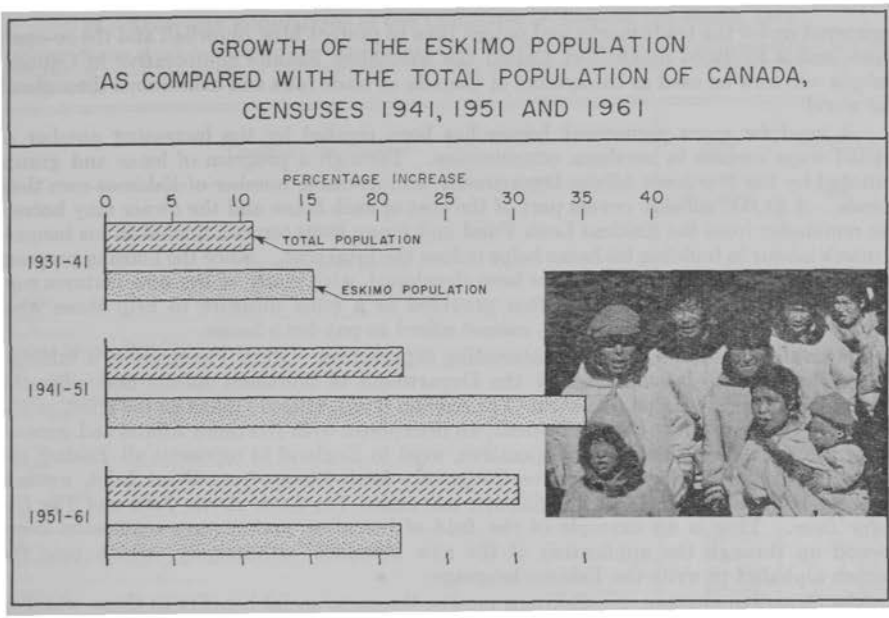
In the field of rehabilitation, departmental agreements with the Manitoba Sanatorium Board, the Saskatchewan Council for Crippled Children and Adults, and the Alberta Tuberculosis Association permit the establishment of rehabilitation programs on behalf of physically and socially handicapped Indians. The Branch contributes toward administrative costs of the programs and assumes responsibility for maintenance and training costs.

Assistance is also given in the area of housing. During the year ended Mar. 31, 1963, 1,085 new houses became available on the reserves and 291 were under construction at the end of the year. The total cost of the housing program was $3,705,873, of which 52.8 p.c. was from federal welfare appropriation, 27.0 p.c. from band funds, 19.8 p.c. from personal contributions and 0.4 p.c. from Veterans' Land Act grants.

The Eskimos*

Collectively and as individuals, Canada's 13,600 Eskimos living in the Northwest Territories, northern Quebec and Labrador continued to move ahead in their development from a nomadic way of life to one not too unlike the pattern of living in some areas of Southern Canada. Eskimos are becoming settled in established communities where opportunities are greater for education, health services and employment. In addition to those self-employed as members of co-operatives, Eskimos have jobs in a variety of fields. They work as civil servants and as DEW-line employees. Eskimos are clergymen, miners, carpenters, mechanics, diesel and tractor operators and oil drillers. An Eskimo is manager of the CBC radio station at Inuvik and an Eskimo girl produces Eskimo-language

* Revised in the Editorial and Information Division, Department of Northern Affairs and National Resources, Ottawa.



programs for the CBC Northern Service. Eskimo women work as interpreters, waitresses, nursing assistants, secretaries and clerks—in southern as well as northern communities.

Increased education has tended to give the Eskimo a better chance in competing for employment. The number of schools in the North continues to grow—from 11 in 1952 to 57 at the end of 1963—and almost 2,500 Eskimo youngsters attend these schools which they share with all the other children who live in the North. More than 84 p.c. of the school-age population of the Northwest Territories is now in school. A program of grants and loans to finance university education for Eskimo, Indian and white children, approved by the Northwest Territories Council early in 1963, assures higher education for those who qualify. In addition, vocational training classes are available in such fields as auto mechanics, barbering, carpentry, domestic science and hairdressing. An apprentice training program to provide more skilled workers and raise occupational standards in the North began on Apr. 1, 1964; about 30 occupations are included in the program with more to be added.

Eskimo co-operatives have developed very rapidly. There are now 18 co-operatives engaged in commercial fishing, fine crafts, graphic art and sculpture, the operation of retail stores, logging and boatbuilding, and at Frobisher Bay and Inuvik groups of Eskimo families have formed housing co-operatives. Products from the co-operatives are maintaining the Eskimos' reputation as skilled artists and craftsmen. The West Baffin Eskimo Co-operative which produces graphic art has established Cape Dorset as an art centre of distinction, and interesting prints are also produced at Povungnituk. Soapstone sculptures from Povungnituk, Grise Fiord and Igloolik are well known and Eskimo craftsmen living at Baker Lake, Coppermine, Resolute and Great Whale River are producing a wide range of original and attractive articles. The fishery co-operatives at George River in northern Quebec and at Port Burwell and Cambridge Bay in the Northwest Territories have found ready and profitable markets for their catches of Arctic char. In 1963, Ookpik, a shaggy little sealskin owl produced by Mrs. Jeannie Snowball of the Fort Chimo Co-operative, was chosen by the Department of Trade and Commerce as the symbol for Canada Week at the Philadelphia Trade Fair. He was a sensation and received much publicity. He was

registered under the trade marks and patent laws to protect Mrs. Snowball and the co-operative, and is likely to make Fort Chimo the wealthiest Eskimo co-operative in Canada. Ookpik will now be used as the symbol of Canada at trade fairs and exhibitions throughout the world.

A need for more permanent homes has been created by the increasing number of settled wage earners in northern communities. Through a program of loans and grants initiated by the Northern Affairs Department, an increasing number of Eskimos own their homes. A $1,000 subsidy covers part of the cost of each home and the owner may borrow the remainder from the Eskimo Loan Fund and repay it on terms adjusted to his income. A man's labour in building his home helps reduce the total cost. Since the housing program started in 1959, six new designs have been developed, with many of the new features suggested by Eskimos. Housing is often provided as a relief measure to help those who, through physical or other disability, cannot afford to pay for a house.

Individual Eskimos have had interesting experiences. Mary Panegoosho, a talented young Eskimo who is employed by the Department of Northern Affairs and edits the Eskimo-language magazine, *Inuktitut* (*The Eskimo Way*), visited Ghana as the guest of the Ghanaian Government. George Koneak, an interpreter with Northern Affairs and a member of the Fort Chimo Eskimo Co-operative, went to England to represent all Eskimo co-operatives at the World Co-operative Congress. Leah Illauq, from Pond Inlet, wrote a book for Eskimo children—an imaginative tale called *The Little Arctic Tern and The Big Polar Bear*. This is an example of the field of literature and literary expression being opened up through the application of the new standard orthography, which uses the Roman alphabet to write the Eskimo language.

As Canadian citizens, the Eskimos receive the same social benefits as those who live farther south—family allowances, old age security, old age assistance and blind and disabled persons' allowances. The Federal Government also operates family and child welfare services and a rehabilitation and medical social service program designed to strengthen family and community life. Tuberculosis has not been eradicated but the incidence of the disease over the past ten years is decreasing rapidly. While the Eskimo infant mortality rate remains high compared with the all-Canada rate, it also is dropping with the improvement of health facilities and housing.

Section 4.—Statistics of World Population

World population figures given in Table **36** are from the United Nations *Population and Vital Statistics Report* for January 1964 and, except as otherwise noted, are mid-year estimates for 1962. The area figures are from the United Nations *Statistical Yearbook 1962*.

Estimated Population of the World by Continents.—The following statement presents adjusted estimates of the 1962 mid-year population of the world by continental divisions. These aggregates do not coincide exactly with the sum of the figures for individual countries and territories because they include, in addition, adjustments for over- and under-enumeration, over-estimation, data for categories of population not regularly included in the official figures, and approximations for the countries that have not provided official 1962 data. The estimates are as follows:—

Continental Division	*Population*
	'000
Africa	269,000
North America	276,000
South America	153,000
Asia (includes Asiatic Turkey)	1,780,000
Europe (includes European Turkey)	434,000
Oceania (includes Hawaii)	17,000
Union of Soviet Socialist Republics (Asia and Europe)	221,000
WORLD TOTAL	3,150,000
Commonwealth countries (at Apr. 1, 1964)	749,588

36.—Areas and Populations of the Countries or Areas of the World, 1962

NOTE.—Status of independency or dependency is as at Apr. 1, 1964. Members of the Commonwealth and the Territories for which the British or Commonwealth members are responsible (at Apr. 1, 1964) are indicated with an asterisk (*).

Continent and Country	Area	Population
	sq. miles	'000
Africa		
INDEPENDENT STATES		
Algeria	919,593	11,300
Burundi	10,747	2,600
Cameroon	183,569	4,326
Central African Republic	238,224	1,250[1]
Chad	495,754	2,720
Congo (Brazzaville)	132,047	820[2]
Congo (Leopoldville)	905,565	14,797
Dahomey	44,696	2,200[1]
Ethiopia	457,267	21,000
Gabon	103,089	453
*Ghana	91,843	7,148
Guinea	94,926	3,259
Ivory Coast	124,503	3,375
*Kenya	224,960	8,595
Liberia	43,000	1,310
Libya	679,360	1,244
Madagascar	230,035	5,730
Mali	464,874	4,305
Mauritania	419,230	770[1]
Morocco	171,305	12,360
Niger	489,190	2,995
*Nigeria	356,669	36,475
Rwanda	10,169	2,780
Senegal	76,124	3,280
*Sierra Leone	27,925	2,170
Somalia	246,202	2,250
South Africa, excl. Walvis Bay	472,359	16,640
Sudan	967,501	12,470
*Tanganyika	361,800	9,559
Togo	21,853	1,523
Tunisia	48,332	4,290
*Uganda	92,525	7,016
United Arab Republic	386,101	27,303
Upper Volta	105,869	4,500
*Zanzibar (formerly Zanzibar and Pemba)	1,020	320
TERRITORIES AND DEPENDENCIES		
Britain—		
*Basutoland	11,716	713
*Bechuanaland	222,000	335
*Gambia	4,003	269
*Mauritius, incl. dependencies	809	701
*Northern Rhodesia (formerly part of the Federation of Rhodesia and Nyasaland)	288,130	3,400
*Nyasaland (formerly part of the Federation of Rhodesia and Nyasaland)	46,066	2,950
*St. Helena, excl. dependencies	47	5
Ascension	34	[3]
Tristan da Cunha and other dependencies	81	[3]
*Seychelles	156	44
*Southern Rhodesia (formerly part of the Federation of Rhodesia and Nyasaland)	138,750	3,880
*Swaziland	6,704	275
France—		
Comoro Islands	838	187
French Somaliland	8,494	69
French Southern and Antarctic Territories	2,918	[3]
Réunion	969	356
Portugal—		
Angola	481,352	4,936
Cape Verde Islands	1,557	211
Mozambique	302,329	6,750
Portuguese Guinea	13,948	549
São Tomé and Principe	372	64

For footnotes, see end of table, p. 203.

36.—Areas and Populations of the Countries or Areas of the World, 1962—continued

Continent and Country	Area	Population
	sq. miles	'000
Africa—concluded		
TERRITORIES AND DEPENDENCIES—concluded		
Spain—		
Ifni	579	50
Spanish Equatorial Region	10,831	253
Spanish North Africa	82	156
Spanish Sahara	102,703	25
FORMER MANDATED TERRITORY (South Africa)		
South West Africa, incl. Walvis Bay	318,261	545
America, North		
INDEPENDENT STATES		
*Canada	3,851,809	18,600
Costa Rica	19,575	1,274
Cuba	44,218	7,068
Dominican Republic	18,816	3,220
El Salvador	8,260	2,627
Guatemala	42,042	4,017
Haiti	10,714	4,346
Honduras	43,277	1,950
*Jamaica	4,411	1,641
Mexico	761,602	37,233
Nicaragua	57,143	1,578
Panama	28,753	1,139
*Trinidad and Tobago	1,980	880
United States of America	3,615,214	186,591
TERRITORIES AND DEPENDENCIES		
Britain—		
*Antigua	171	58
*Bahama Islands	4,400	111
*Barbados	166	232
*Bermuda	20	46
*British Honduras	8,866	96
*Cayman Islands	100	8
*Dominica	305	61
*Grenada	133	91
*Montserrat	32	13
*St. Kitts-Nevis and Anguilla	153	60
*St. Lucia	238	92
*St. Vincent	150	82
*Turks and Caicos Islands	166	6
*Virgin Islands (Br.)	59	8
Denmark—		
Greenland	840,001	35
France—		
Guadeloupe	687	289
Martinique	425	297
St. Pierre and Miquelon	93	5
Netherlands—		
Netherlands Antilles	371	198
United States—		
Canal Zone	553	45
Puerto Rico	3,435	2,460
Virgin Islands (U.S.)	133	35

36.—Areas and Populations of the Countries or Areas of the World, 1962—continued

Continent and Country	Area	Population
	sq. miles	'000
America, South		
INDEPENDENT STATES		
Argentina	1,072,070	21,418
Bolivia	424,163	3,549
Brazil	3,286,478	75,271[4]
Chile	286,397	8,001
Colombia	439,513	14,769
Ecuador	104,506	4,596[4]
Paraguay	157,047	1,857
Peru	496,223	11,511
Uruguay	72,172	2,914
Venezuela	352,143	7,872[4]
TERRITORIES AND DEPENDENCIES		
Britain—		
*British Guiana	83,000	598
*Falkland Islands, excl. dependencies	4,618	2
France—		
French Guiana	35,135	34
Netherlands—		
Surinam	55,144	307[5]
Asia		
INDEPENDENT STATES		
Afghanistan	250,966	14,684
Bahrain	231	156
*Bhutan	19,305	700
Burma	261,789	23,183
Cambodia	66,607	5,750
*Ceylon	25,332	10,443
China (mainland)	3,691,512	646,530[6]
China (Taiwan and Pescadores)	13,885	11,327[7]
*Cyprus	3,572	580
*India	1,174,826	449,381[8]
Indonesia, excl. West Irian	575,894	97,765
West Irian (formerly West New Guinea)	160,618	750
Iran	636,294	21,227
Iraq	173,260	6,732
Israel	7,992	2,292
Japan	142,726	94,930
Jordan	37,301	1,727
Korea	85,309	36,600
North Korea	*47,278*	*10,500*
Republic of Korea	*38,031*	*26,106*
Kuwait	6,000	321
Laos	91,429	1,890
Lebanon	4,015	1,760
*Malaysia—		
Federation of Malaya	50,700	7,376
Sabah (formerly North Borneo)	29,388	478
Sarawak	48,342	777
Singapore	224	1,733
*Maldive Islands	115	92
Mongolia	592,665	998
Muscat and Oman	82,000	565
Nepal	54,362	9,550
*Pakistan	365,529	96,558[8]
Philippines	115,707	29,257
Qatar	8,500	55
Saudi Arabia	617,762	6,400
*Sikkim	2,744	165
Syria	71,228	5,067
Thailand	198,456	27,995
Trucial Oman	32,278	111
Turkey (Asia and Europe)	301,381	29,059

For footnotes, see end of table, p. 203.

36.—Areas and Populations of the Countries or Areas of the World, 1962—continued

Continent and Country	Area	Population
	sq. miles	'000
Asia—concluded		
INDEPENDENT STATES—concluded		
Viet Nam—		
North Viet Nam	61,390	17,200
Republic of Viet Nam	65,948	14,929
Yemen	75,290	5,000
TERRITORIES AND DEPENDENCIES		
Britain—		
*Aden (formerly Aden Colony)	75	220
*Brunei	2,226	90
*Hong Kong	398	3,410
*Protectorate of South Arabia (formerly Aden Protectorate)	111,000	1,000
Portugal—		
Macau	6	171
Portuguese Timor	5,763	528
FORMER MANDATED TERRITORY (Britain)		
Palestine	10,459	1,912[8]
Gaza Strip	78	382
MILITARY GOVERNMENT (United States)		
Bonin Islands	40	[8]
Ryukyu Islands	848	*900*
Europe		
INDEPENDENT STATES		
Albania	11,100	1,711
Andorra	175	10
Austria	32,374	7,128
Belgium	11,779	9,221
*Britain	94,220	53,441
England and Wales	*58,347*	*46,768*
Northern Ireland	*5,462*	*1,437*
Scotland	*30,411*	*5,236*
Bulgaria	42,729	8,013
Czechoslovakia	49,370	13,856
Denmark	16,619	4,654
Finland	130,120	4,505
France (Metropolitan)	212,822	46,998
Germany—		
Eastern Germany	41,659	16,044
Federal Republic of Germany	95,928	54,767
East Berlin	156	1,058
West Berlin	186	2,180
Greece	50,548	8,451
Holy See	[9]	1
Hungary	35,919	10,061
Iceland	39,768	182
Ireland	27,135	2,824
Italy	116,303	50,170
Liechtenstein	61	17
Luxembourg	998	322
Monaco	[9]	21
Netherlands	12,978	11,797
Norway	125,065	3,639
Poland	120,359	30,324
Portugal, incl. the Azores and Madeira Islands	35,340	8,971
Romania	91,699	18,681
San Marino	24	17
Spain, incl. the Balearic and Canary Islands	194,884	30,817
Sweden	173,666	7,562
Switzerland	15,941	5,660
Yugoslavia	98,766	18,837

For footnotes, see end of table, p. 203.

36.—Areas and Populations of the Countries or Areas of the World, 1962—concluded

Continent and Country	Area	Population
	sq. miles	'000
Europe—concluded		
TERRITORIES AND DEPENDENCIES		
Britain—		
*Channel Islands	75	108
*Gibraltar	2	24
*Isle of Man	227	48
*Malta and Gozo	122	329
Denmark—		
Faeroe Islands	540	35
Norway—		
Svalbard and Jan Mayen Islands	24,101	[9],[10]
Oceania		
INDEPENDENT STATES		
*Australia, excl. aborigines	2,974,583	10,705
*New Zealand	103,736	2,485
*Western Samoa	1,130	116
TERRITORIES AND DEPENDENCIES		
Australia—		
*Christmas Island	62	3
*Cocos (Keeling) Islands	5	1
*Norfolk Island	14	1
*Papua	90,540	540
Britain—		
*British Solomon Islands	11,500	128
*Fiji Islands	7,055	421
*Gilbert and Ellice Islands	349	48
*Pitcairn	2	[8]
*Tonga	269	67
France—		
French Polynesia	1,544	80
New Caledonia	7,202	80
New Zealand—		
*Cook Islands	90	18
*Niue	100	5
*Tokelau Islands	4	2
United States—		
American Samoa	76	21
Guam	212	66
TRUST TERRITORIES		
*Nauru (Aust., N.Z., and Br. Adm.)	8	5
*New Guinea (Aust. Adm.)	93,000	1,485
Pacific Islands (U.S. Adm.)	687	81
CONDOMINIUMS		
*Canton and Enderbury (Anglo-American)	27	[8]
*New Hebrides (Anglo-French)	5,700	65
Union of Soviet Socialist Republics		
Union of Soviet Socialist Republics	8,649,512	221,465

[1] African population only. [2] African population only and probably excludes population of Brazzaville and Pointe-Noire. [3] Fewer than 500 persons. [4] Excluding Indian jungle population. [5] Excluding Indian and Negro population living in tribes. [6] Latest official estimate. [7] Excluding armed forces and foreigners. [8] Excluding Kashmir-Jammu, the final status of which has not yet been determined. [9] Less than one square mile. [10] Inhabited only in winter season; included also in the population of Norway.

CHAPTER IV.—IMMIGRATION AND CITIZENSHIP

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—IMMIGRATION AND EMIGRATION*

The history of immigration and the Immigration Act and Regulations is dealt with in detail in a special article entitled "Developments in Canadian Immigration" appearing in the 1957-58 Year Book at pp. 154-176. Supplementing that material is an article on the "Integration of Postwar Immigrants" at pp. 176-178 of the 1959 edition.

Section 1.—Immigration Policy and Administration

Traditionally, Canada has sought to increase its population through immigration in order to expand the domestic market, reduce per capita costs of administration, stimulate economic activity by providing new skills, ideas and enthusiasm, and support a higher level of cultural independence and creativity. Canadian experience indicates that a substantial volume of immigration is highly desirable.

New population cannot be added haphazardly without regard to their means of subsistence or their effect on Canadian life. Technological change and the development of Canadian society to its present complex state require that to be able to establish themselves successfully new settlers must be economically competitive in terms of education, training, skills and personal qualities. Over the years, Canada has endeavoured to acquire immigrants who were adaptable to Canadian life. Such persons, finding familiar institutions in Canada, feel more at home and this assists in their establishment in the new life they find here. Canada makes every effort to sustain the movement of immigrants from countries having like economic, social and political backgrounds. On the other hand, qualified people from other countries can integrate successfully into Canadian society and the existing immigration Regulations recognize this principle. People anywhere in

* Sections 1 and 2 of this Part were revised under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

the world have an opportunity to immigrate to Canada if they demonstrate their suitability for life in this country and are likely to become established without hardship to themselves or disruption to the communities in which they settle.

The core of Canada's immigration policy is contained in the Regulations introduced with effect from Feb. 1, 1962. Those persons who are eligible to apply for permanent admission to Canada are specified. They include anyone, regardless of origin, citizenship, country of residence or religious belief, who is personally qualified by reason of education, training, skills or other special qualifications to become satisfactorily established in Canada. In practice, the personal qualifications and attributes of the applicant for admission are related to the needs and interests of Canadian society in any of its diversities—economic, social or cultural.

Other provisions of the Regulations enable the families of persons approved for admission under these terms to accompany them. When in Canada, a permanent resident may bring his spouse and dependent children as well as certain other close relatives to Canada. Except in some circumstances, no special criteria apply in the case of these immigrants. All immigrants must be in good health and of good character and be in possession of such documentation as the Regulations prescribe. Sponsors must be able to provide adequate care and maintenance for those for whom they apply.

In addition, Canada has on many occasions since the end of World War II sanctioned the entry of thousands of refugees. This is a humanitarian movement and is tangible evidence of Canada's recognition of its responsibilities in the international community. A conservative estimate of the number of refugees admitted since 1945 is 300,000.

The Immigration Branch of the Department of Citizenship and Immigration administers the Immigration Act and Regulations. Twenty-nine visa offices are located abroad at London, Liverpool, Leeds, Bristol, Glasgow, Belfast, Dublin, Paris, Brussels, Berne, The Hague, Copenhagen, Cologne, Berlin, Hamburg, Munich, Stuttgart, Vienna, Oslo, Stockholm, Helsinki, Lisbon, Madrid, Rome, Athens, Cairo, Tel Aviv, New Delhi and Hong Kong. Four offices in the United States—at New York, Chicago, San Francisco and Denver—furnish information and counselling but do not issue visas. Personnel at all posts are kept in close touch with economic conditions in Canada and thus are able to advise immigrants regarding prospects for successful settlement. Examination of immigrants and visitors is carried out at 551 ports of entry on the Canadian coasts, at points along the International Boundary, at certain airports and at certain inland offices.

A primary objective of the immigration program is satisfactory settlement. The Federal Government assists immigrants in establishing themselves in the Canadian community through the work of the specialized settlement officers of the Immigration Branch, the Canadian Citizenship Branch, the Canadian Citizenship Registration Branch and other government agencies, and co-operates closely with several voluntary agencies having the same objective.

Section 2.—Immigration Statistics

Table 1 shows the number of immigrants arriving in Canada in each year since 1913, the peak year of immigration into the country. Table 2 shows the number and distribution of immigrants in the population of Canada on the latest census date, June 1, 1961, by period of arrival.

1.—Immigrant Arrivals, 1913-63

NOTE.—Figures for 1852-93 are given in the 1942 Year Book, p. 153, and for 1894-1912 in the 1948-49 edition, p. 175.

Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals
	No.		No.		No.		No.		No.
1913	400,870	1924	124,164	1934	12,476	1944	12,801	1954	154,227
1914	150,484	1925	84,907	1935	11,277	1945	22,722	1955	109,946
1915	36,665	1926	135,982	1936	11,643	1946	71,719	1956	164,857
1916	55,914	1927	158,886	1937	15,101	1947	64,127	1957	282,164
1917	72,910	1928	166,783	1938	17,244	1948	125,414	1958	124,851
1918	41,845	1929	164,993	1939	16,994	1949	95,217	1959	106,928
1919	107,698	1930	104,806	1940	11,324	1950	73,912	1960	104,111
1920	138,824	1931	27,530	1941	9,329	1951	194,391	1961	71,689
1921	91,728	1932	20,591	1942	7,576	1952	164,498	1962	74,586
1922	64,224	1933	14,382	1943	8,504	1953	168,868	1963	93,151
1923	133,729								

2.—Immigrant Population, by Period of Immigration and by Province, Census 1961

Province or Territory	Before 1930	1931-40	1941-45	1946-50	1951-55	1956-61[1]	1946-61[1]	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	1,356	339	338	1,317	1,230	1,689	4,236	6,269
Prince Edward Island	1,170	217	117	439	452	597	1,488	2,992
Nova Scotia	14,752	2,165	1,079	4,434	5,281	6,457	16,172	34,168
New Brunswick	10,496	1,451	886	3,184	2,887	4,379	10,450	23,283
Quebec	121,164	14,202	5,321	38,452	87,873	121,437	247,762	388,449
Ontario	462,705	41,959	15,190	169,044	323,528	340,731	833,303	1,353,157
Manitoba	101,758	4,259	1,483	15,925	21,174	25,439	62,498	169,998
Saskatchewan	116,192	3,170	1,034	8,124	9,497	11,372	28,993	149,389
Alberta	156,324	8,446	2,420	25,326	48,263	47,970	121,559	288,749
British Columbia	229,790	11,300	4,498	37,296	65,947	74,301	177,544	423,132
Yukon Territory	867	81	42	265	626	833	1,724	2,714
Northwest Territories	425	114	37	178	472	737	1,387	1,963
Canada	**1,216,999**	**87,703**	**32,445**	**303,984**	**567,190**	**635,942**	**1,507,116**	**2,844,263**

[1] Up to the date of the Census, June 1, 1961.

The above table shows that 1,507,116 persons reported that they had come to Canada between Jan. 1, 1946 and June 1, 1961. These immigrants constituted about 75 p.c. of the total number of immigrants who arrived in Canada during that period. According to the records of the Department of Citizenship and Immigration, 2,033,598 persons entered Canada as immigrants during the period 1946-61. The difference between this total and the 1,507,116 postwar immigrants reported in the 1961 Census, amounting to 526,482 persons, represents the losses due to death and emigration among the postwar immigrant arrivals up to June 1961. Since this difference is arrived at by comparing statistics derived from two different sources, it must be taken as only an approximate measure of these losses. It is estimated that deaths of immigrants arriving since 1946 would not exceed 86,000 by June 1961. Hence it would appear that roughly 440,000 emigrated in the period between January 1946 and June 1961, or slightly more than one fifth of the total arrivals over this period.

The 440,000 postwar immigrants who appear to have emigrated from Canada up to June 1961 would thus constitute a little over half the total estimated emigration from Canada since 1946, according to data on emigration used in the preparation of annual population estimates. In this connection it might be mentioned that a substantial element

in total Canadian emigration is the movement of Canadian-born persons to the United States, some 387,000 entering the United States as immigrants between July 1946 and July 1961 according to the United States Immigration Service records (see p. 216).

Recent Immigration.—The extent of immigration to Canada is affected both by domestic conditions and by conditions abroad. However, these influences are seldom immediately decisive. News of good economic conditions in Canada predisposes people in favour of this country but, because the immigration process usually takes several months, actual immigration is not always fully coincidental with the economic situation, so that immigration may at times be slight in good years but appear unduly heavy in less buoyant periods. The time lag caused by selection, medical examination and documentation is unavoidable. Transportation is often another delaying factor and to these considerations must be added the effect of seasonal unemployment in Canada, which tends to discourage immigration during the months from November to April.

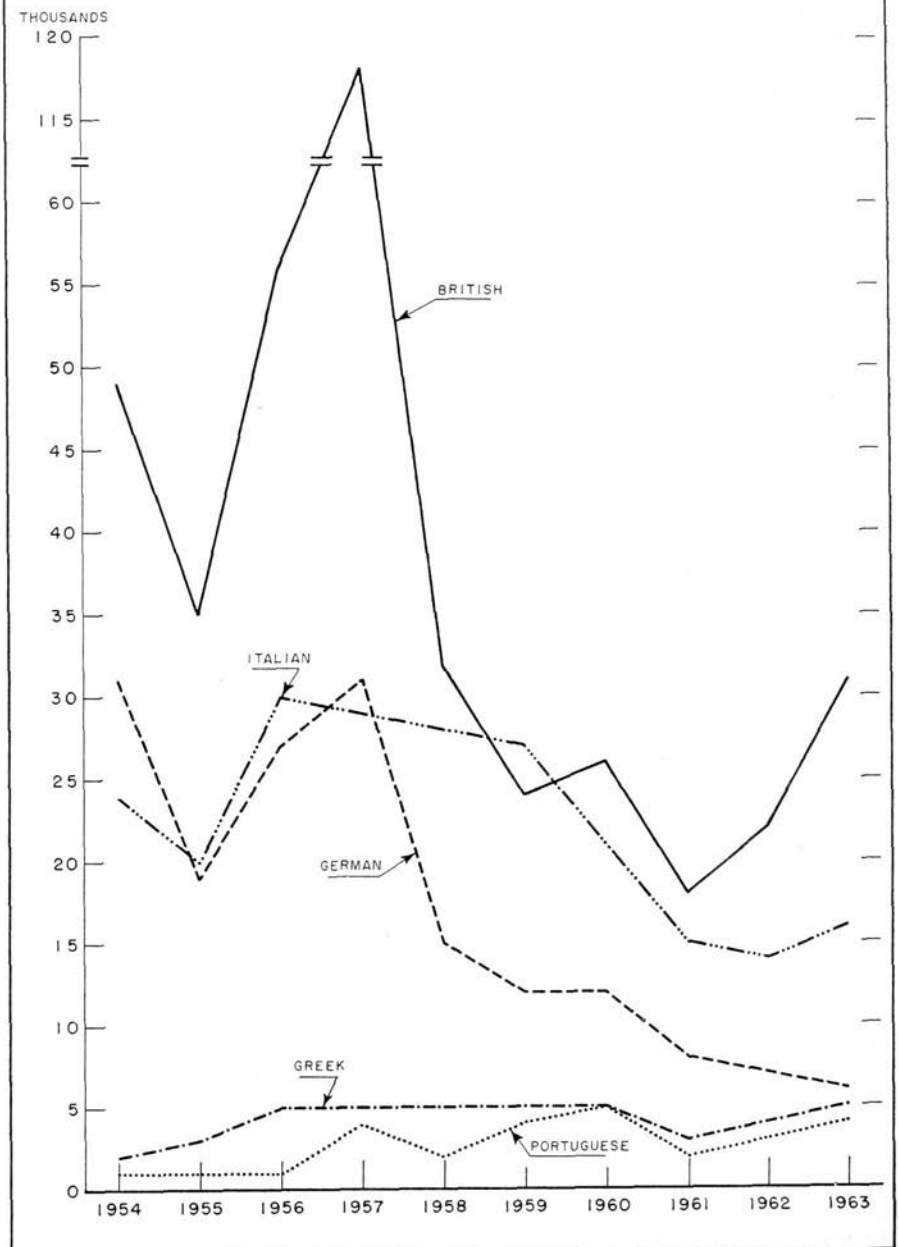
During the ten-year period 1954-63, immigrants entering Canada numbered 1,286,510, the annual figures fluctuating from a high of 282,164 in 1957 to a low of 71,689 in 1961. In comparison with the relatively high levels of immigration in the three years immediately following the outbreak of the Korean War in 1951, immigration dropped off slightly to 154,227 in 1954. A minor setback in the Canadian economy in that year resulted in a very sharp decline of some 44,000 in 1955 but with the return of better times in North America and the deterioration of the political situation in Europe, immigration again rose by 55,000 in 1956. The Hungarian revolution and the Suez crisis of 1956 had a sharp impact on Canadian immigration in 1957 when 282,164 persons were admitted, including 31,643 from Hungary and 108,989 from the British Isles. This was the largest number of immigrants to enter Canada since 1913.

The conclusion of the Suez affair and the suppression of the Hungarian revolt restored some measure of calm in Europe. Canada's economy suffered a recession in 1956 and 1957 while Europe's economic position improved, as a result of which only 124,851 immigrants came to Canada in 1958. Britain's recovery from the war and its aftermath was reflected in the fact that for the first time in the postwar years the British Isles group of arrivals was not the largest—persons from Italy were in first place, numbering 27,043 compared with 24,777 from the British Isles. Total arrivals dropped from 106,928 in 1959 to 104,111 in 1960 and to 71,689 in 1961 and during these years the numbers from Italy remained in first place. The main factors contributing to the declining trend in number of immigrant arrivals during the period 1958-61 were: (1) the upsurge in the economies of those European countries from which Canada has received the majority of its immigrants and (2) the increasing emphasis placed on selecting the immigrant who has sufficient funds and the necessary knowledge to establish himself in a business or industry of his own, as well as on the immigrant with special skills or qualifications which would permit his ready integration into the Canadian labour force.

In 1962, the number of immigrants increased slightly to 74,586 and in 1963 showed a definite upswing to 93,151. This increasing trend, which gives every indication of continuing, can be attributed mainly to an intensification of promotional and recruitment activities in the main source countries and to the expansion of immigration examination facilities in areas of the world that have thus far contributed very few immigrants to Canada.

During the ten years 1954-63, a total of 346,802 immigrants came from the British Isles, this number representing 26.9 p.c. of all immigration during that period. Other large groups came from Italy (214,206 representing 16.6 p.c. of the total), Germany (154,208

ORIGINS OF IMMIGRANT ARRIVALS, 1954-63
(LARGEST NUMERICAL GROUPS IN 1963)



representing 11.9 p.c.), the United States (109,637 representing 8.5 p.c.) and the Netherlands (65,829 representing 5.1 p.c.). The British Isles group was largest in the years 1954 to 1957 and in 1962 and 1963; from 1958 to 1961 immigrants from Italy headed all groups. Immigrants from Germany formed the second largest group in 1954; from Italy in 1955, 1956, 1962 and 1963; from Hungary in 1957; and from the British Isles in 1958, 1959, 1960 and 1961. During the ten-year period, immigration from the United States remained relatively constant at an annual average of about 11,000.

Analyses of Immigration in 1961-63.—Analyses of the content of the immigration movement during the years 1961, 1962 and 1963 are given in Tables **3** to **10**, and the numbers of persons deported from Canada for various reasons for the years 1954-63 in Table **11.**

Table **3** classifies immigrant admissions by country of last permanent residence for 1961-63. During the three-year period, 22.4 p.c. of the immigration flow came from Britain and the Republic of Ireland, 49.9 p.c. from Continental Europe, 14.6 p.c. from the United States and 13.1 p.c. from all other countries.

3.—Immigrant Arrivals by Country of Last Permanent Residence, 1961-63

NOTE.—Comparable figures from 1946 are given in the corresponding table of previous Year Books beginning with the 1951 edition; figures in less detail for 1939-45 appear in the 1950 edition, p. 186.

Country	1961	1962	1963	Country	1961	1962	1963
	No.	No.	No.		No.	No.	No.
Commonwealth—				**Europe**—concluded			
British Isles—				France	2,330	2,674	3,569
England	8,499	10,950	16,562	Germany	6,231	5,548	6,744
Northern Ireland	688	951	1,743	Greece	3,766	3,741	4,759
Scotland	2,578	3,505	6,074	Hungary	287	450	555
Wales	91	187	201	Italy	14,161	13,641	14,427
Lesser Isles	14	10	23	Netherlands	1,787	1,555	1,728
				Poland	2,391	1,601	1,482
Totals, British Isles	11,870	15,603	24,603	Portugal	2,762	2,928	4,000
				Scandinavian Countries—			
Australia	1,142	1,063	1,376	Denmark	475	594	573
Hong Kong	710	426	1,008	Other	329	412	568
India	568	529	737	Spain	476	362	436
Malta	187	362	869	Switzerland	805	802	999
New Zealand	290	321	316	Yugoslavia	852	862	781
West Indies	1,126	1,480	2,227	Other	330	251	227
Other Commonwealth	578	894	1,289				
				North America—[1]			
Totals, Commonwealth	**16,471**	**20,678**	**32,425**	Mexico	109	134	117
				United States	11,516	11,643	11,736
				Other	154	132	176
Republic of Ireland	415	452	590	**South America**[1]	1,138	636	1,103
Africa[1]	838[2]	645[3]	688[4]	**Middle East**—[1]			
				Egypt	31	1,322	1,476
Asia[1]	270	642	629	Israel	652	558	688
				Lebanon	293	303	456
Europe—[1]				Other	224	182	225
Austria	1,131	778	799	**Other Countries**	113	37	9
Belgium	1,013	706	935				
Finland	339	317	251	**Totals, All Countries**	71,689	74,586	93,151

[1] Excludes Commonwealth countries. [2] Includes 531 from the Republic of South Africa. [3] Includes 340 from the Republic of South Africa. [4] Includes 296 from the Republic of South Africa.

Of the immigrant arrivals in 1963, 35.2 p.c. were born in Commonwealth countries or in the Republic of Ireland compared with 28.9 p.c. in 1962 and 23.8 p.c. in 1961; 22.2 p.c. were born in Italy or Greece, 9.4 p.c. in the United States, 9.3 p.c. in Germany, France or the Netherlands, 5.7 p.c. in Spain or Portugal and 4.8 p.c. in Poland or Yugoslavia.

4.—Birthplaces of Immigrant Arrivals, 1961-63

NOTE.—Figures from 1942 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Birthplace	1961	1962	1963
	No.	No.	No.
Commonwealth—			
British Isles—			
England	7,471	9,462	14,268[3]
Northern Ireland	806	1,031	1,851
Scotland	2,845	3,787	6,340
Wales	273	399	551
Lesser Isles	21	35	26
Totals, British Isles	11,416	14,714	23,036
Australia	1,042	993	1,256
Canada	788	899	906
India	767	762	1,146
Malta	202	387	907
New Zealand	314	335	399
West Indies	1,215	1,719	2,576
Other Commonwealth	652	1,058	1,668
Republic of Ireland	656	703	905
Africa[1]	990	1,052	1,303
Asia[1]			
China	760	594	971
Japan	125	157	184
Other	176	391	585
Europe[1]			
Austria	648	485	565
Belgium	768	582	603
Czechoslovakia	302	250	234
Denmark	488	615	610
Europe—concluded			
Finland	355	354	287
France	1,789	1,929	2,452
Germany	5,686	4,744	4,518
Greece	3,771	3,888	5,188
Hungary	823	817	952
Italy	14,373	13,904	15,474
Netherlands	1,839	1,559	1,696
Norway	184	209	290
Poland	2,774	2,028	2,004
Portugal	2,846	3,048	4,255
Romania	526	495	388
Spain	564	508	1,053
Switzerland	646	615	612
Union of Soviet Socialist Republics[2]	570	494	416
Yugoslavia	2,378	2,072	2,534
Other	458	377	491
Middle East[1]			
Egypt	138	1,325	1,583
Israel	201	218	308
Lebanon	252	227	367
Turkey	298	335	587
Other	58	83	124
North America[1]			
Mexico	97	123	105
United States	9,015	9,000	8,762
Other	183	160	240
South America[1]	450	291	515
Grand Totals	71,689[3]	74,586[4]	93,151[5]

[1] Excludes Commonwealth countries. [2] In both Europe and Asia. [3] Includes 2 born at sea and 104 from other countries. [4] Includes 87 from other countries. [5] Includes 96 from other countries.

Immigrants of Continental European origin comprised 57.4 p.c. of the influx during 1963 and those of British origin made up 33.4 p.c. Proportions of Continental Europeans in 1962 and 1961 were 62.7 p.c. and 68.2 p.c., respectively, and of British origin 29.9 p.c. and 26.5 p.c. in the same years.

5.—Origins of Immigrant Arrivals, 1961-63

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Origin	1961	1962	1963
	No.	No.	No.
British—			
English	11,218	13,038	17,868
Irish	3,132	3,492	4,767
Scottish	4,157	5,118	7,734
Welsh	456	621	731
Totals, British	18,963	22,269	31,100
Continental European—			
Albanian	45	28	51
Austrian	641	506	588
Belgian	733	546	539
Bulgarian	30	18	23
Czech and Slovak	169	151	160
Estonian	63	54	69
Finnish	381	385	325

5.—Origins of Immigrant Arrivals, 1961-63—concluded

Origin	1961	1962	1963	Origin	1961	1962	1963
	No.	No.	No.		No.	No.	No.
Continental European— continued				**Continental European—** concluded			
French	2,479	2,974	3,291	Yugoslavic[1]	2,323	2,044	2,449
German	8,023	7,000	6,550				
Greek	3,941	4,239	5,647	**Totals, Continental European**	48,868	46,783	53,477
Hungarian	783	837	995				
Italian	15,088	14,538	16,194				
Jewish	2,043	1,840	2,180	**Other—**			
Latvian	122	66	92	Arabian	65	67	154
Lithuanian	114	61	73	Armenian	186	777	932
Luxembourger	10	16	21	Chinese	894	876	1,571
Maltese	208	372	906	East Indian	772	850	1,386
Netherlander	2,293	1,982	2,181	Indian (American)	40	42	21
Polish	2,985	2,143	2,069	Japanese	126	154	199
Portuguese	2,999	3,443	4,732	Lebanese	215	444	591
Romanian	156	155	163	Mexican	29	24	24
Russian	209	198	177	Negro	1,131	1,559	2,453
Scandinavian—				Syrian	47	122	108
Danish	598	742	743	Turkish	139	174	310
Icelandic	7	4	18	Unspecified	214	445	825
Norwegian	419	408	502				
Swedish	344	367	395	**Totals, Other**	3,858	5,534	8,574
Spanish[1]	844	822	1,468				
Swiss[2]	653	674	661	**Grand Totals**	71,689	74,586	93,151
Ukrainian	165	170	215				

[1] Includes a few minor groups such as German, French, Italian, etc.

[2] Reported as Swiss origin but evidently one of the constituent races

Out of every 100 immigrants admitted to Canada during the three-year period 1961-63, 26 were British subjects, 18 were citizens of Italy, 13 of the United States, six of Germany, five of Greece, and four of Portugal; many other nationalities made up the remaining 28.

6.—Citizenship of Immigrant Arrivals, 1961-63

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Country of Citizenship	1961	1962	1963	Country of Citizenship	1961	1962	1963
	No.	No.	No.		No.	No.	No.
Australia	1,198	1,171	1,440	Netherlands	1,897	1,631	1,773
Austria	650	457	529	New Zealand	312	308	377
Belgium	727	521	528	Norway	180	206	285
Britain and colonies	13,932	18,475	28,981	Pakistan	77	74	137
Central America	18	10	27	Poland	2,411	1,639	1,539
Ceylon	32	20	25	Portugal	2,861	3,063	4,281
China	706	545	911	South Africa	470	368	339
Czechoslovakia	29	10	25	South America	431	314	594
Denmark	483	608	593	Southern Rhodesia	61	76	120
Egypt	34	964	1,187	Spain	555	499	1,043
Finland	348	343	281	Sweden	123	155	183
France	1,987	2,350	2,772	Switzerland	630	604	603
Germany	6,060	5,081	4,740	Turkey	204	177	327
Greece	3,794	4,023	5,385	Union of Soviet Socialist Republics	105	81	75
Hungary	270	437	551	United States	10,395	10,452	10,313
India	589	575	860	Yugoslavia	1,001	1,009	978
Ireland, Republic of	549	598	759	Other African	11	16	46
Israel	674	587	746	Other Asian	63	154	253
Italy	14,352	13,951	15,589	Other European	180	143	64
Japan	114	141	171	Stateless	2,404	1,922	2,394
Lebanon	283	292	488	Others	219	312	431
Luxembourg	10	13	21				
Mexico	82	102	100				
Morocco	178	109	287	**Totals**	71,689	74,586	93,151

Sex distribution of recent immigrant arrivals is shown in Table 7. In the three years 1961-63, adult males comprised 33.6 p.c. of the immigrants, adult females 40.6 p.c. and children under 18 years of age the remaining 25.8 p.c. Without relation to age, 53.3 p.c. of the newcomers were females.

7.—Sex Distribution of Immigrants as Adult Males, Adult Females and Children, 1961-63

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Item	1961	1962	1963
	No.	No.	No.
Males	32,106	34,546	45,163
Under 18 years	*9,328*	*9,740*	*12,418*
Adult	*22,778*	*24,806*	*32,745*
Females	39,583	40,040	47,988
Under 18 years	*8,935*	*9,427*	*12,094*
Adult	*30,648*	*30,613*	*35,894*
Totals, Immigrants	**71,689**	**74,586**	**93,151**

The number of female immigrants coming into Canada has been higher than the number of male immigrants in every year since 1957. In 1963 the excess of females was 2,825 but in the age groups 0-14, 25-29 and 30-39 years the number of males exceeded that of females. In the single category, males exceeded females in all age groups up to 40 years but in the married category females exceeded males by 2,744, in the widowed category by 2,263 and in the divorced or separated category by 456. Of all persons arriving in 1963 who were 15 years of age or over, 53.1 p.c. were married, 40.8 p.c. were single and 6.3 p.c. were widowed, divorced or separated.

8.—Marital Status of Immigrant Arrivals, by Sex and Age Group, 1963

Sex and Age Group	Single	Married	Widowed	Divorced	Separated	Total
	No.	No.	No.	No.	No.	No.
Males—						
0 - 14 years	10,718	—	—	—	—	10,718
15 - 19 "	3,540	52	—	—	—	3,592
20 - 24 "	5,905	1,661	2	11	6	7,585
25 - 29 "	4,037	4,248	3	37	13	8,338
30 - 39 "	1,933	6,775	13	118	31	8,870
40 - 49 "	273	2,660	27	74	24	3,058
50 - 59 "	73	1,275	64	33	13	1,458
60 years or over	57	1,087	355	23	22	1,544
Totals, Males	**26,536**	**17,758**	**464**	**296**	**109**	**45,163**
Females—						
0 - 14 years	10,330	—	—	—	—	10,330
15 - 19 "	3,088	1,013	1	—	—	4,102
20 - 24 "	5,033	4,641	3	22	15	9,714
25 - 29 "	2,995	4,630	15	75	28	7,743
30 - 39 "	1,734	5,783	77	167	56	7,817
40 - 49 "	392	2,288	228	135	39	3,082
50 - 59 "	155	1,315	754	128	74	2,426
60 years or over	171	832	1,649	60	62	2,774
Totals, Females	**23,898**	**20,502**	**2,727**	**587**	**274**	**47,988**

Destinations and Occupations.—Upon arrival in Canada, immigrants are asked to state their intended destination. According to these records, Ontario absorbed by far the highest proportion of arrivals in the three-year period 1961-63—50.4 p.c. of all the males and 52.2 p.c. of all the females. Quebec was the second province of destination, receiving 25.5 p.c. of the males and 24.1 p.c. of the females, followed by British Columbia with 9.7 p.c. of the males and 10.3 p.c. of the females. The proportions intending to

settle in the Prairie Provinces were 11.1 p.c. and 10.6 p.c., respectively, and in the Atlantic Provinces 3.1 p.c. and 2.7 p.c., respectively. The provincial distribution has changed little from year to year throughout the whole postwar period.

9.—Intended Destinations of Male and Female Immigrants Admitted to Canada, 1961-63

Province or Territory	1961			1962			1963		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	184	181	365	196	182	378	184	165	349
Prince Edward Island	37	32	69	33	44	77	33	45	78
Nova Scotia	428	473	901	442	547	989	604	594	1,198
New Brunswick	415	355	770	491	453	944	409	360	769
Quebec	7,675	9,245	16,920	9,097	10,035	19,132	11,759	11,505	23,264
Ontario	16,008	20,510	36,518	16,852	20,358	37,210	23,515	25,701	49,216
Manitoba	1,216	1,311	2,527	1,197	1,213	2,410	1,431	1,361	2,792
Saskatchewan	596	737	1,333	552	611	1,163	695	743	1,438
Alberta	2,260	2,563	4,823	2,239	2,506	4,745	2,253	2,478	4,731
British Columbia	3,226	4,100	7,326	3,398	4,043	7,441	4,251	5,003	9,254
Yukon and Northwest Territories	61	76	137	49	48	97	29	33	62
Canada	**32,106**	**39,583**	**71,689**	**34,546**	**40,040**	**74,586**	**45,163**	**47,988**	**93,151**

In like manner, immigrant arrivals are asked to record the occupations they intend to follow in Canada. Approximately 49.2 p.c. of the persons admitted in 1963 declared that they would enter the labour force. The other 50.8 p.c. were wives, children and other dependants or were retired persons. Of the male workers, 22.2 p.c. were classed as professional and managerial, 7.5 p.c. were in agricultural occupations, 6.1 p.c. in service occupations, 40.8 p.c. in manufacturing, mechanical and construction trades, and 11.0 p.c. were general labourers. About 29 p.c. of the female immigrants entering the labour force were intending to follow service occupations. Details are given in Table **10**.

10.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1962 and 1963

Intended Occupation	1962			1963		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Managerial (owners, managers, officials)	**1,048**	**45**	**1,093**	**1,098**	**61**	**1,159**
Professional	**4,972**	**3,246**	**8,218**	**5,892**	**3,748**	**9,640**
Accountants and auditors	264	6	270	245	13	258
Architects	62	3	65	75	4	79
Chemists (other than pharmacists)	216	18	234	215	18	233
Dentists	52	9	61	37	5	42
Draughtsmen and designers	476	30	506	718	37	755
Chemical engineers	62	—	62	87	—	87
Civil engineers (and other professional engineers, *n.e.s.*)	415	4	419	207	—	207
Electrical engineers	197	—	197	309	—	309
Mechanical engineers	244	—	244	334	—	334
Mining engineers	45	—	45	41	—	41
Laboratory technicians and assistants, *n.e.s.*	291	163	454	105	137	242
Graduate nurses	28	1,593	1,621	27	1,852	1,879
Physicians and surgeons	456	74	530	583	104	687
Teachers and professors	864	664	1,528	1,067	794	1,861
Other professional workers	1,300	682	1,982	1,842	784	2,626
Clerical	**1,368**	**3,530**	**4,898**	**2,012**	**4,174**	**6,186**
Stenographers and typists	34	2,281	2,315	39	2,710	2,749
Other clerical workers	1,334	1,249	2,583	1,973	1,464	3,437
Transportation	**366**	**3**	**369**	**470**	**3**	**473**
Air pilots, captains and mates, railway conductors, locomotive engineers, etc.	37	1	38	460	2	462
Other transportation workers	329	2	331	10	1	11

10.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1962 and 1963—continued

Intended Occupation	1962			1963		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Communication	**47**	**73**	**120**	**80**	**99**	**179**
Commercial	**743**	**307**	**1,050**	**992**	**389**	**1,381**
Commercial travellers and salesmen	258	7	265	605	6	611
Sales clerks	168	280	448	291	377	668
Other trading workers	317	20	337	96	6	102
Financial	**154**	**10**	**164**	**110**	**5**	**115**
Service	**1,441**	**4,412**	**5,853**	**1,929**	**4,170**	**6,099**
Barbers, hairdressers and manicurists	399	298	697	570	384	954
Nurses' aides	48	244	292	58	155	213
Cooks	323	74	397	445	68	513
Domestic servants	44	3,111	3,155	58	2,775	2,833
Other non-professional service workers	627	685	1,312	798	788	1,586
Agricultural	**1,887**	**36**	**1,923**	**2,363**	**35**	**2,398**
Farmers and agriculturists	279	—	279	684	9	693
Farm labourers	1,608	36	1,644	1,679	26	1,705
Fishing, Trapping and Logging	**78**	—	**78**	**66**	—	**66**
Fishermen	12	—	12	17	—	17
Trappers	2	—	2	—	—	—
Bushmen and lumbermen	64	—	64	49	—	49
Mining	**100**	—	**100**	**130**	—	**130**
Miners	65	—	65	95	—	95
Oil field workers	9	—	9	11	—	11
Other workers in mines and quarries	26	—	26	24	—	24
Manufacturing, Mechanical and Construction	**8,526**	**1,159**	**9,685**	**12,875**	**1,540**	**14,415**
Aircraft mechanics and repairmen	45	—	45	61	—	61
Automobile mechanics and repairmen	751	1	752	1,021	5	1,026
Bakers	261	11	272	349	8	357
Blacksmiths, hammermen and forgemen	60	—	60	64	—	64
Boilermakers and platers	115	1	116	200	2	202
Brick and stone masons	618	—	618	935	—	935
Butchers and meat cutters	181	2	183	303	2	305
Butter and cheese makers	11	—	11	17	2	19
Cabinet and furniture makers	299	—	299	423	—	423
Carpenters	714	—	714	1,060	—	1,060
Compositors and typesetters	64	—	64	104	—	104
Construction machinery operators	51	—	51	56	—	56
Dressmakers and seamstresses	5	795	800	9	742	751
Electricians and wiremen	502	—	502	1,086	9	1,095
Electroplaters	18	—	18	10	—	10
Furriers	54	5	59	53	2	55
Jewellers and watchmakers	101	6	107	147	5	152
Leather cutters	5	—	5	4	1	5
Machine operators	33	—	33	72	—	72
Machinists	268	15	283	308	10	318
Mechanics and repairmen	488	1	489	668	4	672
Metal fitters and assemblers	459	7	466	808	14	822
Milliners	1	4	5	3	4	7
Millwrights	17	—	17	33	—	33
Moulders	33	—	33	48	—	48
Painters, decorators and glaziers	420	3	423	597	4	601
Patternmakers	19	—	19	30	—	30
Photoengravers and lithographers	28	1	29	11	—	11
Plasterers and lathers	107	—	107	132	—	132
Plumbers and pipe fitters	170	—	170	324	—	324
Printers and pressmen and plate printers	69	1	70	82	—	82
Radio repairmen	144	3	147	187	1	188
Sawyers (wood)	7	—	7	16	—	16
Sheet metal workers and tinsmiths	118	—	118	222	—	222
Shoemakers and shoe repairers	215	1	216	230	2	232
Spinners and weavers	14	16	30	41	17	58
Stationary engineers	14	—	14	29	—	29
Stonecutters and dressers	13	—	13	16	—	16
Tailors	361	24	385	455	38	493
Tanners	11	—	11	4	—	4
Toolmakers, diemakers and setters	168	—	168	311	—	311
Upholsterers	58	2	60	77	6	83
Welders and flame cutters	399	2	401	756	4	760
Other workers in food products	52	6	58	52	9	61
Other workers in rubber products	15	—	15	31	1	32
Other workers in leather and leather products	18	—	18	30	2	32

10.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1962 and 1963—concluded

Intended Occupation	1962			1963		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Manufacturing, Mechanical and Construction—concluded						
Other workers in textiles	43	25	68	76	44	120
Other workers in clothing and textile goods	28	130	158	73	473	546
Other workers in wood products	65	2	67	134	1	135
Workers in pulp, paper and paper products	33	—	33	38	4	42
Other workers in printing and publishing	63	26	89	79	29	108
Other metal workers	18	—	18	635	24	659
Other workers in non-metallic mineral products	46	6	52	74	4	78
Other manufacturing and mechanical workers	535	63	598	163	67	230
Other construction workers	121	—	121	128	—	128
Labourers (other than agricultural, fishing, logging and mining)	**2,984**	**161**	**3,145**	**3,459**	**100**	**3,559**
Not Stated	**28**	**24**	**52**	**52**	**14**	**66**
Totals, Workers	**23,742**	**13,006**	**36,748**	**31,528**	**14,388**	**45,866**
Dependants—						
Wives	—	15,674	15,674	—	19,305	19,305
Children	9,323	8,814	18,137	11,873	11,353	23,226
Others	1,481	2,546	4,027	1,762	2,992	4,754
Totals, Immigrants	**34,546**	**40,040**	**74,586**	**45,163**	**47,988**	**93,151**

Deportations.—Deportations by cause and nationality are shown in Table 11 for the years 1954-63. Persons who have not yet acquired domicile (five years of residence in Canada) may be deported if they fall into prohibited classes at time of entry or within five years of entry, if they have engaged in commercialized vice, have been convicted under the Criminal Code or have become inmates of prisons or mental institutions, or have gained entry by fraudulent means. The causes that may lead to deportation are narrowed after a person has acquired domicile. A person not a citizen may be deported regardless of length of residence if he is found to be a member of a subversive organization or engages in subversive activities, or if he has been convicted of an offence involving disloyalty to the Queen, or if he has, outside of Canada, engaged in activities detrimental to the security of Canada. A Canadian citizen cannot be deported.

11.—Deportations,[1] by Cause and Nationality, 1954-63

NOTE.—Figures from 1903 are given in the corresponding table of previous Year Books.

Cause and Nationality	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Cause										
Mental and physical	74	125	91	55	81	107	66	40	40	29
Public charges	2	23	21	13	7	10	15	18	8	7
Criminality	210	192	164	145	170	232	200	223	147	152
Misrepresentation[2] and stealth	249	282	249	262	338	317	236	252	342	251
Other causes	118	81	79	34	68	85	54	59	93	108
Totals, Deportations	**653**	**703**	**604**	**509**	**664**	**751**	**571**	**592**	**630**	**547**
Nationality										
British	249	227	212	155	155	204	125	127	90	64
United States	88	124	123	98	132	175	117	164	143	185
Other	316	352	269	256	377	372	329	301	397	298

[1] Excludes rejections and persons refused admission. [2] Includes deserting seamen deported.

Section 3.—Emigration Statistics

Emigration from Canada is an important factor tending to offset to some extent present and past immigration activities. The major outward movement has always, of course, been to the United States and that movement, both of native-born Canadians and of Europeans who originally migrated to Canada, has attained considerable proportions at certain periods. No Canadian statistics on emigration are available but Table 12 gives figures taken from the annual reports of the Immigration and Naturalization Service of the United States Department of Justice. These figures show the numbers of persons entering the United States from Canada during the years ended June 30, 1954-63 with the expressed intention of establishing permanent residence in that country. They do not include persons travelling for pleasure, even for extended periods of time, holders of border-crossing cards (normally issued to persons living in border areas of Canada but working in the United States) or casual tourist crossings in these same areas.

Of the 36,003 Canadian-born persons entering the United States in the year ended June 30, 1963, 17,480 were males and 18,523 females. Slightly more than one quarter, or 9,520, of the total native-born emigrants were males in the productive age group, 20-59 years. By occupation, the largest group of the total of 36,003 native-born persons was the professional or technical group which numbered 4,047; clerical or kindred workers numbered 3,559, and 2,036 were classed as craftsmen or foremen. On the other hand, 19,679 persons, or 54.7 p.c. of the total, were classed as housewives, children and others with no reported occupation. Altogether, 42.6 p.c. of the total were children under 20 years of age.

Of the 50,509 persons entering the United States from Canada claiming Canada as country of last permanent residence—which of course includes native-born persons and those born in other countries who have resided in Canada—the Immigration and Naturalization Service, United States Department of Justice, lists 6,398 as professional, technical and kindred workers, 4,928 as clerical and kindred workers and 4,184 as craftsmen, foremen and kindred workers. Housewives, children and others with no reported occupation accounted for 25,007, or 49.5 p.c. of the total.

12.—Canadian-Born Persons Entering the United States from Canada and Elsewhere, and All Persons Entering the United States from Canada, Years Ended June 30, 1954-63

NOTE.—Includes only persons who have declared their intention of remaining permanently in the United States when applying for a visa (see text above). SOURCE: Immigration and Naturalization Service, United States Department of Justice.

Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere	Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere
	Canadian-Born	All Persons			Canadian-Born	All Persons	
	No.	No.	No.		No.	No.	No.
1954.....	..	34,873	..	1959.....	22,325	34,599	757
1955.....	..	32,435	..	1960.....	30,312	46,668	678
1956.....	..	42,363	..	1961.....	31,312	47,470	726
1957.....	32,354	46,354	849	1962.....	29,569	44,272	808
1958.....	29,245	45,143	810	1963.....	35,320	50,509	683

PART II.—CANADIAN CITIZENSHIP*

Naturalization procedures and events leading to the passing of the Canadian Citizenship Act are given in the 1951 Year Book, pp. 153-155.

Section 1.—The Canadian Citizenship Act

The Canadian Citizenship Act came into force on Jan. 1, 1947, its purpose being to give a clear definition of Canadian citizenship and provide an underlying community of status for all the people of Canada. Since Jan. 18, 1950, the administration of Canadian citizenship has been the responsibility of the Department of Citizenship and Immigration. The provisions of the Act and its several amendments are outlined in some detail in the 1955 Year Book, pp. 177-181. More briefly, they are given in the following paragraphs.

Natural-Born Canadian Citizens, Born before Jan. 1, 1947.—The Act conferred natural-born status upon two categories of persons in being on Jan. 1, 1947. These were (1) those born in Canada or on a Canadian ship or aircraft and who were not aliens on Jan. 1, 1947; and (2) those born outside of Canada who were not aliens on Jan. 1, 1947 and who were entitled to claim derivative citizenship in accordance with the provisions of the Act.

The Act provides that a person in the second category who was a minor on Jan. 1, 1947 will automatically cease to be a Canadian citizen on his 24th birthday or on Jan. 1, 1954, whichever is the later date, unless he has his place of domicile in Canada at such date or has, before such date and after reaching the age of 21 years, filed a declaration of retention of Canadian citizenship.

Natural-Born Canadian Citizens, Born after Dec. 31, 1946.—A person born outside of Canada subsequent to that date, whose responsible parent is considered a Canadian citizen pursuant to the terms of the Canadian Citizenship Act, is a Canadian if his birth is registered with the Registrar of Canadian Citizenship within two years of its occurrence or within such extended period as the Minister may authorize in special cases.

A person who becomes a natural-born Canadian citizen in such a manner will automatically cease to be a Canadian citizen if he fails to file a declaration of retention prior to his 24th birthday or does not have his place of domicile in Canada upon that date.

Canadian Citizens other than Natural-Born.—Before the 1953 amendments to the Citizenship Act, the only persons who acquired Canadian citizenship on Jan. 1, 1947 through the transitional clauses of Sect. 9 were persons who were naturalized in Canada before that date, British subjects who had Canadian domicile at the commencement of the Act and women lawfully admitted to Canada and married prior to Jan. 1, 1947 whose husbands would have qualified as Canadian citizens if the Act had come into force before the date of marriage. Sect. 9 was amended on June 1, 1953, so that a British subject who had his place of domicile in Canada for at least 20 years immediately before Jan. 1, 1947 need not comply with the requirements of Canadian domicile provided he was not under an order of deportation on Jan. 1, 1947.

* Prepared in the Citizenship Registration Branch under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

Acquisition of Canadian Citizenship by Aliens and British Subjects.—The Act provides a means of acquiring Canadian citizenship. An alien who wishes to become a Canadian citizen must apply through his local court or through one of the special citizenship courts now being established. He must appear before the judge for a hearing and will in due course be granted citizenship if his application is approved by the judge and by the Minister. A British subject may apply for citizenship directly to the Minister. It should be added that a minor child does not automatically acquire Canadian citizenship upon the grant of citizenship to the responsible parent.

Status of Married Women.—The Canadian Citizenship Act places no disabilities upon the married woman. She neither acquires nor does she lose Canadian citizenship by marriage. In order to acquire Canadian citizenship she must apply in exactly the same manner as does a man. There is, however, one advantage granted to her—if she is married to a Canadian citizen she may apply for citizenship after a residence of only one year in Canada.

The Canadian Citizenship Act also enables a woman married to an alien whose nationality she acquired upon marriage to divest herself of Canadian citizenship by the filing of a declaration of renunciation. Finally, it provides a means whereby a woman, who had become an alien through marriage prior to Jan. 1, 1947, may acquire the Canadian status she would otherwise have assumed on that date.

Status of Minor Children.—The minor child of a Canadian citizen other than a natural-born Canadian may receive a certificate of Canadian citizenship upon application therefor by his or her responsible parent, *de facto* guardian, or mother if she has custody of the child. Provision is also made in the Citizenship Act for the granting of a certificate of citizenship to a minor child in special circumstances. Provision is made for the granting of a certificate to a person who has been adopted or legitimated in Canada and who has been admitted to Canada for permanent residence, if the adopter or the legally recognized father is a Canadian citizen.

Loss of Canadian Citizenship.—Canadian citizenship may be lost in the following manner:—

(1) A Canadian citizen who when outside of Canada and not under disability acquires by a voluntary and formal act other than marriage the nationality or citizenship of a country other than Canada. This does not apply if the country is at war with Canada at the time of acquisition but in such a case the Minister may order that he cease to be a Canadian citizen. The purpose of this is to hold the person, if deemed necessary, to his obligations as a Canadian.

(2) A natural-born Canadian citizen who is a dual national by birth or through naturalization, and any Canadian citizen on marriage, may after attaining the age of 21 cease to be a Canadian citizen through the making of a declaration of renunciation thereof.

(3) A Canadian citizen who under the law of another country is a national or citizen of such country and who serves in the armed forces of such country when it is at war with Canada. This does not apply if the Canadian citizen became a national or citizen of such country when it was at war with Canada.

(4) An other-than-natural-born Canadian citizen, unless he served outside Canada in the Armed Forces of Canada in time of war or other related circumstances, or unless otherwise exempt, loses his citizenship automatically if he has resided outside of Canada for ten consecutive years. The period of absence may however be extended upon request, if the application is filed and granted before loss occurs and if good and sufficient reason exists.

Loss of Citizenship by Revocation—Applicable Only to Naturalized Persons.—In 1958 the Canadian Citizenship Act was amended and limited the provisions regarding loss of Canadian citizenship to the following: the citizenship of a Canadian citizen other than a natural-born Canadian citizen may be revoked by the Governor in Council if, upon a report from the Minister, he is satisfied that such Canadian citizen, having been charged with the offence of treason under the Criminal Code or with an offence under the Official

Secrets Act, has failed or refused to return to Canada voluntarily within such time as may be prescribed in a notice sent by the Minister to such person at his last known address and has not appeared at the preliminary inquiry into such offence or at the trial of such offence, or both as the case may be; or has obtained a certificate of naturalization or of Canadian citizenship by false representation or fraud or by concealment of material circumstances.

Doubt as to Loss of Citizenship.—Where in the opinion of the Minister a doubt exists as to whether a person has ceased to be a Canadian citizen, the Minister may refer the question to the Commission referred to in Subsection (4) of Section 19 for a ruling and the decision of the Commission or the Court, as the case may be, shall be final.

Loss of Citizenship by Revocation—Applicable to Both Natural-Born and Naturalized Persons.—The Governor in Council may in his discretion order that any person shall cease to be a Canadian citizen if, upon a report from the Minister of Citizenship and Immigration, he is satisfied that such person has, when not under a disability (1) acquired voluntarily, when in Canada, the citizenship of a foreign country (other than by marriage), (2) taken or made an oath, affirmation, or other declaration of allegiance to a foreign country, or (3) made a declaration renouncing his Canadian citizenship.

Section 2.—Canadian Citizenship Statistics

According to the 1961 Census, which required that each person state the country to which he owed allegiance and had citizenship rights as at June 1, 1961, less than 6 p.c. of Canada's population reported a country of citizenship other than Canada. Table 1 shows the citizenship of the population by province and Table 2 gives the numerical and percentage distribution of the population by country of citizenship for 1961 compared with the distribution in 1951.

1.—Citizenship of the Population, by Province, Census 1961

Province or Territory	Canadian	Other Commonwealth	United States	European Countries	Asiatic	Other	Total
	No.	No.	No.	No.	No.	No.	No.
Newfoundland	455,282	1,186	499	763	95	28	457,853
Prince Edward Island	103,618	337	283	364	16	11	104,629
Nova Scotia	725,686	4,568	2,254	4,122	237	140	737,007
New Brunswick	590,662	2,003	2,573	2,443	112	143	597,936
Quebec	5,078,082	31,491	16,585	121,278	4,608	7,167	5,259,211
Ontario	5,673,098	184,429	36,329	317,216	7,309	17,711	6,236,092
Manitoba	879,187	10,059	3,242	26,347	688	2,163	921,686
Saskatchewan	902,106	5,946	3,656	11,664	969	840	925,181
Alberta	1,240,895	21,353	11,674	53,129	1,982	2,911	1,331,944
British Columbia	1,498,498	44,647	10,908	64,641	6,973	3,415	1,629,082
Yukon and Northwest Territories	35,315	671	309	1,228	44	59	37,626
Canada	**17,182,429**	**306,690**	**88,312**	**603,195**	**23,033**	**34,588**	**18,238,247**

2.—Population by Country of Citizenship, with Percentage Distribution, Censuses 1951 and 1961

Country of Citizenship	1951		1961	
	No.	P.C. of Total	No.	P.C. of Total
Canada	**13,567,939**	**96.85**	**17,182,429**	**94.21**
Other Commonwealth	**104,071**	**0.74**	**306,690**	**1.68**
United States	**69,000**	**0.49**	**88,312**	**0.48**
European Countries	**236,490**	**1.69**	**603,195**	**3.31**
Austria	3,769	0.03	12,648	0.07
Belgium	4,893	0.03	10,095	0.06
Czechoslovakia	9,990	0.07	2,491	0.01
Denmark	4,432	0.03	14,921	0.08
Finland	6,080	0.04	11,660	0.06
France	5,031	0.04	21,032	0.12
Germany	12,926	0.09	126,241	0.69
Hungary	7,871	0.06	26,775	0.15
Iceland	137	--	404	--
Italy	22,616	0.16	173,337	0.95
Netherlands	32,179	0.23	80,096	0.44
Norway	2,375	0.02	4,084	0.02
Poland	55,771	0.40	29,977	0.16
Romania	3,684	0.03	2,181	0.01
Sweden	2,378	0.02	2,806	0.02
Union of Soviet Socialist Republics	46,267	0.33	11,082	0.06
Yugoslavia	6,718	0.05	17,363	0.10
Other	9,373	0.07	56,002	0.31
Asiatic Countries	**15,122**	**0.11**	**23,033**	**0.13**
China	12,808	0.09	13,618	0.07
Japan	1,312	0.01	1,875	0.01
Other	1,002	0.01	7,540	0.04
Other Countries[1]	**16,807**	**0.12**	**34,588**	**0.19**
Grand Totals	**14,009,429**	**100.00**	**18,238,247**	**100.00**

[1] Includes persons who reported themselves as stateless.

Citizenship Certificates Issued.—The following statistics show the number of citizenship certificates "issued" and more detailed information on certificates "granted" in recent years. The former, in Table 3, include both certificates granted to new citizens and those issued for various reasons to persons who were already Canadian citizens. Tables 4 to 8 refer only to "grants" which means that the holder became a Canadian citizen by the grant of such certificate.

In 1962, 125,817 Canadian citizenship certificates were issued as compared with 96,191 in 1961. During 1962, the Canadian Citizenship Registration Branch recorded 5,053 certificates of registration of births abroad and 108 declarations of retention of Canadian citizenship. Corresponding figures for 1961 were 5,477 registrations of births abroad and 92 declarations of retention.

3.—Citizenship Certificates Issued, by Status of Recipient, 1961 and 1962

Section of 1947 Act	Classification	1961	1962
		No.	No.
Sect. 34 (1) (i)	Certificates of Proof of Status—		
	Canadian citizens by birth	1,134	1,058
	By naturalization under former Acts	1,739	1,366
	British subjects with 5 years domicile before Jan. 1, 1947	1,141	960
	Women, through marriage	410	367
Sect. 10 (2)	British subjects with 5 years domicile after Jan. 1, 1947	7,938	9,100
Sect. 10 (1)	Aliens	36,402	49,002
Sect. 10 (5)	Minors whose parents have been granted Certificates	11,454	11,276
Sect. 11 (3)	Minors under special circumstances	215	122
Sect. 10 (3)	Women who regained lost Canadian citizenship through marriage	188	282
Sect. 10 (4)	Canadians who regained lost status by naturalization outside Canada	127	171
Sect. 11 (1)	Doubtful cases who now have been awarded Certificates	2	3
Sect. 11 (2)	Adopted and legitimated persons	146	132
	Replacement Certificates	1,648	1,478
	Miniature certificates of citizenship (issued since Oct. 18, 1955, to Canadian citizens)	33,611	50,500
	Totals	**96,155**[1]	**125,817**

[1] Exclusive of resumptions of Canadian citizenship, numbering 36.

Characteristics of Persons Granted Citizenship Certificates in 1963.—Comparable detailed statistics showing the characteristics of persons granted citizenship certificates are available since 1953; such characteristics include age, marital status, occupation, period of immigration, residence and previous nationality. The number of applicants fluctuates from year to year but it is known that about 40 p.c. of the immigrants who entered Canada during the past ten years who are eligible for Canadian citizenship have become Canadians.

Of the 69,468 persons granted citizenship in 1963, fewer than 1 p.c. had immigrated to Canada before 1921, 2 p.c. in the period 1921-40, 7 p.c. in the period 1941-50 and 90 p.c. after 1950. Regionally, these new citizens were distributed as follows: 1 p.c. in the Atlantic Provinces, 18 p.c. in Quebec, 53 p.c. in Ontario, 15 p.c. in the Prairie Provinces and 12 p.c. in British Columbia. Over 87 p.c. of them resided in urban centres.

About 16 p.c. of the persons naturalized in 1963 previously owed allegiance to a British Commonwealth country, former citizens of Italy and Germany comprised 15 p.c. each, 10 p.c. had been citizens of the Netherlands, 9 p.c. citizens of Hungary, 5 p.c. citizens of Yugoslavia and 5 p.c. citizens of Greece. Most of the persons designated as "stateless" were born in Poland, the U.S.S.R., Yugoslavia, Hungary, Germany, Czechoslovakia and Romania.

Among the males in the labour force naturalized in 1963, craftsmen, production process workers and related occupations were reported by 44 p.c., 11 p.c. were in service and recreation occupations, 10 p.c. were in professional and technical occupations, labourers accounted for 10 p.c., managerial occupations for 6 p.c. and clerical workers, farmers and farm workers for 5 p.c. each. Of the females, 45 p.c. were homemakers and, among those employed outside the home, 30 p.c. were in the craftsmen, production process and related occupations group, 27 p.c. were in service and recreation occupations and 25 p.c. were in clerical occupations.

4.—Persons Granted Citizenship Certificates in 1962 and 1963, by Province of Residence, and Period of Immigration to Canada

Residence	Period of Immigration						Born in Canada[1]	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960	1961-1962		
1962	No.	No.	No.	No.	No.	No.	No.	No.
Residing in Canada	**457**	**841**	**236**	**4,992**	**65,104**	**277**	**74**	**71,981**
Newfoundland	2	—	—	6	130	2	—	140
Prince Edward Island	—	—	1	4	32	1	—	38
Nova Scotia	3	4	3	44	377	6	3	440
New Brunswick	8	6	1	22	361	5	2	405
Quebec	64	94	34	543	13,823	53	8	14,619
Ontario	117	285	89	2,592	34,260	168	29	37,540
Manitoba	34	88	21	339	2,677	13	5	3,177
Saskatchewan	37	71	15	123	876	2	5	1,129
Alberta	91	152	41	604	4,823	5	8	5,724
British Columbia	100	138	31	703	7,566	22	14	8,574
Yukon and N.W.T.	1	3	—	12	179	—	—	195
Residing Outside Canada	**—**	**1**	**1**	**14**	**79**	**2**	**4**	**101**
Totals, Naturalized	**457**	**842**	**237**	**5,006**	**65,183**	**279**	**78**	**72,082**

	Period of Immigration						Born in Canada[1]	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960	1961-1963		
1963	No.	No.	No.	No.	No.	No.	No.	No.
Residing in Canada	**459**	**851**	**302**	**4,916**	**61,765**	**984**	**103**	**69,380**
Newfoundland	1	—	2	11	132	9	—	155
Prince Edward Island	1	2	—	9	59	1	—	72
Nova Scotia	2	6	8	54	351	14	—	435
New Brunswick	3	5	3	58	257	13	4	343
Quebec	58	120	32	541	11,737	170	24	12,682
Ontario	112	287	110	2,449	33,052	536	26	36,572
Manitoba	52	68	30	283	2,473	44	11	2,961
Saskatchewan	39	82	12	118	849	14	12	1,126
Alberta	81	155	59	637	5,337	52	11	6,332
British Columbia	110	124	46	750	7,316	126	15	8,487
Yukon and N.W.T.	—	2	—	6	202	5	—	215
Residing Outside Canada	**1**	**—**	**1**	**18**	**61**	**4**	**3**	**88**
Totals, Naturalized	**460**	**851**	**303**	**4,934**	**61,826**	**988**	**106**	**69,468**

[1] Canadian-born persons who lost their citizenship by marriage; this applies to females only.

5.—Persons Granted Citizenship Certificates in 1962 and 1963, by Age Group and Sex

Age Group	1962			1963		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
0 - 14 years	4,266	3,895	8,161	4,678	4,266	8,944
15 - 19 "	2,616	2,338	4,954	3,103	2,715	5,818
20 - 29 "	11,490	6,734	18,224	10,164	7,017	17,181
30 - 39 "	13,267	8,900	22,167	12,094	8,125	20,219
40 - 49 "	6,516	4,621	11,137	5,607	4,234	9,841
50 - 59 "	2,756	2,225	4,981	2,522	2,216	4,738
60 - 69 "	967	997	1,964	1,020	1,151	2,171
70 + "	263	231	494	259	297	556
Totals, All Ages	**42,141**	**29,941**	**72,082**	**39,447**	**30,021**	**69,468**

6.—Persons Granted Citizenship Certificates in 1962 and 1963, by Occupation and Sex

Occupation	1962			1963		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Managerial	1,930	242	2,172	1,794	181	1,975
Professional and technical	5,073	1,331	6,404	3,224	1,025	4,249
Clerical	1,783	2,937	4,720	1,464	2,443	3,907
Transport and communication	1,294	57	1,351	1,043	54	1,097
Sales	1,214	396	1,610	982	357	1,339
Service and recreation	3,592	2,606	6,198	3,573	2,603	6,176
Farmers and farm workers	1,444	50	1,494	1,440	39	1,479
Fishermen, trappers and loggers	217	—	217	241	1	242
Miners, quarrymen and related workers	524	1	525	463	1	464
Craftsmen, production process and related workers	14,219	2,843	17,062	13,865	2,983	16,848
Labourers, *n.e.s.*	3,225	27	3,252	2,984	29	3,013
Homemakers	—	13,520	13,520	—	13,634	13,634
No occupation (including students, retired, etc.)	3,721	2,388	6,109	4,079	2,846	6,925
Children under 14 years of age	3,551	3,269	6,820	3,925	3,607	7,532
Not stated[1]	254	274	628	370	218	588
Totals, All Occupations	**42,141**	**29,941**	**72,082**	**39,447**	**30,021**	**69,468**

[1] Mainly children over 14 years of age.

7.—Persons Granted Citizenship Certificates in 1962 and 1963, by Country of Birth

Country of Birth	1962	1963	Country of Birth	1962	1963
	No.	No.		No.	No.
Algeria	114	95	Morocco	298	285
Argentina	59	69	Netherlands	6,310	6,816
Australia	104	112	Norway	246	305
Austria	1,208	1,257	Poland	3,307	3,327
Belgium	866	898	Portugal	717	977
Britain	8,424	8,352	Romania	886	632
British Guiana	123	111	South Africa	130	144
Canada	197	275	Spain	222	237
China	1,053	1,735	Sweden	150	135
Czechoslovakia	784	596	Switzerland	440	438
Denmark	1,115	1,270	Turkey	139	165
Egypt	324	199	Union of Soviet Socialist Republics	2,452	2,508
Finland	579	711	United States	781	739
France	1,048	1,046	West Indies	568	582
Germany	8,647	8,797	Yugoslavia	2,538	4,042
Greece	2,353	3,134	Other	806	839
Hong Kong	64	87			
Hungary	14,446	6,580	**Totals, All Countries**	**72,082**	**69,468**
India	329	352			
Indonesia	109	105			
Ireland, Republic of	763	590	Commonwealth	10,326	10,426
Israel	135	196	Other Asia	1,840	2,628
Italy	8,845	10,216	Other Europe	58,058	54,605
Japan	90	86	South America	197	283
Lebanon	179	239	United States	781	739
Malta	134	189	Other	880	787

8.—Persons Granted Citizenship Certificates in 1962 and 1963, by Country of Former Allegiance

Country of Former Allegiance	1962	1963	Country of Former Allegiance	1962	1963
	No.	No.		No.	No.
Commonwealth countries	11,415	11,251	Lithuania	242	236
Austria	1,162	1,164	Netherlands	6,483	7,002
Belgium	798	825	Norway	253	307
Bulgaria	57	44	Poland	2,615	2,804
China	1,009	1,707	Portugal	730	977
Czechoslovakia	458	347	Romania	395	253
Denmark	1,131	1,280	Spain	223	243
Estonia	314	288	Sweden	107	127
Finland	589	706	Switzerland	448	448
France	1,237	1,245	Turkey	82	126
Germany	10,001	10,224	United States	914	946
Greece	2,420	3,175	Union of Soviet Socialist Republics	1,363	1,256
Hungary	14,604	6,551	Yugoslavia	2,268	3,785
Israel	358	432	Other	794	716
Italy	8,956	10,323			
Japan	89	85			
Latvia	363	357			
Lebanon	204	238	**Totals, All Countries**	**72,082**	**69,468**

CHAPTER V.—VITAL STATISTICS*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Vital statistics provide a key to the interpretation of population development—a measure of the pace at which it is growing, the rate at which women are marrying and reproducing, and the effect this has on the age and sex distribution of the population, as well as the relative importance of the diseases that cause death each year. Vital statistics constitute the record of births, deaths and marriages (and divorces) registered in the several provinces and the territories of Canada. The continuity of such data gives a constant guide to the planning, operation and evaluation of a variety of national activities, particularly in the fields of public health, education, community planning and various types of business enterprise.

This Chapter gives a fairly detailed coverage of the vital statistics information available, gives life tables for males and females and presents a comparison of the principal Canadian vital statistics rates with those of other countries. In making international and interprovincial comparisons of birth, death and marriage rates, it is important to note that part of the differences observed over a period of years as between countries, provinces or local areas may be caused by differences in the sex and age distribution of the populations involved. Similarly, rates for any one area may be affected by changes in such distribution. The population data upon which vital statistics rates are computed are given in Chapter III of this volume. Births and deaths are classified by place of residence (births according to the residence of the mother) and marriages by place of occurrence.

The history of the collection of vital statistics in Canada is covered in the 1948-49 Year Book, pp. 185-188. Detailed information is given in *Vital Statistics* (Preliminary Report) (Catalogue No. 84-201), *Vital Statistics of Canada* (Catalogue No. 84-202) and in other regular and special reports; in addition, certain unpublished data are available on request.

Section 1.—Summary of Vital Statistics

Table 1 gives a summary for reference purposes of the principal vital statistics of the provinces and territories of Canada for five-year periods 1941-60 and for single years 1960-62. Table 2 shows similar data for urban centres having at least 10,000 population at the date of the 1961 Census for the year 1962 with comparative annual averages for 1956-60.

* Revised in the Vital Statistics Section, Health and Welfare Division, Dominion Bureau of Statistics.

1.—Summary of Principal Vital Statistics, by Province, 1941-62

NOTE.—Figures for the years 1921, when the collection of national statistics was initiated, to 1940 are given in previous editions of the Year Book. Figures for neo-natal mortality (within the first four weeks of birth) are given on p. 254 and those for divorces on p. 263.

Province and Year	Live Births		Deaths		Natural Increase[1]		Infant Mortality[2]		Maternal Mortality		Marriages	
	No.	Rate[3]	No.	Rate[3]	No.	Rate[3]	No.	Rate[4]	No.	Rate[4]	No.	Rate[3]
Newfoundland—												
Av. 1941-45	9,292	29.8	3,681	11.8	5,611	18.0	852	92	39	4.2	2,967	9.5
" 1946-50	12,352	36.2	3,179	9.3	9,173	26.9	754	61	25	2.0	2,711	8.0
" 1951-55	13,101	34.1	2,926	7.6	10,175	26.5	598	46	24	1.8	2,836	7.4
" 1956-60	14,934	34.6	3,114	7.2	11,820	27.4	585	39	17	1.1	3,032	7.0
1960	15,173	33.9	3,015	6.7	12,158	27.2	545	36	16	1.1	3,104	6.9
1961	15,591	34.1	3,038	6.6	12,553	27.5	588	38	11	0.7	3,306	7.2
1962	15,064	32.1	3,198	6.8	11,866	25.3	597	40	5	0.3	3,274	7.0
P. E. Island—												
Av. 1941-45	2,180	23.7	964	10.5	1,216	13.2	114	52	9	3.9	686	7.5
" 1946-50	2,869	30.5	922	9.8	1,947	20.7	114	40	4	1.3	677	7.2
" 1951-55	2,720	27.2	923	9.2	1,797	18.0	88	32	2	0.8	623	6.2
" 1956-60	2,674	26.6	953	9.5	1,721	17.1	87	33	1	0.3	645	6.4
1960	2,734	26.5	961	9.3	1,773	17.2	88	32	—	—	690	6.7
1961	2,838	27.1	978	9.3	1,860	17.8	93	33	1	0.4	624	6.0
1962	2,805	26.5	1,056	10.0	1,749	16.5	87	31	—	—	677	6.4
Nova Scotia—												
Av. 1941-45	15,146	25.2	6,326	10.5	8,820	14.7	870	57	41	2.7	6,302	10.5
" 1946-50	17,994	28.9	6,042	9.7	11,952	19.2	760	42	22	1.2	5,525	8.9
" 1951-55	18,246	27.5	5,802	8.8	12,444	18.7	586	32	13	0.7	5,283	8.0
" 1956-60	19,097	26.9	6,062	8.5	13,035	18.4	559	29	9	0.5	5,289	7.4
1960	19,126	26.3	6,102	8.4	13,024	17.9	565	30	4	0.2	5,250	7.2
1961	19,382	26.3	6,135	8.3	13,247	18.0	538	28	4	0.2	5,292	7.2
1962	19,432	26.0	6,342	8.5	13,090	17.5	614	32	9	0.5	5,256	7.0
New Brunswick—												
Av. 1941-45	13,037	28.2	5,050	10.9	7,987	17.3	960	74	42	3.2	4,433	9.6
" 1946-50	16,878	34.0	4,886	9.8	11,992	24.2	1,015	60	23	1.4	4,864	9.8
" 1951-55	16,496	31.0	4,576	8.6	11,920	22.4	717	43	16	0.9	4,306	8.1
" 1956-60	16,567	29.0	4,640	8.1	11,927	20.9	567	34	8	0.5	4,357	7.6
1960	16,341	27.7	4,670	7.9	11,671	19.8	488	30	10	0.6	4,430	7.5
1961	16,590	27.7	4,695	7.9	11,895	19.8	434	26	8	0.5	4,504	7.5
1962	16,467	27.1	4,788	7.9	11,679	19.2	498	30	7	0.4	4,382	7.2
Quebec—												
Av. 1941-45	97,906	28.4	34,273	9.9	63,633	18.5	6,690	68	318	3.2	33,126	9.6
" 1946-50	115,496	30.4	33,723	8.9	81,773	21.5	6,205	54	227	2.0	34,874	9.2
" 1951-55	128,523	30.0	34,269	8.0	94,254	22.0	5,662	44	149	1.2	35,584	8.3
" 1956-60	139,844	28.6	35,714	7.3	104,130	21.3	5,000	36	105	0.7	36,798	7.5
1960	137,850	26.8	35,129	6.8	102,721	20.0	4,159	30	85	0.6	36,211	7.0
1961	137,174	26.1	37,044	7.0	100,130	19.1	4,319	31	89	0.6	35,943	6.8
1962	135,000	25.2	37,142	6.9	97,858	18.3	4,294	32	69	0.5	37,038	6.9
Ontario—												
Av. 1941-45	77,738	19.9	29,738	10.2	38,000	9.7	3,276	42	197	2.5	38,042	9.7
" 1946-50	105,161	24.6	42,214	9.9	62,947	14.7	3,795	36	129	1.2	44,084	10.3
" 1951-55	128,861	26.1	44,715	9.0	84,146	17.1	3,634	28	83	0.6	45,213	9.1
" 1956-60	152,688	26.4	49,431	8.5	103,257	17.9	3,741	25	65	0.4	46,482	8.0
1960	159,245	26.1	51,484	8.4	107,761	17.7	3,745	24	55	0.3	45,855	7.5
1961	157,663	25.3	50,997	8.2	106,666	17.1	3,626	23	67	0.4	44,434	7.1
1962	156,053	24.6	52,156	8.2	103,897	16.4	3,621	23	54	0.3	44,454	7.0
Manitoba—												
Av. 1941-45	15,831	21.8	6,633	9.1	9,198	12.7	814	51	41	2.6	7,295	10.0
" 1946-50	19,325	25.9	6,702	9.0	12,623	16.9	810	42	24	1.3	7,605	10.2
" 1951-55	21,321	26.4	6,775	8.4	14,546	18.0	675	32	15	0.7	7,104	8.8
" 1956-60	22,408	25.6	7,293	8.3	15,115	17.3	671	30	10	0.5	6,600	7.5

For footnotes, see end of table.

1.—Summary of Principal Vital Statistics, by Province, 1941-62—concluded

Province or Territory and Year	Live Births		Deaths		Natural Increase[1]		Infant Mortality[2]		Maternal Mortality		Marriages	
	No.	Rate[3]	No.	Rate[3]	No.	Rate[3]	No.	Rate[4]	No.	Rate[4]	No.	Rate[3]
Manitoba—concl.												
1960	23,237	25.6	7,471	8.2	15,766	17.4	698	30	9	0.4	6,606	7.3
1961	23,288	25.3	7,369	8.0	15,919	17.3	588	25	13	0.6	6,512	7.1
1962	22,918	24.5	7,453	8.0	15,465	16.5	600	26	7	0.3	6,354	6.8
Saskatchewan—												
Av. 1941-45	18,444	21.7	6,437	7.6	12,007	14.1	858	47	52	2.8	6,541	7.7
" 1946-50	21,907	26.3	6,473	7.8	15,434	18.5	883	40	29	1.3	7,413	8.9
" 1951-55	23,554	27.5	6,547	7.6	17,007	19.9	743	32	16	0.7	6,876	8.0
" 1956-60	24,046	26.9	6,753	7.5	17,293	19.4	634	26	9	0.4	6,395	7.1
1960	24,088	26.3	6,868	7.5	17,220	18.8	637	26	10	0.4	6,209	6.8
1961	23,994	25.9	7,107	7.7	16,887	18.2	618	26	6	0.3	6,149	6.6
1962	23,341	25.1	7,004	7.5	16,337	17.6	605	26	5	0.2	6,044	6.5
Alberta—												
Av. 1941-45	18,845	23.7	6,355	8.0	12,490	15.7	827	44	46	2.4	7,977	10.0
" 1946-50	24,290	28.4	6,814	8.0	17,476	20.4	889	37	25	1.0	9,090	10.6
" 1951-55	31,087	30.6	7,527	7.4	23,560	23.2	894	29	15	0.5	9,750	9.6
" 1956-60	36,920	30.6	8,329	6.9	28,591	23.7	940	25	13	0.3	10,230	8.5
1960	39,009	30.2	8,888	6.9	30,121	23.3	1,022	26	7	0.2	10,482	8.1
1961	38,914	29.2	8,863	6.7	30,051	22.5	1,044	27	9	0.2	10,474	7.9
1962	38,804	28.3	9,264	6.8	29,540	21.5	984	25	16	0.4	10,423	7.6
British Columbia—												
Av. 1941-45	17,705	19.8	9,368	10.5	8,337	9.3	684	39	46	2.6	9,535	10.7
" 1946-50	25,859	24.0	10,992	10.2	14,867	13.9	868	34	31	1.2	11,564	10.7
" 1951-55	31,347	25.1	12,233	9.8	19,114	15.3	856	27	17	0.5	11,131	8.9
" 1956-60	38,930	25.7	13,980	9.2	24,950	16.5	1,011	26	16	0.4	11,955	7.9
1960	40,116	25.0	14,696	9.2	25,420	15.8	946	24	19	0.5	11,203	7.0
1961	38,591	23.7	14,403	8.8	24,188	14.9	945	24	10	0.3	10,964	6.7
1962	38,128	23.0	14,912	9.0	23,216	14.0	878	23	17	0.4	11,196	6.7
Yukon Territory—												
Av. 1941-45	105	21.0	96	19.3	9	1.7	11	101	1	5.7	60	12.1
" 1946-50	254	31.7	91	11.4	163	20.3	16	63	--	1.6	73	9.1
" 1951-55	413	43.0	90	9.4	323	33.6	22	53	--	0.5	94	9.8
" 1956-60	505	39.4	91	7.1	414	32.3	22	44	--	0.4	109	8.5
1960	538	38.4	97	6.9	441	31.5	26	48	—	—	107	7.6
1961	558	38.1	94	6.4	464	31.7	23	41	1	1.8	128	8.8
1962	547	36.5	75	5.0	472	31.5	27	49	1	1.8	109	7.3
Northwest Territories—												
Av. 1941-45	383	31.9	332	27.7	51	4.2	72	189	2	4.7	95	7.9
" 1946-50	626	39.1	372	23.2	254	15.9	87	139	3	5.4	139	8.7
" 1951-55	666	40.1	284	17.1	382	23.0	78	117	2	3.6	115	6.9
" 1956-60	943	46.7	310	15.3	633	31.4	135	143	3	3.0	155	7.7
1960	1,094	49.7	312	14.2	782	35.5	158	144	—	—	191	8.7
1961	1,117	48.6	262	11.4	855	37.2	124	111	—	—	145	6.3
1962	1,134	47.3	309	12.9	825	34.4	136	120	1	0.9	174	7.3
Canada—[5]												
Av. 1941-45	**277,320**	**23.5**	**115,572**	**9.8**	**161,748**	**13.7**	**15,176**	**55**	**793**	**2.9**	**114,091**	**9.7**
" 1946-50	**355,748**	**27.4**	**120,438**	**9.3**	**235,310**	**18.1**	**15,723**	**44**	**527**	**1.5**	**126,898**	**9.8**
" 1951-55	**416,334**	**28.0**	**126,666**	**8.5**	**289,668**	**19.5**	**14,552**	**35**	**353**	**0.8**	**128,915**	**8.7**
" 1956-60	**469,555**	**27.6**	**136,669**	**8.0**	**332,886**	**19.6**	**13,953**	**30**	**255**	**0.5**	**132,047**	**7.8**
1960	**478,551**	**26.8**	**139,693**	**7.8**	**338,858**	**19.0**	**13,077**	**27**	**215**	**0.4**	**130,338**	**7.3**
1961	**475,700**	**26.1**	**140,985**	**7.7**	**334,715**	**18.4**	**12,940**	**27**	**219**	**0.5**	**128,475**	**7.0**
1962	**469,693**	**25.3**	**143,699**	**7.7**	**325,994**	**17.6**	**12,941**	**28**	**191**	**0.4**	**129,381**	**7.0**

[1] Excess of births over deaths. [2] Deaths under one year of age; deaths within the first four weeks of birth are given on p. 254. [3] Per 1,000 population. [4] Per 1,000 live births. [5] Figures for Newfoundland are included from 1949.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,[1] Average 1956-60 and 1962

NOTE.—Birth, death and natural increase rates cannot be computed for 1962 or the period 1956-60 since urban centre populations are not known for intercensal periods. Urban centres are designated in this table by the following abbreviations: c. = city, t. = town, vl. = village, s.m. = suburban municipality, and d.m. = district municipality.

Province and Urban Centre	Live Births		Deaths		Natural Increase[2]		Infant Mortality[3]			Neo-natal Mortality[4]			Marriages[5]	
	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962		Av. 1956-60	1962		Av. 1956-60	1962
	No.	No.	No.	No.	No.	No.	Rate[6]	No.	Rate[6]	Rate[6]	No.	Rate[6]	No.	No.
Newfoundland—														
Corner Brook, c.	940	845	127	141	813	704	36	43	51	21	30	36	210	238
St. John's, c.	2,010	1,841	521	498	1,489	1,343	28	44	24	22	29	16	689	705
Prince Edward Island—														
Charlottetown, c.	456	446	210	233	246	213	36	21	47	25	14	31	172	157
Nova Scotia—														
Amherst, t.	263	223	93	113	170	110	33	4	18	15	1	4	114	91
Dartmouth, c.	881	1,740	136	217	745	1,523	24	44	25	16	28	16	177	284
Glace Bay, t.	623	579	219	211	404	368	44	19	33	26	14	24	181	160
Halifax, c.	2,441	2,297	762	758	1,679	1,539	28	67	29	17	47	20	1,112	1,064
New Waterford, t.	356	311	85	87	271	224	31	8	26	14	6	19	85	76
Sydney, c.	950	913	259	285	691	628	14	24	26	8	13	14	275	260
Truro, t.	353	342	112	117	241	225	35	2	6	24	—	—	153	134
New Brunswick—														
Edmundston, c.	365	314	71	72	294	242	23	8	25	16	6	19	97	110
Fredericton, c.	497	582	169	162	328	420	20	13	22	11	7	12	247	208
Lancaster, c.	261	302	97	125	164	177	23	7	23	12	4	13	65	81
Moncton, c.	1,050	1,123	274	329	776	794	22	29	26	14	21	19	348	361
Saint John, c.	1,499	1,482	589	603	910	879	27	47	32	18	38	26	532	520
Oromocto, t.	..	418	..	17	..	401	..	7	17	..	3	7	..	61
Quebec—														
Alma, c.	748	698	93	76	655	622	37	15	21	27	11	16	158	162
Arvida, c.	429	373	41	48	388	325	19	6	16	9	3	8	77	95
Asbestos, t.	369	270	54	55	315	215	31	7	26	21	7	26	67	93
Beaconsfield, t.	198	217	32	43	166	174	17	2	9	12	1	5	10	29
Cap de la Madeleine, c.	723	667	152	145	571	522	32	20	30	22	12	18	204	231
Charlesbourg, c.	232	334	45	97	187	237	31	6	18	18	5	15	50	83
Chicoutimi, c.	1,004	952	188	218	816	734	46	49	51	30	31	33	223	228
Chicoutimi North, c.	336	395	36	57	300	338	26	18	46	13	12	30	54	79
Chomedey, c.	752	1,047	96	154	656	893	23	26	25	16	20	19	82	128
Côte St. Luc, c.	238	309	34	64	204	245	24	6	19	11	3	10	4	5

Dorval, c.	407	346	69	74	388	272	18	12	35	11	7	20	38	34
Drummondville, c.	746	653	187	202	559	451	43	38	58	25	29	44	242	244
Duvernay, t.	..	313	..	38	..	275	..	3	10	..	2	6	..	30
Gatineau, t.	398	527	54	72	344	455	51	9	17	30	6	11	68	82
Giffard, c.	292	284	54	62	238	222	32	7	25	22	6	21	55	63
Granby, c.	877	896	180	225	697	671	28	35	39	19	28	31	253	274
Grand'Mère, c.	433	377	88	95	345	282	31	11	29	19	9	24	96	98
Hull, c.	1,742	1,709	385	418	1,357	1,291	39	71	42	24	53	31	429	396
Jacques Cartier, c.	1,233	1,261	202	194	1,031	1,067	36	32	25	21	24	19	193	234
Joliette, c.	509	425	174	204	335	221	39	14	33	25	11	26	170	174
Jonquière, c.	992	863	138	141	854	722	35	27	31	21	20	23	201	241
Kénogami, c.	392	310	51	50	341	260	26	10	32	13	9	29	90	116
Lachine, c.	886	846	274	244	612	602	22	21	25	13	17	20	264	271
Laflèche, c.	315	283	99	116	216	167	41	11	39	22	5	18	53	54
LaSalle, c.	858	1,049	155	184	703	865	18	25	24	12	17	16	95	108
La Tuque, t.	403	367	84	79	319	288	41	15	41	29	13	35	101	105
Lauzon, c.	258	257	77	88	181	169	36	4	16	25	3	12	83	103
Laval des Rapides, t.	440	570	74	120	366	450	28	9	16	18	5	9	39	71
Lévis, c.	320	300	118	113	202	187	40	5	17	29	3	10	87	100
Longueuil, c.	682	688	136	274	546	414	23	14	20	16	9	13	171	172
Magog, c.	343	331	87	87	256	244	29	8	24	20	6	18	106	141
Montreal, c.	29,258	26,523	10,185	9,809	19,073	16,714	28	668	25	19	487	18	11,125	10,064
Montreal North, c.	1,128	1,440	192	338	936	1,102	28	51	35	19	29	20	132	191
Mount Royal, t.	276	242	96	120	180	122	21	3	12	14	2	8	160	140
Noranda, c.	341	314	54	59	287	255	36	8	25	22	6	19	80	70
Outremont, c.	337	285	294	282	43	3	25	2	7	18	1	4	273	193
Pierrefonds, t.	..	475	..	47	..	428	..	7	15	..	6	13	..	5
Pointe aux Trembles, c.	510	559	120	208	390	351	36	16	29	21	14	25	82	97
Pointe Claire, c.	448	392	111	153	337	239	19	5	13	12	4	10	89	79
Pont Viau, c.	410	497	62	78	348	419	30	18	36	20	11	22	76	88
Quebec, c.	4,345	3,722	1,569	1,545	2,776	2,177	39	128	34	23	89	24	1,656	1,561
Rimouski, t.	516	452	90	99	426	353	29	11	24	17	5	11	98	114
Rivière des Prairies, t.	220	243	56	73	164	170	34	6	25	16	5	21	38	37
Rivière du Loup, c.	285	250	81	90	204	160	31	6	24	20	5	20	71	90
Rouyn, c.	653	589	102	108	551	481	34	17	29	19	11	19	136	149
Ste. Foy, c.	729	972	88	130	641	842	21	16	16	16	14	14	59	115
St. Hubert, t.	..	308	..	34	..	274	..	4	13	..	3	10	..	64
St. Hyacinthe, c.	490	481	236	258	254	223	47	16	33	20	7	15	208	203
St. Jean, c.	777	652	162	145	615	507	27	10	15	16	5	8	207	193
St. Jérôme, c.	661	680	150	137	511	543	35	18	26	25	14	21	219	230
St. Lambert, c.	264	246	89	108	175	138	17	6	24	11	3	12	73	79
St. Laurent, c.	1,132	1,025	233	238	899	787	19	26	25	13	18	18	212	252
St. Michel, c.	1,533	2,184	158	242	1,375	1,942	26	44	20	17	27	12	128	193
Ste. Thérèse, c.	376	398	65	99	311	299	31	20	50	20	16	40	92	107
St. Vincent de Paul, t.	412	291	60	41	352	250	22	9	31	12	4	14	45	41
Sept Îles, c.	443	764	45	56	398	708	42	23	30	26	16	21	78	110
Shawinigan, c.	882	714	186	183	696	531	43	20	28	33	15	21	238	250
Shawinigan South, vl.	338	269	50	52	288	217	33	5	19	24	3	11	65	72
Sherbrooke, c.	1,771	1,786	482	612	1,289	1,174	29	72	40	16	59	33	515	542
Sillery, c.	271	205	78	76	193	129	31	5	24	24	4	20	72	78
Sorel, c.	449	379	138	160	311	219	44	11	29	29	8	21	110	125
Thetford Mines, c.	668	539	138	140	530	399	35	23	43	18	11	20	146	140

For footnotes, see end of table, p. 232.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,[1] Average 1956-60 and 1962—continued

Province and Urban Centre	Live Births		Deaths		Natural Increase[2]		Infant Mortality[3]			Neo-natal Mortality[4]			Marriages[5]	
	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962		Av. 1956-60	1962		Av. 1956-60	1962
	No.	No.	No.	No.	No.	No.	Rate[6]	No.	Rate[6]	Rate[6]	No.	Rate[6]	No.	No.
Quebec—concluded														
Trois Rivières, c.	1,512	1,493	405	425	1,107	1,068	35	50	33	22	39	26	459	448
Val d'Or, t.	420	396	63	55	357	341	39	7	18	28	6	15	90	77
Valleyfield, c.	791	707	196	193	595	514	35	18	25	22	13	18	239	240
Verdun, c.	1,823	1,616	617	599	1,206	1,017	23	37	23	16	21	13	620	523
Victoriaville, t.	517	525	142	164	375	361	43	18	34	33	9	17	153	187
Westmount, c.	252	215	275	253	−23	−38	23	10	47	17	5	23	379	302
Ontario—														
Barrie, c.	572	598	158	163	414	435	28	9	15	21	5	8	197	206
Belleville, c.	645	767	229	255	416	512	23	16	21	17	11	14	246	286
Brampton, t.	389	588	107	117	282	471	22	14	24	17	9	15	130	128
Brantford, c.	1,213	1,154	498	547	715	607	22	24	21	16	20	17	464	459
Brockville, t.	371	415	164	153	207	262	26	8	19	17	5	12	161	154
Burlington, t.	719	1,152	149	270	570	882	16	23	20	12	15	13	148	232
Chatham, c.	649	806	251	300	398	506	27	19	24	22	16	20	272	300
Cobourg, t.	237	229	107	105	130	124	29	5	22	23	5	22	73	88
Cornwall, c.	1,162	1,173	310	351	852	822	33	37	32	23	28	24	361	336
Dundas, t.	278	267	126	123	152	144	16	4	15	14	4	15	80	91
Eastview, t.	975	1,023	119	133	856	890	22	23	22	17	18	18	167	185
Forest Hill, vl.	234	254	151	173	83	81	16	6	24	10	5	20	18	10
Fort William, c.	1,063	1,091	343	419	720	672	24	28	26	19	23	21	384	319
Galt, c.	594	647	235	257	359	390	19	13	20	14	8	12	221	250
Georgetown, t.	267	300	47	67	220	233	22	6	20	13	5	17	52	67
Guelph, c.	987	1,016	332	375	655	641	24	24	24	18	18	18	343	328
Hamilton, c.	6,544	6,528	2,240	2,439	4,304	4,089	21	141	22	15	105	16	2,413	2,185
Kenora, t.	287	260	102	121	185	139	35	13	50	21	10	38	107	106
Kingston, c.	1,358	1,379	487	484	871	895	25	34	25	18	23	17	485	494
Kitchener, c.	1,783	2,029	513	559	1,270	1,470	21	41	20	17	33	16	581	631
Leaside, t.	225	326	129	162	96	164	15	6	18	11	4	12	87	71
Lindsay, t.	242	266	131	129	111	137	32	5	19	27	2	8	112	108
London, c.	2,573	4,326	1,090	1,507	1,483	2,819	28	92	21	19	68	16	1,248	1,375
Long Branch, vl.	331	303	84	79	247	224	25	8	26	19	6	20	90	80
Mimico, t.	422	537	106	137	316	400	21	4	7	17	3	6	185	176
New Toronto, t.	306	338	93	102	213	236	24	10	30	16	9	27	82	58
Niagara Falls, c.	559	491	235	280	324	211	24	20	41	18	14	29	397	311
North Bay, c.	723	704	188	170	535	534	24	12	17	15	9	13	280	235

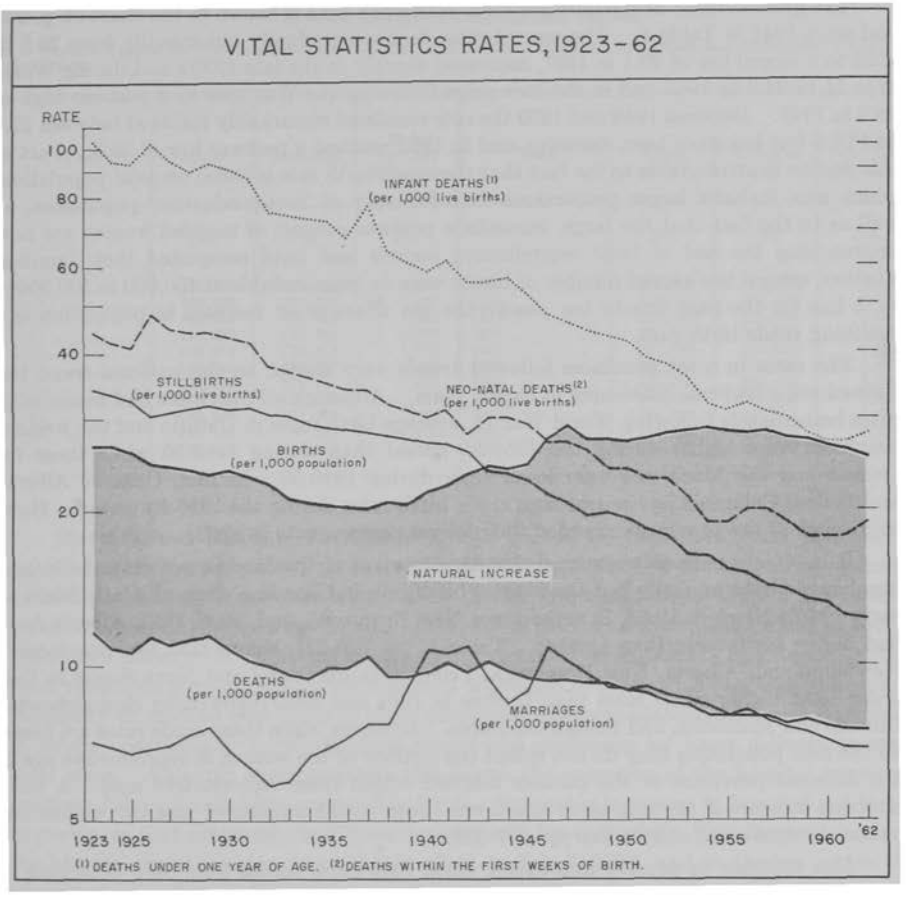
Oakville, t.	263	1,057	80	178	183	879	24	23	22	18	17	16	128	201
Orillia, t.	378	352	159	159	219	193	25	7	20	19	7	20	150	157
Oshawa, c.	1,592	1,677	361	447	1,231	1,230	24	49	29	18	42	25	471	510
Ottawa, c.	5,938	6,343	2,170	2,194	3,768	4,149	25	158	25	18	124	20	2,139	2,148
Owen Sound, c.	406	379	179	186	227	193	20	7	18	13	5	13	163	162
Pembroke, t.	538	505	155	167	383	338	32	23	46	23	20	40	185	182
Peterborough, c.	1,138	1,060	414	416	724	644	26	34	32	20	29	27	399	372
Port Arthur, c.	1,054	1,085	394	367	660	718	23	24	22	16	18	17	390	383
Port Colborne, t.	398	375	105	125	292	250	25	5	13	18	5	13	140	133
Preston, t.	247	296	98	119	149	177	22	8	27	16	7	24	80	104
Richmond Hill, t.	399	455	62	56	337	399	16	8	18	11	6	13	71	103
Riverside, t.	441	439	90	109	351	330	16	7	16	10	7	16	65	57
St. Catharines, c.	2,091	1,945	640	642	1,451	1,303	22	35	18	18	28	14	638	596
St. Thomas, c.	428	406	244	278	184	128	21	8	20	16	7	17	203	205
Sarnia, c.	1,406	1,292	339	347	1,067	945	23	25	19	17	17	13	353	365
Sault Ste. Marie, c.	1,163	1,149	309	373	854	776	22	33	29	15	23	20	511	441
Stratford, c.	438	438	231	178	207	260	19	5	11	14	3	7	166	164
Sudbury, c.	1,821	2,638	363	573	1,458	2,065	28	68	26	21	51	19	684	714
Timmins, t.	801	827	232	248	569	579	34	28	34	22	21	25	240	248
Toronto, c.	15,953	15,148	7,386	7,068	8,567	8,080	23	373	25	17	303	20	11,800	9,679
Trenton, t.	433	440	103	111	330	329	25	10	23	18	6	14	135	175
Waterloo, c.	492	510	133	135	359	375	23	6	12	16	6	12	126	146
Welland, c.	390	849	161	292	229	557	23	24	28	15	17	20	268	309
Whitby, t.	298	336	116	134	182	202	21	2	6	14	1	3	100	118
Windsor, c.	2,825	2,464	1,158	1,260	1,667	1,204	27	60	24	21	49	20	1,319	1,118
Woodstock, c.	487	492	188	188	299	304	23	15	30	15	13	26	175	191
Manitoba—														
Brandon, c.	680	664	228	264	452	400	22	24	36	17	15	23	248	212
Flin Flon, t.	314	245	45	51	269	194	21	11	45	15	9	37	95	88
Fort Garry, s.m.	449	445	84	98	365	347	19	9	20	13	9	20	57	72
Kildonan East, c.	600	651	126	163	474	488	21	14	22	17	12	18	106	123
Kildonan West, c.	386	390	99	147	287	243	13	5	13	10	4	10	50	57
Portage la Prairie, c.	367	359	95	93	272	266	23	11	31	14	8	22	115	97
St. Boniface, c.	962	1,057	305	280	657	777	23	26	25	17	19	18	280	275
St. James, c.	715	684	210	225	505	459	22	9	13	16	7	10	214	217
St. Vital, s.m.	618	683	156	165	462	518	23	13	19	16	10	15	110	118
Transcona, t.	324	474	66	80	258	394	22	7	15	15	5	11	45	61
Winnipeg, c.	6,169	5,982	2,633	2,596	3,536	3,386	26	130	22	20	97	16	2,847	2,544
Saskatchewan—														
Moose Jaw, c.	909	850	323	308	586	542	21	25	29	16	22	26	296	264
North Battleford, c.	305	354	84	95	221	259	28	5	14	19	4	11	126	104
Prince Albert, c.	642	724	173	209	469	515	30	14	19	21	8	11	273	307
Regina, c.	2,922	3,346	681	733	2,241	2,613	23	61	18	18	47	14	1,004	957
Saskatoon, c.	2,504	2,832	650	772	1,854	2,060	21	68	24	16	50	18	876	901
Swift Current, c.	362	326	96	129	266	197	24	14	43	18	9	28	143	99
Alberta—														
Calgary, c.	6,937	8,025	1,569	1,918	5,368	6,107	22	170	21	16	119	15	2,205	2,279
Edmonton, c.	8,807	8,956	1,670	1,797	7,137	7,159	22	167	19	16	127	14	3,136	3,131
Jasper Place, t.	899	1,232	77	130	822	1,102	18	25	20	12	16	13	21	52

For footnotes, see end of table, p. 232.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,[1] Average 1956-60 and 1962—concluded

Province and Urban Centre	Live Births		Deaths		Natural Increase[2]		Infant Mortality[3]			Neo-natal Mortality[4]			Marriages[5]	
	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962	Av. 1956-60	1962		Av. 1956-60	1962		Av. 1956-60	1962
	No.	No.	No.	No.	No.	No.	Rate[6]	No	Rate[6]	Rate[6]	No.	Rate[6]	No.	No.
Alberta—concluded														
Lethbridge, c.	897	926	249	275	648	651	22	18	19	18	10	11	382	350
Medicine Hat, c.	586	641	211	229	375	412	23	10	16	15	7	11	271	240
Red Deer, c.	580	688	106	133	474	555	20	17	25	14	14	20	214	247
British Columbia—														
Burnaby, d.m.	2,477	2,096	719	708	1,758	1,388	20	34	16	14	28	13	498	516
Chilliwhack, d.m.	464	442	124	125	340	317	20	12	27	17	8	18	116	94
Coquitlam, d.m.	642	766	110	117	532	649	20	15	20	14	13	17	59	82
Dawson Creek, c.	413	489	54	73	359	416	30	12	25	20	6	12	113	98
Delta, d.m.	268	365	81	95	187	270	19	4	11	13	4	11	58	71
Esquimalt, d.m.	299	358	80	106	219	252	22	3	8	14	1	3	130	101
Kamloops, c.	311	323	131	136	180	187	21	6	19	12	5	15	170	124
Kelowna, c.	236	263	130	152	106	111	25	7	27	17	7	27	139	114
Langley, d.m.	332	330	140	133	192	197	24	10	30	18	8	24	58	44
Maple Ridge, d.m.	346	376	135	154	211	222	21	7	19	12	6	16	88	98
Matsqui, d.m.	310	247	101	122	209	125	25	2	8	14	—	—	86	61
Nanaimo, c.	418	413	173	186	245	227	25	11	27	24	10	24	195	199
New Westminster, c.	640	553	326	312	314	241	18	12	22	12	10	18	551	512
North Vancouver, c.	626	547	195	214	431	333	20	9	16	14	9	16	160	164
North Vancouver, d.m.	920	882	188	245	732	637	17	17	19	10	14	16	94	133
Oak Bay, d.m.	193	196	193	222	—	−26	17	5	26	16	5	26	72	83
Penticton, c.	251	269	111	141	140	128	17	10	37	12	8	30	113	120
Port Alberni, c.	323	358	64	81	259	277	27	10	28	17	6	17	107	96
Powell River, d.m.	271	231	66	77	205	154	20	3	13	13	3	13	72	76
Prince George, c.	594	654	79	106	515	548	23	20	31	14	15	23	218	210
Prince Rupert, c.	371	404	101	101	270	303	41	5	12	25	3	7	108	102
Richmond, d.m.	1,055	1,207	178	245	877	962	18	21	17	13	14	12	116	160
Saanich, d.m.	1,026	1,089	384	423	642	666	19	14	13	14	10	9	130	181
Surrey, d.m.	1,709	1,862	455	562	1,254	1,300	18	45	24	13	33	18	209	281
Trail, c.	318	301	80	83	238	218	19	2	7	14	2	7	99	108
Vancouver, c.	8,211	6,997	4,580	4,692	3,631	2,305	21	128	18	15	91	13	4,568	3,640
Vernon, c.	251	221	100	126	151	95	28	5	23	21	4	18	146	152
Victoria, c.	1,236	1,003	852	881	384	122	24	20	20	16	14	14	698	634
West Vancouver, d.m.	404	382	183	178	221	204	23	6	16	16	6	16	121	155

[1] As at the date of the 1961 Census; residents only. [2] Excess of births over deaths. [3] Deaths under one year of age. [4] Deaths under 28 days.
[5] By place of occurrence. [6] Per 1,000 live births.



Section 2.—Births*

No accurate figures on Canadian crude† birth rates are available prior to 1921, when the annual collection of official national figures was initiated. However, the following rough estimates of the average annual crude rates for each ten-year intercensal period between 1851 and 1921 may be inferred from studies of early Canadian census data:—

Intercensal Period	*Estimated Average Annual Crude Birth Rate (per 1,000 Population)*	*Intercensal Period*	*Estimated Average Annual Crude Birth Rate (per 1,000 Population)*
1851-61	45	1891-1901	30
1861-71	40	1901-11	31
1871-81	37	1911-21	29
1881-91	34		

* Unless otherwise indicated, "births" in this Section refer to infants born alive; stillbirths are dealt with under a separate heading on p. 242 and under multiple births on p. 236. For international comparisons, see Section 7, pp. 267-268.

† A crude rate is one based on the total population.

The general trend in the national birth rate since 1923 is shown in the chart on p. 233 and since 1941 in Table 1. The annual rates declined gradually but steadily from 29.3 in 1921 to a record low of 20.1 in 1937, recovered sharply in the late 1930's and during World War II to 24.3 in 1945 and in the two years following the War rose to a postwar high of 28.9 in 1947. Between 1948 and 1959 the rate remained remarkably stable at between 27.1 and 28.5 but has since been declining and in 1962 reached a postwar low of 25.3. Part of this decline is attributable to the fact that the crude birth rate is based on *total* population, which now includes larger proportions than formerly of 'non-productive' population, as well as to the fact that the large, immediate postwar cohorts of married women are now approaching the end of their reproductive periods and have completed their families. Further, even if the annual number of births were to remain stable at 450,000 to 500,000—as it has for the past five to ten years—the net effect of an increase in population is a declining crude birth rate.

The rates in most provinces followed trends very similar to the national trend but showed some regional differences in recent years. Although all provinces had record high rates immediately following World War II, average birth rates in Ontario and the western provinces were higher during the 1951-55 period than during 1946-50 while those for Quebec and the Maritimes were lower than during 1946-50. In fact, Ontario, Alberta and British Columbia had record high crude birth rates during the 1956-59 period. However, most of the provinces recorded their lowest postwar rate in 1962.

It is often erroneously assumed that the Province of Quebec has not only the largest number of births annually but the highest birth rate in Canada. Since the late 1930's or early 1940's Newfoundland, in some years New Brunswick and, since 1953, Alberta have had higher birth rates than Quebec. Table 1, pp. 226-227, shows that five provinces—Newfoundland, Alberta, New Brunswick, Prince Edward Island and Nova Scotia in that order—had higher crude rates than Quebec in 1961 and 1962 followed by Saskatchewan, Ontario and Manitoba, and British Columbia. However, since these crude rates are based on the *total* population they do not reflect the fertility of the women of reproductive age in the different provinces or the number married within these reproductive ages. A more accurate measure of the true birth rate is one based on the number of married women between the ages of 15 and 44 (see pp. 237-238).

Also contrary to popular impression, since 1953 more babies were born each year in Ontario than in the Province of Quebec; in 1962, 156,053 babies were born to Ontario mothers as compared with 135,000 to Quebec mothers. Altogether, 469,693 children were born in Canada in 1962, 9,582 fewer than the record 479,275 born in 1959 and 6,007 fewer than the number born during 1961.

Sex of Live Births.—With rare exceptions, wherever birth statistics have been collected they have shown an excess of male over female births. No conclusive explanation of this excess has yet been given. Nevertheless it is so much an accepted statistical fact that a proper ratio of male to female births has become one of the criteria of complete registration. The number of males to every 1,000 females born in Canada has averaged around 1,057 since the middle 1930's. Provincial sex ratios vary much more widely because of the relatively small number of births involved—the smaller the total number of births, the greater the chance of wide sex-ratio variations from year to year. Another commonly acknowledged fact in many countries—although there is no generally accepted explanation for it—is that the male ratio appears to rise during or shortly after major wars. This seems to have happened in Canada between 1942 and 1945 when the ratio rose to an average of 1,064 during these four years as compared with averages of 1,054 between 1931-41 and 1,057 since 1946. In 1962, 1,053 male infants were born for every 1,000 females.

3.—Sex Ratios of Live Births, 1941-62

NOTE.—Figures for Newfoundland are included from 1949 and those for the Yukon and Northwest Territories from 1950.

Year	Males	Females	Males to 1,000 Females	Year	Males	Females	Males to 1,000 Females
	No.	No.	No.		No.	No.	No.
1941	131,175	124,142	1,057	1952	208,070	195,489	1,064
1942	140,584	131,729	1,067	1953	214,423	203,461	1,054
1943	145,725	137,855	1,057	1954	224,168	212,030	1,057
1944	146,652	137,568	1,066	1955	227,382	215,555	1,055
1945	148,912	139,818	1,065	1956	231,697	219,042	1,058
1946	169,945	160,787	1,057	1957	241,073	228,020	1,057
1947	183,973	175,121	1,051	1958	241,675	228,443	1,058
1948	178,123	169,184	1,053	1959	246,073	233,202	1,055
1949	188,339	177,800	1,059	1960	246,029	232,522	1,058
1950	191,413	180,596	1,060	1961	244,403	231,297	1,057
1951	195,918	185,174	1,058	1962	240,870	228,823	1,053

Hospitalized Births.—In 1962 almost 98 p.c. of all Canadian births occurred in hospital as compared with 88 p.c. six years previously. Table 4 shows the rise in hospitalized births in each province since 1931. Before the initiation in 1958 of the federal-provincial hospital insurance programs—in which all provinces were participating in 1961—there were rather wide variations among the provinces in percentages of hospitalized births. Such variations were caused by the existence of prepaid or provincially sponsored hospital, maternity or medical care plans in some provinces, the unavailability of hospital facilities in others—particularly in remote rural areas—and preference for home delivery in some local areas. Although some variation still exists, the operation of the hospital insurance program has probably been responsible for the noticeable increases in hospitalized births in provinces that previously had lower proportions, for example in New Brunswick where the hospital insurance plan was put into effect on July 1, 1959, and in Quebec where the plan went into effect in 1961.

4.—Percentages of Live Births Hospitalized, by Province, 1931-62

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada[1]
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1931	11.2	19.0	12.1	7.3	38.2	43.6	32.5	47.8	65.0	..	..	26.8
1941	32.7	50.4	30.8	17.6	67.5	73.6	63.2	77.1	87.3	..	..	48.9
1951	88.3	87.2	70.7	53.0	93.1	93.1	95.2	93.6	97.3	87.4	32.8	79.1
1956	95.2	93.9	84.7	71.2	97.3	95.8	97.6	96.6	98.3	87.7	44.6	88.4
1957	96.7	95.1	86.8	75.6	97.9	96.4	98.3	97.5	98.5	91.3	38.6	90.2
1958	99.0	96.2	88.5	79.3	98.0	96.8	98.5	97.7	98.5	92.6	42.1	91.7
1959	99.2	98.0	93.5	82.3	98.6	97.4	98.5	98.0	98.6	88.6	45.7	93.1
1960	99.4	98.6	97.7	85.2	99.0	98.0	99.0	98.5	98.8	93.3	51.7	94.6
1961	99.3	98.9	99.0	92.3	99.3	98.2	98.8	98.6	98.9	92.8	57.1	96.9
1962	99.6	99.2	99.4	95.0	99.4	98.5	98.8	98.7	98.9	95.4	55.9	97.8

[1] Excludes Newfoundland for which data are not available.

Births in Urban Centres.—Table 2, pp. 228-232, shows the number of births in 1962, as compared with the average for 1956-60, to mothers residing in each urban centre of 10,000 population or over. Because the populations of urban centres are not known for intercensal years, birth rates cannot be computed for the 1956-60 period or for 1962.

Illegitimacy.*—In 1962, almost 5 p.c. of the live births in Canada were illegitimate. This percentage is low compared with that of many countries of the world but has been rising, particularly during the past five years.

5.—Illegitimate Live Births and Percentages of Total Live Births, by Province, 1941-62

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada[1]
	Illegitimate Live Births												
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Av. 1941-45	406	107	1,074	591	3,003	3,751	597	673	852	889	..	..	11,536
" 1946-50	441	152	1,244	754	3,382	4,256	766	914	1,202	1,516	..	..	14,375
" 1951-55	426	139	1,082	659	4,086	4,065	969	1,044	1,481	1,898	53	50	15,951
" 1956-60	587	139	1,201	687	4,675	4,891	1,166	1,194	1,941	2,505	72	102	19,160
1960.....	626	126	1,249	632	4,902	5,119	1,356	1,326	2,197	2,673	84	123	20,413
1961.....	666	135	1,334	735	4,931	5,456	1,469	1,419	2,430	2,680	94	141	21,490
1962.....	625	133	1,394	739	5,195	5,813	1,558	1,384	2,572	2,804	91	135	22,443
	Percentages of Total Live Births												
Av. 1941-45	4.4	4.9	7.1	4.5	3.1	4.8	3.8	3.6	4.5	5.0	..	..	4.2
" 1946-50	3.6	5.3	6.9	4.5	2.9	4.0	4.0	4.2	4.9	5.9	..	..	4.1
" 1951-55	3.2	5.1	5.9	4.0	3.2	3.2	4.5	4.4	4.8	6.1	12.9	7.5	3.8
" 1956-60	3.9	5.2	6.3	4.1	3.3	3.2	5.2	5.0	5.3	6.4	14.2	10.8	4.1
1960.....	4.1	4.6	6.5	3.9	3.6	3.2	5.8	5.5	5.6	6.7	15.6	11.2	4.3
1961.....	4.3	4.8	6.9	4.4	3.6	3.5	6.3	5.9	6.2	6.9	16.8	12.6	4.5
1962.....	4.1	4.7	7.2	4.5	3.8	3.7	6.8	5.9	6.6	7.4	16.6	11.9	4.8

[1] Figures for Newfoundland are included from 1949, and those for the Yukon and Northwest Territories from 1951.

Multiple Births.—Approximately one confinement in 90 in Canada results in the birth of more than one child as compared with one in 85 several years ago—in other words, the chances of a confinement resulting in the birth of more than one child are fewer now than formerly. The chance of a mother delivering twins is about one in 90, triplets, one in about 10,000 and quadruplets, one in about 750,000 or more. Two sets of quadruplets were born in Canada during 1960—the first since 1957—and one set in 1962 (all born alive). In 1962 a total of 470,345 mothers bore a total of 475,605 infants, of which 469,693, or almost 99 out of every 100, were born alive.

Other facts illustrated by Table 6 are that the proportion of stillbirths is higher among multiple than among single births, about twice as high for twins and between three and five times as high for triplets.

* The term "illegitimate", as used here, does not refer to *all* births conceived out of wedlock but is necessarily restricted to those in which parents reported themselves as not having been married to each other at the time of birth or registration and, in Ontario, to those in which the marital status of the mother was reported as "single" at the time of birth or registration.

6.—Single and Multiple Births, Live and Stillborn,[1] 1959-62

Confinements and Births	Numbers				Percentages			
	1959	1960	1961	1962[2]	1959	1960	1961	1962
Confinements	**480,524**	**479,786**	**476,547**	**470,345**	**100.0**	**100.0**	**100.0**	**100.0**
Single	475,266	474,613	471,410	465,136	98.9	98.9	98.9	98.9
Twin	5,205	5,112	5,102	5,159	1.1	1.1	1.1	1.1
Triplet	53	59	35	49	--	--	--	--
Quadruplet	—	2	—	1	—	--	—	--
Births	**485,835**	**485,022**	**481,719**	**475,605**	**100.0**	**100.0**	**100.0**	**100.0**
Single—								
Live	469,022	468,469	465,715	459,539	98.7	98.7	98.8	98.8
Stillborn	6,244	6,144	5,695	5,597	1.3	1.3	1.2	1.2
Twin—								
Live	10,110	9,907	9,885	10,006	97.1	96.9	96.9	97.0
Stillborn	300	317	319	312	2.9	3.1	3.1	3.0
Triplet—								
Live	143	168	100	144	89.9	94.9	95.2	98.0
Stillborn	16	9	5	3	10.1	5.1	4.8	2.0
Quadruplet—								
Live	—	7	—	4	—	87.5	—	100.0
Stillborn	—	1	—	—	—	12.5	—	—
Totals, Live Births	**479,275**	**478,551**	**475,700**	**469,693**	**98.6**	**98.7**	**98.8**	**98.8**
Totals, Stillborn	**6,560**	**6,471**	**6,019**	**5,912**	**1.4**	**1.3**	**1.2**	**1.2**

[1] Unless otherwise indicated, includes only foetuses of 28 or more full weeks gestation. [2] Includes 30 stillbirths of 20-27 weeks gestation.

Fertility Rates.—The sex and age composition of a population is obviously an important factor in determining crude birth, marriage and death rates. Since almost all children born each year are to women between the ages of 15 and 44, variations in the proportion of women of these ages to the total population will, of course, cause variations in the crude birth rate of different countries—or of different regions within a country—even though the actual rates of reproduction or *fertility* of the women in these age groups in each country or region are identical.

A more accurate measure of the fertility of a population would therefore be one based on the number of women of reproductive age, that is those 'able' to bear children, and a still more accurate measure would be one based on the number within this group that are married, that is those 'eligible', as it were, to bear children. Each type of rate has its uses, depending on the comparisons required. The two types—generally referred to as *crude fertility rates*—are compared in Table 7, and indicate the variations in each type as between provinces and the provincial trends over the years 1959-62.

The number of infants born in relation to every 1,000 women in the population between the ages of 15 and 45 has been declining for the past few years, dropping from 132 in 1959 to 124 in 1962. However, the rates varied among the provinces from 117 to 183 during the past four years; Newfoundland, Prince Edward Island, New Brunswick and Alberta had, on the whole, the highest rates and Quebec, British Columbia, Ontario and Manitoba, in that order, the lowest. On the other hand, the average annual number of infants born to every 1,000 *married* women in the country as a whole dropped from 187 to 176 during the same period. According to this measure, the five eastern provinces had, on the whole, the highest rates and the five most western provinces the lowest; provincial rates ranged from 153 to 276. Most provincial rates declined in varying degree during the period, notably in 1962.

7.—Crude Fertility Rates, by Province, 1959-62

Province or Territory	Rates per 1,000 Total Women 15-44 Years of Age[1]				Rates per 1,000 Married Women 15-44 Years of Age[1]			
	1959	1960	1961	1962	1959	1960	1961	1962
Newfoundland	178.8	181.7	183.5	171.4	268.3	271.9	275.8	262.1
Prince Edward Island	148.6	148.6	154.6	150.0	224.3	222.9	232.0	228.4
Nova Scotia	134.5	134.6	135.3	134.5	189.6	190.0	190.8	191.1
New Brunswick	146.2	144.6	146.0	142.2	218.8	217.0	217.1	213.4
Quebec	131.3	124.8	121.8	117.3	209.2	198.6	194.0	187.6
Ontario	126.2	125.9	123.2	120.7	168.4	168.1	164.5	161.6
Manitoba	126.8	128.5	127.8	124.7	173.9	175.6	174.2	170.3
Saskatchewan	138.4	137.3	136.6	133.3	189.6	187.5	185.8	183.4
Alberta	148.5	148.0	143.8	140.0	194.8	193.5	186.3	181.5
British Columbia	127.6	126.4	120.6	117.6	164.1	163.0	155.7	153.1
Yukon Territory	214.8	199.3	187.2	182.3	..	..	207.2	..
Northwest Territories	260.5	266.8	253.6	252.0	..	..	320.8	..
Canada[2]	**132.3**	**130.2**	**127.6**	**124.1**	**187.0**	**183.9**	**180.2**	**176.1**

[1] Since the number of births to women over 44 is quite small, rates are here restricted to women under 45.
[2] Excludes the Yukon and Northwest Territories.

The rates shown in Table 7 are *crude* in the sense that they do not take into account differences in fertility in the component age periods within the female reproductive life span, nor the proportions of married women in each age period. It is therefore conventional practice to calculate what are termed *age-specific fertility rates*, i.e., the number of infants born annually to every 1,000 women in *each* of the reproductive age periods, again either for all women or for those who are married. Table 8 provides these two sets of rates—the former for 1941 and 1951-62 and the latter for census years only from 1941, since population data are not available by detailed age groups for intercensal years.

Another measure of fertility in a country is obtainable from what is conventionally referred to as a *gross reproduction rate*. The gross reproduction rates shown in Table 8

indicate the average number of female children born each year to each woman living through the child-bearing ages. In other words, this figure represents the average number of females that *would* be born to each woman who lived to age 50 *if* the fertility rates of the given year remained unchanged during the whole of her child-bearing period. A gross reproduction rate of 1.000 indicates that, on the basis of current fertility and without making any allowance for mortality among mothers during their child-bearing years, the present generation of child-bearing women would exactly maintain itself. Canada has always had one of the highest gross reproduction rates among the industrialized countries of the world. Even during the period of low birth rates in the 1930's the rate varied between 1.300 and 1.500 and since World War II has ranged from 1.700 and 1.915 (1959); in 1962 the rate stood at 1.836, still 80 p.c. more than the number required for the population to replace itself. With minor exceptions, provincial reproduction rates are also well above the replacement level.

8.—Age-Specific Fertility Rates per 1,000 Women, by Age Group, 1941, and 1951-62

(Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941)

Year	Age Group							Gross Reproduction Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
	Total Women							
1941	30.7	138.4	159.8	122.3	80.0	31.6	3.7	1.377
1951	48.1	188.7	198.8	144.5	86.5	30.9	3.1	1.701
1952	50.4	201.0	205.2	150.7	87.4	30.7	2.8	1.763
1953	52.0	208.2	208.4	153.2	88.1	31.2	2.9	1.812
1954	54.3	217.4	213.2	156.5	88.5	32.4	3.2	1.861
1955	54.2	218.3	215.1	153.8	89.8	32.3	2.9	1.863
1956	55.9	222.2	220.1	150.3	89.6	30.8	2.9	1.874
1957	60.2	227.1	224.1	149.4	90.7	30.7	2.8	1.907
1958	59.2	226.5	223.3	147.9	87.6	28.9	2.7	1.886
1959	60.4	233.8	226.7	147.7	87.3	28.5	2.7	1.915
1960	59.8	233.5	224.4	146.2	84.2	28.5	2.4	1.893
1961	58.2	233.6	219.2	144.9	81.1	28.5	2.4	1.868
1962	55.3	232.4	215.6	143.4	77.0	27.5	2.1	1.836
	Married Women							
1941	453.1	340.2	237.8	158.3	99.1	38.9	4.5	...
1951	498.5	350.4	248.1	168.7	100.6	36.6	3.7	...
1956	551.5	381.7	265.5	169.8	101.0	35.6	3.4	...
1961	541.2	374.4	255.6	161.4	89.9	32.1	2.8	...
1962	544.7	367.8	253.2	159.1	84.9	30.8	2.5	...

Table 8 indicates that in 1961, considering all women whether married or not, women in their 20's were the most reproductive, as might be expected; on the average, for every 1,000 women between the ages of 20 and 25, 232 infants were born during that year or, expressed another way, about one woman out of four in that age group gave birth to a live-born infant. This compares with a rate of almost 216 for women in the age group 25-29, which is closer to one in five. However, among *married* women, teenage mothers have

consistently had the highest fertility, with one out of two bearing a child each year on the average, while about 37 out of every 100 married women in their early 20's had a child every year as compared with about one in four for women in their late 20's.

Age of Parents.—Age of parents is an important variable in any analysis of birth statistics. The distribution of legitimate and illegitimate live births by age of the parents is given in Table **9**, as well as the average age of parents.

Over 7 p.c. of the legitimate children born in 1962 were born to mothers under 20 years of age, in over one third of the births the mother was under 25 years, and in almost two thirds, under 30 years; in one out of six births the father was under 25 years of age, and in over 48 p.c. of all births the father was under 30 years. On the other hand, over one third (36.8 p.c.) of the illegitimate infants born were born to mothers under 20 years of age and an additional one third to mothers under 25 years. The average age of all the married mothers to whom a child was born in 1962 was 28, and of the fathers 31.3 years; ten years ago the average ages of the parents were 28.4 and 32.1, and thirty years ago 29.2 and 33.6, respectively.

The median age of unmarried mothers who bore a live-born child in 1962 was 21.4, that is, half of the mothers of the 21,818 'illegitimate' children delivered in 1962 were under 21.5 years of age at the time of delivery.

9.—Live Births, by Age of Parents, 1962

(Exclusive of Newfoundland)

Age Group	Legitimate				Illegitimate	
	Fathers		Mothers		Mothers	
	No.	p.c.	No.	p.c.	No.	p.c.
Under 20 years	4,824	1.1	31,795	7.3	7,833	36.8
Under 15 years	..	..	26	--	185	0.9
15 years	..	..	339	0.1	501	2.4
16 "	..	..	1,546	0.4	1,079	5.1
17 "	..	..	4,513	1.0	1,634	7.7
18 "	..	..	9,624	2.2	2,158	10.2
19 "	..	..	15,747	3.6	2,276	10.7
20—24 "	76,302	17.7	130,593	30.2	7,413	34.9
25—29 "	127,798	29.6	121,155	28.0	2,990	14.1
30—34 "	108,250	25.1	85,323	19.7	1,740	8.2
35—39 "	65,643	15.2	47,642	11.0	986	4.6
40—44 "	32,250	7.5	15,164	3.5	279	1.3
45—49 "	11,951	2.8	1,017	0.2	18	0.1
50 years or over	4,970	1.2	11	--	—	—
Totals, Stated Ages	**431,988**	**100.0**	**432,700**	**100.0**	**21,259**	**100.0**
Ages not stated	823	...	111	...	559	...
Totals, All Ages	**432,811**	**100.0**	**432,811**	**100.0**	**21,818**	**100.0**
Average ages.....yr.	31.3		28.0		23.6	
Median ages[1] ..... "	30.3		27.1		21.4	

[1] The age above and below which half of the births occurred.

Order of Birth.—Table **10** shows the order of birth of all live-born infants in 1962 according to the age of the mother. As would be expected, 28,873 or three out of every four of the 39,628 infants born to mothers under 20 years of age were the first-born, whereas almost six out of every ten of the children born to mothers of 20-24 years were second or later children. This is a reflection of the earlier marriages and heavy fertility of recent years. In 1962, 211 infants were born to mothers who had not yet reached their 15th birthday.

10.—Order of Birth of Live-Born Children, by Age of Mother, 1962

(Exclusive of Newfoundland)

Order of Birth of Child	Age of Mother										Percentage of Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 or Over	Age Not Stated	All Ages	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1st child	202	28,671	55,362	21,550	7,681	2,896	645	41	542	117,590	25.9
2nd "	9	8,772	44,775	32,045	14,128	4,942	992	38	45	105,746	23.3
3rd "	—	1,699	23,302	29,442	17,881	7,187	1,601	66	21	81,199	17.9
4th "	—	237	9,766	19,150	15,858	7,952	1,901	85	10	54,959	12.1
5th "	—	30	3,406	10,723	11,370	6,630	1,880	112	5	34,156	7.5
6th "	—	7	1,035	5,894	7,495	5,167	1,687	94	3	21,382	4.7
7th "	—	1	275	2,956	4,881	3,779	1,403	84	4	13,383	2.9
8th "	—	—	56	1,404	3,165	2,794	1,139	94	1	8,653	1.9
9th "	—	—	16	635	2,001	2,177	915	81	4	5,829	1.3
10th "	—	—	10	223	1,283	1,717	790	51	3	4,077	0.9
11th "	—	—	3	70	686	1,189	610	60	—	2,618	0.6
12th "	—	—	—	32	362	871	550	53	1	1,869	0.4
13th "	—	—	—	13	165	573	403	53	—	1,207	0.3
14th "	—	—	—	4	64	360	310	34	1	773	0.2
15th "	—	—	—	4	23	201	231	25	1	485	0.1
16th "	—	—	—	—	8	105	174	35	—	322	0.1
17th "	—	—	—	—	4	52	113	16	—	185	--
18th "	—	—	—	—	3	22	44	10	—	79	--
19th "	—	—	—	—	3	9	26	6	—	44	--
20th or over	—	—	—	—	2	5	29	8	—	44	--
Not stated	—	—	—	—	—	—	—	—	29	29	--
Totals	**211**	**39,417**	**138,006**	**124,145**	**87,063**	**48,628**	**15,443**	**1,046**	**670**	**454,629**	**100.0**

Table 11 summarizes the pattern of family formation since 1951.

11.—Percentage Distribution of Legitimate Live Births, by Order of Birth, 1951-62

(Exclusive of Newfoundland)

Year	1st Child	2nd Child	3rd Child	4th and Later Children	Total
1951	26.7	25.8	17.6	29.9	100.0
1952	26.9	24.8	17.9	30.3	100.0
1953	26.5	25.0	18.0	30.6	100.0
1954	26.1	24.6	18.0	31.2	100.0
1955	25.5	24.4	18.2	31.9	100.0
1956	25.2	24.3	18.3	32.2	100.0
1957	25.6	23.9	18.3	32.2	100.0
1958	25.4	23.8	18.2	32.6	100.0
1959	24.8	24.0	18.2	32.9	100.0
1960	24.5	23.8	18.5	33.1	100.0
1961	24.1	23.6	18.5	33.8	100.0
1962	24.0	23.7	18.4	33.9	100.0

Birthweight.—In recent years information on birthweight of newborn infants has become available from provincial (except Newfoundland) records of birth. These data, in addition to their usefulness in calculating the average weights of newborn infants, are of importance from the public health and medical points of view in throwing light on the number of immaturely developed foetuses that are delivered alive. According to criteria recommended by the World Health Organization, infants of 5 lb. or less at birth are considered 'immature' and hence exposed to a much greater risk of dying than those over this weight. Weight at birth depends on a host of maternal factors, most of which are not included in the birth records, but some information is available on the age of the mother

and length of pregnancy before delivery.* Analysis of this information shows that (1) there are variations in average weight according to the age of the mother, (2) women under 20 and over 35 tend to produce higher proportions of immature infants, so that the late 20's and early 30's would appear to be the ideal ages for motherhood, and (3) practically all infants of less than 28 weeks gestation are delivered 'immature' according to the definition. The average single male infant born at full term weighs about 7½ lb. at birth and a female about four ounces less.

Stillbirths.†—The 5,882 stillbirths in 1962 represented a ratio of 12.5 for every 1,000 foetuses born alive. As is evident from Table **12**, the stillbirth rate has been decreasing steadily and has been cut by more than half over the past quarter-century. Although the variations between provincial rates have never been wide, rates in some provinces have been reduced more than in others. The stillbirth rate among unmarried mothers has been consistently higher than that among married mothers but the difference is narrowing.

* Obtainable from the Vital Statistics Section, DBS.

† Stillbirth figures given here refer only to foetuses of 28 or more weeks gestation which "showed no sign of life". Up to the end of 1963, only foetuses delivered after at least 28 weeks pregnancy which showed no sign of life were required to be registered with the provincial authorities; as of Jan. 1, 1964, all provinces (except Newfoundland) provide for the compulsory registration of all stillbirths of 20 or more weeks gestation, a 'stillbirth' being defined as "the complete expulsion or extraction from its mother, after at least 20 weeks pregnancy, of a product of conception in which, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle". Available data for stillbirths of 20-27 weeks pregnancy for those provinces having this legislation in effect before 1963 are obtainable from the Vital Statistics Section, DBS.

12.—Stillbirths and Rates per 1,000 Live Births, by Province, 1941-62

Year	Born to All Mothers													Born to Unmarried Mothers[1]	
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada[2]	No.	P.C. of Total
	Number (28 weeks or more gestation)														
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		
Av. 1941-45	191	50	388	295	2,786	1,988	345	348	327	309	1	6	6,845	355	5.20
" 1946-50	215	54	358	320	2,898	2,020	349	350	385	352	2	8	7,187	343	4.85
" 1951-55	222	52	337	291	2,705	2,017	336	313	425	374	6	11	7,088	316	4.60
" 1956-60	274	46	304	267	2,446	1,992	301	262	388	418	5	12	6,714	291	4.51
1960.....	275	36	279	246	2,346	1,960	279	221	373	437	7	12	6,471	320	5.16
1961.....	281	46	300	222	1,929	1,870	301	266	372	412	4	16	6,019	303	5.28
1962.....	249	58	277	238	1,824	1,925	276	248	388	377	3	19	5,882	315	5.59
	Rates													Rate per 1,000 Illegitimate Live Births[1]	
Av. 1941-45	20.5	22.8	25.6	22.6	28.5	25.6	21.8	18.9	17.4	17.5	11.4	15.7	24.7	30.8	
" 1946-50	17.4	18.9	19.9	19.0	25.1	19.2	18.1	16.0	15.9	13.6	8.7	12.5	20.2	24.2	
" 1951-55	17.0	19.0	18.4	17.7	21.0	15.6	15.7	13.3	13.7	11.9	14.1	16.5	17.0	20.3	
" 1956-60	18.3	17.1	15.9	16.1	17.5	13.0	13.4	10.9	10.5	10.7	10.7	12.3	14.3	15.6	
1960.....	18.1	13.2	14.6	15.1	17.0	12.3	12.0	9.2	9.6	10.9	13.0	11.0	13.5	16.2	
1961.....	18.0	16.2	15.5	13.4	14.1	11.9	12.9	11.1	9.6	10.7	7.2	14.3	12.7	14.6	
1962.....	16.5	20.7	14.3	14.5	13.5	12.3	12.0	10.6	10.0	9.9	5.5	16.8	12.5	14.4	

[1] Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941-50. [2] Figures for Newfoundland are included from 1949.

Table 13 illustrates the fact that the risk of having a stillborn child increases with the age of the mother. Although stillbirth rates for mothers of all ages have been declining, they continue to be three to four times as high for mothers over 40 years of age as for mothers under 30. The average age of mothers who bore stillborn children in 1962 was 30.2 years; the median age, i.e., the age above and below which half of the stillbirths occurred, was 29.8. The average age of mothers who bore legitimate live-born children was 28.0 and of those who bore illegitimate live-born offspring was 23.6.

13.—Stillbirths and Ratios per 1,000 Live Births, by Age of Mother, 1962
(Exclusive of Newfoundland)

Age Group of Mother	Live Births	Stillbirths	Stillbirth Ratio per 1,000 Live Births
	No.	No.	No.
Under 20 years	39,628	382	9.6
20 — 24 "	138,006	1,162	8.4
25 — 29 "	124,145	1,316	10.6
30 — 34 "	87,063	1,203	13.8
35 — 39 "	48,628	1,010	20.8
40 — 44 "	15,443	482	31.2
45 — 49 "	1,035	48	46.4
50 years or over	11	—	—
Ages not stated	670	30	...
Totals, All Ages	**454,629**	**5,633**	**12.4**
Average age of mothers.....yrs.	27.8	30.2	...
Median age of mothers[1] ..... "	26.8	29.8	...

[1] The age above and below which half of the stillbirths occurred.

Table 14 shows the causes of stillbirths in 1962.

14.—Stillbirths, by Cause, 1962

International List No.	Cause	Males	Females	Total
		No.	No.	No.
Y 30	Chronic disease in mother	83	71	154
Y 31	Acute disease in mother	19	12	31
Y 32	Diseases and conditions of pregnancy and childbirth	272	214	486
Y 33	Absorption of toxic substance from mother	—	—	—
Y 34	Difficulties in labour	212	153	365
Y 35	Other causes in mother	33	41	74
Y 36	Placental and cord conditions	1,173	943	2,116
Y 37	Birth injury	40	25	65
Y 38	Congenital malformation of foetus	308	452	760
Y 39	Diseases of foetus and ill-defined causes	967	864	1,831
	All Causes	**3,107**	**2,775**	**5,882**

Section 3.—Deaths*

No official crude† death rates are available prior to 1921, but some indication of these may be gleaned from studies of the early censuses as follows:—

Intercensal Period	*Estimated Average Annual Crude Death Rate (per 1,000 Population)*
1851-61	22
1861-71	21
1871-81	19
1881-91	18
1891-1901	16
1901-11	13
1911-21	13

* For international comparisons, see Section 7, pp. 267-268.
† A crude rate is one based on the *total* population.

As is typical of pioneer populations, Canada had a high death rate in the mid-1850's when the country was still in the throes of pioneer settlement. The crude death rate during that period is estimated as between 22 and 25. Although no data are available, it is assumed that, while mortality at all ages was high, the rate among infants, children and young adults must have been particularly so since even in the 1920's mortality in these ages was still quite high. With the gradual increase in population density and in urbanization and improved sanitation and medical services, the crude rate was gradually halved during the 80 years between 1851 and 1930, dropping from about 22 to 11. It declined steadily to slightly over 8 in the late 1950's and dropped to a low of 7.7 in 1961 and 1962. This is one of the lowest crude rates in the world.

Table 1, pp. 226-227, shows the trends since 1941 in the provinces and territories. The generally low rates in the Prairie Provinces are partly the result of their younger average population; the uniformly higher rate in British Columbia is mainly attributable to a high proportion of people in the older age groups.

Subsection 1.—General Mortality

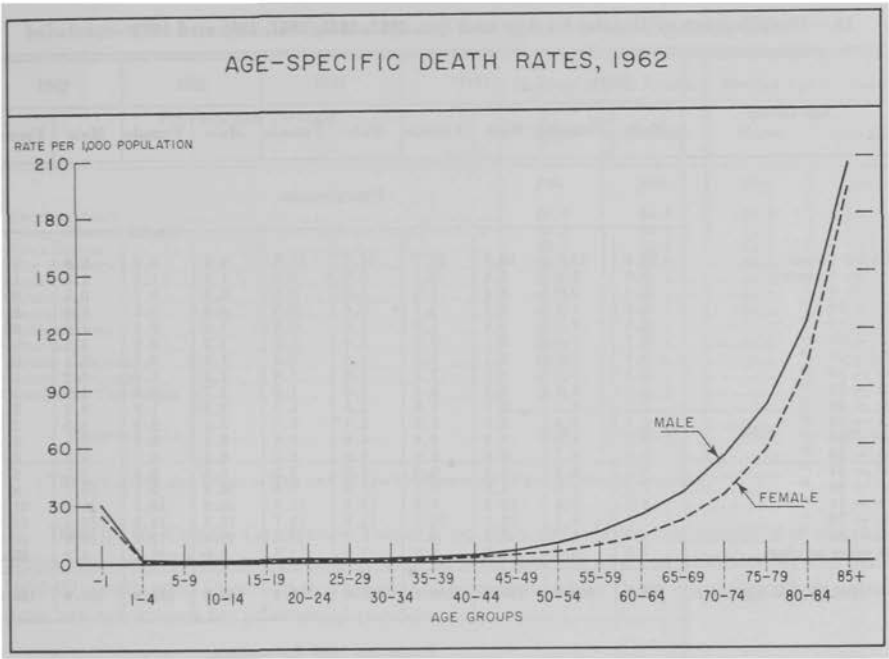
Age and Sex Distribution of Deaths.—During the period of national vital statistics (1921 to date), the mortality pattern at all ages has been steeply downward. Of major significance in lowering the over-all death rate were the reductions in infant mortality, in childhood death rates and in those of young adults. In 1931, over 19 p.c. of all male deaths occurred among persons of five to 45 years of age; in 1962 only a little over 10 p.c. took place in this age group. Among females in the same age group the proportion dropped from just under 22 p.c. to 7.5 p.c. While death rates for males up to age 45 were roughly halved during the past 25 years, those for females under 45 were reduced as much as three to four times. In other words, the death rates for females at every age declined more than those for males; the male rates have almost always been consistently higher than those for females and the differences are widening. The crude male death rate stood at 8.9 per 1,000 total male population in 1962 as compared with only 6.5 for females.

15.—Trends in Age-Specific Death Rates per 1,000 Population for Males and Females, Average 1926-30 to 1962

Age Group	Males			Females		
	Av. 1926-30	1962	P.C. Decline	Av. 1926-30	1962	P.C. Decline
0 — 1 year	103.2	30.6	70.3	82.8	24.3	70.6
1 — 4 years	8.5	1.2	85.7	7.5	1.0	86.3
5 — 9 "	2.6	0.6	76.1	2.3	0.4	81.9
10 — 14 "	2.0	0.5	72.8	1.9	0.3	85.4
15 — 19 "	2.9	1.1	62.9	2.8	0.5	81.9
20 — 29 "	3.7	1.6	56.2	4.0	0.6	83.8
30 — 39 "	4.3	2.0	53.9	4.9	1.1	76.6
40 — 49 "	6.8	4.5	33.7	6.6	2.7	58.8
50 — 59 "	12.9	12.1	6.3	11.4	6.5	43.4
60 — 69 "	30.3	29.0	4.3	26.5	16.5	37.8
70 + "	96.0	86.7	9.7	92.3	68.1	26.2

Despite the very considerable reduction that has taken place in infant mortality, more deaths still occur in the first year of life than in any other single year. Of the total deaths occurring in 1931, almost one quarter were of children under five years of age and more than three quarters of those were of children under one year of age; of the deaths occurring in 1962, about 10 p.c. were of children under five years and of those about 86 p.c. were under one year. Most of the reduction took place among children over the age of one month but there was also a notable decrease in all childhood ages up to five years.

The reductions in the mortality rates in early and middle years of life have had the effect of increasing the number of people in the older age groups and raising the average age at death. In 1931 the average age at death of males was 43.1 years and of females 44.8



years; by 1962 this had advanced to 59.9 years and 63.2 years, respectively. On the other hand, the median age—i.e., the age above and below which half of the total number of annual deaths occur—increased during the same period from 50.8 to 68.0 for males, and from 52.1 to 72.4 for females. This means that *half* of all the females who died during 1962 were over 72 years of age, while for males half had reached 68 years. Since 1931 the gains in median age were 17.2 years for males and 20.3 for females.

16.—Distribution of Deaths by Age and Sex, 1931, 1941, 1951, 1961 and 1962

Age Group	1931[1]		1941[1]		1951		1961		1962	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Numbers									
Under 1 year	11,667	8,693	8,788	6,448	8,375	6,298	7,447	5,493	7,379	5,562
1 — 4 years	2,844	2,533	1,878	1,566	1,421	1,151	1,154	844	1,133	912
5 — 9 "	1,241	963	888	670	711	466	672	405	682	426
10 — 14 "	821	806	787	536	461	284	527	278	534	255
15 — 19 "	1,311	1,132	1,118	823	721	457	840	322	844	375
20 — 24 "	1,502	1,453	1,332	1,039	1,009	549	969	342	1,043	360
25 — 29 "	1,388	1,414	1,317	1,173	988	660	895	418	927	417
30 — 34 "	1,301	1,432	1,211	1,148	1,070	778	1,041	562	1,041	569
35 — 39 "	1,512	1,574	1,497	1,242	1,281	1,015	1,422	880	1,468	873
40 — 44 "	1,888	1,493	1,744	1,464	1,756	1,266	1,916	1,099	1,963	1,231
45 — 49 "	2,314	1,738	2,416	1,817	2,463	1,607	2,993	1,617	2,929	1,730
50 — 54 "	2,855	1,993	3,355	2,227	3,525	2,083	4,242	2,237	4,306	2,194
55 — 59 "	3,057	2,246	4,394	2,851	4,741	2,832	5,494	2,749	5,728	2,899
60 — 64 "	3,583	2,855	5,288	3,483	6,465	3,902	7,028	3,725	7,133	3,818
65 — 69 "	4,249	3,348	6,057	4,412	8,007	5,119	8,545	5,304	8,490	5,226
70 — 74 "	4,867	4,073	6,495	4,981	8,748	6,439	10,582	7,058	10,573	7,147
75 — 79 "	4,368	4,029	6,421	5,461	8,254	6,904	10,970	8,290	11,028	8,386
80 — 84 "	3,206	3,215	5,020	4,906	6,232	6,130	8,635	7,871	8,925	8,118
85 years or over	2,555	2,998	3,846	4,540	5,336	6,319	7,337	8,782	7,733	9,342
Totals, All Ages	**56,529**	**47,988**	**63,852**	**50,787**	**71,564**	**54,259**	**82,709**	**58,276**	**83,859**	**59,840**

[1]Excludes the Yukon and Northwest Territories.

16.—Distribution of Deaths by Age and Sex, 1931, 1941, 1951, 1961 and 1962—concluded

Age Group	1931[1]		1941[1]		1951		1961		1962	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	PERCENTAGES									
Under 1 year	20.6	18.1	13.8	12.7	11.7	11.6	9.0	9.4	8.8	9.3
1 — 4 years	5.0	5.3	2.9	3.1	2.0	2.1	1.4	1.4	1.4	1.5
5 — 9 "	2.2	2.0	1.4	1.3	1.0	0.9	0.8	0.7	0.8	0.7
10 — 14 "	1.5	1.7	1.2	1.1	0.6	0.5	0.6	0.5	0.6	0.4
15 — 19 "	2.3	2.4	1.8	1.6	1.0	0.8	1.0	0.6	1.0	0.6
20 — 24 "	2.7	3.0	2.1	2.0	1.4	1.0	1.2	0.6	1.2	0.6
25 — 29 "	2.5	2.9	2.1	2.3	1.4	1.2	1.1	0.7	1.1	0.7
30 — 34 "	2.3	3.0	1.9	2.3	1.5	1.4	1.3	1.0	1.2	1.0
35 — 39 "	2.7	3.3	2.3	2.4	1.8	1.9	1.7	1.5	1.8	1.5
40 — 44 "	3.3	3.1	2.7	2.9	2.5	2.3	2.3	1.9	2.3	2.1
45 — 49 "	4.1	3.6	3.8	3.6	3.4	3.0	3.6	2.8	3.5	2.9
50 — 54 "	5.0	4.2	5.3	4.4	4.9	3.8	5.1	3.8	5.1	3.7
55 — 59 "	5.4	4.7	6.9	5.6	6.6	5.2	6.6	4.7	6.8	4.8
60 — 64 "	6.3	5.9	8.3	6.9	9.0	7.2	8.5	6.4	8.5	6.4
65 — 69 "	7.5	7.0	9.5	8.7	11.2	9.4	10.3	9.1	10.1	8.7
70 — 74 "	8.6	8.5	10.2	9.8	12.2	11.9	12.8	12.1	12.6	11.9
75 — 79 "	7.7	8.4	10.1	10.7	11.5	12.7	13.3	14.2	13.2	14.0
80 — 84 "	5.7	6.7	7.9	9.7	8.7	11.3	10.4	13.5	10.6	13.6
85 years or over	4.5	6.2	6.0	8.9	7.5	11.6	8.9	15.1	9.2	15.6
Totals, All Ages	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	RATES PER 1,000 POPULATION									
Under 1 year	94.4	74.4	67.0	51.9	42.7	34.0	30.5	23.7	30.6	24.3
1 — 4 years	6.8	6.1	4.7	4.0	2.1	1.8	1.3	1.0	1.2	1.0
5 — 9 "	2.2	1.7	1.7	1.3	1.0	0.7	0.6	0.4	0.6	0.4
10 — 14 "	1.5	1.5	1.4	1.0	0.8	0.5	0.6	0.3	0.5	0.3
15 — 19 "	2.5	2.2	2.0	1.5	1.4	0.9	1.2	0.5	1.1	0.5
20 — 24 "	3.2	3.2	2.6	2.0	1.9	1.0	1.7	0.6	1.7	0.6
25 — 29 "	3.4	3.8	2.7	2.5	1.8	1.1	1.5	0.7	1.5	0.7
30 — 34 "	3.5	4.2	2.8	2.8	2.1	1.5	1.6	0.9	1.6	0.9
35 — 39 "	4.2	4.8	3.8	3.4	2.5	2.0	2.3	1.4	2.3	1.4
40 — 44 "	5.4	5.0	5.0	4.5	3.9	3.0	3.4	2.0	3.4	2.1
45 — 49 "	7.2	6.6	7.3	6.0	6.4	4.5	5.8	3.2	5.6	3.4
50 — 54 "	10.7	9.0	10.6	8.1	10.4	6.5	9.6	5.3	9.5	5.0
55 — 59 "	15.4	13.4	16.0	12.3	16.2	10.2	15.2	8.0	15.4	8.2
60 — 64 "	22.9	20.7	24.2	18.5	24.5	16.1	24.0	12.8	23.9	12.8
65 — 69 "	35.2	30.3	37.3	30.4	35.1	24.9	35.7	21.4	35.3	20.8
70 — 74 "	55.0	49.1	58.5	47.0	54.5	41.6	54.0	34.2	54.1	34.1
75 — 79 "	87.4	82.9	95.7	79.7	87.6	73.3	81.8	59.2	80.7	57.6
80 — 84 "	134.1	127.1	147.6	131.2	135.5	120.7	125.1	101.2	124.0	100.0
85 years or over	228.1	212.6	241.9	229.3	235.1	212.0	208.9	192.2	206.8	193.8
Totals, All Ages	**10.5**	**9.6**	**10.8**	**9.1**	**10.1**	**7.8**	**9.0**	**6.5**	**8.9**	**6.5**
Average age at death yrs.	43.1	44.8	51.5	53.4	56.3	58.7	59.7	63.1	59.9	63.2
Median age at death[2] "	50.8	52.1	61.2	63.6	65.5	68.8	67.9	72.2	68.0	72.4

[1] Excludes the Yukon and Northwest Territories.

[2] The age above and below which half of the total number of annual deaths occurred.

Table 17 indicates the variations from province to province in average and median ages at death; these, in turn, are dependent in large measure on the age distribution of the population as well as on varying mortality rates at each age. For example, in Newfoundland a high mortality rate among infants and young children reduces the average and median age for that province, while the reverse is the case in British Columbia and several other provinces with older populations.

17.—Average and Median Ages at Death, by Sex and Province, 1962

Province and Territory	Average Age at Death		Median Age at Death[1]	
	Males	Females	Males	Females
	yrs.	yrs.	yrs.	yrs.
Newfoundland	52.9	54.9	64.8	68.8
Prince Edward Island	62.5	68.4	70.5	76.8
Nova Scotia	60.7	63.6	69.1	73.6
New Brunswick	59.8	62.0	68.8	72.4
Quebec	55.3	59.4	63.6	68.9
Ontario	61.5	66.1	68.1	73.6
Manitoba	62.6	64.4	70.9	73.7
Saskatchewan	63.3	63.6	72.4	74.2
Alberta	59.8	59.8	69.0	71.1
British Columbia	64.5	66.5	71.9	74.3
Yukon Territory	41.2	22.3	--	--
Northwest Territories	24.4	18.5	--	--
Canada	**59.9**	**63.2**	**68.0**	**72.4**

[1] The age above and below which half of the total number of annual deaths occurred.

Deaths in Urban Centres.—Table 2, pp. 228-232, shows the numbers of deaths in urban centres of 10,000 population or over in 1962 and the average numbers for the period 1956-60; death rates for urban centres cannot be computed for these years since their populations are not known for intercensal periods.

Causes of Death.—Table 18 summarizes the most recent figures for deaths and death rates in Canada grouped according to the International Abbreviated List of 50 Causes. About 80 p.c. of the deaths are caused by diseases of the heart and arteries, cancer, accidents, diseases of early infancy, the respiratory diseases, and nephritis. Because of the rise in the average age at death during the past thirty years, the proportion of deaths from causes that affect older people has increased. Thus cancer and diseases of the cardiovascular-renal systems now account for a substantially larger proportion of all deaths than formerly. By the same token, deaths from causes that mainly affect children and young adults have declined.

18.—Deaths and Rates per 100,000 Population, according to the International Abbreviated List of 50 Causes, 1961 and 1962

International List No.		Cause of Death	Numbers of Deaths		Rates per 100,000 Population	
Abbreviated List	Detailed List		1961	1962	1961	1962
B 1	001-008	Tuberculosis of respiratory system	678	692	3.7	3.7
B 2	010-019	Tuberculosis, other forms	91	93	0.5	0.5
B 3	020-029	Syphilis and its sequelæ	160	129	0.9	0.7
B 4	040	Typhoid fever	2	2	--	--
B 5	043	Cholera	—	—	—	—
B 6	045-048	Dysentery, all forms	32	17	0.2	0.1
B 7	050, 051	Scarlet fever and streptococcal sore throat	13	8	0.1	--
B 8	055	Diphtheria	5	9	--	--
B 9	056	Whooping cough	36	24	0.2	0.1
B10	057	Meningococcal infections	24	40	0.1	0.2
B11	058	Plague	—	—	—	—
B12	080	Acute poliomyelitis	11	7	0.1	--
B13	084	Smallpox	—	—	—	—
B14	085	Measles	96	81	0.5	0.4
B15	100-108	Typhus and other rickettsial diseases	—	—	—	—
B16	110-117	Malaria	—	1	—	--

18.—Deaths and Rates per 100,000 Population, according to the International Abbreviated List of 50 Causes, 1961 and 1962—concluded

International List No.		Cause of Death	Numbers of Deaths		Rates per 100,000 Population	
Abbreviated List	Detailed List		1961	1962	1961	1962
B17	030-039, 041, 042, 044, 049, 052-054, 059-074, 081-083, 086-096, 120-138	All other diseases classified as infective and parasitic	430	404	2.4	2.2
B18	140-205	Cancer (all malignant neoplasms)	23,650	24,519	129.7	132.0
		Cancer	*23,324*	*23,155*	*122.4*	*124.7*
	(201)	Hodgkin's disease	*282*	*238*	*1.5*	*1.3*
	(204)	Leukæmia and aleukæmia	*1,044*	*1,126*	*5.7*	*6.1*
B19	210-239	Benign and unspecified neoplasms	311	357	1.7	1.9
B20	260	Diabetes mellitus	2,164	2,169	11.9	11.7
B21	290-293	Anæmias	361	335	2.0	1.8
B22	330-334	Vascular lesions affecting central nervous system	15,299	15,300	83.9	82.4
B23	340	Non-meningococcal meningitis	215	193	1.2	1.0
B24	400-402	Rheumatic fever	64	49	0.4	0.3
B25	410-416	Chronic rheumatic heart disease	1,464	1,347	8.0	7.3
B26	420-422	Arteriosclerotic and degenerative heart disease	43,233	44,438	237.0	239.3
B27	430-434	Other diseases of heart	2,095	2,147	11.5	11.6
B28	440-443	Hypertension with heart disease	3,179	2,995	17.4	16.1
B29	444-447	Hypertension without mention of heart	907	876	5.0	4.7
B30	480-483	Influenza	537	572	2.9	3.1
B31	490-493	Pneumonia	5,072	5,255	27.8	28.3
B32	500-502	Bronchitis	839	923	4.6	5.0
B33	540, 541	Ulcer of stomach and duodenum	846	934	4.6	5.0
B34	550-553	Appendicitis	167	157	0.9	0.8
B35	560, 561, 570	Intestinal obstruction and hernia	929	862	5.1	4.6
B36	543, 571, 572	Gastritis, duodenitis, enteritis and colitis except diarrhœa of the newborn	907	889	5.0	4.8
B37	581	Cirrhosis of liver	1,083	1,052	5.9	5.7
B38	590-594	Nephritis and nephrosis	1,481	1,462	8.1	7.9
B39	610	Hyperplasia of prostate	510	438	5.5[1]	4.7[1]
B40	640-652, 660, 670-689	Complications of pregnancy, childbirth and the puerperium	219	191	46.0[2]	40.7[2]
B41	750-759	Congenital malformations	2,822	2,896	15.5	15.6
B42	760-762	Birth injuries, postnatal asphyxia and atelectasis	2,766	2,813	15.2	15.1
B43	763-768	Infections of the newborn	539	526	3.0	2.8
B44	769-776	Other diseases peculiar to early infancy and immaturity (unqualified)	3,854	3,977	21.1	21.4
B45	780-795	Senility without mention of psychosis, ill-defined and unknown causes	1,220	1,277	6.7	6.9
B46	Residual	All other diseases	11,445	11,562	62.8	62.3
BE47	E810-E835	Motor vehicle accidents	3,882	4,325	21.3	23.3
BE48	E800-E802 E840-E962	All other accidents	5,758	5,759	31.6	31.0
BE49	E963, E970-E979	Suicide	1,366	1,331	7.5	7.2
BE50	E964, E965 E980-E999	Homicide and operations of war	223	266	1.2	1.4
		Totals, All Causes	**140,985**	**143,699**	**773.0**	**773.8**

[1] Per 100,000 males. [2] Per 100,000 live births.

Accidents have displaced infectious diseases in recent years as one of the major killers. Table **19** shows clearly that accidents are, by far, the leading cause of death among males from age 1 to 45 and one of the five major causes above that age. Although less predominant among females, accidents are also one of the leading causes of female death beyond the first year of life.

19.—Leading Causes of Death, by Sex at Various Age Groups, 1962

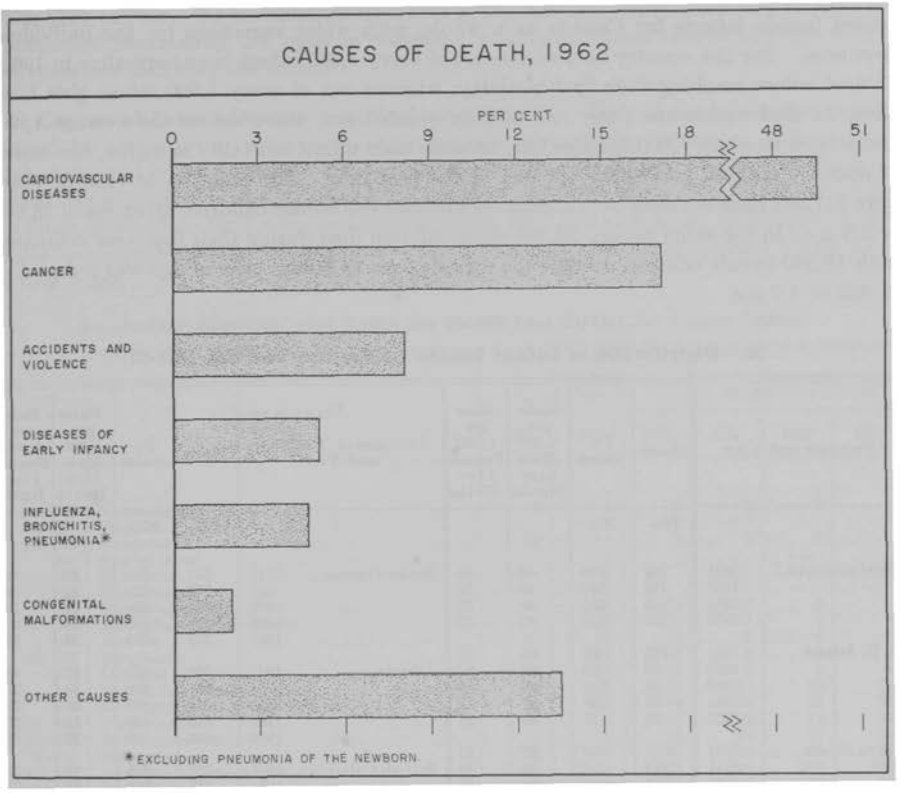
(Rates per 100,000 population)

Cause	Males		Cause	Females		Cause	Total	
	No.	Rate		No.	Rate		No.	Rate
UNDER 1 YEAR[1]								
Immaturity	1,306	542	Congenital malformations	1,087	475	Immaturity	2,304	491
Congenital malformations	1,143	475	Immaturity	998	436	Congenital malformations	2,230	475
Influenza, bronchitis, pneumonia	1,024	425	Influenza, bronchitis, pneumonia	797	348	Influenza, bronchitis, pneumonia	1,821	388
Postnatal asphyxia and atelectasis	910	378	Postnatal asphyxia and atelectasis	565	247	Postnatal asphyxia and atelectasis	1,475	314
Injury at birth	809	336	Injury at birth	529	231	Injury at birth	1,338	285
1-4 YEARS								
Accidents and violence	451	49	Accidents and violence	298	34	Accidents and violence	749	41
Influenza, bronchitis, pneumonia	159	17	Influenza, bronchitis, pneumonia	144	16	Influenza, bronchitis, pneumonia	303	17
Congenital malformations	122	13	Congenital malformations	124	14	Congenital malformations	246	14
Cancer	115	12	Cancer	81	9	Cancer	196	11
Gastritis, duodenitis, enteritis, etc.	39	4	Gastritis, duodenitis, enteritis, etc.	41	5	Gastritis, duodenitis, enteritis, etc.	80	4
5-19 YEARS								
Accidents and violence	1,315	47	Accidents and violence	462	17	Accidents and violence	1,777	32
Cancer	235	8	Cancer	152	6	Cancer	387	7
Congenital malformations	88	3	Congenital malformations	72	3	Congenital malformations	160	3
Influenza, bronchitis, pneumonia	58	2	Influenza, bronchitis, pneumonia	52	2	Influenza, bronchitis, pneumonia	110	2
Cardiovascular diseases	46	2	Cardiovascular diseases	36	1	Cardiovascular diseases	82	1
20-44 YEARS								
Accidents and violence	3,172	104	Cancer	1,096	36	Accidents and violence	3,847	63
Cardiovascular diseases	1,431	47	Accidents and violence	675	22	Cardiovascular diseases	1,999	33
Cancer	762	25	Cardiovascular diseases	568	19	Cancer	1,858	31
Nephritis and nephrosis	120	4	Maternal causes	177	6	Influenza, bronchitis, pneumonia	208	3
Influenza, bronchitis, pneumonia	116	4	Influenza, bronchitis, pneumonia	92	3	Nephritis and nephrosis	198	3

[1]Per 100,000 live births.

19.—Leading Causes of Death, by Sex at Various Age Groups, 1962—concluded

Cause	Males		Cause	Females		Cause	Total	
	No.	Rate		No.	Rate		No.	Rate
45–64 Years								
Cardiovascular diseases	10,746	652	Cardiovascular diseases	4,187	262	Cardiovascular diseases	14,933	460
Cancer	4,231	257	Cancer	3,944	247	Cancer	8,175	252
Accidents and violence	1,841	112	Accidents and violence	537	34	Accidents and violence	2,378	73
Influenza, bronchitis, pneumonia	500	30	Diabetes mellitus	248	16	Influenza, bronchitis, pneumonia	683	21
Cirrhosis of liver	363	22	Influenza, bronchitis, pneumonia	183	11	Cirrhosis of liver	525	16
65 Years and Over								
Cardiovascular diseases	29,106	4,267	Cardiovascular diseases	25,004	3,401	Cardiovascular diseases	54,110	3,818
Cancer	8,118	1,190	Cancer	5,763	784	Cancer	13,881	979
Influenza, bronchitis, pneumonia	2,323	341	Influenza, bronchitis, pneumonia	1,710	233	Influenza, bronchitis, pneumonia	4,033	285
Accidents and violence	1,322	194	Accidents and violence	1,033	141	Accidents and violence	2,355	166
Diabetes mellitus	627	92	Diabetes mellitus	899	122	Diabetes mellitus	1,526	108
All Ages								
Cardiovascular diseases	41,355	441	Cardiovascular diseases	29,811	324	Cardiovascular diseases	71,166	383
Cancer	13,476	144	Cancer	11,043	120	Cancer	24,519	132
Accidents and violence	8,438	90	Accidents and violence	3,243	35	Accidents and violence	11,681	63
Diseases of early infancy	4,319	46	Diseases of early infancy	2,997	33	Diseases of early infancy	7,316	39
Influenza, bronchitis, pneumonia	3,942	42	Influenza, bronchitis, pneumonia	2,808	31	Influenza, bronchitis, pneumonia	6,750	36



Subsection 2.—Infant Mortality

Table 1, pp. 226-227, and Table 20 show the striking improvement that has taken place in the rate of infant mortality during the past twenty years. Although 66,731 of the 2,373,337 children born in the five years 1958-62 died before reaching their first birthday, 156,362 others lived who *would have died* at the infant mortality rate prevailing in the period 1926-30. This improvement is attributable to many factors—the higher proportion of births taking place in hospital or under proper prenatal and postnatal care, better supervision of water supplies, improved sanitation, pasteurization of milk, the use of antibiotics, improved home environment as a result of higher living standards and, in recent years, the generally lower age of mothers.

The variations that exist in infant mortality rates from province to province and from one locality to another may be explained by differences in the extent to which these factors apply provincially or locally. Among the provinces, the 1962 male infant mortality rates ranged from a low of 26 to a high of 42, compared with the national average of 31—the latter including the very high rate among the Northwest Territories aboriginal population. Female rates ranged from 19 to 37, compared with the national rate of 24. While the national and provincial rates for both sexes have been declining steadily for some years, for some unknown reason there were a number of reversals in provincial rates in 1962, as shown in Table 20.

Table **20** shows that mortality among male infants is 25 to 30 p.c. higher than that among female infants for Canada as a whole, with wider variations for the individual provinces. For the country as a whole, out of every 1,000 infant boys born alive in 1962, 31 died before reaching their first birthday, whereas out of every 1,000 infant girls born alive, 24 died within one year. As already pointed out, there are on the average 1,057 males born to every 1,000 females but, because male infant mortality is higher, the excess of males is reduced greatly by the end of the first year. For example, in 1960-62 there were 731,302 male children born compared with 692,642 female children, an excess of 38,660 or 5.5 p.c.; in the same period, 22,398 male children died during their first year compared with 16,560 female children so that the excess of males at one year of age was reduced to 32,822 or 4.7 p.c.

20.—Distribution of Infant Deaths by Province and Sex, 1941-62

Province and Year	Males	Females	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births	Province or Territory and Year	Males	Females	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births
	No.	No.				No.	No.		
Newfoundland.....1951	361	276	60	48	Saskatchewan.....1941	531	415	56	46
1960	312	233	40	32	1951	353	323	32	30
1961	335	253	42	33	1960	381	256	31	22
1962	327	270	42	37	1961	373	245	30	21
					1962	339	266	28	23
P. E. Island.....1941	102	61	95	63					
1951	60	30	44	23	Alberta.....1941	506	373	57	44
1960	55	33	40	24	1951	531	358	39	27
1961	55	38	37	28	1960	601	421	30	22
1962	50	37	33	28	1961	612	432	31	23
					1962	565	419	29	22
Nova Scotia.....1941	545	363	77	53					
1951	344	250	39	30	British Columbia..1941	316	236	41	32
1960	332	233	34	25	1951	487	352	34	26
1961	309	229	31	24	1960	542	404	26	21
1962	320	294	32	31	1961	534	411	27	22
					1962	520	358	27	19
New Brunswick....1941	515	421	83	69					
1951	472	363	58	46	Yukon Territory...1951	10	9	58	53
1960	280	208	33	26	1960	16	10	57	39
1961	248	186	29	23	1961	13	10	46	36
1962	272	226	32	28	1962	14	13	47	52
Quebec.....1941	3,916	2,854	85	66	Northwest				
1951	3,335	2,486	54	42	Territories.....1951	43	27	136	81
1960	2,406	1,753	34	26	1960	89	69	157	131
1961	2,464	1,855	35	28	1961	73	51	128	93
1962	2,491	1,803	36	27	1962	77	59	132	107
Ontario.....1941	1,910	1,384	51	40					
1951	2,010	1,535	34	28					
1960	2,152	1,593	26	21	**Canada**.....1941[1]	**8,788**	**6,448**	**67**	**52**
1961	2,090	1,536	26	20					
1962	2,054	1,567	26	21	**1951**	**8,375**	**6,298**	**43**	**34**
Manitoba.....1941	447	341	59	47	**1960**	**7,572**	**5,505**	**31**	**24**
1951	369	289	36	30					
1960	406	292	34	26	**1961**	**7,447**	**5,493**	**30**	**24**
1961	341	247	29	22					
1962	350	250	30	22	**1962**	**7,379**	**5,562**	**31**	**24**

[1] Excludes Newfoundland and the Yukon and Northwest Territories.

Infant Mortality in Urban Centres.—Because of the relatively small numbers of infant deaths in individual cities and towns, the rates for these centres usually vary widely

from year to year. As is evident from Table 2, pp. 228-232, many cities and towns have maintained consistently low rates as compared with the national rate or the rate for the province in which they are situated.

Causes of Infant Deaths.—In 1962 more than two thirds of the infant deaths were caused by immaturity, congenital malformations, pneumonia, postnatal asphyxia and atelectasis, and injury at birth. Immaturity was the underlying cause of 2,304 and was an added complication in 3,170 others. Congenital malformations accounted for 2,230 fatalities, pneumonia for 1,640, postnatal asphyxia for 1,475 and injury at birth for 1,338. Rates for congenital malformations and birth injuries have been rising during the past three or four years.

21.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1960-62

International List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1960	1961	1962	1960	1961	1962
001-019	Tuberculosis	7	8	6	1	2	1
020-029	Syphilis	—	1	3	—	--	1
045-048	Dysentery	23	14	7	5	3	1
050	Scarlet fever	1	1	1	--	--	--
052	Erysipelas	—	1	—	—	--	—
055	Diphtheria	—	—	—	—	—	—
056	Whooping cough	63	24	19	13	5	4
057	Meningococcal infections	35	8	19	7	2	4
085	Measles	27	30	34	6	6	7
140-239	Neoplasms	44	42	37	9	9	8
273	Diseases of thymus gland	23	13	19	5	3	4
325	Mental deficiency	52	75	65	11	16	14
340	Meningitis (non-meningococcal)	89	109	94	19	23	20
391, 392	Otitis media	86	59	66	18	12	14
470-475	Acute upper respiratory infections	57	81	45	12	17	10
480-483	Influenza	119	108	97	25	23	21
490-493	Pneumonia (4 weeks and over)	1,415	1,273	1,232	296	268	262
500-502	Bronchitis	105	74	84	22	16	18
543	Gastritis and duodenitis	5	4	2	1	1	--
560-570	Hernia and intestinal obstruction	97	107	97	20	22	21
571	Gastro-enteritis and colitis	483	400	373	101	84	79
572	Chronic enteritis, and ulcerative colitis	5	2	4	1	--	1
750-759	Congenital malformations	2,076	2,192	2,230	434	461	475
760, 761	Injury at birth	1,265	1,264	1,338	264	266	285
762	Postnatal asphyxia and atelectasis	1,522	1,502	1,475	318	316	314
763	Pneumonia of newborn (under 4 weeks)	454	410	408	95	86	87
764	Diarrhœa of newborn (under 4 weeks)	80	86	73	17	18	16
765-768	Other infections of newborn	48	43	45	10	9	10
769	Antenatal toxæmia	91	120	107	19	25	23
770	Erythroblastosis	343	325	336	72	68	72
771	Hæmorrhagic disease of newborn	93	97	84	19	20	18
772	Nutritional maladjustment	48	53	48	10	11	10
773	Ill-defined diseases peculiar to early infancy	875	972	1,095	183	204	233
774-776	Immaturity	2,261	2,284	2,304	472	480	491
795	Ill-defined and unknown causes	96	80	46	20	17	10
E810-E825	Motor vehicle accidents	14	24	17	3	5	4
E900-E904	Accidental falls	17	14	16	4	3	3
E916	Accidents caused by fire	24	23	31	5	5	7
E921, E922	Inhalation and ingestion of food or other object	306	317	313	64	67	67
E924, E925	Accidental mechanical suffocation	145	178	147	30	37	31
	Other accidental and violent deaths	51	64	51	11	13	11
	Other specified causes	532	458	473	111	96	101
	Totals, All Causes	**13,077**	**12,940**	**12,941**	**2,733**	**2,720**	**2,755**

Age at Death.—Of the 12,941 infants who died within a year of their birth, 8,783, or almost 68 p.c. were less than one month old—4,998 during the first day of life, 2,718 from the second to the seventh day, and 1,067 during the three following weeks.

22.—Infant Deaths, by Age, 1962

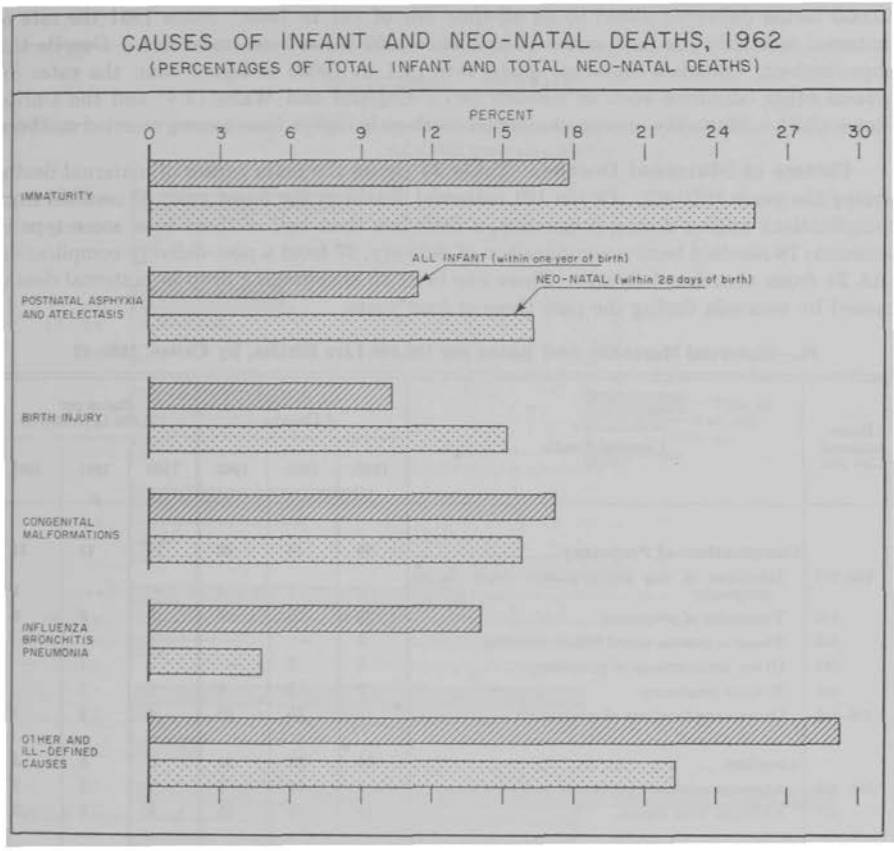
Time of Death	Number	Percentage	Cumulative		Time of Death	Number	Percentage	Cumulative	
			Number	Percentage				Number	Percentage
1st day	4,998	38.6	4,998	38.6	1st month	8,783	67.9	8,783	67.9
2nd "	1,005	7.8	6,003	46.4	2nd "	923	7.1	9,706	75.0
3rd "	786	6.1	6,789	52.5	3rd "	814	6.3	10,520	81.3
4th "	374	2.9	7,163	55.4	4th "	584	4.5	11,104	85.8
5th "	238	1.8	7,401	57.2	5th "	460	3.6	11,564	89.4
6th "	172	1.3	7,573	58.5	6th "	344	2.7	11,908	92.0
7th "	143	1.1	7,716	59.6	7th "	267	2.1	12,175	94.1
					8th "	178	1.4	12,353	95.5
1st week	7,716	59.6	7,716	59.6	9th "	183	1.4	12,536	96.9
2nd "	491	3.8	8,207	63.4	10th "	158	1.2	12,694	98.1
3rd "	297	2.3	8,504	65.7	11th "	124	1.0	12,818	99.0
4th "	279	2.2	8,783	67.9	12th "	123	1.0	12,941	100.0

Neo-natal Mortality.—Deaths occurring within the first four weeks of birth are conventionally referred to as 'neo-natal' (derived from the term 'newborn') deaths. Table 22 shows that over two thirds of all infant deaths occur in this hazardous neo-natal period and, as would be expected, are caused mainly by conditions associated with pregnancy or delivery. Table 23 gives numbers and rates of neo-natal deaths for 1941-62 and the following chart compares the major causes of such deaths with all infant deaths (up to one year of age) from the same causes.

23.—Neo-natal Mortality,[1] by Province, 1941-62

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	Numbers												
Av. 1941-45	344	58	418	453	3,329	2,061	425	469	463	400	..	..	8,076
" 1946-50	346	52	403	527	3,395	2,511	442	505	553	533	..	..	9,052
" 1951-55	294	45	342	391	3,241	2,476	395	426	552	535	8	30	8,736
" 1956-60	324	54	334	322	3,137	2,652	402	414	622	648	8	54	8,970
1960	311	57	366	266	2,575	2,644	434	414	662	619	7	55	8,410
1961	325	54	327	250	2,855	2,627	380	395	707	595	10	39	8,564
1962	329	55	380	302	2,948	2,682	381	413	635	601	15	42	8,783
	Rates per 1,000 Live Births												
Av. 1941-45	37	27	28	35	34	27	27	25	25	23	..	..	29
" 1946-50	28	18	22	31	29	24	23	23	23	21	..	..	26
" 1951-55	22	17	19	24	25	19	19	18	18	17	20	45	21
" 1956-60	22	20	17	19	22	17	18	17	17	17	15	57	19
1960	20	21	19	16	19	17	19	17	17	15	13	50	18
1961	21	19	17	15	21	17	16	16	18	15	18	35	18
1962	22	20	20	18	22	17	17	18	16	16	27	37	19

[1] Prior to 1951, includes deaths under one calendar month of age; since 1951, includes deaths under 28 days.



Perinatal Mortality.—'Perinatal' mortality—the combined total of stillbirths and deaths of live-born infants occurring 'around' the natal period—is a relatively new vital statistics concept. Since such deaths frequently have the same underlying causes, associated with pregnancy or delivery, regardless of whether they occur before or after delivery, perinatal deaths are generally considered as including the combined total of stillbirths occurring after at least 28 weeks pregnancy and deaths of live-born infants who fail to survive the first week of life.

In 1962 there were 13,598 such 'deaths', of which 5,882 were stillborn and 7,716 live-born but failed to survive one week, with a national rate of 28.6 such deaths for every 1,000 total deliveries. This perinatal rate has declined very slowly, but steadily, from 65.2 in 1921 to 28.1 in 1961 but rose for the first time to 28.6 in 1962. Despite what might appear to be an encouraging reduction over the past forty years, there has been very little change during the past four years.

Subsection 3.—Maternal Mortality

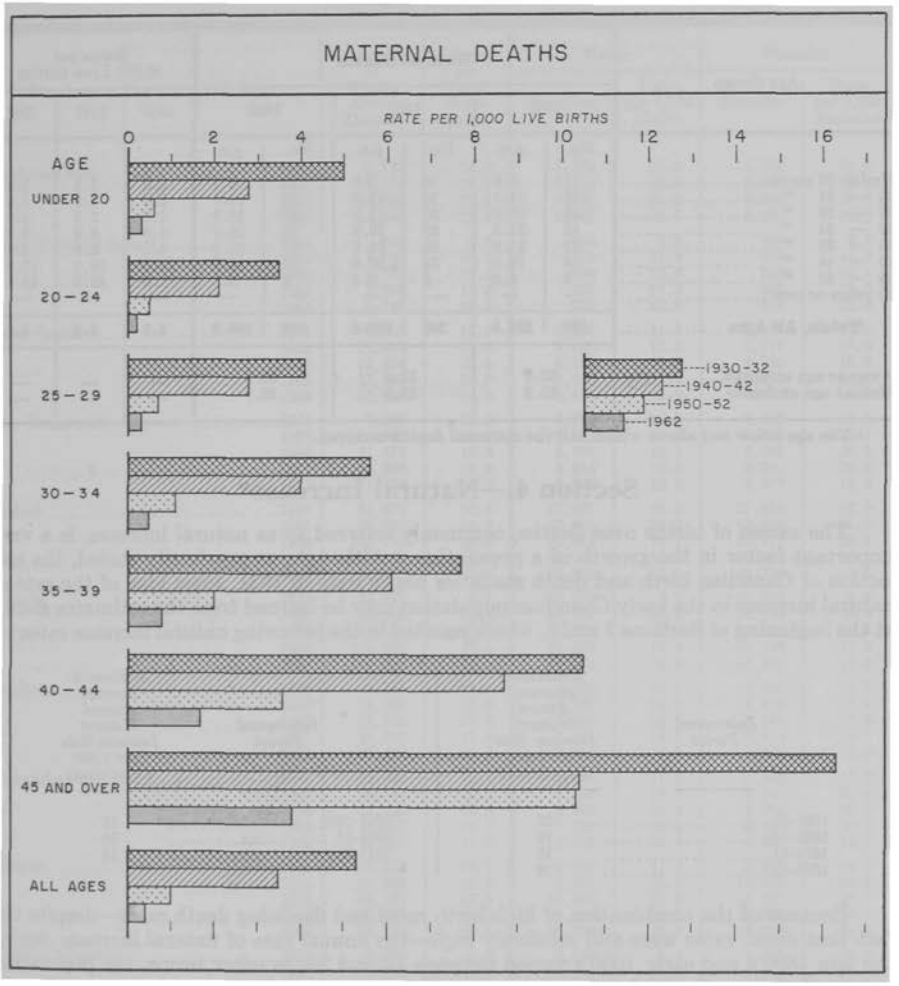
As indicated in Table 1, pp. 226-227, the number of mothers who die in pregnancy and childbirth has been greatly reduced during the past two decades. Although the number of births has been much greater in recent years, the number of maternal deaths declined almost steadily from 1940 (when there were 978 deaths and a rate of 40 deaths for every

10,000 births delivered alive) to an all-time low of 191 in 1962. Since 1951 the rate of maternal mortality has been under 10 and since 1959 it has been under five. Despite this improvement, Canada's maternal death rate (4.1 in 1962) is higher than the rates for several other countries such as Sweden (3.7), England and Wales (3.4) and the United States (3.2). Mortality among unmarried mothers is higher than among married mothers.

Causes of Maternal Deaths.—Table 24 shows the main causes of maternal deaths during the years 1960-62. Of the 191 maternal deaths in the latest year, 52 resulted from complications arising during pregnancy, a little less than half of these from some type of toxæmia; 78 resulted from a complication of delivery, 37 from a post-delivery complication and 24 from abortive delivery. There has been an encouraging drop in maternal deaths caused by toxæmia during the past three or four years.

24.—Maternal Mortality and Rates per 100,000 Live Births, by Cause, 1960-62

International List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1960	1961	1962	1960	1961	1962
	Complications of Pregnancy	**69**	**53**	**52**	**14**	**11**	**11**
640, 641	Infections of the genito-urinary tract during pregnancy	1	1	3	--	--	1
642	Toxæmias of pregnancy	36	29	23	8	6	5
643	Placenta prævia noted before delivery	3	—	—	1	—	—
644	Other hæmorrhage of pregnancy	3	3	—	1	1	—
645	Ectopic pregnancy	7	5	6	1	1	1
646-649	Other complications of pregnancy	19	15	20	4	3	4
	Abortion	**24**	**26**	**24**	**5**	**5**	**5**
650, 652	Abortion without mention of sepsis	6	10	9	1	2	2
651	Abortion with sepsis	18	16	15	4	3	3
	Complications of Delivery	**83**	**96**	**78**	**17**	**20**	**17**
660	Delivery (without complication)	1	—	—	--	—	—
670	Delivery complicated by placenta prævia or antepartum hæmorrhage	14	18	21	3	4	4
671	Delivery complicated by retained placenta	4	3	3	1	1	1
672	Delivery complicated by other postpartum hæmorrhage	20	20	21	4	4	4
673, 674	Delivery complicated by abnormality of bony pelvis or malposition of foetus	5	8	6	1	2	1
675	Delivery complicated by prolonged labour of other origin	6	3	5	1	1	1
676, 677	Delivery with laceration or other trauma	18	27	8	4	6	2
678	Delivery with other complications of childbirth	15	17	14	3	4	3
	Complications of the Puerperium	**39**	**44**	**37**	**8**	**9**	**8**
681	Sepsis of childbirth and the puerperium	8	13	13	2	3	3
682-684	Puerperal phlebitis, thrombosis, pyrexia, pulmonary embolism	15	13	12	3	3	3
685, 686	Puerperal eclampsia and toxæmia	5	3	1	1	1	--
687-689	Other	11	15	11	2	3	2
	Totals, All Puerperal Causes	**215**	**219**	**191**	**45**	**46**	**41**



Age at Death.—Table 25 shows the distribution of maternal deaths by age group and average age at death; the latter is about four years higher than the average age of all mothers at the time of childbirth. Until recent years, the risk of mortality at childbirth was directly related to the age of the mother—in other words, for all mothers of over 20 years the rate rose with increasing age. While death rates for all age groups of mothers have been declining, there have been rather significant changes in the rates. Formerly, the rate for mothers in the age group 30-34 was twice or three times as high as the rate for the 20-24 group, but recently mortality rates for the four age groups of mothers under 35 years of age have not been far apart, although after age 35 a sharp rise occurs.

25.—Maternal Mortality and Rates per 10,000 Live Births, by Age Group, 1960-62
(Exclusive of Newfoundland)

Age Group	Maternal Deaths						Rates per 10,000 Live Births		
	1960		1961		1962		1960	1961	1962
	No.	p.c.	No.	p.c.	No.	p.c.			
Under 20 years	11	5.5	10	4.8	10	5.4	2.8	2.5	2.5
20 — 24 "	28	14.1	26	12.5	22	11.8	2.1	1.9	1.6
25 — 29 "	33	16.6	36	17.3	37	19.9	2.5	2.8	3.0
30 — 34 "	43	21.6	56	26.9	45	24.2	4.8	6.3	5.2
35 — 39 "	43	21.6	50	24.0	41	22.0	8.3	9.8	8.4
40 — 44 "	33	16.6	25	12.0	27	14.5	21.6	16.0	17.5
45 — 49 "	8	4.0	5	2.4	4	2.2	71.0	43.6	38.6
50 years or over	—	—	—	—	—	—	—	—	—
Totals, All Ages	**199**	**100.0**	**208**	**100.0**	**186**	**100.0**	**4.3**	**4.5**	**4.1**
Average age at death.....yrs.	32.8		32.5		32.5		...	...	...
Median age at death[1]..... "	33.2		32.9		32.7		...	...	...

[1] The age below and above which half the maternal deaths occurred.

Section 4.—Natural Increase*

The excess of births over deaths, commonly referred to as natural increase, is a very important factor in the growth of a population. Although, as previously stated, the collection of Canadian birth and death statistics began only in 1921, some idea of the rate of natural increase in the early Canadian population may be learned from the estimates shown at the beginning of Sections 2 and 3, which resulted in the following natural increase rates:—

Intercensal Period	*Estimated Average Annual Natural Increase Rate (per 1,000 Population)*
1851-61	23
1861-71	19
1871-81	18
1881-91	16
1891-1901	14
1901-11	18
1911-21	16

Because of the combination of high birth rates and declining death rates—despite the fact that death rates were still relatively high—the annual rate of natural increase during the late 1800's and early 1900's varied between 14 and 23; in other terms, the population increased at the rate of 1.5 p.c. to 2.5 p.c. each year by natural increase alone, regardless of any increase attributable to immigration. During the 1920's and early 1930's the birth rate declined more than the death rate and the natural increase rate dropped to a record low of 9.7 in 1937. But higher birth rates during and after World War II and a gradually declining death rate caused the natural increase rate to rise steadily from 10.9 in 1939 to a record 20.3 in 1954. Although after that year there has been a steady drop because of declining birth rates, the natural increase rate still is quite high at 17.6 (1962).

Table **1**, pp. 226-227, gives average rates of natural increase in the provinces for five-year periods 1941-60 and Table **26** gives the provincial figures for males and females separately for 1941, 1951 and 1960-62. High birth rates and declining death rates have given Newfoundland, Alberta, New Brunswick, Quebec and Saskatchewan the highest rates of natural increase in Canada in recent years (excluding the Yukon and Northwest Territories).

* For international comparisons, see Section 7, pp. 267-268.

26.—Natural Increase and Rates per 1,000 Population, by Sex and Province, 1941, 1951 and 1960-62

Province or Territory and Year	Excess of Births Over Deaths	Rate per 1,000 Population	Males		Females	
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females
Newfoundland 1951	8,734	24.2	4,369	23.6	4,365	24.8
1960	12,158	27.2	6,130	26.6	6,028	27.7
1961	12,553	27.5	6,350	27.0	6,203	27.8
1962	11,866	25.3	5,945	24.7	5,921	25.9
Prince Edward Island 1941	915	9.6	483	9.8	432	9.4
1951	1,747	17.9	872	17.4	875	18.2
1960	1,773	17.2	805	15.4	968	19.1
1961	1,860	17.8	925	17.3	935	18.2
1962	1,749	16.5	930	17.2	819	15.8
Nova Scotia 1941	6,989	12.1	3,335	11.3	3,654	13.0
1951	11,313	17.6	5,596	17.2	5,717	18.0
1960	13,024	17.9	6,255	16.9	6,769	19.0
1961	13,247	18.0	6,435	17.2	6,812	18.8
1962	13,090	17.5	6,417	16.9	6,673	18.2
New Brunswick 1941	7,088	15.5	3,396	14.5	3,692	16.5
1951	11,202	21.8	5,522	21.3	5,680	22.1
1960	11,671	19.8	5,776	19.4	5,895	20.3
1961	11,895	19.8	5,844	19.3	6,051	20.5
1962	11,679	19.2	5,802	18.9	5,877	19.6
Quebec 1941	54,871	16.5	27,561	16.5	27,310	16.5
1951	86,030	21.2	42,961	21.2	43,069	21.2
1960	102,721	20.0	50,604	19.7	52,117	20.3
1961	100,130	19.1	49,741	18.9	50,389	19.2
1962	97,858	18.3	48,060	17.9	49,798	18.6
Ontario 1941	33,036	8.7	15,705	8.2	17,331	9.3
1951	70,846	15.4	34,737	15.0	36,109	15.8
1960	107,761	17.7	52,552	17.1	55,209	18.2
1961	106,666	17.1	51,538	16.4	55,128	17.8
1962	103,897	16.4	50,366	15.8	53,531	17.0
Manitoba 1941	8,317	11.4	3,834	10.1	4,483	12.7
1951	13,207	17.0	6,388	16.2	6,819	17.9
1960	15,766	17.4	7,498	16.3	8,268	18.6
1961	15,919	17.3	7,445	15.9	8,474	18.7
1962	15,465	16.5	7,216	15.2	8,249	17.9
Saskatchewan 1941	12,006	13.4	5,651	11.8	6,355	15.2
1951	15,293	18.4	7,192	16.6	8,101	20.4
1960	17,220	18.8	8,012	16.9	9,208	20.9
1961	16,887	18.2	7,766	16.2	9,121	20.5
1962	16,337	17.6	7,500	15.6	8,837	19.7
Alberta 1941	10,923	13.7	5,016	11.8	5,907	16.0
1951	19,836	21.2	9,331	19.0	10,505	23.5
1960	30,121	23.3	14,446	21.6	15,675	25.2
1961	30,051	22.5	14,194	20.6	15,857	24.7
1962	29,540	21.5	13,920	19.7	15,620	23.6
British Columbia 1941	6,533	8.0	2,342	5.4	4,191	10.9
1951	16,439	14.1	7,107	11.9	9,332	16.4
1960	25,420	15.8	11,562	14.1	13,858	17.7
1961	24,188	14.9	10,829	13.1	13,359	16.7
1962	23,216	14.0	10,205	12.1	13,011	15.9
Yukon Territory 1951	257	28.6	115	20.9	142	39.4
1960	441	31.5	207	26.2	234	38.4
1961	464	31.7	218	26.7	246	38.1
1962	472	31.5	247	29.4	225	34.1
Northwest Territories 1951	365	22.8	164	18.2	201	28.7
1960	782	35.5	386	31.1	396	41.3
1961	855	37.2	409	31.9	446	43.8
1962	825	34.4	403	30.3	422	39.4
Canada 1941[1]	**140,678**	**12.2**	**67,323**	**11.4**	**73,355**	**13.1**
1951	**255,269**	**18.2**	**124,354**	**17.5**	**130,915**	**18.9**
1960	**338,858**	**19.0**	**164,233**	**18.2**	**174,625**	**19.8**
1961	**334,715**	**18.4**	**161,694**	**17.5**	**173,021**	**19.2**
1962	**325,994**	**17.6**	**157,011**	**16.7**	**168,983**	**18.4**

[1] Excludes Newfoundland and the Yukon and Northwest Territories.

The rates of natural increase are higher for females than for males in all provinces because of the higher death rates for males. In the western provinces particularly, the ratio of males to females in the total population is higher than in other parts of Canada and this in itself tends to lower the rate of natural increase. In Canada, a country with a fairly young population and where immigration has been on a large scale, an excess of males is to be expected but the higher rate of natural increase for females may gradually reduce this excess. The trend is toward an eventual excess of females in the total population—as there now is in most European countries—unless immigration again raises the male ratio or death rates among males are greatly reduced.

Natural Increase in Urban Centres.—The classification of births and deaths by place of residence makes it possible to compile the natural increase in the population of urban centres; the figures are presented in Table 2, pp. 228-232.

Section 5.—Marriages and Divorces

Subsection 1.—Marriages*

In both 1961 and 1962 Canada's crude marriage rate was 7.0 per 1,000 population, the lowest in over 20 years. Provincial rates varied from 6.4 per 1,000 population for Prince Edward Island to 7.6 for Alberta.

Table 27 gives the number of marriages and the marriage rates for Canada and the provinces for 1941, 1951 and the three consecutive years 1960-62, together with percentages of brides and bridegrooms according to place of birth. For the country as a whole, over 83 p.c. of the bridegrooms of 1962 were born in Canada and over 69 p.c. in the province in which they were married; almost 87 p.c. of the brides were born in Canada and 75 p.c. in the province in which they were married. During the postwar years until 1959 an increasing number of marriages were of persons born outside the country, because of the heavy immigration of young persons. However, since 1959 the proportion of foreign-born bridegrooms declined from 19.6 to 16.7 p.c. in 1962 and the proportion of foreign-born brides from 15.9 to 13.2 p.c. There are wide variations in the pattern of intermarriage of foreign-born and native-born persons as between provinces; in the older Atlantic Provinces and in Quebec there is a greater tendency than in the other provinces to marry native Canadians and in these areas both partners are often born in the same province.

* For international comparisons, see Section 7, pp. 267-268.

27.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941, 1951 and 1960-62

Province and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
	No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland....1951	2,517	7.0	85.2	96.7	2.4	1.9	12.4	1.4
1960	3,104	6.9	86.2	96.4	4.3	1.9	9.5	1.7
1961	3,306	7.2	88.0	97.2	3.8	1.6	8.2	1.2
1962	3,274	7.0	89.4	96.9	3.8	1.5	6.8	1.7
Prince Edward Island....1941	673	7.1	78.8	86.6	15.0	9.4	6.2	4.0
1951	583	5.9	82.3	91.1	12.9	6.0	4.8	2.9
1960	690	6.7	79.6	91.2	14.8	6.4	5.7	2.5
1961	624	6.0	81.7	89.6	15.4	7.2	2.9	3.2
1962	677	6.4	76.1	91.0	20.8	6.8	3.1	2.2

27.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941, 1951 and 1960-62—concluded

Province or Territory and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
	No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Nova Scotia 1941	6,596	11.4	73.2	83.8	16.8	9.5	10.0	6.7
1951	5,094	7.9	78.2	86.7	15.9	9.0	6.0	4.3
1960	5,250	7.2	76.2	87.8	17.9	8.8	5.9	3.4
1961	5,292	7.2	75.2	87.8	18.8	8.8	6.0	3.4
1962	5,256	7.0	75.9	88.0	18.9	9.0	5.2	3.0
New Brunswick 1941	4,941	10.8	78.5	84.4	13.3	9.7	8.2	5.9
1951	4,386	8.5	80.0	86.9	10.1	6.7	9.8	6.4
1960	4,430	7.5	74.4	85.9	14.8	8.1	10.8	6.0
1961	4,504	7.5	75.4	86.3	14.9	7.9	9.7	5.8
1962	4,382	7.2	75.5	85.8	14.7	8.3	9.9	5.9
Quebec 1941	32,782	9.8	86.1	89.3	6.7	5.9	7.2	4.8
1951	35,704	8.8	86.7	89.5	6.1	5.5	7.2	5.0
1960	36,211	7.0	82.9	86.9	5.7	4.6	11.4	8.6
1961	35,943	6.8	83.6	87.4	5.7	4.8	10.7	7.8
1962	37,038	6.9	85.1	88.4	5.5	4.9	9.4	6.8
Ontario 1941	43,270	11.4	89.2	89.0	4.2	4.5	6.7	6.5
1951	45,198	9.8	65.9	72.4	14.6	12.2	19.5	15.4
1960	45,855	7.5	60.1	66.1	13.3	11.2	26.6	22.7
1961	44,434	7.1	61.5	67.2	12.9	11.0	25.6	21.8
1962	44,454	7.0	62.8	67.7	12.8	11.5	24.4	20.8
Manitoba 1941	8,305	11.4	63.0	73.7	17.4	15.0	19.6	11.4
1951	7,366	9.5	67.9	75.1	15.4	13.3	16.8	11.6
1960	6,606	7.3	66.4	74.9	17.9	13.4	15.7	11.8
1961	6,512	7.1	66.6	74.5	18.5	14.5	14.8	11.0
1962	6,354	6.8	66.9	75.9	18.0	13.0	15.1	11.1
Saskatchewan 1941	7,036	7.9	64.7	79.1	16.1	10.0	19.1	10.9
1951	6,805	8.2	78.3	86.4	10.7	6.4	11.1	7.2
1960	6,209	6.8	81.7	86.6	8.7	7.6	9.6	5.9
1961	6,149	6.6	79.3	85.8	11.9	8.7	8.8	5.5
1962	6,044	6.5	80.8	85.8	11.7	8.7	8.3	5.6
Alberta 1941	8,470	10.6	50.0	63.4	23.9	19.9	26.2	16.8
1951	9,305	9.9	56.0	67.4	25.7	19.6	18.3	13.0
1960	10,482	8.1	54.3	62.2	25.4	20.9	20.3	16.8
1961	10,474	7.9	54.4	62.3	25.8	21.8	19.8	15.9
1962	10,423	7.6	54.4	62.0	25.9	22.8	19.7	15.2
British Columbia 1941	9,769	11.9	35.9	43.5	35.6	37.1	28.5	19.4
1951	11,272	9.7	35.5	41.6	43.1	43.0	21.3	15.5
1960	11,203	7.0	34.8	43.5	37.0	33.3	28.2	23.2
1961	10,964	6.7	36.4	45.9	35.9	32.4	27.7	21.8
1962	11,196	6.7	39.8	48.0	34.8	31.9	25.4	20.1
Yukon Territory 1960	107	7.6	10.3	22.4	62.6	53.3	27.1	24.3
1961	128	8.8	12.5	24.2	63.3	52.3	24.2	23.4
1962	109	7.3	10.1	26.6	67.0	53.2	22.9	20.2
Northwest Territories 1960	191	8.7	64.9	74.9	28.8	19.4	6.3	5.8
1961	145	6.3	54.5	61.4	35.9	31.7	9.7	6.9
1962	174	7.3	60.9	66.7	27.6	26.4	11.5	6.9
Canada[1] **1941**	**121,842**	**10.6**	**76.8**	**81.5**	**11.4**	**10.1**	**11.7**	**8.4**
1951	**128,230**	**9.2**	**70.5**	**76.5**	**15.1**	**12.8**	**14.5**	**10.6**
1960	**130,338**	**7.3**	**67.0**	**73.4**	**14.3**	**11.6**	**18.7**	**15.0**
1961	**128,475**	**7.0**	**67.9**	**74.2**	**14.3**	**11.7**	**17.9**	**14.1**
1962	**129,381**	**7.0**	**69.2**	**75.0**	**14.1**	**11.8**	**16.7**	**13.2**

[1] Newfoundland included from 1951 and the Yukon and Northwest Territories from 1960.

Age and Marital Status of Brides and Bridegrooms.—Table 28 shows that over 91 p.c. of the marriages in 1962 were between persons who had not been married previously; 4.9 p.c. of the brides and 4.4 p.c. of the bridegrooms had been widowed, and

almost 4 p.c. of the marriages were of divorced persons. The average age at marriage of bachelors was just under 26 years and that of spinsters just under 23 years. The average age of widowers and widows at time of remarriage was slightly more than double that of bachelors and spinsters.

28.—Brides and Bridegrooms, by Age and Marital Status, 1962

Age Group	Brides							
	Numbers				Percentages			
	Spinsters	Widows	Divorced	Total	Spinsters	Widows	Divorced	Total
12—14 years	116	—	—	116	0.1	—	—	0.1
15—19 "	40,906	22	31	40,959	34.7	0.3	0.6	31.6
20—24 "	55,875	169	608	56,652	47.4	2.7	12.0	43.8
25—29 "	12,477	324	1,032	13,833	10.6	5.1	20.4	10.7
30—34 "	4,227	444	1,064	5,735	3.6	7.0	21.1	4.4
35—39 "	2,021	559	891	3,471	1.7	8.8	17.7	2.7
40—44 "	1,000	796	633	2,429	0.8	12.5	12.5	1.9
45—49 "	579	868	407	1,854	0.5	13.7	8.1	1.4
50—54 "	370	893	232	1,495	0.3	14.1	4.6	1.2
55—59 "	203	767	89	1,059	0.2	12.1	1.8	0.8
60—64 "	115	629	39	783	0.1	9.9	0.8	0.6
65 years or over	84	884	22	990	0.1	13.9	0.4	0.8
Totals, Stated Ages	**117,973**	**6,355**	**5,048**	**129,376**	**100.0**	**100.0**	**100.0**	**100.0**
Age not stated	5	—	—	5	...	...	...	...
Totals, All Ages	**117,978**	**6,355**	**5,048**	**129,381**	**91.2**	**4.9**	**3.9**	**100.0**
Average ages.....yrs.	22.8	49.7	35.3	24.6	...	...	...	...
Median ages[1] ..... "	21.1	50.0	34.0	21.5	...	...	...	...

	Bridegrooms							
	Numbers				Percentages			
	Bachelors	Widowers	Divorced	Total	Bachelors	Widowers	Divorced	Total
15—19 years	9,068	—	2	9,070	7.7	—	--	7.0
20—24 "	62,496	25	206	62,727	52.7	0.4	3.9	48.5
25—29 "	29,660	130	867	30,657	25.0	2.3	16.6	23.7
30—34 "	9,616	244	1,111	10,971	8.1	4.3	21.3	8.5
35—39 "	3,915	328	975	5,218	3.3	5.8	18.7	4.0
40—44 "	1,659	367	761	2,787	1.4	6.5	14.6	2.2
45—49 "	934	585	569	2,088	0.8	10.4	10.9	1.6
50—54 "	508	650	394	1,552	0.4	11.5	7.5	1.2
55—59 "	286	764	217	1,267	0.2	13.5	4.2	1.0
60—64 "	170	847	74	1,091	0.1	15.0	1.4	0.8
65 years or over	195	1,711	46	1,952	0.2	30.3	0.9	1.5
Totals, Stated Ages	**118,507**	**5,651**	**5,222**	**129,380**	**100.0**	**100.0**	**100.0**	**100.0**
Age not stated	1	—	—	1	...	...	...	...
Totals, All Ages	**118,508**	**5,651**	**5,222**	**129,381**	**91.6**	**4.4**	**4.0**	**100.0**
Average ages.....yrs.	25.6	56.4	38.6	27.5	...	...	...	...
Median ages[1] ..... "	23.9	58.2	37.2	24.4	...	...	...	...

[1] The ages below and above which half the marriages occurred.

Religious Denominations of Brides and Bridegrooms.—The distribution of brides and bridegrooms by religious denominations is roughly the same as that for the population as a whole. Table **29** shows the very strong influence that religion has on

marriage. About 71 p.c. of all marriages are between persons of the same religious denomination; in 1962 among those of Jewish faith it was about 94 p.c.; among Roman Catholics about 87 p.c.; United Church about 59 p.c.; and Eastern Orthodox about 67 p.c.

29.—Marriages by Religious Denominations of Contracting Parties, 1962

Denomination of Bridegroom	Denomination of Bride										Total Marriages	P.C. of Grooms
	Anglican	Baptist	Eastern Orthodox	Jewish	Lutheran	Presbyterian	Roman Catholic[1]	United Church	Other Sects	Not Stated		
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Anglican	7,228	580	99	11	415	656	2,007	3,353	522	—	14,871	11.5
Baptist	596	2,026	16	4	111	162	422	857	305	—	4,499	3.5
Eastern Orthodox	135	14	1,342	3	70	34	394	216	60	—	2,268	1.8
Jewish	29	6	3	1,266	10	10	57	35	24	—	1,440	1.1
Lutheran	561	107	71	4	2,141	152	848	896	268	1	5,049	3.9
Presbyterian	780	181	23	6	154	1,563	578	1,136	198	—	4,619	3.6
Roman Catholic[1]	2,035	428	242	20	750	475	54,779	2,566	866	1	62,162	48.0
United Church	3,336	808	158	13	728	965	2,481	14,722	952	3	24,166	18.7
Other sects	808	315	52	16	336	210	1,116	1,270	6,168	1	10,292	8.0
Not stated	5	—	—	—	1	—	7	1	—	1	15	...
Totals	**15,513**	**4,465**	**2,006**	**1,343**	**4,716**	**4,227**	**62,689**	**25,052**	**9,363**	**7**	**129,381**	**100.0**
P.C. of brides	12.0	3.5	1.6	1.0	3.6	3.3	48.5	19.4	7.2	...	100.0	70.5[2]

[1] Includes Greek Catholic. [2] Percentage of marriages between contracting parties of the same religious denomination.

Subsection 2.—Divorces

Before World War I the number of divorces granted in Canada was very small, and represented less than one per 1,000 of the yearly number of marriages. After that War, however, there was a definite upward trend; the number advanced to 8,213 in 1947, declined gradually to a postwar low of 5,270 in 1951 and from 1953 to 1962 fluctuated between 5,923 and 6,980. The 1963 preliminary figure of 7,681 was the third highest on record. No divorces were approved by the Canadian Parliament during 1962 for residents of Quebec and Newfoundland.

30.—Dissolutions of Marriage (Divorces), by Province, 1941-63

NOTE.—Figures for individual years from 1900 to 1953 are given in the 1956 Year Book, p. 230.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
	NUMBERS										
Av. 1941-45	..	2	92	104	99	1,398	305	207	432	937	3,576
" 1946-50	..	21	185	245	303	2,839	500	383	724	1,676	6,877
" 1951-55	5	10	212	167	327	2,430	356	231	612	1,461	5,811
" 1956-60	5	4	227	194	403	2,801	315	247	788	1,514	6,498
1954	8	8	249	117	370	2,469	371	250	610	1,471	5,923
1955	1	7	253	181	396	2,531	337	237	627	1,483	6,053
1956	5	1	230	215	351	2,478	314	221	685	1,502	6,002
1957	6	2	250	206	519	2,873	305	242	726	1,559	6,688
1958	7	1	220	150	311	2,776	292	281	743	1,498	6,279
1959	1	6	215	221	351	2,915	301	276	836	1,420	6,543[1]
1960	6	10	221	178	481	2,965	361	213	951	1,592	6,980[2]
1961	6	8	245	194	348	2,739	312	251	1,039	1,397	6,563[3]
1962	—	5	229	181	—	3,140	339	281	1,084	1,490	6,768[4]
1963[p]	8	8	271	172	491	3,232	369	331	1,268	1,516	7,681[5]

For footnotes, see end of table, p. 264.

30.—Dissolutions of Marriage (Divorces), by Province, 1941-63—concluded

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
	Rates per 100,000 Population										
Av. 1941-45.....	..	2.2	15.4	22.4	2.9	35.8	42.0	24.4	54.3	104.8	30.3
" 1946-50.....	..	22.1	29.7	49.3	8.0	66.4	66.8	45.9	84.6	155.8	53.0
" 1951-55.....	1.3	9.8	32.0	31.4	7.6	49.2	44.0	26.9	60.3	116.8	39.1
" 1956-60.....	1.2	4.0	32.0	33.9	8.2	48.4	35.9	27.6	65.3	99.8	38.2
1954.....	2.0	7.9	37.0	21.7	8.4	48.3	45.1	28.6	57.7	113.6	38.7
1955.....	0.2	7.0	37.0	33.1	8.8	48.1	40.2	27.0	57.5	110.5	38.6
1956.....	1.2	1.0	33.1	38.7	7.6	45.8	36.9	25.1	61.0	107.4	37.3
1957.....	1.4	2.0	35.7	36.7	10.9	51.0	35.4	27.5	62.4	105.2	40.3
1958.....	1.6	1.0	31.0	26.3	6.3	47.7	33.4	31.5	61.6	97.4	36.8
1959.....	0.2	5.9	29.9	38.0	7.0	48.8	33.8	30.4	67.0	90.6	37.4[1]
1960.....	1.3	9.7	30.4	30.2	9.4	48.5	39.8	23.3	73.7	99.4	39.1[2]
1961.....	1.3	7.6	33.2	32.4	6.6	43.9	33.9	27.1	78.0	85.8	36.0[3]
1962.....	—	4.7	30.7	29.8	—	49.5	36.3	30.2	79.1	89.8	36.4[4]
1963p.....	1.7	7.5	35.8	28.0	9.0	50.1	38.8	35.5	90.2	89.4	40.6[5]

[1] Includes one in the Northwest Territories. [2] Includes two in the Northwest Territories.
[3] Includes 24 in Yukon Territory. [4] Includes 14 in Yukon Territory and five in the Northwest Territories.
[5] Includes 13 in Yukon Territory and two in the Northwest Territories.

Section 6.—Canadian Life Tables

Five official series of life tables for Canada and the provinces and regions have been published to date, based on deaths in the three-year period around each of the Censuses of 1931, 1941, 1951, 1956 and 1961. In addition, tables have been computed for Canada as a whole for the years 1945 and 1947 but, since these are based on *estimated* populations by sex and age and the deaths recorded in those years, they are not considered as reliable as those for the census years. The life table values for 1961 are given in abbreviated form in Table **31**.

Life tables give some measure of the health and general conditions of survival of an 'artificial' population in a conventional, standard form. A hypothetical number (100,000) of births of each sex is assumed as a starting point. The life tables show how, on the basis of the mortality rates at each age in the given years, these 100,000 of each sex are reduced in number by death. For example, during the year 1961, of 100,000 males born, 3,058 would have died in their first year, according to the mortality rates in effect during the period 1960-62, so that 96,942 would survive to one year of age; 179 would have died in their second year so that 96,763 survived to two years of age, and so on. At 100 years of age only 105 of the original 100,000 would have survived. The probability of death at each age is the ratio between the number of deaths and the population at each age. Finally, the expectation of life is the number of years which a person on the average might expect to live if the mortality rates in the given years remained constant throughout his lifetime.

Mortality rates at all ages for males have been almost consistently higher than for females. Males have the highest risk of mortality as compared with females during their first year of life, from their late 'teens to early 30's and from age 50 to 65. For both boys and girls the risk of mortality drops rapidly during childhood and is lowest at about age 10, increases gradually to about age 40 for males and about 50 for females and then rises steeply with advancing age. As an illustration of the information available from study of the life tables, it may be observed that at the mortality rates given in the 1961 life table (see Table **31**) about 12,100 males would have died before reaching age 50 as compared with about 7,600 females; only 57,517 of the original group of 100,000 males would have survived to age 70 as compared with 72,746 females.

31.—Canadian Life Table, 1961

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				yrs.				yrs.
At birth	100,000	3,058	.03058	68.35	100,000	2,387	.02387	74.17
1 year	96,942	179	.00185	69.50	97,613	160	.00164	74.98
2 years	96,763	110	.00114	68.63	97,453	94	.00096	74.11
3 "	96,653	96	.00099	67.71	97,359	69	.00071	73.18
4 "	96,557	80	.00083	66.78	97,290	59	.00061	72.23
5 "	96,477	292	.00073	65.83	97,231	196	.00053	71.27
10 "	96,185	282	.00050	61.02	97,035	147	.00029	66.41
15 "	95,903	555	.00089	56.20	96,888	229	.00040	61.51
20 "	95,348	771	.00153	51.51	96,659	281	.00055	56.65
25 "	94,577	710	.00157	46.91	96,378	333	.00064	51.80
30 "	93,867	758	.00150	42.24	96,045	433	.00079	46.98
35 "	93,109	1,048	.00193	37.56	95,612	654	.00115	42.18
40 "	92,061	1,575	.00282	32.96	94,958	992	.00174	37.45
45 "	90,486	2,590	.00465	28.49	93,966	1,572	.00277	32.82
50 "	87,896	4,099	.00772	24.25	92,394	2,394	.00436	28.33
55 "	83,797	6,251	.01265	20.30	90,000	3,613	.00675	24.01
60 "	77,546	8,772	.01999	16.73	86,387	5,471	.01064	19.90
65 "	68,774	11,257	.02972	13.53	80,916	8,170	.01718	16.07
70 "	57,517	13,726	.04467	10.67	72,746	11,694	.02774	12.58
75 "	43,791	14,855	.06706	8.21	61,052	15,891	.04664	9.48
80 "	28,936	13,665	.10091	6.14	45,161	18,277	.07941	6.90
85 "	15,271	9,624	.15231	4.46	26,884	15,622	.13118	4.89
90 "	5,647	4,451	.22712	3.16	11,262	8,539	.20708	3.39
95 "	1,196	1,091	.33123	2.20	2,723	2,445	.31226	2.32
100 "	105		.47051	1.49	278		.45185	1.56

By 1961, life expectancy *at birth* in Canada had reached a new high point of 68.4 years for males and about 74.2 for females—comparable to the expectancy for other countries of the world with highly developed programs of medical and public health care. Once a child has passed its first year of life, however, its life expectancy increases appreciably. At one year of age a male child *at present mortality risks* may, on the average, expect to live an additional 69.5 years and a female almost 75 years, representing for an infant boy a gain of 1.2 years over his expectation at birth and for an infant girl a gain of 0.8 years. The expectation of life of a 15-year-old boy is 56.2 additional years; of a 15-year-old girl 61.5 years. At 25 years of age the expectation is about 46.9 years for men and 51.8 years for women and at age 70, 10.7 years for men and 12.6 years for women.

Table 32 summarizes the life expectancy figures extracted from the Canadian life tables for 1931, 1941, 1951, 1956 and 1961. According to these figures, life expectancy at birth for men increased about three quarters of a year between 1956 and 1961 and 1.3 years between 1951 and 1956, compared with 3.4 years from 1941 to 1951 and 2.9 years from 1931 to 1941; females gained one and one quarter years between 1956 and 1961 and 2.1 years between 1951 and 1956, compared with 4.5 years and 4.2 years, respectively, in the preceding decades. Thus, from 1931 to 1961 a total of 8.4 years was added to male life expectancy and 12.1 years to female longevity.

The increases in life expectancy have been predominantly at the younger ages, particularly in infancy, and diminish with advanced age. For example, since 1931, 3.5 years have been added to the life expectancy of a five-year-old male, 2.5 years to a 20-year-old, about one year to a 40-year-old and about half a year to a 60-year-old as compared with 8.4 years for a newborn male. During this period, life expectancy for a five-year-old female gained 8.1 years, for a 20-year-old 6.9 years, for a 40-year-old 4.4 years and for a 60-year-old two and three quarter years as compared with 12.1 years for a newborn female.

Longevity has improved for both sexes, though more so and at all ages for females, but there has been only slight improvement for males beyond middle life. Briefly, the rapid decline in the death rate for infants of both sexes is continuing but the declines are slower with advancing age, so that relatively stationary death rates have been established from about 50 years onward for males and from about 80 years onward for females.

The fact that such a pattern exists is important in interpreting the results of these life tables. The arbitrary population base of 100,000 of each sex in the 1956 tables, for example, has been subjected to the mortality rates in effect in 1960-62, and the life expectancy computed *as if those death rates at each age were to prevail during their lifetime.* Actually the theoretical 200,000 infants born in 1960-62 will most probably have a pattern of survival and life expectancy quite different from that of the present life tables as they will spend most of their lives under conditions of public health and medical care which in all likelihood will be superior to those prevailing in 1960-62.

The improvement in life expectancy, particularly among children and adolescents, is caused mainly by the substantial reduction in recent years in mortality from infectious diseases; on the other hand, diseases associated with middle and old age are much less amenable to control. It is therefore unlikely that improvement in life expectancy in the future will be comparable to that of the past 30 years. As approximately 9 p.c. of deaths in 1960-62 occurred among infants and an additional 77 p.c. among persons over age 50,

any additional improvement must come as the result of further declines in mortality from conditions associated with childbirth and early infancy, further control of infectious diseases, prevention of accidents, and advances in combating diseases associated with middle and old age, such as cardiovascular-renal conditions and cancer.

32.—Expectation of Life, 1931, 1941, 1951, 1956 and 1961

Age	1931		1941		1951		1956		1961	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
At birth.....	60.00	62.10	62.96	66.30	66.33	70.83	67.61	72.92	68.35	74.17
1 year.....	64.69	65.71	66.14	68.73	68.33	72.33	69.04	73.99	69.50	74.98
2 years	64.46	65.42	65.62	68.16	67.56	71.55	68.21	73.15	68.63	74.11
3 "	63.84	64.75	64.88	67.38	66.68	70.66	67.31	72.24	67.71	73.18
4 "	63.11	63.99	64.07	66.56	65.79	69.74	66.38	71.31	66.78	72.23
5 "	62.30	63.17	63.22	65.69	64.86	68.80	65.45	70.35	65.83	71.27
10 "	57.96	58.72	58.70	61.08	60.15	64.02	60.67	65.51	61.02	66.41
15 "	53.41	54.15	54.06	56.36	55.39	59.19	55.86	60.64	56.20	61.51
20 "	49.05	49.76	49.57	51.76	50.76	54.41	51.19	55.80	51.51	56.65
25 "	44.83	45.54	45.18	47.26	46.20	49.67	46.61	50.97	46.91	51.80
30 "	40.55	41.38	40.73	42.81	41.60	44.94	41.98	46.17	42.24	46.98
35 "	36.23	37.19	36.26	38.37	37.00	40.24	37.34	41.40	37.56	42.18
40 "	31.98	33.02	31.87	33.99	32.45	35.63	32.74	36.69	32.96	37.45
45 "	27.79	28.87	27.60	29.67	28.05	31.14	28.28	32.09	28.49	32.82
50 "	23.72	24.79	23.49	25.46	23.88	26.80	24.04	27.65	24.25	28.33
55 "	19.88	20.84	19.64	21.42	20.02	22.61	20.12	23.38	20.30	24.01
60 "	16.29	17.15	16.06	17.62	16.49	18.64	16.54	19.34	16.73	19.90
65 "	12.98	13.72	12.81	14.08	13.31	14.97	13.36	15.60	13.53	16.07
70 "	10.06	10.63	9.94	10.93	10.41	11.62	10.51	12.17	10.67	12.58
75 "	7.57	7.98	7.48	8.19	7.89	8.73	7.98	9.15	8.21	9.48
80 "	5.61	5.92	5.54	6.03	5.84	6.38	5.89	6.75	6.14	6.90
85 "	4.10	4.38	4.05	4.35	4.27	4.57	4.27	4.97	4.46	4.89
90 "	2.97	3.24	2.93	3.13	3.10	3.24	3.07	3.67	3.16	3.39
95 "	2.14	2.40	2.09	2.26	2.24	2.27	2.18	2.74	2.20	2.32
100 "	1.53	1.77	1.46	1.64	1.60	1.59	1.52	2.05	1.49	1.56

Section 7.—International Comparisons of Vital Statistics

Table 33 gives a summary of Canada's national and provincial vital statistics rates along with those of several other countries. It will be noted that among the countries listed the low crude death rate in Canada is bettered by three countries—Venezuela, Japan and the Union of Soviet Socialist Republics—and that some of the provinces have lower rates than most other countries. The birth rate also helps to give Canada one of the fastest growing populations, currently ranking eighth among those listed. However, 16 countries reported lower or equal rates of infant mortality, some as low as 14 or 15 per 1,000 live births (Netherlands and Sweden), half of Canada's rate of 28.

33.—Principal Vital Statistics Rates of Selected Countries, 1962

NOTE.—Countries are ranked according to the highest rates for births, marriages and natural increase and according to the lowest for deaths.
SOURCE: United Nations publications.

Country or Province	Births		Deaths		Infant Mortality		Neo-natal Mortality[1]		Maternal Mortality		Marriages		Natural Increase	
	Rate[2]	Rank	Rate[2]	Rank	Rate[3]	Rank	Rate[3]	Rank	Rate[3]	Rank	Rate[2]	Rank	Rate[2]	Rank
Australia	22.2	14	8.7	7	20	5	15	4	0.4	3	7.4	12	13.5	12
Austria	18.6	21	12.7	24	33	13	22	10	0.9[4]	7	8.4	6	5.9	27
Belgium	16.8	28	12.5	23	28	10	21[4,10]	9	0.4[4]	3	6.7	17	4.3	28
Canada	**25.3**	**8**	**7.7**	**3**	**28**	**10**	**19**	**8**	**0.4**	**3**	**7.0**	**15**	**17.6**	**6**
Newfoundland	32.1	...	6.8	...	40	...	22	...	0.3	...	7.0	...	25.3	...
Prince Edward Island	26.5	...	10.0	...	31	...	20	...	—	...	6.4	...	16.5	...
Nova Scotia	26.0	...	8.5	...	32	...	20	...	0.5	...	7.0	...	17.5	...
New Brunswick	27.1	...	7.9	...	30	...	18	...	0.4	...	7.2	...	19.2	...
Quebec	25.2	...	6.9	...	32	...	22	...	0.5	...	6.9	...	18.3	...
Ontario	24.6	...	8.2	...	23	...	17	...	0.3	...	7.0	...	16.4	...
Manitoba	24.5	...	8.0	...	26	...	17	...	0.3	...	6.8	...	16.5	...
Saskatchewan	25.1	...	7.5	...	26	...	18	...	0.2	...	6.5	...	17.6	...
Alberta	28.3	...	6.8	...	25	...	16	...	0.4	...	7.6	...	21.5	...
British Columbia	23.0	...	9.0	...	23	...	16	...	0.4	...	6.7	...	14.0	...
Yukon Territory	36.5	...	5.0	...	49	...	27	...	1.8	...	7.3	...	31.5	...
Northwest Territories	47.3	...	12.9	...	120	...	37	...	0.9	...	7.3	...	34.4	...
Ceylon	36.6[4]	3	8.6[4]	6	57[4]	17	34[5]	15	3.4[5]	14	6.4[5]	19	28.0	3
Chile	34.6[6]	4	11.7[6]	20	116[6]	23	39[5]	18	3.2[7]	13	7.3[6]	13	22.9	4
Denmark	16.9	27	9.8	12	20	5	16[4]	5	0.3[4]	2	8.1	7	7.1	23
England and Wales	18.0	23	11.9	21	21	6	15	4	0.4	3	7.5	11	6.1	26
Finland	18.1	22	9.5	11	19	4	15[5]	4	0.7[4]	6	7.5	11	8.6	20
France	17.7	24	11.5	19	26	8	17	6	0.5[4]	4	6.7	17	6.2	25
Germany, Federal Republic of	18.1	22	11.1	18	29	11	21	9	1.1[4]	8	9.2	3	7.0	24
India[8]	27.9[6]	6	12.2[6]	22	87[4]	21	..	..	..	..	..	..	15.7	8
Ireland	21.8	15	11.9	21	29	11	19	8	0.4	3	5.5	21	9.9	16
Italy	18.9	19	9.9	13	41	14	24[5]	11	1.1[5]	8	8.1	7	9.0	18
Japan	17.0	26	7.5	2	27	9	15	4	1.3[4]	10	9.8	2	9.5	17
Mexico	44.7	1	10.4	15	70	18	27[6]	13	2.1[7]	12	6.3	20	34.3	2
Netherlands	20.8	17	7.9	4	14	1	12	1	0.4[4]	3	7.9	9	12.9	13
New Zealand	26.3	7	9.0	9	20	5	14[6]	3	0.3[4]	2	7.9	9	17.3	7
Northern Ireland	22.7	11	10.6	16	27	9	18	7	0.2	1	6.9	16	12.1	15
Norway	17.3	25	9.3	10	18[6]	3	12[5]	1	0.4[4]	3	6.5	18	8.0	21
Peru	28.1[6]	5	8.5[6]	5	97[6]	22	37[5]	17	..	..	2.9[6]	23	19.6	5
Portugal	24.7	9	10.9	17	79	19	29[6]	14	1.2[6]	9	7.9	9	13.8	11
Scotland	20.1	18	12.2	22	27	9	18	7	0.4	3	7.7	10	7.9	22
Spain	21.3	16	9.0	9	42[9]	15	19[5,9]	8	0.7[5]	6	7.7	10	12.3	14
Sweden	14.2	29	10.1	14	15	2	13[6]	2	0.4[4]	3	7.1	14	4.1	29
Switzerland	18.7	20	9.8	12	21[6]	6	17[5]	6	0.7[5]	6	8.0	8	8.9	19
South Africa (Whites)	24.5	10	8.9	8	28	10	18[5]	7	0.6[4]	5	9.2[4]	3	15.6	9
Union of Soviet Socialist Republics	22.5	12	7.5	2	32	12	..	..	..	..	11.0[6]	1	15.0	10
United States	22.4	13	9.5	11	25	7	19	8	0.4	3	8.5	5	12.9	13
Venezuela	44.4[6]	2	7.0[6]	1	51[6]	16	26[5]	12	1.1[4]	8	5.0[6]	22	37.4	1
Yugoslavia	22.2	14	9.9	13	82	20	36[5]	16	1.5[5]	11	8.7	4	12.3	14

[1] Under four weeks unless otherwise stated. [2] Per 1,000 population. [3] Per 1,000 live births. [4] 1960. [5] 1959. [6] 1961. [7] 1958.
[8] Registration area only. [9] Excluding children born alive but dead before registration of their birth. [10] Under one month.

CHAPTER VI.—PUBLIC HEALTH, WELFARE AND SOCIAL SECURITY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Canada's growth in the past decade has created many new problems in the planning of health and welfare services. Population has increased by one half in this period. General prosperity, growing urbanization and industrialization, larger numbers of children and aged persons in the population, and new concepts and knowledge in health and welfare matters have all contributed to needs for additional services and to a greater interdependence among the health and welfare professions.

During 1963, the Royal Commission on Health Services continued its investigation into the existing health facilities and the future needs for health services for the people of Canada; its report was made in June 1964.† The nation's attention was attracted to health

* Except where otherwise indicated, this Chapter was prepared by the Research and Statistics Division of the Department of National Health and Welfare, Ottawa.

† Available from the Queen's Printer, Ottawa. 916 pp. $10. (Catalogue No. Z1-1961/3-1).

problems by several major events during 1963. Early in the year, the Restrictive Trade Practices Commission, reporting on the manufacture, distribution and sale of drugs in Canada, recommended, among other things, that patents with respect to drugs be abolished, this being stated to be the only effective way to reduce the prices of drugs. Alberta passed legislation designed to extend the coverage and scope of plans offered by commercial and by non-profit medical care insurance agencies on a voluntary basis. The government involvement is confined to setting out optimum levels of premiums and of comprehensive benefits for approved and licensed voluntary agencies, and to providing from general revenues subsidization of premiums for those residents who cannot afford the premiums. The Alberta plan started to operate late in 1963. In Ontario, a Bill similar to the Alberta legislation and called "An Act Respecting Medical Services Insurance" was given second reading on Apr. 25, 1963, and referred to a public committee for study. The committee began public hearings later in the year.

In May 1963, the Ontario Legislature passed the Pension Benefits Act which provided for the compulsory extension, improvement and solvency of private pension plans and for the portability of pension benefits. In July 1963, the Federal Government introduced in the House of Commons the resolution preceding the introduction of a Bill to provide for a nation-wide contributory old age insurance program. The government of the Province of Quebec indicated about the same time that it would introduce an old age and survivors insurance program for persons employed in that province. In the last half of 1963 three federal-provincial conferences were held at which the question of old age pension insurance was discussed, and that part of the Ontario legislation relating to the extension of private pension plans was suspended pending examination and study of the federal plan.

In March 1964, the Federal Government introduced a resolution and gave first reading to a Bill "to establish a comprehensive program of old age pensions in Canada payable to contributors and survivors". Subsequently, the government of Quebec made public the provisions of the old age, survivors and disability insurance program which it intends to introduce. Through consultation between the federal and Quebec governments, an agreement was reached that the federal and the Quebec Bills would have identical provisions so that legislation with respect to old age, survivors and disability insurance benefits would be uniform across the country. Discussions between the federal and provincial governments on the arrangements for implementation of the program continued.

At the federal-provincial conference in September 1963, it was suggested that the whole field of social assistance should be generally re-examined in the hope of developing one general assistance program based on need. Subsequently, the proposal was discussed by officials of the two levels of government and in May 1964 the federal and provincial Ministers of Welfare met to discuss the problem.

Late in 1963, the old age security pension was raised from $65 to $75 a month. The maximum rate of old age assistance, blind persons allowances and disability allowances in which the Federal Government would share was raised from $65 to $75 a month per recipient. All ten provinces agreed to share the costs of these three programs at the new maximum rates.

In his Budget Speech of March 1964, the Minister of Finance announced that the Federal Government proposed to extend family allowances, at the rate of $10 a month, to children aged 16 and 17 attending full-time educational or training courses. Legislation to this effect was passed by the House of Commons on July 7, 1964.

PART I.—PUBLIC HEALTH

Provincial governments bear the major responsibility for health services in Canada, with the municipality often assuming considerable authority over matters delegated to it by provincial legislation. The Federal Government has jurisdiction over a number of

health matters of a national character and provides important financial assistance to provincial health and hospital services. All levels of government are aided and supported by a network of voluntary agencies working in different health fields.

Section 1.—Federal Health Activities

The Department of National Health and Welfare is the chief federal agency in health matters but important treatment programs are also administered by the Departments of Veterans Affairs and National Defence. The Dominion Bureau of Statistics is responsible for collection, analysis and publication of national health statistics, the Medical Research Council and the Defence Research Board administer medical research programs, and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare controls food and drugs, including narcotics, operates quarantine and immigration medical services, carries out international health obligations, and provides health services to Indians, Eskimos and other special groups. It advises on the visual eligibility of applicants for blindness allowances and co-operates with the provinces in the provision of surgical or remedial treatment for recipients of the allowances. Under the Public Works Health Act, supervision of health conditions is provided for persons employed on federal public works. Health counselling and medical supervision are provided for the federal Civil Service. The Department also administers the civil aviation medical program for the Department of Transport.

The Department serves the provinces in an advisory and co-ordinating capacity and administers grants to provincial health and national voluntary agencies. Administration of federal aspects of the Hospital Insurance and National Health Grant Programs has become a major activity during the past decade.

Co-ordination with the provinces on health matters is facilitated by the Dominion Council of Health, the principal advisory agency to the Minister of National Health and Welfare. Its membership includes the Deputy Minister of National Health, who acts as chairman, the chief health officer of each province, and five appointees of the Governor in Council. The Council meets semi-annually. Federal-provincial technical advisory committees of the Council deal with specific aspects of public health.

Subsection 1.—National Health Grant Program

The National Health Grant Program, inaugurated in 1948, initially made ten federal grants available to the provinces for the development and strengthening of public health and hospital services. Nine were continuing grants—the Hospital Construction, Professional Training, General Public Health, Public Health Research, Mental Health, Tuberculosis Control, Cancer Control, Venereal Disease Control, and Crippled Children Grants. A Health Survey Grant lapsed in 1953 following completion of provincial health surveys. In 1953, after a review of the first five years of the Program, three new grants were established—Child and Maternal Health, Medical Rehabilitation, and Laboratory and Radiological Services.

In 1958, federal assistance under the Hospital Construction Grant was increased to $2,000 per hospital bed (whether active treatment, chronic, mental or tuberculosis), double the previous grant for active treatment beds. In addition, funds were made available to meet up to one third of the cost of approved alterations and renovations to existing facilities, with the federal contributions being at least matched by the provinces.

Beginning with the fiscal year 1960-61, a redistribution and merging of certain grants was effected to provide a more flexible measure of assistance and at the same time make larger amounts available for programs where additional aid was necessary. Adjustments were also required for services aided under certain grants, such as laboratory and radiological services and cancer control, now aided under the Hospital Insurance Program. The total allocation remained approximately the same but the number of separate grants was reduced to nine. The General Public Health Grant was increased by almost $5,500,000 and projects under two previously separate grants—the Laboratory and Radiological Services Grant and the Venereal Disease Control Grant—were absorbed into it. The Medical Rehabilitation and Crippled Children Grants were merged and the combined allocation increased by more than $1,000,000. The Mental Health Grant was increased by more than $1,500,000 and the Professional Training and the Public Health Research Grants by about $1,250,000 each. The Tuberculosis Control Grant was decreased by nearly $750,000 and the Child and Maternal Health and Cancer Control Grants by lesser amounts. The grants for professional training and public health research, previously fixed amounts, were placed on a per capita basis, to increase with expansion of the population.

During the year 1962-63, flexibility was introduced by setting aside an amount of $250,000 in the Medical Rehabilitation Grant to be given to the provinces for use in special projects to assist children with congenital defects. Part of the Cancer Grant ($350,000) was allocated for cancer research, to be distributed upon application.

Up to Mar. 31, 1963, aid for hospital construction had been approved for 105,521 beds, 13,340 bassinets, 21,206 nurses' beds, 716 interns' beds, and space in community health centres and laboratories. Approximately 35,000 health workers had been trained or were undergoing special training and more than 5,000 health workers were employed with federal grant assistance. Payments in 1962-63 totalled $50,295,363, or 86 p.c. of the amount available; the average utilization during the fifteen years of the program was 77 p.c.

1.—Amounts Available and Amounts and Percentages Expended under the National Health Grant Program, by Grant, for the Fifteen-Year Period Ended Mar. 31, 1963 and for the Year Ended Mar. 31, 1963.

Grant	1948-63 Period			Year Ended Mar. 31, 1963		
	Amount Available[1]	Amount Expended	Percentage Expended	Amount Available[1]	Amount Expended	Percentage Expended
	$	$		$	$	
Crippled Children[2]	6,207,728	4,431,677	71	—	—	—
Professional Training	11,521,344	10,688,005	93	1,816,800	1,511,675	83
Hospital Construction	191,317,172	172,810,959	90	20,367,320	20,000,000	98
Venereal Disease Control[3]	5,968,336	5,146,209	86	—	—	—
Mental Health	100,547,056	81,594,768	81	8,765,391	7,923,109	90
Tuberculosis Control	59,044,862	54,806,886	93	3,500,000	3,152,012	90
Public Health Research	10,469,448	8,845,219	84	1,816,800	1,458,299	80
Health Survey[4]	645,180	540,960	84	—	—	—
General Public Health	127,299,801	88,112,733	69	14,534,400	10,425,594	72
Cancer Control	53,565,653	37,774,258	71	3,500,000	2,898,322	83
Laboratory and Radiological Services[5]	47,404,300	14,450,881	30	—	—	—
Medical Rehabilitation[6]	6,500,000	3,016,750	46	—	—	—
Child and Maternal Health[7]	16,750,000	11,542,790	69	1,750,000	1,345,629	77
Medical Rehabilitation and Crippled Children	7,875,000[8]	4,354,841[8]	55[8]	2,625,000	1,580,723	60
Totals	**645,115,880**	**498,116,936**	**77**	**58,675,711**	**50,295,363**	**86**

[1] As set out in the General Health Grant Rules. [2] Merged with Medical Rehabilitation Grant, Apr. 1, 1960. [3] Absorbed into General Public Health Grant, Apr. 1, 1960. [4] Lapsed in 1953. [5] Introduced in 1953 and absorbed into General Public Health Grant, Apr. 1, 1960. [6] Introduced in 1953 and merged with Crippled Children Grant, Apr. 1, 1960. [7] Introduced in 1953. [8] Amounts for 1960-63 only; see footnotes [2] and [6].

Subsection 2.—Hospital Insurance

The federal-provincial hospital insurance program, established in all provinces and both territories, covers 98.6 p.c. of the insurable population of Canada. The system of federal grants-in-aid to the provinces to help meet the cost of specified hospital services is set out under the federal Hospital Insurance and Diagnostic Services Act of 1957. The methods of financing and administering the provincial plans, as well as the types of service offered above the minimum stipulated in the Act, rest with the provinces.

Federal legislation covers only services provided by approved acute, chronic and convalescent institutions. Tuberculosis and mental hospitals are excluded from the federal-provincial plan, as are institutions providing custodial care. On the other hand, the psychiatric and tuberculosis units of general hospitals are included.

The basic range of in-patient benefits that, under the Act, each province is required to provide includes standard ward accommodation and meals, nursing service, drugs and biologicals, surgical supplies, the use of operating and case rooms, diagnostic procedures (including X-ray and laboratory procedures) together with necessary medical interpretations, and the use of radiotherapy and physiotherapy facilities where available. The same benefits for out-patients, although authorized for assistance under the federal legislation, are not mandatory upon provincial plans. All provinces but one provide insured out-patient services. The pattern varies from province to province, but among the services offered are emergency care following accidents, diagnostic services and therapeutic services including minor surgical and medical procedures. Some provinces provide certain psychiatric out-patient services.

There is considerable variation between provinces in the administration and financing of programs. General revenues, provincial sales taxes and personal premiums are utilized, separately and in combination, in different provinces. The Federal Government pays each province 25 p.c. of the per capita cost of in-patient services in Canada as a whole, together with 25 p.c. of the per capita cost of in-patient services in the province, multiplied by the average for the year of the number of insured persons in the province. On a national basis, the federal contribution amounts to about 50 p.c. of sharable costs. However, for individual provinces the proportion of sharable costs met by the Federal Government varies, with a higher proportion of the cost of low-cost programs being met than of high-cost programs. Federal payments to the provinces under the program from July 1, 1958 to Dec. 31, 1963, totalled over $1,300,000,000. During 1963, federal grants to the individual provinces and territories totalled $357,600,000, divided as follows: Newfoundland, $7,600,000; Prince Edward Island, $1,800,000; Nova Scotia, $13,800,000; New Brunswick, $11,600,000; Quebec, $100,800,000; Ontario, $126,800,000; Manitoba, $18,200,000; Saskatchewan, $19,700,000; Alberta, $25,300,000; British Columbia, $31,100,000; Yukon Territory, $295,000; and the Northwest Territories, $553,000.

The data appearing in Tables 2 and 3 pertain to the calendar year 1961, which was the first full year that all the provinces and both territories participated in the hospital insurance program. The tables refer to hospitals listed in the hospital insurance agreements. Hospitals participating in hospital insurance programs are designated as "budget review" hospitals, which comprise the bulk of hospitals listed in the agreements, and "contract" hospitals, which are private or industrial hospitals with which a province has contracted for the provision of insured services. Federal hospitals, also listed in the agreements, are included in Tables 2 and 3. Budget review hospitals include general hospitals designed for acute or short-term care, special hospitals and chronic hospitals.

On Dec. 31, 1961, the 1,309 hospitals of all categories reporting showed a total of 121,046 beds and cribs set up, a rate of 6.6 beds per thousand population; provincial rates ranged from 4.3 in Newfoundland to 8.5 in Alberta and territorial rates were even higher. The volume of hospital days per thousand population also varied considerably from province to province; that for Canada was 1,951.9, a rate considerably below the averages in Saskatchewan and Alberta but well above the average in Newfoundland. In 1961, 87.8 p.c. of all days of care in hospital were insured days.

2.—Number of Beds and Cribs in Hospitals Listed in Hospital Insurance Agreements, with Rate per 1,000 Population, by Province, as at Dec. 31, 1961

Province or Territory	No. of Hospitals Reporting	Beds and Cribs	
		Number	Rate[1]
Newfoundland	42	1,982	4.3
Prince Edward Island	9	651	6.2
Nova Scotia	48	4,138	5.6
New Brunswick	40	3,709	6.2
Quebec	281	32,338	6.1
Ontario	331	41,389	6.6
Manitoba	100	6,685	7.3
Saskatchewan	160	7,578	8.2
Alberta	162	11,382	8.5
British Columbia	111	10,710	6.6
Yukon Territory	3	157	10.7
Northwest Territories	22	327	14.2
Canada	**1,309**	**121,046**	**6.6**

[1] Per 1,000 population; based on 1961 Census.

3.—Total Patient-Days and Insured Patient-Days in Hospitals Listed in Hospital Insurance Agreements, with Rates per 1,000 Total and Insured Population, by Province, 1961

Province or Territory	Total Patient-Days during Year			Insured Patient-Days during Year		
	Hospitals Reporting	Days	Rate[1]	Hospitals Reporting	Days	Rate[2]
	No.	No.		No.	No.	
Newfoundland	42	583,741	1,275.0	42	536,918	1,145.2
Prince Edward Island	9	167,883	1,604.6	9	149,805	1,733.2
Nova Scotia	48	1,179,471	1,600.4	48	1,051,424	1,478.8
New Brunswick	40	1,123,129	1,878.3	40	976,537	1,616.8
Quebec	282	9,441,574	1,795.2	235	8,077,091	1,552.6
Ontario	331	12,582,407	2,017.7	329	11,141,030	1,887.8
Manitoba	100	1,857,661	2,015.5	100	1,613,598	1,786.0
Saskatchewan	160	2,129,289	2,301.6	160	1,997,712	2,246.9
Alberta	162	3,216,073	2,414.6	162	2,944,358	2,244.0
British Columbia	108	3,245,998	1,992.5	108	2,707,098	1,665.1
Yukon Territory	3	29,993	2,050.4	3	24,871	1,776.5
Northwest Territories	22	41,998	1,826.2	22	27,402	1,222.4
Canada	**1,307**	**35,599,317**	**1,951.9**	**1,258**	**31,247,844**	**1,761.3**

[1] Per 1,000 total population; based on 1961 Census. [2] Per 1,000 insured population; based on annual average number of insured persons under provincial plans, 1961.

The total cost of operating budget review hospitals in Canada in 1961, including items of expense not covered under the hospital insurance program, was $695,600,000. This total included $448,500,000 for salaries and wages, $22,100,000 for medical supplies, $29,900,000 for drugs, $44,200,000 for food, $95,800,000 for other departmental supplies and expenses, and $55,100,000 for other expenses consisting mainly of interest payments and depreciation allowances. Table 4 gives various classifications of these expenditures.

The per patient-day cost of salaries and wages ranged among the provinces from a low of $10.24 for Prince Edward Island to a high of $16.22 for British Columbia, the average for Canada being $14.84. Since raw food cost includes food supplied to staff, in-patients and visitors, the differences in such costs per patient-day probably reflect variations in the proportion of hospital staff taking meals at the hospitals rather than variations in the cost of food per meal served.

The total per capita operating cost of hospitals in Canada was $38.14, ranging among the ten provinces from $22.94 in Newfoundland to $43.30 in Saskatchewan. The variations in total per capita expenses are very large, partly because of the variation in the number of hospital days of care provided per thousand persons in each province.

The percentage distribution of expenses shows that about 65 p.c. of the operating costs of the hospitals was for wages and salaries, 3 p.c. for medical supplies, 4 p.c. for drugs, 6 p.c. for food, 14 p.c. for other departmental supplies and expenses and 8 p.c. for depreciation, interest and other non-departmental expenses. British Columbia hospitals spent 68 p.c. of their operating funds on salaries and wages as compared with 54 p.c. in Prince Edward Island.

4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1961

Province or Territory	Departmental Expenditures						Total Revenue Fund Expense[2]
	Salaries and Wages	Medical and Surgical Supplies	Drugs	Raw Food	Other Supplies and Expense[1]	Total Departmental Expense	
	Amounts of Expenditures						
	$	$	$	$	$	$	$
Newfoundland	5,784,717	359,532	617,370	1,233,879	1,980,858	9,976,356	10,503,086
Prince Edward Island	1,719,278	100,589	130,833	272,023	604,042	2,826,765	3,196,662
Nova Scotia	14,495,640	865,383	1,028,528	1,971,525	5,003,918	23,364,994	24,911,388
New Brunswick	13,601,269	793,087	984,228	1,709,240	3,953,247	21,041,071	23,752,195
Quebec	112,636,928	5,667,102	8,637,846	12,097,159	24,394,300	163,433,335	181,950,631
Ontario	172,524,902	8,340,186	10,472,973	15,030,428	34,654,012	241,022,501	258,880,912
Manitoba	23,927,569	1,104,189	1,681,782	2,084,324	4,666,008	33,463,872	35,744,290
Saskatchewan	26,628,084	1,188,536	1,657,563	2,436,465	5,548,835	37,459,483	40,063,624
Alberta	33,099,092	1,698,917	2,091,224	3,675,128	6,322,382	46,886,743	51,678,260
British Columbia	43,894,795	2,015,450	2,590,314	3,615,099	8,553,150	60,668,808	64,543,328
Yukon Territory	91,348	2,675	9,430	17,912	34,337	155,702	165,771
Northwest Territories	128,628	6,327	8,626	16,029	65,451	225,061	244,400
Canada	**448,532,250**	**22,141,973**	**29,916,717**	**44,159,211**	**95,780,540**	**640,524,691**	**695,634,547**
	Expenditures per Patient-Day[3]						
	$	$	$	$	$	$	$
Newfoundland	11.01	0.68	1.18	2.35	3.77	19.00	20.00
Prince Edward Island	10.24	0.60	0.78	1.62	3.60	16.84	19.04
Nova Scotia	13.77	0.82	0.98	1.87	4.75	22.19	23.66
New Brunswick	13.58	0.79	0.98	1.71	3.95	21.01	23.72
Quebec	14.01	0.71	1.07	1.51	3.03	20.33	22.63
Ontario	16.17	0.78	0.98	1.41	3.25	22.59	24.26
Manitoba	14.69	0.68	1.03	1.28	2.86	20.54	21.94
Saskatchewan	14.08	0.63	0.88	1.29	2.93	19.81	21.18
Alberta	13.08	0.67	0.83	1.45	2.50	18.53	20.42
British Columbia	16.22	0.74	0.96	1.34	3.16	22.42	23.85
Yukon Territory	16.22	0.47	1.67	3.18	6.10	27.64	29.43
Northwest Territories	18.14	0.89	1.21	2.26	9.22	31.72	34.45
Canada	**14.84**	**0.73**	**0.99**	**1.46**	**3.17**	**21.19**	**23.01**
	Expenditures per Capita[4]						
	$	$	$	$	$	$	$
Newfoundland	12.63	0.79	1.35	2.69	4.33	21.79	22.94
Prince Edward Island	16.43	0.96	1.25	2.60	5.77	27.02	30.55
Nova Scotia	19.67	1.17	1.39	2.68	6.79	31.70	33.80
New Brunswick	22.75	1.33	1.65	2.86	6.61	35.19	39.72
Quebec	21.42	1.08	1.64	2.30	4.64	31.08	34.60
Ontario	27.66	1.34	1.68	2.41	5.56	38.65	41.51
Manitoba	25.96	1.20	1.82	2.26	5.06	36.31	38.78
Saskatchewan	28.78	1.28	1.79	2.63	6.00	40.49	43.30
Alberta	24.85	1.27	1.57	2.76	4.75	35.20	38.80
British Columbia	26.94	1.24	1.59	2.22	5.25	37.24	39.62
Yukon Territory	6.24	0.18	0.64	1.22	2.35	10.64	11.33
Northwest Territories	5.59	0.28	0.37	0.70	2.85	9.79	10.63
Canada	**24.59**	**1.21**	**1.64**	**2.42**	**5.25**	**35.12**	**38.14**

For footnotes, see end of table, p. 276.

4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1961—concluded

Province or Territory	Departmental Expenditures						Total Revenue Fund Expense[2]
	Salaries and Wages	Medical and Surgical Supplies	Drugs	Raw Food	Other Supplies and Expense[1]	Total Departmental Expense	
	Percentage Distribution of Expenditures						
Newfoundland	55.1	3.4	5.9	11.7	18.9	95.0	100.0
Prince Edward Island	53.8	3.1	4.1	8.5	18.9	88.4	100.0
Nova Scotia	58.2	3.5	4.1	7.9	20.1	93.8	100.0
New Brunswick	57.3	3.3	4.1	7.3	16.6	88.6	100.0
Quebec	61.9	3.1	4.7	6.6	13.4	89.8	100.0
Ontario	66.6	3.2	4.0	5.8	13.4	93.1	100.0
Manitoba	66.9	3.1	4.7	5.8	13.1	93.6	100.0
Saskatchewan	66.4	3.0	4.1	6.1	13.9	93.5	100.0
Alberta	64.0	3.3	4.0	7.1	12.2	90.7	100.0
British Columbia	68.0	3.1	4.0	5.6	13.3	94.0	100.0
Yukon Territory	55.1	1.6	5.7	10.8	20.7	93.9	100.0
Northwest Territories	52.6	2.6	3.5	6.6	26.8	92.1	100.0
Canada	**64.5**	**3.2**	**4.3**	**6.3**	**13.8**	**92.1**	**100.0**

[1] Includes fuel, electricity, water, insurance, replacements of bedding and linen, laundry supplies, housekeeping supplies, repairs to buildings, furniture and equipment, maintenance of physical plant, and office supplies and services. [2] Includes other revenue fund expense. [3] Based on patient-days during year for adults and children. [4] Based on 1961 Census.

Subsection 3.—Food and Drug Control

The Food and Drugs Act is a federal statute with provisions applying to the manufacture, advertising, packaging and sale of foods, drugs, cosmetics and medical devices anywhere in Canada. Wide powers are authorized under this legislation to maintain the safety, purity and quality of food and drug products and to prevent misrepresentation in labelling and advertising. There are prohibitions, for example, on the sale of food or drugs that do not meet prescribed standards, are harmful, adulterated, dirty, improperly stored, or manufactured under unsanitary conditions. The Act also prohibits the advertising of any food, drug, cosmetic or medical device as a preventive or cure for a number of serious diseases and also lists drugs that may be sold only by prescription.

Standards of safety and purity are maintained through constant and widespread inspection and laboratory research. The inspection of food-manufacturing establishments assures the production of clean, wholesome foods. The sale for human consumption of meat from animals that were not healthy at the time of slaughter or that died from disease is expressly prohibited. Changing food technology requires the development of methods of laboratory analysis to assure the safety of new types of ingredients and packaging materials. The increase in the number of chemicals used in foods and the safety of the foods to which they are added is a matter for special research. Also of importance is the bacteriology of frozen foods in guarding against contamination through improper storage of frozen foods. Since the Food and Drugs Act is intended for the protection of consumers, a section of the Food and Drug Directorate obtains consumer opinions, deals with individual consumer complaints and provides sound information on which consumers can base opinions.

Drug standards are subject to continuous review and testing. Detailed information on all new drugs must be reviewed by the Directorate before release for sale is permitted. In 1963 important regulations were issued, one setting standards operative in all drug manufacturing facilities and the second prescribing additional safeguards in the distribution of investigational drugs. Drug manufacturing requirements relate to sanitation of facilities, employment of qualified personnel, testing to ensure standards of quality and safety

at stated stages of processing, maintenance of records of testing performance, together with a system of control to enable a complete and rapid recall of any lot or batch of drugs from the market. The new controls over clinical trials and marketing of new drugs carry out provisions of the Food and Drugs Act amendment passed in 1962. Detailed information must be submitted to the Directorate concerning the method of manufacture, the tests applied to establish standards of safety and quality, and substantial evidence of the clinical effectiveness of the new drug for the purposes stated. Samples of the final product must also be submitted. Before putting a product into clinical testing a manufacturer also must file complete data on the experience with the drug including any evidence of adverse side effects, and the qualifications of the persons to be engaged in its experimental use. If from this evidence a new drug is considered deleterious to health the Minister may refuse to permit the proposed clinical testing. In the case of a disallowed submission, the manufacturer has the right to appeal the decision. Drugs expressly prohibited from sale are thalidomide and lysergic acid diethylamide. However, provision is made in the regulations whereby, under certain conditions, lysergic acid diethylamide may be sold by a manufacturer to an institution approved by the Minister for clinical use or laboratory research by qualified investigators. Any drug that can be classed as a sedative, hypnotic or tranquillizer is listed to be sold only on prescription. The licensing of persons dealing in certain drugs classed as barbiturates and amphetamines is required as well as the keeping of special records and the limitation of their use to medical purposes.

The Food and Drug Directorate also administers the Proprietary or Patent Medicine Act which is concerned with the registration before marketing and the annual licensing of secret-formula medicines sold under proprietary or trade names.

Regulation of the supply and use of narcotic drugs is carried out under the Narcotic Control Act, as revised in 1961. This legislation prescribes a maximum penalty of seven years with no minimum for illegal possession; a maximum penalty for trafficking of life imprisonment; and minimum and maximum penalties for illegal export and import of seven years and life imprisonment, respectively. Persons convicted of offences under the Act who are found to be drug addicts may be sentenced for treatment, for an indeterminate period, in institutions operating under the penitentiaries system and the National Parole Board service, when Part II of the Act comes into force.

Subsection 4.—Medical Services

The Department of National Health and Welfare provides eight types of direct medical service through the Directorate of Medical Services. These are described in the following paragraphs.

Indians and Eskimos.—Responsibility for the general welfare, education and medical care of Indians is shared with the Indian Affairs Branch of the Department of Citizenship and Immigration, and of Eskimos with the Department of Northern Affairs and National Resources. The Department of National Health and Welfare provides medical and public health services to registered Indians or Eskimos who are not included under provincial arrangements and who are unable to provide for themselves. A large volume of the service in treatment and health education is rendered to patients through departmental out-patient clinics staffed by medical and other public health personnel. In remote areas, the key facility is frequently the departmental nursing station, a combined emergency treatment and public health unit having two to four beds under the direction of one or two nurses; about 43 of these are operated throughout Canada.

As arrangements develop in the provinces for integrating Indians under the provincial services, the Department reduces the number of hospitals and other facilities provided specifically for Indians. The Department maintains 18 hospitals at strategic points and co-operates elsewhere with community, mission or company hospitals. Indians are now included under all provincial prepaid insurance plans for hospital care and other forms

of insured medical care but in almost all cases the total cost of mental and tuberculosis care is borne by the Federal Government. Indian and Eskimo health workers are trained to give instruction in health care and sanitation.

Northern Health.—Because of the special problems in developing health services in the Far North, the Directorate of Medical Services has been given the responsibility of co-ordinating federal and territorial health care for all residents. In so doing, the Department undertakes the functions of a health department for the Council of the Northwest Territories and assists the territorial government of the Yukon Territory to provide certain health services. A close liaison is maintained with the federal departments directly responsible for administrative matters affecting these areas.

In the Yukon Territory, services for the total population administered through the Commissioner for the Yukon and provided on a cost-sharing basis with the Department of National Health and Welfare include complete treatment for tuberculosis, payment for services rendered at the Alberta cancer clinics, mental hospital care through arrangements with the Province of British Columbia, and medical care for indigent patients. Public health nursing services, measures for control of communicable diseases, and administration of the principal public hospital are primarily the responsibility of the Medical Services of the Department of National Health and Welfare. In the Northwest Territories similar services are provided, the costs being shared by the Department of Northern Affairs and National Resources and the Department of National Health and Welfare. Indigent residents are eligible for medical, dental and optical services as well as for tuberculosis and mental care.

Hospital insurance plans in both the Yukon and Northwest Territories came into operation in 1960.

Immigrants.—The Department of National Health and Welfare advises on the administration of sections of the Immigration Act dealing with health, and conducts in Canada and other countries the medical examination of applicants for immigration. It also provides care for immigrants who become ill en route to their destination or while awaiting employment. Further assistance in the provision of hospital and medical services is available to indigent immigrants during their first year in Canada, either from the Federal Government or from the province with federal sharing of costs.

Quarantine.—Under the Quarantine Act, all vessels, aircraft and other conveyances together with their crew members and passengers arriving in Canada from foreign countries are inspected by quarantine officers to detect and correct conditions that could lead to the entry and spread of quarantinable diseases in Canada. Fully organized quarantine stations are located at all major seaports and airports.

Under the provisions of the Leprosy Act, modern facilities for the diagnosis and treatment of leprosy are provided at Tracadie, N.B., for the small number of persons in Canada suffering from this disease.

Health Services for Mariners.—Under the authority of Part V of the Canada Shipping Act, the Department of National Health and Welfare provides prepaid health services for crew members of foreign-going ships arriving in Canada and of Canadian coastal vessels in interprovincial trade; crew members of Canadian fishing and government vessels may participate on an elective basis. Hospital care of crew members having residence in Canada is the responsibility of the provincial hospital insurance authority concerned.

Civil Aviation Medical Service.—Medical examiners are responsible for the standard of physical fitness of personnel flying civil aircraft.

Civil Service Health Counselling Service.—Formerly available chiefly to the public service in Ottawa, health counselling is now offered through medical services units to federal employees throughout the country. This service is primarily diagnostic and advisory only but emergency treatment can also be given if required.

Regulation of Hygienic Standards.—The Department of National Health and Welfare is responsible for maintaining hygienic standards in relation to all forms of interprovincial and overseas means of transport in National Parks, in federal construction camps and on other federal property.

Subsection 5.—Health Research and International Health

Health Research.—Health research in Canada is carried on in universities, hospitals, research institutes and government departments. In the universities, relevant research is done by departments of basic medical sciences, medical and public health schools or faculties and by such departments as genetics and psychology as well as in special departments or institutes of research (see also Chapter VIII, Sect. 4, Subsect. 3). Hospitals used for teaching medical students also carry on considerable research, as do some of the larger non-teaching hospitals and mental institutes.

The Department of National Health and Welfare, the Medical Research Council (established in November 1960 to take over the work formerly carried on by the National Research Council Medical Division), the Department of Veterans Affairs and the Defence Research Board support extensive programs of research. Other important research centres include the Connaught Medical Research Laboratories, the Banting Research Foundation, the Charles H. Best Institute, the Institute of Microbiology and Hygiene, the Allan Memorial Institute and the Montreal Neurological Institute. Some non-governmental or voluntary agencies concerned with health generally, or with specific diseases, encourage and support research by various means including financial assistance.

International Health.—Canada actively assists and co-operates with the World Health Organization and the other specialized agencies of the United Nations whose programs have a substantial health component or orientation. Capital and technical assistance are provided to underdeveloped countries through the Colombo Plan and other bilateral aid programs. Health training is provided for a number of persons coming to Canada each year under the different technical co-operation schemes (see p. 148 and pp. 155-158); during 1963, 86 trainees arrived, bringing the total number of trainees in Canada during the year to 204. These persons were working in a wide range of health disciplines under the External Aid Program.

Canadian experts in health legislation, health administration and related areas undertook specific assignments abroad during the year and specialists in a number of clinical fields were provided in response to requests from the developing countries. Capital assistance, primarily through the provision of cobalt beam therapy units for cancer treatment centres in the Colombo Plan area, was continued.

At the Sixteenth World Health Assembly in May 1962, Canada was elected to name a person to serve for a three-year term on the Executive Board of the World Health Organization and in 1963 this officer was appointed Chairman of the Board. Canada's term of office on the Executive Board of UNICEF commenced at the beginning of 1962 and similarly extends over a three-year period.

To carry out Canada's obligations under the International Sanitary Conventions, the Department of National Health and Welfare maintains quarantine measures for ships and aircraft entering Canadian ports and provides accommodation and necessary medical care for persons arriving in Canada who require quarantine (see p. 278).

The Department is responsible for the enforcement of requirements governing the handling and shipping of shellfish under the International Shellfish Agreement between Canada and the United States and, at the request of the International Joint Commission, participates in studies connected with control of pollution of boundary waters between Canada and the United States as well as with problems caused by atmospheric pollution. Other international health responsibilities include the custody and distribution of biological, vitamin and hormone standards for the World Health Organization and certain duties in connection with the Commission on Narcotic Drugs of the United Nations.

Subsection 6.—Radiation Protection

The use of radioactive materials by industry and public and private institutions in Canada is controlled by the Department of National Health and Welfare through a strict review of applications for radio-isotope licences. Follow-up field inspection of licensed groups is maintained. Specific recommendations for the safe handling of radioactive substances are prepared for the Atomic Energy Control Board. Continuous checks are carried out by the Department's film monitoring service of the amount of exposure to radiation registered on persons associated with the use of X-ray equipment throughout the country. Surveys are also maintained of radioactive fallout through air, rain and soil sampling carried out in co-operation with the Department of Transport and through continued analysis of milk and human bone samples.

Section 2.—Provincial and Local Health Services

Provincial and local health services may be grouped into several broad categories: general public health services, primarily of a preventive nature; services for specific diseases or disabilities combining prevention and treatment; services related to general medical and hospital care; and services for disabled and chronically ill persons.

Subsection 1.—General Public Health Services

Provincial and local governments co-operate closely in providing community public health services. The autonomy of the provinces and their social, economic and geographic diversity make for some variety in legislative provisions, in financial arrangements and in the detailed division of functions between provincial health departments and local and voluntary agencies. Each province, however, offers all or nearly all of a basic range of public health services which includes environmental health, occupational health, communicable disease control, maternal and child health, dental health, nutrition, health education, and public health laboratories.

Environmental Health.—The control of factors in the environment that are harmful to physical health is a rapidly expanding area of public health activity. For many years, much of the work in this field was related to inspection duties long associated with community health sanitation, such as maintenance of pure milk, water and food supplies, supervision of plumbing and sewage disposal systems, and provision of general sanitary conditions in public areas. Increasing industrialization, however, has imposed added responsibilities calling for new techniques in public health engineering and sanitary services. Air pollution, water pollution and radiation are emerging as major environmental health problems, necessitating co-ordinated effort by governments and other agencies in research and in planning effective control measures.

Occupational Health.—Services designed to prevent accidents and occupational diseases and to maintain the health of employees are the common concern of provincial health departments, labour departments, workmen's compensation boards and industry management. Provincial agencies regulate working conditions and offer consulting and educational services to industry. All provinces have legislation (Factory Acts, Shop Acts, Mines Acts, Workmen's Compensation Acts) setting health safety standards for employment.

Communicable Disease Control.—There are separate divisions of epidemiology or communicable disease control in six provinces; in the other provinces these functions are handled by provincial medical health officers. Local health authorities undertake case-finding and diagnostic services in co-operation with public health laboratories, carry out epidemiological investigations and often participate in tuberculosis and venereal disease control measures. All provincial health departments organize immunization programs for the public against diphtheria, tetanus, poliomyelitis, whooping cough and smallpox. Through agreement with the Federal Government, live oral poliovirus vaccine (Sabin) as

well as Salk vaccine is available by provincial health departments for immunization against poliomyelitis. Other agents such as gamma globulin may be provided under certain conditions for protection against measles and infectious hepatitis.

Maternal and Child Health.—Most provincial health departments have Maternal and Child Health Divisions under medical direction or have made other administrative arrangements to provide consultant services in this field. In addition, six of the provinces have consultant nursing services within these divisions. Provincial divisions provide advisory services to local health departments and to hospitals, conduct studies of local problems and needs, and assist in the training of health personnel and in the administration of National Health Grants, including the Child and Maternal Health Grant.

Local health departments serving a high proportion of the population carry out generalized public health programs, including the provision of maternal and child health services. The basic staff consists of a medical officer of health, public health nurses and sanitary inspectors. Programs and services for mothers and children may include prenatal education, home visiting, child health conferences and school health services. Other health personnel—dentists, nutritionists, health educators and social workers—share interests in the promotion of family health.

Dental Health.—All provincial health departments have dental health divisions which administer programs, varying under local conditions but directed almost entirely to health education and the care of children. Training of dentists and dental hygienists in public health, the operation of children's preventive and treatment clinics, and health education are being undertaken in all provinces. Water fluoridation projects involving a total of 3,800,720 people are in operation in eight provinces and in the North. Four provinces—Alberta, Manitoba, Ontario and Nova Scotia—have set up, in conjunction with their dental schools, special courses for dental hygienists. In all ten provinces clinical care is provided for children in remote rural areas. A locally sponsored plan in which the cost of dental services for children is shared by the community and the provincial health department is in operation in more than 90 communities in British Columbia.

Nutrition.—Services include technical guidance, education, consultation and research. In some provinces, school lunch programs are sponsored and dietary supplements distributed. Five provinces have special nutrition divisions; in other provinces, consultants in nutrition come under a broader grouping of departmental services.

Health Education.—In most provinces a professional full-time 'health educator' is a member of the public health team. A basic concern of provincial health information services is to stimulate public interest in important health needs.

Public Health Laboratories.—The public health laboratory was one of the earliest provincial services developed to assist local public health departments in the protection of community health and the control of infectious diseases. New central and branch laboratories have been set up in recent years and the scope of services has been expanded beyond the bacteriological examination of water, milk and food samples. Clinical bacteriology and special pathological services, including medical testing for physicians and hospitals, are steadily increasing in volume. Efforts to co-ordinate public health and hospital laboratory services, measures to bring laboratory facilities to rural areas, and devices to reduce the direct cost of clinical laboratory procedures to the individual are notable in the growth of public laboratory services.

Subsection 2.—Services for Specific Diseases or Disabilities

Each province has developed special programs to deal with health problems of particular severity and prevalence, many of which are chronic or long-term in nature. The services and facilities provided are generally similar across the country.

Mental Health.—Major developments in provincial mental health programs have included the expanding and modernizing of mental hospitals, the training of various kinds of psychiatric personnel, and the extension of community mental health services outside mental institutions. Assistance to patients in securing employment and in social adjustment following discharge from mental hospitals—a relatively new field of rehabilitation—is being promoted by voluntary groups and government agencies in several provinces.

With the exception of the municipally owned local institutions in Nova Scotia and hospitals in Quebec that operate under religious or lay auspices, most mental institutions are administered by provincial authorities. A great part of the cost is borne by the provincial governments, although a charge, according to ability to contribute, may be made for care in some provinces. Newfoundland and Saskatchewan provide complete free care; Manitoba assumes a minimum maintenance cost for all patients; in Nova Scotia the provincial hospital gives free care to patients requiring active treatment; and in Ontario mental institution treatment is included in the hospital care insurance plan.

Most public mental institutions provide care and treatment for all types of mental illness; as facilities expand, it is becoming possible to segregate those under intensive treatment from those receiving long-term care. Some provinces maintain separate accommodation for certain categories of the mentally ill. For example, in British Columbia and Alberta, homes for the senile aged are an integral part of the mental institution system. Quebec has separate institutions for epileptics. Eight provinces operate schools for residential treatment and education of mentally defective persons and the maintenance of mentally retarded children in approved boarding or foster homes is receiving government support in a number of provinces. Local day classes, usually sponsored by organizations of parents, offer training opportunities for mentally deficient children in the community.

As the needs of patients are more fully understood and better methods of treatment develop, the daily routine of the mental patient is becoming less restrictive, as is shown by the increasing number of persons coming voluntarily for treatment. Custodial care and locked doors are giving way to open wards where patients may have unrestricted access to grounds and to occupational and recreational areas.

One of the greatest changes in the past decade has been in the extension of community mental health services outside mental institutions. General hospitals have expanded their psychiatric services in both in-patient and out-patient departments. About 50 general hospitals have organized units where psychiatric treatment is provided by professional staffs. Community clinics, where mental disorder may be treated at an early stage and guidance given to children and parents, play an important part in prevention and treatment within the home environment. Fostering this expansion of service are provincial health departments, municipalities or health units, mental institutions, general and allied special hospitals, school boards and voluntary organizations. Day and night care centres form part of the psychiatric service of two large general hospitals in Montreal and day care centres, admitting patients on a nine-to-five basis, are conducted in several other hospitals.

Tuberculosis.—The fight against tuberculosis is one of the major programs of all health departments. Free hospitalization and free drug treatment, both on an in-patient and domiciliary basis, is provided. In two provinces extensive BCG programs are in effect and in the other provinces this prophylactic is provided to groups at special risk. Special case-finding programs in the form of community tuberculin and X-ray surveys, surveys of high risk groups, and the follow-up of all arrested tuberculosis cases are routine. These activities have resulted in a decline in the Canadian tuberculosis death rate of 82 p.c. since 1951. In 1962 the rate was 4.2 per 100,000 population. The number of beds set up in public sanatoria declined from a peak of 18,977 in 1953 to 8,436 in 1963.

Cancer.—Health departments and lay and professional groups working for the control of cancer have been concerned mainly with four aspects of the problem—diagnosis, treatment, research and public education. In cancer detection and treatment, specialized

medicine, hospital services and an expanding public health program are closely related. There are programs operating under health departments in four provinces; four others have provincially supported cancer agencies or commissions. These sponsor the work of diagnosis and treatment in special clinics, located usually within the larger general hospitals. Under the provincial hospital insurance plans, the benefits pertaining to in-patient care in the treatment of cancer are essentially similar in ten provinces and include such special services as diagnostic radiology, laboratory tests and radiotherapy. In at least five provinces, these benefits apply also to out-patients. In others, the previous pattern of services to out-patients—that of assessing costs of treatment in relation to ability to pay—is still in effect. Comprehensive free medical programs for cancer patients are in operation in Saskatchewan and Alberta and for cancer in-patients in New Brunswick.

Venereal Disease.—Free diagnostic and treatment services are available in all provinces but the operation of government clinics is being increasingly superseded by the method of supplying free drugs to private physicians who are reimbursed for treatment of indigents on a fee-for-service basis.

Alcoholism.—Ontario, Manitoba, Alberta and British Columbia carry out research and education programs and operate centres for treatment, supported largely by public funds. Ontario, Saskatchewan and Alberta also have rehabilitation programs for alcoholic inmates of reform institutions. Legislation in Newfoundland, New Brunswick, Nova Scotia and Quebec authorizes the setting up of similar agencies to initiate research and education studies in those provinces.

Other Diseases or Disabilities.—Services for persons with chronic disabilities, such as heart disease, arthritis, diabetes, visual and auditory impairments and paraplegia have been developed largely by voluntary agencies assisted by federal and provincial funds. A brief description of the programs of some of these agencies is given in the 1962 Year Book, pp. 270-274 (not carried in this edition), and in Subsection 4 on Services for the Disabled and Chronically Ill, pp. 285-286.

Subsection 3.—Public Medical Care

Saskatchewan and Alberta operate province-wide medical care insurance programs. About half the population of Newfoundland receives physicians' services at home or in hospital under the provincially administered Cottage Hospital Medical Care Plan which is financed in part on a premium basis. Medical indigents not under the plan may also receive care at provincial expense. In addition, all Newfoundland children under the age of 16 years are entitled to free medical and surgical care in hospital.

For several years the Provinces of Nova Scotia, Ontario, Saskatchewan, Alberta and British Columbia, and more recently the Province of Manitoba, have supported the cost of providing certain personal health care services for specified categories of persons in need and receiving public assistance. In British Columbia, Alberta and Ontario the beneficiaries include persons in receipt of means-tested old age security supplements, old age assistance, blindness and disability allowances and mothers' allowances, and certain child welfare cases and unemployed persons in need. Nova Scotia covers only mothers' allowance recipients and their dependants, and blindness allowance recipients. Saskatchewan's provincial program excludes disabled persons, blind persons not receiving a supplemental allowance, and persons on local relief (social aid), these categories being the responsibility of the municipality of residence. Old age assistance recipients are covered for hospital care and medical care only. The Manitoba program covers cases of need among the aged and infirm including those in nursing homes or institutions, the blind and the physically or mentally disabled, mothers with custody of dependent children, and neglected children. In all provinces, indigent persons not covered by these programs may have necessary care financed in the municipalities in which they reside.

Under the Ontario program, the principal service covered is physicians' care in the home and office, including certain minor surgical procedures and prenatal and postnatal care. Emergency drugs are a benefit and basic dental care is available to the children of mothers' allowance recipients. The programs in Nova Scotia, Saskatchewan, Alberta and British Columbia provide for complete medical care in the home, office and hospital. In addition, all generally used prescription drugs are included in British Columbia and Saskatchewan (although these carry a 50-p.c. co-charge limitation in Saskatchewan for non-life-saving drugs where financial hardship is not demonstrated). Dental care and optical care are covered in the three westernmost provinces, sometimes on special authorization only and/or with dollar limits. Services that are paid for in Manitoba include physicians' care in the home, office and hospital as well as dental and optical care, basic drugs, diagnostic tests, remedial care, appliances and physiotherapy. Chiropody, chiropractic and emergency transportation may also be provided.

In Alberta, Saskatchewan, Manitoba and Nova Scotia, health services for eligible provincial public assistance recipients are wholly financed from provincial general revenues. In British Columbia costs are shared on a 90-10 basis, with the municipalities assuming their 10-p.c. share on a basis proportionate to population; in Ontario per capita contributions toward the cost of medical services for unemployed on relief are shared on an 80-20 basis with the municipality of residence.

Since July 1962, every person who has resided in the Province of Saskatchewan for three months (and is not entitled to receive medical services from the Government of Canada) and has paid, or has had paid on his behalf, any premium he is required to pay under the Saskatchewan Medical Insurance Act, is entitled to have payment made on his behalf from the Medical Care Insurance Fund, for medical, surgical and obstetrical care, without limit, in the office, home or hospital, from his physician of choice (including payment at specialists' rates for referred specialists' services). Out-of-province benefits are also paid, on a patient-reimbursement basis. There are no restrictions relating to age or pre-existing conditions. Physicians providing insured medical services may elect to receive payment in a number of ways: (1) they may contract for a salary or similar arrangement; (2) they may choose to receive direct payment from the Medical Care Insurance Commission at 85 p.c. of the 1959 Schedule of Minimum Fees of the College of Physicians and Surgeons of Saskatchewan as payment in full; (3) they may bill patients directly, the patient in turn being paid by the Commission, on presentation of an itemized account or receipt, an amount equal to 85 p.c. of the assessed fee; (4) the physician may practise for private fees, whereby the patient assumes all responsibility for payment. In addition, patients may enrol, voluntarily, with an approved health agency upon payment of a fee to cover administration costs. The agency pays the physician an amount equal to the amount paid to the agency by the Commission in respect of the physician's assessed account. The Saskatchewan medical care insurance program is financed from personal premiums plus general revenue contributions.

On Oct. 1, 1963, the Government of Alberta introduced a new medical care plan designed primarily to help residents with low incomes who desire voluntarily to purchase medical care insurance. The scheme provides for the subsidization of the premium costs of certain classes of persons as designated by their taxable incomes, marital status and number of dependants, for insured services that may include physicians' attendance in home, office or hospital, surgery and specialist and general diagnostic services. The amount of available subsidy is determined by the category of applicant rather than the premium paid. Services may be insured by all residents through Medical Services (Alberta) Incorporated or other approved agencies at rates not exceeding maximums set by the province.

Subsection 4.—Services for the Disabled and Chronically Ill

Hospitals, public health departments, rehabilitation centres and voluntary agencies are placing greater emphasis on the provision of rehabilitation services to the chronically ill and disabled, an objective encouraged by the success of rehabilitation programs for war veterans, injured workmen and other groups and, more recently, by the federal-provincial vocational rehabilitation program (see pp. 305-306). The National Health Grant Program and the hospital insurance plans have promoted better preventive health services and patient care, for example, the effective poliomyelitis inoculation programs and the development of physical medicine and rehabilitation facilities in general and chronic hospitals and separate rehabilitation centres. Similarly, the rapid expansion of psychiatric units in general hospitals with out-patient and day care facilities has overcome some of the barriers to treatment of the mentally ill. There is greater concern, also, for the standards of care in nursing homes, homes for the aged and related facilities.

Some communities and health districts operate services for the chronically ill and elderly in their own homes including home nursing, homemaker services, organized home care and services for the homebound; several out-patient geriatric centres are also in operation. Although public health departments are more aware of their primary role in identifying chronically ill and disabled persons of all ages, in the study of the health and social problems of this group and in co-ordinating services, existing services and facilities are generally considered to be inadequate, partly because of shortages of rehabilitation personnel.

Medical rehabilitation services are chiefly oriented to functional recovery although some centres include social, vocational or educational services. By the end of 1962, physical medicine and rehabilitation departments were established in 30 general hospitals, 10 chronic hospitals and 14 children's hospitals, as well as in the veterans hospitals. In addition, there were 43 independent rehabilitation centres (14 of them in-patient centres) including 23 children's centres and four workmen's compensation centres, serving the more seriously disabled. Most of the public mental hospitals and tuberculosis sanatoria provide one or more of the services that aid in rehabilitation such as physical and occupational therapy, social service and after-care and recreational, educational and vocational services. Community agencies co-operate in the post-hospital adjustment and rehabilitation of these patients. The best example of comprehensive medical-social care of the chronically ill and disabled is the integrated program of the Department of Veterans Affairs.

Complementing the general and specialized medical rehabilitation programs are the numerous out-patient clinics, held mainly at the teaching hospitals, for a broad range of chronic or disabling conditions. Among these are clinics for orthopaedic conditions, speech and hearing, vision, glaucoma, cleft palate, cystic fibrosis, diabetes, arthritis and rheumatism, and cardiac conditions; mental health clinics also serve the mentally retarded (see p. 282). Many voluntary agencies concerned with specific disabilities or health services provide patient services that assist in home care and rehabilitation. In all provinces voluntary agencies also operate sheltered workshops for the disabled and, on a limited scale, employment and recreation services to the homebound.

A number of provincial health departments have set up handicapped children's registries and, in co-operation with the handicapped children's societies, they provide remedial treatment and education at children's hospitals, rehabilitation centres and special schools. Several provinces are extending those registries to include disabled adults. The public school systems in the larger cities operate special classes for children with orthopaedic, vision, hearing and mental defects; voluntary agencies also sponsor special classes for the

mentally retarded, cerebral palsied, emotionally disturbed and other groups. In addition, there are nine residential schools for the deaf and six for the blind, most of them administered by the provincial education departments.

The Department of National Health and Welfare supports provincial rehabilitation activities through the National Health Grants designated for the extension of medical rehabilitation and crippled children's services and for rehabilitation of the mentally ill or deficient, the tuberculous and other chronically ill persons. In the year ended Mar. 31, 1963, most of the $1,345,629 spent under the Medical Rehabilitation and Crippled Children Grant (of a total amount of $2,625,000 available on a matching basis) was used to extend medical rehabilitation services in hospitals, rehabilitation centres and other facilities. Grant funds were also used for the professional training of medical rehabilitation personnel, for the support of eight schools of physiotherapy, occupational therapy and audiology, and for equipment and research. Effective 1963-64, this Grant was increased by $200,000, on a non-matching basis, and the increase has been used to establish three research and training units for the study of prosthetic problems. Under the National Welfare Grants, also effective 1963-64, there is provision to assist the provinces, on a matching basis, for programs for certain phocomeliac children.

Section 3.—Hospital and Other Health Statistics

Statistical information on the health of Canadians is at present limited to the well established and highly standardized mortality, communicable disease and institutional statistics series, all of which have been available for a long period, and the recently established series covering operations under the federal-provincial hospital insurance program (pp. 273-276). Another project deals with Civil Service illness. Much statistical information is also available from provincial and other health sources.

Statistics on causes of death are given in the Chapter on Vital Statistics, pp. 247-250; those on hospital statistics in Subsection 1 following; and those on notifiable diseases and illness in the Civil Service in Subsection 2.

Subsection 1.—Hospital Statistics*

For statistical purposes, hospitals are classified in two ways—first by ownership, i.e., public, private or federal, and second by type, i.e., general, allied special (including chronic, convalescent, rehabilitation, maternity, communicable diseases and orthopaedic hospitals), mental and tuberculosis. General hospitals are grouped by size, according to their rated bed capacity.

In 1963 there were 1,346 hospitals of all types operating in Canada; they had a rated bed capacity of 202,306 (excluding bassinets), which amounts to 10.7 beds per 1,000 population. Of the total, 990 were general hospitals with 107,617 beds, 227 were allied special hospitals with 18,198 beds, 87 were hospitals for mental patients with 68,030 beds, and 42 were tuberculosis sanatoria with 8,461 beds. It should be noted that a recent re-evaluation of facilities resulted in the removal from the list of "hospitals" of a number of institutions providing mainly custodial or domiciliary care.

* Prepared in the Institutions Section of the Health and Welfare Division, Dominion Bureau of Statistics. Detailed information will be found in the following DBS publications: *Hospital Statistics, Vols. I to VII* (Catalogue Nos. 83-210 to 83-216); *Mental Health Statistics, Vol. III* (Catalogue No. 83-205); *Tuberculosis Statistics, Vol. II* (Catalogue No. 83-207); and *List of Canadian Hospitals and Related Institutions and Facilities* (Catalogue No. 83-201).

5.—Number and Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada, by Province and Type, 1963

Province or Territory and Category	General and Allied Special								
	General			Allied Special			Totals, General and Allied Special		
	Hospitals	Beds	Beds per 1,000 Population[1]	Hospitals	Beds	Beds per 1,000 Population[1]	Hospitals	Beds	Beds per 1,000 Population[1]
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—									
Public	30	1,976	4.1	12	97	0.2	42	2,073	4.3
Private	—	—	—	—	—	—	—	—	—
Federal	1	35	0.1	—	—	—	1	35	0.1
Prince Edward Island—									
Public	8	696	6.5	1	30	0.3	9	726	6.8
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	—	—	—
Nova Scotia—									
Public	44	3,729	5.0	3	185	0.2	47	3,914	5.2
Private	2	16	..	—	—	—	2	16	..
Federal	3	760	1.0	—	—	—	3	760	1.0
New Brunswick—									
Public	35	3,340	5.5	4	197	0.3	39	3,537	5.8
Private	—	—	—	—	—	—	—	—	—
Federal	1	400	0.7	1	12	..	2	412	0.7
Quebec—									
Public	125	23,767	4.3	29	4,253	0.8	154	28,020	5.1
Private	34	930	0.2	60	1,913	0.3	94	2,843	0.5
Federal	9	1,053	0.2	1	1,200	0.2	10	2,253	0.4
Ontario—									
Public	172	33,118	5.2	40	5,360	0.8	212	38,478	6.0
Private	22	761	0.1	29	668	0.1	51	1,429	0.2
Federal	11	3,794	0.6	—	—	—	11	3,794	0.6
Manitoba—									
Public	75	4,780	5.1	4	1,159	1.2	79	5,939	6.3
Private	6	87	0.1	1	50	0.1	7	137	0.2
Federal	17	879	0.9	—	—	—	17	879	0.9
Saskatchewan—									
Public	150	6,436	6.9	3	569	0.6	153	7,005	7.5
Private	—	—	—	—	—	—	—	—	—
Federal	4	162	0.2	—	—	—	4	162	0.2
Alberta—									
Public	106	8,266	5.9	25	2,038	1.4	131	10,304	7.3
Private	—	—	—	—	—	—	—	—	—
Federal	8	1,023	0.7	—	—	—	8	1,023	0.7
British Columbia—									
Public	86	8,924	5.3	14	467	0.3	100	9,391	5.6
Private	5	76	..	—	—	—	5	76	..
Federal	6	2,075	1.2	—	—	—	6	2,075	1.2
Yukon and Northwest Territories—									
Public	9	236	6.1	—	—	—	9	236	6.1
Private	1	13	0.3	—	—	—	1	13	0.3
Federal	20	285	7.3	—	—	—	20	285	7.3
Canada—									
Public	**840**	**95,268**	**5.0**	**135**	**14,355**	**0.8**	**975**	**109,623**	**5.8**
Private	**70**	**1,883**	**0.1**	**90**	**2,631**	**0.1**	**160**	**4,514**	**0.2**
Federal	**80**	**10,466**	**0.5**	**2**	**1,212**	**0.1**	**82**	**11,678**	**0.6**

For footnote, see end of table, p. 288.

5.—Number and Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada, by Province and Type, 1963—concluded

Province or Territory and Category	Mental[2]			Tuberculosis[3]			Totals, All Hospitals		
	Hospitals	Beds	Beds per 1,000 Population[1]	Hospitals	Beds	Beds per 1,000 Population[1]	Hospitals	Beds	Beds per 1,000 Population[1]
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—									
Public	1	826	1.7	2	458	1.0	45	3,357	7.0
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	1	35	0.1
Prince Edward Island—									
Public	2	398	3.7	1	100	0.9	12	1,224	11.4
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	—	—	—
Nova Scotia—									
Public	10	3,055	4.0	3	486	0.7	60	7,455	9.9
Private	—	—	—	—	—	—	2	16	..
Federal	—	—	—	—	—	—	3	760	1.0
New Brunswick—									
Public	2	1,450	2.4	4	580	0.9	45	5,567	9.1
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	2	412	0.7
Quebec—									
Public	18	21,664	4.0	10	2,444	0.4	182	52,128	9.5
Private	—	—	—	1	25	..	95	2,868	0.5
Federal	—	—	—	—	—	—	10	2,253	0.4
Ontario—									
Public	23	21,907	3.4	12	2,576	0.4	247	62,961	9.8
Private	7	502	0.1	—	—	—	58	1,931	0.3
Federal	—	—	—	—	—	—	11	3,794	0.6
Manitoba—									
Public	4	3,425	3.6	3	482	0.5	86	9,846	10.4
Private	—	—	—	—	—	—	7	137	0.2
Federal	—	—	—	—	—	—	17	879	0.9
Saskatchewan—									
Public	4	3,529	3.8	2	273	0.3	159	10,807	11.6
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	4	162	0.2
Alberta—									
Public	7	4,840	3.5	2	595	0.4	140	15,739	11.2
Private	—	—	—	—	—	—	—	—	—
Federal	—	—	—	—	—	—	8	1,023	0.7
British Columbia—									
Public	8	6,361	3.7	1	409	0.2	109	16,161	9.5
Private	1	73	..	—	—	—	6	149	0.1
Federal	—	—	—	—	—	—	6	2,075	1.2
Yukon and Northwest Territories—									
Public	—	—	—	1	33	0.8	10	269	6.9
Private	—	—	—	—	—	—	1	13	0.3
Federal	—	—	—	—	—	—	20	285	7.3
Canada—									
Public	79	67,455	3.6	41	8,436	0.4	1,095	185,514	9.8
Private	8	575	..	1	25	..	169	5,114	0.2
Federal	—	—	—	—	—	—	82	11,678	0.6

[1] Based on estimated population as at June 1, 1963. [2] Mental hospitals only; exclusive of psychiatric units in other hospitals. [3] Tuberculosis hospitals only; exclusive of tuberculosis units in other hospitals.

Information on the number of hospitals operating in Canada and their bed capacities (Table 5) was available for the year 1963 at the time of preparation of this Chapter, but the most recent data on movement of patients, average stay, paid hours and revenue and expenditure (Tables 6-12) were preliminary 1962 figures.

Separations of adults and children from hospitals in 1962 numbered 2,920,930, or 158 per 1,000 population. Total patient-days spent in hospital amounted to 61,200,287, an average of 167,675 persons a day, or nine out of every 1,000 population.

6.—Movement of Patients[1] and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1958-62

Type of Service and Item		1958	1959	1960	1961	1962
		PUBLIC HOSPITALS				
General—						
Hospitals reporting	No.	833	846	844	841	816
Percentage of operating hospitals	p.c.	98.2	98.9	99.1	98.2	98.0
Separations[2]	No.	2,363,529	2,436,572	2,526,379	2,598,283	2,637,061
Per 1,000 population[3]	"	138	139	141	142	142
Patient-days	"	23,267,730	24,333,060	25,257,143	26,160,051	26,932,177
Patients	Av. No.	63,747	66,666	69,009	71,671	73,787
Per 1,000 population[3]	"	3	4	4	4	4
Allied Special—						
Hospitals reporting	No.	89	94	81	85	118
Percentage of operating hospitals	p.c.	81.7	87.0	96.4	94.4	92.2
Separations[2]	No.	35,995	53,328	54,246	59,701	68,830
Per 1,000 population[3]	"	2	3	3	3	4
Patient-days	"	4,002,357	4,334,979	3,722,963	3,740,783	3,844,595
Patients	Av. No.	10,965	11,877	10,172	10,249	10,533
Per 1,000 population[3]	"	1	1	1	1	1
Mental—						
Hospitals reporting	No.	71	69	67	72	72
Percentage of operating hospitals	p.c.	100.0	100.0	95.7	90.0	91.1
Separations[2]	No.	26,172	25,605	27,506	34,883	39,046
Per 1,000 population[3]	"	2	2	2	2	2
Patient-days	"	23,942,562	23,789,871	24,199,750	24,646,914	23,626,910
Patients	Av. No.	65,596	65,178	66,120	67,919	64,734
Per 1,000 population[3]	"	4	4	4	4	3
Tuberculosis—[4]						
Hospitals reporting	No.	51	50	52	50	43
Percentage of operating hospitals	p.c.	100.0	100.0	98.1	100.0	100.0
Separations[2]	No.	16,774	13,777	13,577	14,069	12,546
Per 1,000 population[3]	"	1	1	1	1	1
Patient-days	"	3,413,428	3,131,830	2,978,494	2,617,612	2,365,743
Patients	Av. No.	9,352	8,580	8,138	7,287	6,481
Per 1,000 population[3]	"	1	--	--	--	--
Totals, Public Hospitals—						
Hospitals reporting	No.	1,044	1,059	1,044	1,048	1,049
Percentage of operating hospitals	p.c.	96.8	97.9	98.6	97.4	96.9
Separations[2]	No.	2,442,470	2,529,282	2,621,708	2,706,936	2,757,483
Per 1,000 population[3]	"	143	145	147	148	149
Patient-days	"	54,626,077	55,589,740	56,158,350	57,165,360	56,769,425
Patients	Av. No.	149,660	152,301	153,439	157,126	155,535
Per 1,000 population[3]	"	9	9	9	9	8
		PRIVATE HOSPITALS				
General—						
Hospitals reporting	No.	55	68	62	55	59
Percentage of operating hospitals	p.c.	67.9	73.1	72.9	63.9	83.1
Separations[2]	No.	46,192	53,078	51,256	49,127	56,535
Per 1,000 population[3]	"	3	3	3	3	3
Patient-days	"	305,254	435,220	365,304	372,105	443,419
Patients	Av. No.	836	1,192	998	1,020	1,215
Per 1,000 population[3]	"	--	--	--	--	--

For footnotes, see end of table, p. 291.

6.—Movement of Patients[1] and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1958-62—continued

Type of Service and Item		1958	1959	1960	1961	1962
		PRIVATE HOSPITALS—concluded				
Allied Special—						
Hospitals reporting	No.	150	164	90	87	87
Percentage of operating hospitals	p.c.	81.5	68.9	84.1	73.7	94.6
Separations[2]	No.	15,905	20,829	18,803	13,639	17,569
Per 1,000 population[3]	"	1	1	1	1	1
Patient-days	"	1,138,331	1,164,197	632,888	691,159	736,592
Patients	Av. No.	3,118	3,190	1,729	1,882	2,018
Per 1,000 population[3]	"	--	--	--	--	--
Mental—[4]						
Hospitals reporting	No.	5	5	6	7	7
Percentage of operating hospitals	p.c.	62.5	62.5	85.7	77.8	87.5
Separations[2]	No.	2,609	2,754	2,931	3,255	3,790
Per 1,000 population[3]	"	--	--	--	--	--
Patient-days	"	121,930	131,309	144,500	155,468	156,729
Patients	Av. No.	335	360	395	426	429
Per 1,000 population[3]	"	--	--	--	--	--
Totals, Private Hospitals—						
Hospitals reporting	No.	210	237	158	149	153
Percentage of operating hospitals	p.c.	76.9	69.9	79.4	70.0	89.5
Separations[2]	No.	64,706	76,661	72,990	66,021	77,894
Per 1,000 population[3]	"	4	4	4	4	4
Patient-days	"	1,565,515	1,730,726	1,142,692	1,218,732	1,336,740
Patients	Av. No.	4,289	4,742	3,122	3,328	3,662
Per 1,000 population[3]	"	--	--	--	--	--
		FEDERAL HOSPITALS				
General—						
Hospitals reporting	No.	33	44	69	65	..
Percentage of operating hospitals	p.c.	89.2	77.2	84.1	85.5	..
Separations[2]	No.	72,703	78,354	81,524	77,559	..
Per 1,000 population[3]	"	4	5	5	4	..
Patient-days	"	3,093,621	2,542,048	2,772,428	2,270,859	..
Patients	Av. No.	8,476	6,965	7,575	6,222	..
Per 1,000 population[3]	"	1	--	--	--	..
Allied Special—						
Hospitals reporting	No.	9	3	2	3	..
Percentage of operating hospitals	p.c.	100.0	33.3	50.0	75.0	..
Separations[2]	No.	476	358	309	959	..
Per 1,000 population[3]	"	--	--	--	--	..
Patient-days	"	97,507	53,003	54,127	434,233	..
Patients	Av. No.	267	145	148	1,190	..
Per 1,000 population[3]	"	--	--	--	--	..
Tuberculosis—[5]						
Hospitals reporting	No.	5	5	6	5	4
Percentage of operating hospitals	p.c.	100.0	100.0	100.0	100.0	100.0
Separations[2]	No.	1,050	645	764	1,026	732
Per 1,000 population[3]	"	--	--	--	--	--
Patient-days	"	297,798	287,392	376,673	343,025	280,765
Patients	Av. No.	816	787	1,029	939	770
Per 1,000 population[3]	"	--	--	--	--	--
Totals, Federal Hospitals—						
Hospitals reporting	No.	47	52	77	73	66
Percentage of operating hospitals	p.c.	92.2	73.2	83.7	85.9	75.0
Separations[2]	No.	74,229	79,357	82,597	79,544	85,553
Per 1,000 population[3]	"	4	5	5	4	5

For footnotes, see end of table.

6.—Movement of Patients[1] and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1958-62—concluded

Type of Service and Item		1958	1959	1960	1961	1962
		FEDERAL HOSPITALS—concluded				
Totals, Federal Hospitals—concluded						
Patient-days	No.	3,488,926	2,882,443	3,203,228	3,048,117	3,094,122
Patients	Av. No.	9,559	7,897	8,752	8,350	8,478
Per 1,000 population[3]	"	1	--	--	--	1
		ALL HOSPITALS				
General—						
Hospitals reporting	No.	921	958	975	961	..
Percentage of operating hospitals	p.c.	95.3	95.3	95.7	94.4	..
Separations[2]	No.	2,482,424	2,568,004	2,659,159	2,724,969	..
Per 1,000 population[3]	"	145	147	149	149	..
Patient-days	"	26,666,665	27,310,328	28,394,875	28,803,015	..
Patients	Av. No.	73,059	74,823	77,582	78,913	..
Per 1,000 population[3]	"	4	4	4	4	..
Allied Special—						
Hospitals reporting	No.	248	261	173	175	..
Percentage of operating hospitals	p.c.	82.1	73.5	88.7	82.5	..
Separations[2]	No.	52,376	74,515	73,358	74,299	..
Per 1,000 population[3]	"	3	4	4	4	..
Patient-days	"	5,238,195	5,552,179	4,409,978	4,866,175	..
Patients	Av. No.	14,350	15,212	12,049	13,321	..
Per 1,000 population[3]	"	1	1	1	1	..
Mental—[4]						
Hospitals reporting	No.	76	74	73	79	79
Percentage of operating hospitals	p.c.	96.2	96.1	94.8	88.8	90.8
Separations[2]	No.	28,781	28,359	30,437	38,138	42,836
Per 1,000 population[3]	"	2	2	2	2	2
Patient-days	"	24,064,492	23,921,180	24,344,250	24,802,382	23,783,639
Patients	Av. No.	65,931	65,538	66,515	68,345	65,163
Per 1,000 population[3]	"	4	4	4	4	4
Tuberculosis—[5]						
Hospitals reporting	No.	56	55	58	55	47
Percentage of operating hospitals	p.c.	100.0	100.0	96.7	100.0	100.0
Separations[2]	No.	17,824	14,422	14,341	15,095	13,278
Per 1,000 population[3]	"	1	1	1	1	1
Patient-days	"	3,711,226	3,419,222	3,355,167	2,960,637	2,646,508
Patients	Av. No.	10,168	9,367	9,167	8,226	7,251
Per 1,000 population[3]	"	1	--	--	--	--
Totals, All Hospitals—						
Hospitals reporting	**No.**	**1,301**	**1,348**	**1,279**	**1,270**	**1,268**
Percentage of operating hospitals	**p.c.**	**92.7**	**90.3**	**94.7**	**92.4**	**94.5**
Separations[2]	**No.**	**2,581,405**	**2,685,300**	**2,777,295**	**2,852,501**	**2,920,930**
Per 1,000 population[3]	"	**151**	**154**	**156**	**156**	**158**
Patient-days	"	**59,680,518**	**60,202,909**	**60,504,270**	**61,432,209**	**61,200,287**
Patients	**Av. No.**	**163,508**	**164,940**	**165,313**	**168,804**	**167,675**
Per 1,000 population[3]	"	**10**	**9**	**9**	**9**	**9**

[1] Adults and children. [2] Discharges and deaths. [3] As at June 1. [4] Mental hospitals only; does not include psychiatric or mental units in other hospitals. [5] Tuberculosis hospitals only; does not include tuberculosis units in other hospitals.

Average length of stay in public general hospitals in 1962 was 10.1 days (10.0 in 1961), increasing gradually from 6.9 days in hospitals with fewer than 10 beds to 14.2 days in those with 1,000 or more beds. The availability of specialized and referral services in larger hospitals tends to lengthen the stay.

7.—Average Length of Stay of Adults and Children in Public General and Allied Special Hospitals, by Province, 1962

Type of Hospital	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	days	days	days	days	days	days
General	12.8	9.8	10.0	9.5	10.5	10.6
1- 9 beds	—	6.8	7.6	6.2	7.2	—
10- 24 "	4.2	8.6	6.2	6.9	6.8	8.0
25- 49 "	6.3	7.7	8.4	7.6	7.1	8.9
50- 99 "	14.5	7.6	9.7	8.0	8.3	10.1
100-199 "	8.3	10.2	9.2	9.4	8.6	9.4
200-299 "	10.5	11.2	11.5	9.4	9.6	10.5
300-499 "	26.7	—	8.8	10.7	11.2	10.2
500-999 "	—	—	13.7	15.4	13.1	11.6
1,000 or more beds	—	—	—	—	13.5	14.3
Allied Special—						
Chronic, convalescent and rehabilitation	—	136.5	34.3	42.9	166.6	205.9
Maternity	—	—	6.1	10.0	6.0	6.3
Other	5.4	—	—	42.5	20.2	9.7
Totals, All Hospitals	**12.6**	**10.3**	**10.1**	**10.8**	**12.9**	**12.9**

Type of Hospital	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and Northwest Territories	Canada
	days	days	days	days	days	days
General	9.0	9.5	9.2	9.6	18.9	10.1
1- 9 beds	7.0	7.1	5.8	5.9	—	6.9
10- 24 "	7.0	7.3	7.2	7.7	13.8	7.1
25- 49 "	6.8	7.6	6.7	7.4	20.1	7.6
50- 99 "	8.0	8.4	7.9	8.1	13.9	8.8
100-199 "	9.3	10.2	8.8	8.9	—	9.1
200-299 "	8.5	13.5	9.9	9.0	—	10.2
300-499 "	9.2	11.5	9.7	11.0	—	10.7
500-999 "	11.8	13.4	11.0	11.0	—	12.2
1,000 or more beds	—	—	16.1	13.7	—	14.2
Allied Special—						
Chronic, convalescent and rehabilitation	83.2	233.3	329.8	85.9	—	163.0
Maternity	—	—	5.4	6.5	—	6.1
Other	—	—	11.8	161.7	—	16.5
Totals, All Hospitals	**11.1**	**10.4**	**10.4**	**11.0**	**18.8**	**12.0**

Paid hours of work per patient-day in public general hospitals amounted to 12.7 in 1962 (12.5 in 1961), ranging from nine hours in hospitals with 25-49 beds to 15.3 hours in those with 1,000 or more beds.

8.—Paid Hours of Work per Patient-Day (Adults and Children), by Type of Hospital and by Province, 1962

NOTE.—These figures relate to accumulated paid hours for all persons for whom salaries are recorded and include worked time as well as paid vacation time, holidays and sick leave.

Type of Hospital	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Public	12.4	11.8	13.8	13.2	12.0	12.4	12.1	10.7	10.5	11.1	11.3	11.6	12.0
General	12.4	12.1	13.7	13.4	13.0	13.2	13.1	11.5	11.3	11.2	11.3	11.6	12.7
1- 9 beds	—	9.5	14.4	—	11.8	—	10.5	10.4	10.6	7.4	—	—	10.8
10- 24 "	7.9	9.7	10.0	10.3	10.1	9.0	9.0	8.7	9.1	8.4	10.9	16.4	9.1
25- 49 "	11.4	8.2	11.6	10.0	9.2	9.7	8.5	7.5	8.7	8.2	11.6	12.1	9.0
50- 99 "	12.5	7.7	11.6	11.9	10.4	10.5	9.1	10.0	8.8	8.8	—	8.4	10.0
100-199 "	16.2	12.8	14.5	12.9	11.3	12.6	12.0	12.3	11.8	9.4	—	—	11.9
200-299 "	10.7	13.6	13.6	15.3	12.8	13.3	15.4	14.0	12.3	9.2	—	—	13.3
300-499 "	11.2	—	18.3	14.8	13.7	12.7	14.0	14.1	13.6	14.0	—	—	13.4
500-999 "	—	—	15.1	13.9	13.5	14.4	15.8	14.0	12.3	15.3	—	—	14.1
1,000 or more beds	—	—	—	—	16.9	15.6	—	—	13.4	14.1	—	—	15.3
Allied Special—Chronic, convalescent and rehabilitation	—	7.5	10.5	8.5	5.0	6.4	8.3	3.4	5.0	7.1	—	—	6.0
Maternity	—	—	19.1	19.8	14.1	15.5	—	—	17.4	14.2	—	—	15.6
Other	7.6	—	—	9.4	11.0	19.0	—	—	9.9	7.4	—	—	12.4
Private	—	—	—	—	4.9	7.3	8.8	—	—	8.0	—	—	6.2
Federal	—	—	11.9	8.9	8.3	8.4	14.4	9.1	11.7	8.4	9.6	8.4	8.8
All Hospitals	**12.4**	**11.8**	**13.7**	**12.7**	**11.6**	**11.9**	**12.1**	**10.7**	**10.5**	**11.0**	**9.9**	**11.3**	**11.6**

Of the 1,083 public hospitals operating in 1962, 94 p.c. (representing 97 p.c. of the rated beds) reported financial data. Revenues amounted to almost $903,000,000 and expenditures to $931,500,000. Of the latter, 66 p.c. was paid out for salaries and wages.

9.—Revenues and Expenditures of Reporting Public Hospitals, by Type, 1962

Type of Hospital	Hospitals Reporting	Revenues				Expenditures				
		Net In-patient Earnings	Net Out-patient Earnings	Grants and Other Income	Total[1]	Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	p.c.	p.c.	p.c.	$'000	p.c.	p.c.	p.c.	p.c.	$'000
General	799	88.2	5.0	6.8	679,528	65.5	3.3	4.2	27.0	702,884
1- 9 beds	*40*	*88.3*	*4.5*	*7.2*	*1,938*	*61.7*	*2.7*	*4.3*	*31.3*	*2,011*
10- 24 "	*201*	*87.8*	*4.7*	*7.5*	*16,630*	*59.3*	*2.9*	*5.2*	*32.6*	*17,444*
25- 49 "	*184*	*89.5*	*5.1*	*5.4*	*33,688*	*60.7*	*3.0*	*4.5*	*31.8*	*35,176*
50- 99 "	*183*	*90.7*	*4.1*	*5.2*	*53,630*	*63.7*	*2.9*	*4.2*	*29.2*	*55,915*
100-199 "	*117*	*89.8*	*5.0*	*5.2*	*113,343*	*65.8*	*3.2*	*4.2*	*26.8*	*117,190*
200-299 "	*49*	*87.6*	*5.2*	*7.2*	*85,828*	*64.7*	*3.3*	*4.0*	*28.0*	*88,715*
300-499 "	*41*	*87.5*	*5.1*	*7.4*	*125,712*	*66.7*	*3.3*	*4.1*	*25.9*	*129,092*
500-999 "	*27*	*87.2*	*5.2*	*7.6*	*165,268*	*66.3*	*3.5*	*4.1*	*26.1*	*170,575*
1,000 or more beds	*7*	*87.7*	*4.8*	*7.5*	*83,491*	*67.5*	*3.5*	*4.0*	*25.0*	*86,766*
Allied Special—Chronic, convalescent and rehabilitation	60	93.4	0.7	6.3	37,288	66.5	1.1	2.4	30.0	38,632
Maternity	12	93.8	1.0	6.0	5,060	64.9	3.7	2.7	28.7	5,241
Other	40	73.8	5.2	21.0	9,526	64.7	1.5	2.6	31.2	9,955
Mental	69	99.9	0.1	[2]	139,830	66.4	0.7	3.0	29.9	141,645
Tuberculosis	42	99.0	1.0	[2]	31,757	66.3	1.4	2.5	29.8	33,115
Totals	**1,022**	**88.3**	**4.8**	**6.9**	**902,989**	**65.8**	**2.7**	**3.8**	**27.7**	**931,472**

[1] Subject to later adjustments by Provincial Plan. [2] Included with net in-patient earnings.

10.—Revenues and Expenditures of Reporting Public General Hospitals, by Province, 1962

Province or Territory	Hospitals Reporting	Total Revenue[1]	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	$'000	p.c.	p.c.	p.c.	p.c.	$'000
Newfoundland	28	10,938	55.3	3.6	6.6	34.5	11,713
Prince Edward Island	8	3,093	54.2	3.4	4.1	38.3	3,203
Nova Scotia	44	25,753	58.3	3.3	4.0	34.4	25,948
New Brunswick	35	24,777	59.2	3.3	4.1	33.4	25,072
Quebec	104	162,260	64.8	3.2	4.3	27.7	173,721
Ontario	172	264,583	67.5	3.4	4.0	25.1	267,780
Manitoba	73	33,343	65.2	3.5	4.9	26.4	33,692
Saskatchewan	145	40,661	66.8	3.0	3.8	26.4	42,258
Alberta	99	50,154	62.7	3.3	3.9	30.1	53,301
British Columbia	86	63,390	69.4	3.2	3.9	23.5	65,538
Yukon	2	164	56.2	1.7	5.7	36.4	176
Northwest Territories	3	412	52.4	1.4	2.7	43.5	482
Canada	**799**	**679,528**	**65.5**	**3.3**	**4.2**	**27.0**	**702,884**

[1] Subject to later adjustments by Provincial Plan.

11.—Revenues and Expenditures of Reporting Public Hospitals per Patient-Day (excluding Newborn), 1962

Type of Hospital	Hospitals Reporting	Revenues				Expenditures				
		Net In-patient Earnings	Net Out-patient Earnings	Grants and Other Income	Total[1]	Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	$	$	$	$	$	$	$	$	$
General	799	22.48	1.27	1.74	25.49	17.28	0.87	1.09	7.12	26.36
1- 9 beds	*40*	*18.27*	*0.93*	*1.49*	*20.69*	*13.25*	*0.59*	*0.91*	*6.72*	*21.47*
10- 24 "	*201*	*16.50*	*0.88*	*1.41*	*18.79*	*11.68*	*0.57*	*1.03*	*6.43*	*19.71*
25- 49 "	*184*	*17.03*	*0.97*	*1.08*	*19.08*	*12.06*	*0.60*	*0.90*	*6.31*	*19.87*
50- 99 "	*133*	*18.32*	*0.83*	*1.05*	*20.20*	*13.40*	*0.62*	*0.89*	*6.15*	*21.06*
100-199 "	*117*	*20.93*	*1.17*	*1.21*	*23.31*	*15.86*	*0.77*	*1.01*	*6.46*	*24.10*
200-299 "	*49*	*22.93*	*1.36*	*1.89*	*26.18*	*17.51*	*0.89*	*1.09*	*7.57*	*27.06*
300-499 "	*41*	*23.12*	*1.35*	*1.95*	*26.42*	*18.10*	*0.89*	*1.10*	*7.04*	*27.13*
500-999 "	*27*	*25.06*	*1.49*	*2.19*	*28.74*	*19.65*	*1.04*	*1.23*	*7.74*	*29.66*
1,000 or more beds	7	*28.10*	*1.54*	*2.40*	*32.04*	*22.48*	*1.18*	*1.33*	*8.31*	*33.30*
Allied Special—Chronic, convalescent and rehabilitation	60	11.27	0.08	0.72	12.07	8.32	0.13	0.30	3.76	12.51
Maternity	12	28.18	0.30	1.56	30.04	20.18	1.15	0.85	8.93	31.11
Other	40	21.50	1.51	6.12	29.13	19.71	0.45	0.80	9.49	30.45
Mental	69	5.92	0.01	[2]	5.93	3.99	0.04	0.18	1.80	6.01
Tuberculosis	42	13.32	0.13	[2]	13.45	9.31	0.19	0.35	4.18	14.03

[1] Subject to later adjustments by Provincial Plan.

[2] Included with net in-patient earnings.

12.—Revenues and Expenditures of Reporting Public Hospitals per Patient-Day (excluding Newborn), by Province, 1962

Province and Type of Hospital	Hospitals Reporting	Total Revenue	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	$	$	$	$	$	$
Newfoundland—							
General	28	19.92	11.80	0.78	1.40	7.35	21.33
Allied Special—							
Other	9	22.04	7.84	0.44	1.48	12.49	22.25
Mental	1	8.52	4.78	0.28	0.11	3.35	8.52
Tuberculosis	2	14.86	9.08	0.51	0.27	5.00	14.86
Prince Edward Island—							
General	8	18.41	10.34	0.65	0.78	7.30	19.07
Allied Special—							
Chronic, convalescent and rehabilitation	1	13.54	9.43	0.31	0.18	4.05	13.97
Mental	1	5.19	2.85	0.05	0.28	2.01	5.19
Tuberculosis	1	15.27	8.25	0.37	0.37	6.28	15.27
Nova Scotia—							
General	44	24.96	14.67	0.82	1.00	8.66	25.15
Allied Special—							
Chronic, convalescent and rehabilitation	2	25.61	15.42	0.54	0.43	9.24	25.63
Maternity	1	35.20	21.28	1.11	0.95	12.63	35.97
Mental	10	5.26	3.38	0.01	0.13	1.95	5.47
Tuberculosis	3	19.72	13.63	0.04	0.50	5.63	19.80
New Brunswick—							
General	35	25.61	15.34	0.86	1.07	8.65	25.92
Allied Special—							
Chronic, convalescent and rehabilitation	2	18.59	11.41	0.46	0.76	6.21	18.84
Maternity	1	35.83	17.24	0.80	0.26	21.29	39.59
Mental	2	5.44	3.42	0.05	0.18	1.79	5.44
Tuberculosis	4	16.33	10.32	0.13	0.24	5.55	16.24
Quebec—							
General	104	26.32	18.25	0.91	1.20	7.82	28.18
Allied Special—							
Chronic, convalescent and rehabilitation	13	9.62	6.51	0.09	0.33	3.35	10.28
Maternity	5	23.65	15.75	0.63	1.21	8.81	26.40
Other	6	23.34	16.16	0.36	0.77	6.49	23.78
Mental	12	3.65	2.27	0.04	0.19	1.40	3.90
Tuberculosis	11	10.73	7.63	0.16	0.47	3.72	11.98
Ontario—							
General	172	27.57	18.84	0.94	1.13	7.00	27.91
Allied Special—							
Chronic, convalescent and rehabilitation	22	12.66	8.83	0.12	0.25	3.70	12.90
Maternity	2	33.74	22.08	1.72	0.54	8.94	33.28
Other	15	56.14	36.15	0.76	1.08	21.06	59.05
Mental	21	7.50	5.30	0.05	0.16	2.00	7.51
Tuberculosis	12	14.20	9.77	0.11	0.23	4.39	14.50
Manitoba—							
General	73	24.30	16.02	0.86	1.20	6.48	24.56
Allied Special—							
Chronic, convalescent and rehabilitation	4	16.38	11.18	0.25	0.41	4.59	16.43
Mental	4	5.24	3.62	0.02	0.17	1.34	5.15
Tuberculosis	3	11.15	6.15	0.15	0.21	3.87	10.38
Saskatchewan—							
General	145	21.96	15.25	0.68	0.87	6.03	22.83
Mental	4	6.44	4.67	0.04	0.11	1.62	6.44
Tuberculosis	2	15.44	12.72	0.20	0.37	3.53	16.82
Alberta—							
General	99	21.66	14.44	0.77	0.89	6.92	23.02
Allied Special—							
Chronic, convalescent and rehabilitation	13	9.39	6.56	0.13	0.26	3.47	10.42
Maternity	2	28.93	21.29	1.23	0.59	6.97	30.08
Other	1	19.16	14.63	0.53	0.50	3.46	19.12
Mental	6	6.54	4.66	0.02	0.16	1.70	6.54
Tuberculosis	2	20.12	15.31	0.19	0.23	4.39	20.12

12.—Revenues and Expenditures of Reporting Public Hospitals per Patient-Day (excluding Newborn), by Province, 1962—concluded

Province or Territory and Type of Hospital	Hospitals Reporting	Total Revenue	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	$	$	$	$	$	$
British Columbia—							
General	86	24.21	17.36	0.80	0.98	5.89	25.03
Allied Special—							
Chronic, convalescent and rehabilitation	3	16.80	12.48	0.14	0.17	4.58	17.37
Maternity	1	28.87	22.19	0.82	0.96	6.45	30.42
Other	9	14.28	13.92	0.12	0.29	7.82	22.15
Mental	8	7.28	4.44	—	0.32[1]	2.52	7.28
Tuberculosis	2	16.82	12.31	0.72	0.28	3.51	16.82
Yukon Territory—							
General	2	30.38	18.18	0.66	1.91	11.77	32.52
Northwest Territories—							
General	3	18.96	11.64	0.32	0.58	9.65	22.19

[1] Medical and surgical supplies are included with drugs.

Diagnoses of Patients in Institutions for Tuberculosis and for Psychiatric Disorders.—There were 4,824 patients with respiratory tuberculosis on the books of tuberculosis institutions on Dec. 31, 1962, and 63 p.c. of them were males. Except for the age groups under 20 years, males outnumbered females in all age groups. The peak frequency for men (963) occurred in the 60+ age group, and for women (554) in the 20-39 age group.

Of the 75,300 psychiatric patients reported at Dec. 31, 1962, 34 p.c. suffered from schizophrenia, the most frequent form of psychosis (insanity); 25 p.c. suffered from other forms of psychosis; and 31 p.c. were mentally deficient. In most diagnostic classes males outnumbered females; exceptions were certain psychoses, neuroses and drug addiction.

13.—Diagnoses of Patients on the Books of Reporting Tuberculosis Hospitals, by Age Group and Sex, as at Dec. 31, 1962

NOTE.—Figures include patients in 65 tuberculosis hospitals and patients in tuberculosis units in general hospitals but exclude tubercular patients in mental hospitals.

Diagnosis		Age Group					Total[1]
		0-14	15-19	20-39	40-59	60+	
		Numbers					
Respiratory tuberculosis	M.	334	113	679	953	963	3,047
	F.	333	121	554	428	339	1,777
With occupational disease of lung	M.	—	—	—	23	42	65
	F.	—	—	—	—	—	—
Minimal pulmonary	M.	36	29	117	123	106	411
	F.	47	39	136	86	62	370
Moderately advanced pulmonary	M.	16	45	283	344	384	1,074
	F.	22	48	248	185	141	645
Far advanced pulmonary	M.	6	12	241	448	421	1,131
	F.	3	17	142	140	133	436
Other and unspecified pulmonary	M.	6	3	8	2	4	23
	F.	12	3	7	3	—	25
Pleurisy with or without effusion	M.	18	15	28	12	5	78
	F.	7	7	18	12	3	47
Primary infection	M.	237	8	2	—	—	247
	F.	232	7	3	—	—	242
Other	M.	15	1	—	1	1	18
	F.	10	—	—	2	—	12
Tuberculosis, other forms	M.	34	11	54	54	33	186
	F.	40	19	63	34	23	179

[1] Includes ages not known.

13.—Diagnoses of Patients on the Books of Reporting Tuberculosis Hospitals, by Age Group and Sex, as at Dec. 31, 1962—concluded

Diagnosis		Age Group					Total[1]
		0-14	15-19	20-39	40-59	60 +	
		Rates per 100,000 Population					
Respiratory tuberculosis	M.	10.2	14.3	27.4	49.3	98.5	32.2
	F.	10.8	16.1	22.0	22.4	32.3	19.1
With occupational disease of lung	M.	—	—	—	1.2	4.3	0.7
	F.	—	—	—	—	—	—
Minimal pulmonary	M.	1.1	3.7	4.7	6.4	10.8	4.3
	F.	1.5	5.2	5.4	4.5	5.9	4.0
Moderately advanced pulmonary	M.	0.5	5.7	11.4	17.8	39.3	11.3
	F.	0.7	6.4	9.9	9.7	13.4	6.9
Far advanced pulmonary	M.	0.2	1.5	9.7	23.2	43.1	11.9
	F.	0.1	2.3	5.6	7.3	12.7	4.7
Other and unspecified pulmonary	M.	0.2	0.4	0.3	0.1	0.4	0.2
	F.	0.4	0.4	0.3	0.2	—	0.3
Pleurisy with or without effusion	M.	0.6	1.9	1.1	0.6	0.5	0.8
	F.	0.2	0.9	0.7	0.6	0.3	0.5
Primary infection	M.	7.3	1.0	0.1	—	—	2.6
	F.	7.5	0.9	0.1	—	—	2.6
Other	M.	0.5	0.1	—	0.1	0.1	0.2
	F.	0.3	—	—	0.1	—	0.1
Tuberculosis, other forms	M.	1.0	1.4	2.2	2.8	3.4	2.0
	F.	1.3	2.5	2.5	1.8	2.2	1.9

[1] Includes ages not known.

14.—Diagnoses of In-patients on the Books of Psychiatric Institutions, by Age Group and Sex, Dec. 31, 1962

Note.—Data are from 126 institutions, including psychiatric wards of general hospitals.

Diagnoses	Age Group						All Ages[1]		
	0-9	10-14	15-19	20-39	40-59	60+	Males	Females	Total
	Numbers								
All Psychoses (excl. alcoholic)	51	90	608	9,624	17,251	15,734	22,521	20,888	43,409
Functional[2]	*55*	*71*	*504*	*8,413*	*14,384*	*9,315*	*17,093*	*15,670*	*32,763*
Of old age	—	—	—	*5*	*208*	*4,724*	*2,228*	*2,711*	*4,939*
Other	*16*	*19*	*104*	*1,206*	*2,659*	*1,695*	*3,200*	*2,507*	*5,707*
Neuroses[3]	5	11	95	886	906	473	815	1,563	2,378
All Other[4]	2,921	3,714	4,286	9,757	6,190	2,628	16,644	12,869	29,513
Mental deficiency	*2,740*	*3,581*	*3,668*	*7,817*	*4,114*	*1,335*	*12,754*	*10,317*	*23,071*
Alcoholism (incl. psychotics)	—	—	*2*	*339*	*965*	*508*	*1,420*	*394*	*1,814*
Epilepsy	*111*	*189*	*239*	*749*	*452*	*138*	*989*	*889*	*1,878*
Totals	**2,977**	**3,815**	**4,989**	**20,267**	**24,347**	**18,835**	**39,980**	**35,320**	**75,300**
	Rates per 100,000 Population								
All Psychoses (excl. alcoholic)	1	5	40	193	450	773	238	225	231
Functional[2]	*1*	*4*	*33*	*168*	*375*	*458*	*180*	*169*	*175*
Of old age	—	—	—	--	*5*	*232*	*24*	*29*	*26*
Other	--	*1*	*7*	*24*	*69*	*83*	*34*	*27*	*30*
Neuroses[3]	--	1	6	18	24	23	9	17	13
All Other[4]	66	192	281	195	161	129	176	139	157
Mental deficiency	*62*	*175*	*240*	*156*	*107*	*66*	*135*	*111*	*123*
Alcoholism (incl. psychotics)	—	—	--	*7*	*25*	*25*	*15*	*4*	*10*
Epilepsy	*3*	*10*	*16*	*15*	*12*	*7*	*10*	*10*	*10*
Totals	**67**	**197**	**327**	**405**	**635**	**926**	**422**	**380**	**401**

[1] Includes ages not stated.
[2] Comprises schizophrenia, manic depressive psychosis, involutional melancholia, paranoia and paranoid states.
[3] Includes depression, anxiety and other neuroses.

Subsection 2.—Notifiable Diseases and Other Health Statistics*

In addition to the administrative, or non-morbidity, type of hospital statistics dealt with on pp. 286-296, health statistics collected nationally include series on notifiable diseases and illness among federal civil servants; these are dealt with briefly below.

Notifiable Diseases.—In terms of number of new cases, the major infectious diseases reportable on a national basis were, in 1962, the venereal diseases combined (20,133 cases), infectious and serum hepatitis (12,538 cases), and scarlet fever and streptococcal sore throat (10,241 cases). Despite its relatively high level, the incidence of scarlet fever and streptococcal sore throat was 56.3 p.c. below the peak reached in 1959; the rate of infection was 55.1 cases per 100,000 population, which compared favourably with the corresponding 1959 rate of 134.2. In proportion to population, the province most severely affected in 1962 was Prince Edward Island, where the rate was more than 30 times that for the country as a whole.

Year-to-year increases, which exceeded the rate of growth in the population at risk, occurred between 1959 and 1962 in the incidence of the venereal diseases, the rate of new infections rising from 97.3 to 108.4 per 100,000 population. As in 1961, British Columbia contributed the largest number of cases, but the case-rate for that province (257.7 per 100,000 persons) was lower than those for the Yukon Territory, the Northwest Territories and Alberta. Among the reportable types of venereal disease, gonorrhoea accounted for 87.9 p.c. of total cases nationally, and for 92.6 p.c. of the British Columbia cases.

The rate of viral hepatitis infections increased from 27.1 cases per 100,000 population in 1959 to 67.5 in 1961 and remained at that level in 1962.

In recent years the most significant decline in the incidence of a notifiable disease has been the falling off in reported cases of paralytic poliomyelitis. Contributing to the decrease have been the development of vaccines and mass inoculation and feeding programs undertaken by public health authorities. Only 89 new cases were reported during 1962; this was the smallest number for any year since 1949, the first year statistics on this disease were compiled nationally.

* Prepared in the Public Health Section, Health and Welfare Division, Dominion Bureau of Statistics.

15.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, 1959-62

International List No.	Disease	Cases				Rates per 100,000 Population			
		1959[1]	1960[2]	1961[2]	1962[2]	1959[1]	1960[2]	1961[2]	1962[2]
		No.	No.	No.	No.				
044	Brucellosis (undulant fever)	120	142	109	98	0.8	0.9	0.6	0.5
764	Diarrhoea of the newborn, epidemic	92	72	81	82	0.5	0.7	0.7	0.7
055	Diphtheria	38	55	91	71	0.2	0.3	0.5	0.4
045, 046, 048	Dysentery[3]	1,416	3,279	3,250	2,910	8.1	18.4	17.8	15.7
046	Amoebic	*2*	*4*	*12*	*7*	[4]	[4]	*0.1*	[4]
045	Bacillary	*1,238*	*2,640*	*1,479*	*1,241*	*7.1*	*14.8*	*8.1*	*6.7*
082.0	Encephalitis, infectious	15	9	1	4	0.1	0.1	[4]	[4]
049.0, 042.1, 049.2	Food poisoning	847	1,216	1,288	1,413	4.9	10.4	10.7	11.6
092, N998.5	Hepatitis, infectious (including serum hepatitis)	4,728	6,314	12,314	12,538	27.1	35.4	67.5	67.5
080.2, 082.1	Meningitis, viral or aseptic	896	694	412	278	5.1	6.0	3.5	2.3
057	Meningococcal infections	201	158	122	110	1.2	0.9	0.7	0.6
766	Pemphigus neonatorum (impetigo of the newborn)	5	7	13	13	[4]	0.1	0.1	0.1
056	Pertussis (whooping cough)	7,259	5,992	5,476	8,076	41.6	33.6	30.0	43.5
080.0, 080.1	Poliomyelitis, paralytic	1,887	909	188	89	10.8	5.1	1.0	0.5
050, 051	Scarlet fever and streptococcal sore throat	23,413	21,251	13,060	10,241	134.2	119.3	71.6	55.1
040, 041	Typhoid and paratyphoid fever	544	335	266	276	3.1	1.9	1.5	1.5
	Venereal diseases[3]	16,978	17,834	18,774	20,133	97.3	100.1	102.9	108.4
030-034	Gonorrhoea	*14,826*	*15,661*	*16,460*	*17,697*	*85.0*	*87.9*	*90.2*	*95.3*
020-021.3, 023, 024, 026-029	Syphilis	*2,144*	*2,168*	*2,311*	*2,432*	*12.3*	*12.2*	*12.7*	*13.1*

[1] Excludes the Northwest Territories. [2] Includes venereal diseases only for the Northwest Territories.
[3] Includes other cases and cases where type not specified. [4] Less than 0.05 per 100,000 population.

16.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, by Province, 1962

International List No.	Disease	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.
		Number of Cases											
044	Brucellosis (undulant fever)	—	—	—	—	50	13	18	10	5	2	—	..
764	Diarrhoea of the newborn, epidemic	—	—	51	—	—	[1]	6	[1]	6	19	—	..
055	Diphtheria	—	—	—	—	20	9	24	5	10	3	—	..
045, 046, 048	Dysentery[2]	3	9	1,366	3	143	401	133	65	298	489	—	..
046	Amoebic	—	—	—	—	—	*3*	—	*1*	*2*	*1*	—	..
045	Bacillary	—	*9*	*138*	*3*	*145*	*398*	*74*	*64*	*260*	*152*	—	..
082.0	Encephalitis, infectious	—	[1]	—	—	—	[1]	4	—	—	—	—	..
049.0, 042.1, 049.2	Food poisoning	22	3	5	2	379	[1]	7	209	230	556	—	..
092, N998.5	Hepatitis, infectious (including serum hepatitis)	520	120	951	90	2,210	3,473	831	654	1,726	1,889	74	..
080.2, 082.1	Meningitis, viral or aseptic	17	[1]	19	73	58	[1]	10	6	52	43	—	..
057	Meningococcal infections	16	5	3	5	22	22	11	4	9	13	—	..
766	Pemphigus neonatorum (impetigo of the newborn)	—	[1]	13	—	—	[1]	—	—	—	—	—	..
056	Pertussis (whooping cough)	189	164	1,430	10	1,577	3,073	17	180	980	456	—	..
080.0, 080.1	Poliomyelitis, paralytic	—	—	1	1	52	20	4	3	6	2	—	..
050, 051	Scarlet fever and streptococcal sore throat	281	1,857	1,428	12	582	2,890	116	581	1,235	1,254	5	..
040, 041	Typhoid and paratyphoid fever	2	1	6	4	167	51	3	17	15	10	—	..
	Venereal diseases	288	39	620	293	3,162	3,111	1,962	2,277	3,694	4,276	229	182
030–034	Gonorrhoea	*240*	*34*	*566*	*279*	*2,461*	*2,318*	*1,817*	*2,066*	*3,660*	*3,860*	*223*	*178*
020–021.3, 023, 024, 026–029	Syphilis	*48*	*5*	*54*	*14*	*701*	*796*	*145*	*209*	*134*	*316*	*6*	*4*
036–038	Other	—	[1]	—	—	—	*2*	—	*2*	—	—	—	—
		Rates per 100,000 Population											
044	Brucellosis (undulant fever)	—	—	—	—	0.9	0.2	1.9	1.1	0.4	0.1	—	..
764	Diarrhoea of the newborn, epidemic	—	—	6.8	—	—	[1]	0.6	[1]	0.4	1.1	—	..
055	Diphtheria	—	—	—	—	0.4	0.1	2.6	0.5	0.7	0.2	—	..
045, 046, 048	Dysentery[2]	0.6	8.5	183.1	0.5	2.7	6.3	14.2	7.0	21.8	29.5	—	..
046	Amoebic	—	—	—	—	—	[3]	—	*0.1*	*0.1*	*0.1*	—	..
045	Bacillary	—	*8.5*	*18.5*	*0.5*	*2.7*	*6.3*	*7.9*	*6.9*	*19.0*	*9.2*	—	..
082.0	Encephalitis, infectious	—	[1]	—	—	—	[1]	0.4	—	—	—	—	..
049.0, 042.1, 049.2	Food poisoning	4.7	2.8	0.7	0.3	7.1	[1]	0.7	22.5	16.8	33.5	—	..
092, N998.5	Hepatitis, infectious (including serum hepatitis)	110.6	113.2	127.5	14.8	41.2	54.8	88.9	70.3	126.0	113.9	493.3	..
080.2, 082.1	Meningitis, viral or aseptic	3.6	[1]	2.5	12.0	1.1	[1]	1.1	0.6	3.8	2.6	—	..
057	Meningococcal infections	3.4	4.7	0.4	0.8	0.4	0.3	1.2	0.4	0.7	0.8	—	..
766	Pemphigus neonatorum (impetigo of the newborn)	—	[1]	1.7	—	—	[1]	—	—	—	—	—	..
056	Pertussis (whooping cough)	40.2	154.7	191.7	1.6	29.4	48.5	1.8	19.4	71.5	27.5	—	..
080.0, 080.1	Poliomyelitis, paralytic	—	—	0.1	0.2	1.0	0.3	0.4	0.3	0.4	0.1	—	..
050, 051	Scarlet fever and streptococcal sore throat	59.8	1,751.9	191.4	2.0	10.8	45.6	12.4	62.5	90.1	75.6	33.3	..
040, 041	Typhoid and paratyphoid fever	0.4	0.9	0.8	0.7	3.1	0.8	0.3	1.8	1.1	0.6	—	..
	Venereal diseases	61.3	36.8	83.1	48.3	58.9	49.1	209.8	244.8	269.6	257.7	1,526.7	758.3
030–034	Gonorrhoea	*51.1*	*32.1*	*75.9*	*46.0*	*45.9*	*36.6*	*194.3*	*222.1*	*259.9*	*238.7*	*1,486.7*	*741.7*
020–021.3, 023, 024, 026–029	Syphilis	*10.2*	*4.7*	*7.2*	*2.3*	*13.1*	*12.6*	*15.5*	*22.5*	*9.8*	*19.0*	*40.0*	*16.7*
036–038	Other	—	[1]	—	—	—	[3]	—	*0.2*	—	—	—	—

[1] Not reportable. [2] Includes other cases and cases where type not specified. [3] Less than 0.05 per 100,000 population.

Illness in the Federal Civil Service.—A study of the incidence and duration of illness among federal civil servants is made annually from data supplied by medical certificates, which are required for all absences of more than three days at one time and for

absence of any duration after seven days of casual leave have been taken. During the calendar year 1962, of an estimated 151,400 civil servants covered by Civil Service Leave Regulations, 51,562 reported ill by medical certificate.

17.—Rates per 1,000 Employees of Illnesses and Days of Illness for Federal Civil Servants, by Cause, 1962

(Certified sick leave only)

International List Number	Cause	Rates per 1,000 Employees	
		Illnesses	Days of Illness
		No.	No.
001–138	Infective and parasitic diseases	13.4	261.2
140–239	Neoplasms	9.6	353.9
240–289	Allergic, endocrine system, metabolic, and nutritional diseases	11.1	182.9
290–299	Diseases of the blood and blood-forming organs	2.1	54.0
300–326	Mental, psychoneurotic, and personality disorders	17.8	508.6
330–398	Diseases of the nervous system and sense organs	22.9	341.1
400–468	Diseases of the circulatory system	30.1	998.9
470–527	Diseases of the respiratory system	221.2	1,585.6
530–587	Diseases of the digestive system	81.6	1,136.9
590–637	Diseases of the genito-urinary system	25.2	395.4
640–689	Deliveries and complications of pregnancy, childbirth, and the puerperium	1.9	27.9
690–716	Diseases of the skin and cellular tissue	15.0	159.0
720–749	Diseases of the bones and organs of movement	35.4	608.2
750–759	Congenital malformations	0.5	12.5
780–795	Symptoms, senility, and ill-defined conditions	26.5	302.9
N800–N999	Accidents, poisonings, and violence	41.1	623.0
	All Illnesses	**558.8**	**7,565.0**

PART II.—PUBLIC WELFARE AND SOCIAL SECURITY

Responsibility for social welfare is shared by all levels of government. Comprehensive income-maintenance measures such as old age security and family allowances, and programs such as unemployment insurance and the National Employment Service where nation-wide co-ordination is required, are administered federally. Substantial federal aid is given to the provinces in meeting the costs of public assistance. The Federal Government also provides services for special groups such as veterans, Indians, Eskimos and immigrants.

The Department of National Health and Welfare is generally responsible for federal welfare matters; the Departments of Veterans Affairs, Citizenship and Immigration, and Northern Affairs and National Resources also operate programs for specific groups. The Unemployment Insurance Commission is responsible for the operation of unemployment insurance and the National Employment Service.

Administration of welfare services is primarily the responsibility of the provinces but the provision of services is often assumed by local authorities, generally with financial aid from the province.

Section 1.—Federal Government Programs

Subsection 1.—Family Allowances

The Family Allowances Act of 1944 is designed to assist in providing equal opportunity for all Canadian children. The allowances do not involve a means test and are paid from the federal Consolidated Revenue Fund. They do not constitute taxable income but there is a smaller income tax exemption for children eligible for allowances.

Allowances are payable in respect of every child under the age of 16 years* who was born in Canada, or who has been a resident of the country for one year, or whose father or mother was domiciled in Canada for three years immediately prior to the birth of the child. Payment is made by cheque each month, normally to the mother, although any person who substantially maintains the child may be paid the allowance on his behalf. Allowances are paid at the monthly rate of $6 for each child under 10 years of age and $8 for each child age 10 or over but under 16 years. If the allowances are not spent for the purposes outlined in the Act, payment may be discontinued or made to some other person or agency on behalf of the child. Allowances are not payable for any child who fails to comply with provincial school regulations or on behalf of a girl who is married and under 16 years of age. The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital. A Regional Director for the Yukon and Northwest Territories is located at Ottawa.

The Federal Government pays family assistance, at the rates applicable for family allowances, for each child under 16 years of age resident in Canada and supported by an immigrant who has landed for permanent residence in Canada, or by a Canadian returned to Canada to reside permanently. The assistance, which is payable monthly and for a maximum period of one year, is not payable for a child eligible for family allowances.

* In his 1964 Budget Speech, the Minister of Finance announced that the government would propose that family allowances be paid in respect of children aged 16 and 17 who are attending full-time educational or training courses. These allowances would be in the amount of $10 a month and would be payable 12 months a year.

1.—Family Allowances Statistics, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books, beginning with the 1947 edition.

Province or Territory	Families Receiving Allowance in March	Children for Whom Allowance Paid in March	Average Number of Children per Family in March	Average Allowance[1]		Net Total Allowances Paid during Fiscal Year
				Per Family	Per Child	
	No.	No.	No.	$	$	$
Newfoundland	66,657	207,120	3.11	20.80	6.70	16,562,083
Prince Edward Island	14,344	40,423	2.82	18.99	6.74	3,259,952
Nova Scotia	106,018	271,476	2.56	17.14	6.69	21,838,772
New Brunswick	83,272	239,507	2.87	19.33	6.72	19,340,514
Quebec	752,413	1,999,894	2.66	17.87	6.72	160,299,079
Ontario	939,314	2,172,643	2.31	15.44	6.68	172,711,354
Manitoba	132,937	319,564	2.40	16.07	6.69	25,523,719
Saskatchewan	131,066	331,394	2.53	16.89	6.68	26,539,801
Alberta	208,646	509,805	2.44	16.29	6.67	40,315,733
British Columbia	239,496	550,380	2.30	15.40	6.70	43,834,184
Yukon and Northwest Territories	6,582	17,674	2.68	17.03	6.34	1,341,158
Canada 1963	**2,680,745**	**6,659,880**	**2.48**	**16.63**	**6.69**	**531,566,349**
1962	**2,649,317**	**6,562,287**	**2.48**	**16.58**	**6.69**	**520,781,193**
1961	**2,602,930**	**6,397,134**	**2.46**	**16.42**	**6.68**	**506,191,647**
1960	**2,551,264**	**6,219,989**	**2.44**	**16.27**	**6.67**	**491,214,359**
1959	**2,492,581**	**6,035,256**	**2.42**	**16.15**	**6.67**	**474,787,068**

[1] Based on gross payment for March.

Subsection 2.—Old Age Security

The Old Age Security Act of 1951, as amended, provides a universal pension of $75 a month payable by the Federal Government to all persons aged 70 or over, subject to a residence qualification. The rate was raised from $65 to $75 a month effective Oct. 1, 1963. To qualify for pension a person must have resided in Canada for ten years immediately preceding its commencement or, if absent during that period, must have been actually present in Canada prior to it for double any period of absence and must have resided in Canada at least one year immediately preceding commencement of pension. Payment of pension may be continued for any period of residence outside Canada if the pensioner has resided in Canada for at least 25 years after attaining the age of 21 or, if he has not, it may be continued for six consecutive months exclusive of the month of departure from Canada. The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital.

The pension is financed on the pay-as-you-go method through a 3-p.c. sales tax, a 3-p.c. tax on corporation income and, subject to a limit of $120 a year, a 4-p.c. tax on taxable personal income. Yields from these taxes are paid into the Old Age Security Fund; if they are insufficient to meet the pension payments, temporary loans or grants are made from the Consolidated Revenue Fund.

Persons in receipt of old age assistance (see p. 303) who reach age 70 are automatically transferred to old age security. Others make application to the regional offices. Recipients of old age security who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

2.—Old Age Security Statistics, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books beginning with the 1952-53 edition.

Province	Pensioners in March	Net Pensions Paid during Fiscal Year	Province or Territory	Pensioners in March	Net Pensions Paid during Fiscal Year
	No.	$		No.	$
Newfoundland	18,184	14,013,832	British Columbia	120,678	93,362,860
Prince Edward Island	7,635	5,962,922	Yukon and Northwest Territories	676	524,445
Nova Scotia	43,583	33,817,492			
New Brunswick	31,935	24,858,331			
Quebec	202,405	155,359,915	**Canada** 1963	950,766	734,381,632
Ontario	344,002	265,742,644	1962	927,590	625,107,804
Manitoba	57,692	44,617,405	1961	904,906	592,413,283
Saskatchewan	59,690	46,334,646	1960	876,410	574,887,046
Alberta	64,286	49,787,140	1959	854,284	559,279,858

Subsection 3.—Other Federal Government Programs

Unemployment Insurance and National Employment Service.—In 1940, by an amendment to the British North America Act, the Federal Government was given jurisdiction in the field of unemployment insurance and the Unemployment Insurance Act was passed establishing a national system of unemployment insurance which is outlined in Chapter XVIII.

The National Employment Service is operated in conjunction with the unemployment insurance scheme. Statistics of positions offered and placements made are given in Chapter XVIII.

Prairie Farm Assistance.—The Prairie Farm Assistance Act is administered by the Department of Agriculture; a description of the legislation is given in Chapter XI.

Welfare Services for Indians and Eskimos.—Indians and Eskimos benefit as other Canadians under the federal income maintenance programs, but welfare services are administered by the Department of Citizenship and Immigration and the Department of Northern Affairs and National Resources, respectively, with some provincial participation. This topic is covered in the Population Chapter (pp. 190-198).

Section 2.—Federal-Provincial Programs

Subsection 1.—Old Age Assistance

The Old Age Assistance Act of 1951, as amended, provides for federal reimbursement to the provinces for assistance to persons aged 65 or over who are in need and who have resided in Canada for at least ten years or who, if absent from Canada during this period, have been present in Canada prior to the commencement of the ten-year period for double any period of absence. On reaching age 70 a pensioner is transferred to old age security. The federal contribution may not exceed 50 p.c. of $75 a month (raised from $65 a month in December 1963) or of the assistance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of assistance payable, the maximum income allowed and other conditions of eligibility. All provinces use a maximum payment of $75 a month and the income limits set out below. In May 1964, the Yukon and Northwest Territories were using a maximum payment of $65.

For an unmarried person, total income allowed, including assistance, may not exceed $1,260 a year. For a married couple it may not exceed $2,220 a year or, when the spouse is blind within the meaning of the Blind Persons Act, $2,580 a year. Assistance is not paid to a person receiving an old age security pension or an allowance under the Blind Persons Act, the Disabled Persons Act, or the War Veterans Allowance Act.

Recipients of old age assistance who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

3.—Old Age Assistance Statistics, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books, beginning with the 1952-53 edition.

Province or Territory	Recipients in Month of March	Average Amount of Monthly Assistance	P.C. of Recipients to Population Age 65-69	Federal Government Contribution during Year
	No.	$		$
Newfoundland	5,187	63.00	52.93	1,987,213
Prince Edward Island	1,039	60.35	28.86	375,350
Nova Scotia	5,421	59.76	25.45	2,007,871
New Brunswick	5,491	61.58	33.90	2,065,950
Quebec	37,086	61.48	31.01	13,793,745
Ontario	23,925	58.80	13.12	8,458,293
Manitoba	5,448	60.83	19.39	2,001,606
Saskatchewan	5,866	59.63	21.18	2,220,539
Alberta	6,479	60.30	20.18	2,523,720
British Columbia	7,039	62.26	14.02	2,675,208
Yukon Territory	34	64.47	17.00	15,287
Northwest Territories	144	63.36	48.00	54,275
Canada **1963**	**103,159**	**60.68**	**21.00**	**38,179,057**
1962	**98,944**	**53.87**[1]	**20.14**	**30,810,585**
1961	**100,184**	**50.56**	**20.57**	**30,657,396**
1960	**98,773**	**50.74**	**20.57**	**30,349,393**
1959	**97,836**	**50.97**	**20.64**	**30,207,284**

[1] The average monthly assistance was $61.09 for June 1962, the first month for which an average based on the maximum of $65 a month was computed.

Subsection 2.—Allowances for Blind Persons

The Blind Persons Act of 1951, as amended, provides for federal reimbursement to the provinces for allowances to blind persons aged 18 or over who are in need and who have resided in Canada for at least ten years. The federal contribution may not exceed 75 p.c. of $75 a month (raised from $65 a month in December 1963) or of the allowance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable and the maximum income allowed. All provinces use a maximum payment of $75 a month and the income limits set out below. In May 1964 the Yukon and Northwest Territories were using a maximum payment of $65.

To qualify for an allowance a person must meet the required definition of blindness and have resided in Canada for ten years immediately preceding commencement of allowance or, if absent from Canada during this period, must have been present in Canada prior to its commencement for a period equal to double any period of absence. For an unmarried person, total income including the allowance may not exceed $1,500 a year; for a person with no spouse but with one or more dependent children, $1,980; for a married couple, $2,580. When the spouse is also blind, income of the couple may not exceed $2,700. Allowances are not payable to a person receiving assistance under the Old Age Assistance Act, an allowance under the Disabled Persons Act or the War Veterans Allowance Act, a pension under the Old Age Security Act or a pension for blindness under the Pensions Act.

Recipients of blindness allowances who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

4.—Statistics of Allowances for the Blind, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books beginning with the 1952-53 edition.

Province or Territory	Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year
	No.	$		$
Newfoundland	429	63.70	0.200	247,377
Prince Edward Island	83	63.21	0.162	47,103
Nova Scotia	792	63.08	0.208	450,275
New Brunswick	701	63.79	0.241	410,317
Quebec	2,891	63.74	0.102	1,662,937
Ontario	1,877	58.73	0.053	992,300
Manitoba	379	62.80	0.075	214,163
Saskatchewan	422	63.18	0.089	240,693
Alberta	463	63.53	0.063	271,516
British Columbia	547	64.04	0.060	319,457
Yukon Territory	4	65.00	0.049	2,239
Northwest Territories	46	59.13	0.393	23,452
Canada 1963	**8,634**	**62.50**	**0.087**	**4,881,829**
1962	8,573	56.78[1]	0.087	4,129,852
1961	8,642	52.97	0.089	4,161,833
1960	8,671	53.05	0.090	4,197,087
1959	8,747	53.15	0.092	4,235,131

[1] The average monthly allowance was $62.65 for June 1962, the first month for which an average based on the maximum of $65 a month was computed.

Subsection 3.—Allowances for Disabled Persons

The Disabled Persons Act of 1954, as amended, provides for federal reimbursement to the provinces for allowances paid to permanently and totally disabled persons aged 18 or over who are in need and who have resided in Canada for at least ten years immediately preceding commencement of allowance or, if absent from Canada during this period, have been present in Canada prior to its commencement for a period equal to double any period of absence. To qualify for an allowance a person must meet the definition of permanent and total disability set out in the Regulations to the Act which requires that a person must be suffering from a major physiological, anatomical or psychological impairment, verified by objective medical findings; the impairment must be one that is likely to continue indefinitely without substantial improvement and that will severely limit activities of normal living. The federal contribution may not exceed 50 p.c. of $75 a month (raised from $65 a month in December 1963) or of the allowance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable, the maximum income allowed and other conditions of eligibility. All provinces use a maximum payment of $75 a month and the income limits set out in the following paragraph. In May 1964, the Yukon and Northwest Territories were using a maximum payment of $65.

For an unmarried person, total income including the allowance may not exceed $1,260 a year. For a married couple the limit is $2,220 a year except that if the spouse is blind within the meaning of the Blind Persons Act, income of the couple may not exceed $2,580 a year. Allowances are not paid to a person receiving an allowance under the Blind Persons Act or the War Veterans Allowance Act, assistance under the Old Age Assistance Act, a pension under the Old Age Security Act, or a mothers' allowance.

The allowance is not payable to a patient in a mental institution or a tuberculosis sanatorium. A recipient who is resident in a nursing home, an infirmary, a home for the aged, an institution for the care of incurables, or a private, charitable or public institution is eligible for the allowance only if the major part of the cost of his accommodation is being paid by himself or another individual. When a recipient is required to enter a public or private hospital, the allowance may be paid for no more than two months of hospitalization in a calendar year, excluding months of admission and release, but for the period that a recipient is in hospital for therapeutic treatment for his disability or rehabilitation, the allowance may continue to be paid.

In recent years, disabilities in the two medical classes—mental, psychoneurotic and personality disorders, and diseases of the nervous system and sense organs—have been found to be the most prevalent among the persons becoming eligible for allowance, followed by diseases of the circulatory system. Mental deficiency, the most frequently occurring disability, has accounted for over one quarter of all cases granted an allowance.

Recipients of disability allowances who are in need may receive supplementary aid under general assistance programs in the province. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

5.—Statistics of Allowances for Disabled Persons, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books beginning with the 1956 edition.

Province or Territory		Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year
		No.	$		$
Newfoundland		1,436	64.61	0.670	532,852
Prince Edward Island		795	64.40	1.556	311,831
Nova Scotia		2,919	63.84	0.767	1,113,882
New Brunswick		2,060	64.51	0.707	791,069
Quebec		21,347	64.33	0.749	8,577,890
Ontario		14,886	63.69	0.423	5,537,215
Manitoba		1,520	64.19	0.301	577,685
Saskatchewan		1,602	64.46	0.338	630,838
Alberta		1,780	63.56	0.244	697,294
British Columbia		2,248	64.18	0.245	853,602
Yukon Territory		7	65.00	0.085	2,358
Northwest Territories		21	65.00	0.179	7,797
Canada	**1963**	**50,621**	**64.10**	**0.509**	**19,634,313**
	1962	**50,029**	**58.07**[1]	**0.509**	**16,433,611**
	1961	**50,650**	**53.80**	**0.522**	**16,385,820**
	1960	**49,889**	**53.86**	**0.520**	**16,050,514**
	1959	**48,040**	**53.84**	**0.508**	**15,330,368**

[1] The average monthly allowance was $64.04 for June 1962, the first month for which an average based on the maximum of $65 a month was computed.

Subsection 4.—Unemployment Assistance

Under the Unemployment Assistance Act 1956, as amended, the Federal Government may enter an agreement with any province to reimburse it for 50 p.c. of the unemployment assistance expenditures made by the province and its municipalities to persons and their dependants who are unemployed and in need. All provinces and the two territories have signed agreements under the Act. The rates and conditions of assistance are determined by the provinces and, in some cases, by their municipalities. Payments to both employable and unemployable persons are sharable under the agreements, as are the costs of maintaining persons in homes for special care, such as nursing homes or homes for the aged. The Federal Government shares in additional assistance paid to needy persons in receipt of old age security pensions, old age assistance, blind persons' allowances, disabled persons' allowances and unemployment insurance benefits, where the amount of the assistance paid is determined through an assessment both of the recipient's basic requirements and of his financial resources.

During the year ended Mar. 31, 1963, the Federal Government made payments for unemployment assistance amounting to $96,476,627. The federal share of assistance costs shown in Table 6, however, is based on payments for the months in which the assistance was actually given and, since claims may be submitted at any time within six months after the month to which they relate, the figures for each fiscal year include certain reimbursements made to the provinces after the end of that year.

6.—Unemployment Assistance, by Province, Year Ended Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the Act to 1962 are given in the corresponding table of previous Year Books beginning with the 1957-58 edition.

Province	Recipients[1] in March	Federal Share of Unemployment Assistance Costs[2]	Province or Territory	Recipients[1] in March	Federal Share of Unemployment Assistance Costs[2]
	No.	$		No.	$
Newfoundland	59,199	4,218,134	British Columbia	94,570	15,798,280
Prince Edward Island	3,270	225,123	Yukon Territory	292	52,496
Nova Scotia	28,056	1,610,250	Northwest Territories	685	62,848
New Brunswick	39,782	1,704,427			
Quebec	265,612	36,274,266	**Canada**.....1963	**754,164**	**96,184,792**
Ontario	141,068	20,447,510	1962	**703,601**	**87,427,726**
Manitoba	32,579	4,526,878	1961	**562,720**	**59,707,964**
Saskatchewan	44,227	4,777,912	1960	**322,553**	**38,201,087**
Alberta	44,824	6,486,668	1959	**297,760**	**30,849,721**

[1] Includes dependants. [2] Payment figures shown are for the months to which the claims made under the program relate and include amounts paid to the provinces by the Federal Government after the end of the fiscal year.

Subsection 5.—Fitness and Amateur Sport Program

The Fitness and Amateur Sport Act, 1961 brought a new focus and impetus to the development of fitness in Canada and to efforts to raise levels of participation and proficiency in both competitive and non-competitive sports. The Act is administered by the Fitness and Amateur Sport Directorate in the Welfare Branch of the Department of National Health and Welfare. The legislation provides for an annual $5,000,000 allocation "to encourage, promote and develop fitness and amateur sport". The program operates through three main channels. Grants are made to national organizations for projects of national interest and to assist national and international aspects of the program, and to the provinces to develop and extend community effort. In addition, federal co-ordinating and developmental work is carried on by the Department in co-operation with other agencies concerned with different aspects of fitness and amateur sport.

A 30-member National Advisory Council on Fitness and Amateur Sport advises the Minister on the program and committees of experts advise on technical aspects as required.

One of the main tasks undertaken, in addition to aiding participation in sports and fitness events, has been the building up of training for leaders, coaches and other professional personnel at the community level; the Act bolsters and enlarges the emphasis previously given to this work by programs in operation in the provinces. Scholarships, fellowships and bursaries assist persons in undertaking professional studies in physical education, recreation and the medical aspects of fitness.

The Act provides for aid to research on fitness matters and for surveys of resources, facilities and personnel. The urgent need for new and greatly expanded informational material for both the expert and the public has long been recognized; through the new program, instructional material suitable to Canadian needs is developed with the co-operative efforts of experts from across Canada.

Subsection 6.—National Welfare Grant Program

The National Welfare Grant Program, established in November 1962, is designed to help develop and strengthen welfare services in Canada. In the year ended Mar. 31, 1964, $500,000 was allocated to the program, which is scheduled to grow at the rate of $500,000 each year until an annual amount of $2,500,000 is reached. The program consists of a General Welfare and Professional Training Grant and of a Welfare Research Grant. Provincial governments, municipal welfare departments, non-governmental welfare and correctional agencies, universities and individuals may be the ultimate recipients of grants under one or more provisions of the program. Some are financed and administered entirely by the Federal Government; others require application through a provincial department of welfare, which actually makes the award on a cost-sharing basis with the Federal Government.

General welfare, bursary, training and staff development grants are shared provisions. General welfare grants provide funds for projects to improve welfare administration, to develop provincial consultative and co-ordinating services, and to strengthen and extend public and voluntary welfare services in child welfare, aging, general assistance and other welfare fields. Bursaries are provided for full-time graduate training at Canadian schools of social work, and training grants are available for employees of government and voluntary welfare agencies who are granted leave for this purpose. Staff development grants provide support for a wide variety of staff training programs for personnel employed, or to be employed, in public and non-governmental welfare agencies at the direct service, supervisory and administrative levels.

The other provisions of the program are administered and financed by the Federal Government. Welfare scholarships are awarded, on the basis of annual nation-wide competition, for graduate study in Canadian schools of social work, to a limited number of applicants who have completed at least their undergraduate studies with high academic standing. Fellowships are awarded in the same way for advanced study at Canadian and foreign universities to applicants who have demonstrated leadership qualities and ability in the fields of administration, teaching and research in Canadian welfare. Teaching and field instruction grants assist Canadian schools of social work with the salaries of additional staff required to implement the welfare grant program.

Under the Welfare Research Grant, funds are provided for a variety of surveys, studies and research projects undertaken by public and voluntary welfare and correctional agencies, universities and research institutions. Priority is given to those projects holding promise of significant progress in the organization, co-ordination and staffing of existing welfare services and in the development of new services focused on the prevention of welfare problems and dependency.

Subsection 7.—Vocational Rehabilitation

The nation-wide vocational rehabilitation program, started in 1952, was consolidated and extended under the Vocational Rehabilitation of Disabled Persons Act, 1961. Under federal-provincial agreements to share equally the costs of co-ordination, assessment and provision of services to disabled individuals, of training personnel and of research, the provinces have developed comprehensive programs in co-operation with existing services. Services, which may be either provided directly or obtained from other agencies or individuals by provincial rehabilitation authorities, include medical, social and vocational assessment, counselling, restorative services, vocational training and employment placement. They are designed to assist individuals having a substantial physical or mental

disability to become vocationally useful in gainful employment or in the home. A provincial co-ordinator or director of rehabilitation, placed in the health or welfare department, is responsible for the co-ordination and administration of vocational rehabilitation services to disabled individuals. In 1963, the provincial staff employed in vocational rehabilitation totalled 140.

The National Co-ordinator in the Civilian Rehabilitation Branch, Department of Labour, administers the federal aspects of this program. A National Advisory Council composed of representatives of the provinces, employers, labour, the medical profession, national voluntary agencies and the universities, and a federal Interdepartmental Committee on Vocational Rehabilitation and the Co-ordination of Rehabilitation Services have been formed. In the year ended Mar. 31, 1963, federal-provincial expenditures under the program (exclusive of vocational training) totalled $666,290. Full reports were received on 1,814 disabled persons rehabilitated during the year; before rehabilitation most of these persons and their dependants relied on private or public assistance for support but following rehabilitation the estimated amount earned by those gainfully employed was $3,400,000.

Although administered separately, medical rehabilitation, vocational training and special employment services for the handicapped are available as integral parts of the federal-provincial rehabilitation program. Suitable training where required is supplied through the federal-provincial agreements made under the Technical and Vocational Training Assistance Act administered by the Department of Labour which provides for equal sharing by Canada and the provinces of the cost of approved programs for the training of disabled persons who require such training to fit them for gainful employment. The training costs cover pre-vocational preparation, tuition, books and supplies, maintenance allowances, travel expenses and extra costs necessitated by disability. Disabled persons approved by provincial training selection committees may attend regular provincial or municipal vocational schools, private trade schools, universities, special classes, or be trained on the job. During 1962-63 there were 2,968 disabled persons enrolled in various courses; federal payments amounted to $748,601.

The National Employment Service undertakes job placement of disabled persons with occupational handicaps. Employment liaison officers of the Special Services Section, who advise on employment conditions and the working capabilities of disabled persons, have been seconded to the offices of the provincial co-ordinators of rehabilitation in five provinces. Referrals for job placement are made to some 350 Special Services Officers in the local employment offices. Placements of handicapped persons who required assistance in finding work in 1963 (including those referred from provincial rehabilitation authorities) numbered 18,030.

The Federal Government provides direct services for particular groups through programs administered by the Department of Veterans Affairs for disabled, chronically ill and aged veterans, by the Department of Citizenship and Immigration for disabled and handicapped Indians, and by the Department of Northern Affairs and National Resources for the training and resettlement of disabled Eskimos and Indians within its jurisdiction.

Section 3.—Provincial Welfare Programs

Major welfare programs governed by provincial legislation include general assistance and social allowances, mothers' allowances, services for the aged, and child care and protection. In most provinces responsibility for a number of the programs is shared by the provinces and their municipalities. Provincial administration of welfare services is carried

out through the department of public welfare in each province; several departments have established regional offices to facilitate administration and to provide consultative services to the municipalities.

In recent years, the provinces have assumed a substantial share of the costs of general assistance or residual aid, and some have broadened the area of social allowances, formerly limited almost entirely to mothers' allowances, in which the municipalities do not share costs. The financial contributions of the Federal Government to the provinces for unemployment assistance (see p. 306) has doubtless been an important contributing factor in these developments.

All provinces continue to give consideration to the need for planning on behalf of older citizens. A number have increased their capital or maintenance grants to municipalities and to voluntary groups for homes for the aged and are assisting in the construction of low-rental housing projects.

The main efforts in child welfare have been directed toward improvement of standards and greater flexibility of services, with particular emphasis on preventive casework services for children in their own homes, development of specialized children's institutions, and the finding of adoption homes for all children in need of them.

The public services are supplemented by an impressive number of voluntary agencies which also contribute to community welfare, including the welfare of families and children and of groups with special needs, such as the aged, recent immigrants, youth groups and released prisoners. Welfare councils and social planning councils contribute to the planning and co-ordinating of local welfare services. Local voluntary agencies and institutions may receive public grants, depending on the nature and standard of the services they render, although, with the exception of the semi-public children's aid societies, their main support may be from united funds or community chests, or from sponsoring organizations.

Subsection 1.—Mothers' Allowances

All provinces make provision for allowances to needy mothers. A number of provinces include such allowances in a broadened program of provincial allowances to several categories of persons with long-term need. There is a tendency to incorporate this legislation with general assistance within a single Act, while continuing separate administration. In British Columbia, on the other hand, aid is provided to needy mothers under the general assistance program and in the same way as to other needy persons.

Subject to conditions of eligibility which vary from province to province, mothers' allowances or their equivalents are payable from provincial funds to applicants who are widowed, or whose husbands are mentally incapacitated or are physically disabled and unable to support their families. They are also payable to deserted wives who meet specified conditions; in several provinces to mothers whose husbands are in penal institutions, or who are divorced or legally separated; in some, to unmarried mothers; and in Ontario, Quebec and Nova Scotia to Indian mothers. Foster mothers may be eligible under particular circumstances in most provinces.

The age limit for children is 16 years in most provinces, with provision made to extend payment for a specified period if the child is attending school or if he is physically or mentally handicapped. In all provinces applicants must satisfy conditions of need and residence but the amount of outside income and resources allowed and the length of residence required prior to application vary, the most common period being one year. One province has a citizenship requirement.

The numbers of families and children assisted in each province as at Mar. 31, 1963, together with the amounts of benefits paid during the year are given in Table 7 and rates of benefit as at April 1964 in Table 8.

7.—Mothers' Allowances, by Province, as at Mar. 31, 1963 with Totals for 1959-63

NOTE.—Provincial figures for each year from the inception of the allowance to 1962 are given in the corresponding table of previous Year Books.

Province		Families Assisted	Children Assisted	Payments during the Year Ended Mar. 31
		No.	No.	$
Newfoundland		4,836	13,216	4,687,760
Prince Edward Island		293	747	140,885
Nova Scotia		2,760	7,477	2,311,725
New Brunswick		2,165	6,287	1,347,479
Quebec		19,531	51,638	20,743,405
Ontario		10,182	24,715	13,913,657
Manitoba		1,811	3,823	2,576,796
Saskatchewan		2,459	6,158	3,512,769
Alberta[1]		1,210	2,361	1,407,020
British Columbia		[2]	[2]	[2]
Canada[3]	**1963**	**45,247**	**116,422**	**50,641,496**
	1962	**45,477**	**117,384**	**48,104,508**
	1961	**45,918**	**119,423**	**46,245,303**
	1960	**43,937**	**114,469**	**44,884,971**
	1959	**44,240**[4]	**116,000**[4]	**41,478,206**

[1] An additional 2,563 families with 7,542 children were assisted under Part III of the Public Welfare Act; cost of allowances for this group is included in total payments for all groups under Part III. [2] No separate figures are available. [3] Exclusive of British Columbia. [4] Approximate.

8.—Maximum Monthly Rates under Provincial Mothers' Allowances Programs, April 1964

Province	Mother and One Child	Each Additional Child	Disabled Father at Home	Family Maximum	Supplementary
Nfld.	Food: $35 or $37 depending on age of child. Clothing: $5 for each person. Rent: up to $20 monthly in rural and to $30 monthly in urban areas. Fuel: up to $10.	Food: $10 for each child under age 16; $12 for each child age 16 or over. Clothing: $5.	$20	None set.	In special circumstances up to $30 a month additional if necessary for proper support of family.
P.E.I.	$70	$5	No additional allowance granted.	$125	None granted.
N.S.	No set maximum; rates are based on average family income for community in which family lives.		Included in budget on which allowance is based.	$90	None granted.
N.B.	$60	$10	No additional allowance granted.	$115	Director may grant an additional $10 for rent if circumstances require it, but only if allowance paid is below maximum.
Que.	$85	$10	$10	None set (minimum granted $5).	A supplementary allowance may be granted according to need.

8.—Maximum Monthly Rates under Provincial Mothers' Allowances Programs, April 1964—concluded

Province	Mother and One Child	Each Additional Child	Disabled Father at Home	Family Maximum	Supplementary
Ont.	$120 for mother or father and one child. $30 for one child living with foster mother.	$16 for 2nd child $14 for 3rd child $12 for 4th child $10 for 5th child. $25 for 2nd foster child $15 for each additional foster child.	Included in budget on which allowance is based.	$180	An increase in food allowance may be granted on medical recommendation. A fuel allowance of up to $24 a month may be granted from Sept. 1 to Mar. 31. An increase of 20 p.c. in fuel allowance may be granted under special circumstances.
Man.	Food, Clothing and Personal Needs: $52–$64 depending on age of child. Shelter: rent to $55, or current taxes and insurance at actual cost, minor repairs to $125 a year, principal and interest on mortgage or agreement for sale up to $55 less taxes and insurance. Utilities: up to $7.	$14 for child up to 3 years $16 for child 4–6 years $21 for child 7–11 years $26 for child 12–18 years (subject to reductions for 4th and each additional child).	$25	None set.	$10 for rent if necessary. Housekeeper service as required. Fuel allowance for eight months. For special needs not covered by basic schedule items, up to $150 a year.
Sask.	Food, Clothing. Household and Personal Needs: $51.80–$67.00 depending on age of child Rent: $40 Fuel: up to $15.15 Utilities: up to $11.	$17.40 for pre-school child $24.35 for child 6–11 years $29.30 for child 12–15 years $32.60 for child 16–18 years (subject to reductions for fourth and each additional person).	$31.50	None set.	Special food allowance may be granted on medical recommendation. An allowance for a housekeeper may be granted if necessary.
Alta.	Food and Clothing: $53.87–$72.27 depending on age and sex of child. Rent, Fuel, Utilities: according to community standards.	$16.00 for food and clothing for infant under 1 year. $12.10–$28.30 for food for child 1–18 years depending on age and sex. $5.30–$10.00 for clothing for child 1–19 years depending on age and sex, subject to 10-p.c. increase in food allowance for a family of two and a reduction of 5 p.c. in the allowance for food and clothing for a family of seven or more.	$31.60	None set.	An increase in food allowance may be granted on medical recommendation.
B.C.	Allowances to needy mothers provided under the Social Assistance Act and not separable.				

Subsection 2.—General Assistance

All provinces make legislative provision for general assistance on a means or needs test basis to needy persons and their dependants who cannot qualify for other forms of aid, and some provinces include those whose benefits under other programs are not adequate. Where necessary, the aid may be for maintenance in homes for special care. Besides financial aid for the basic needs of food, clothing, shelter and utilities, a number of provinces also provide incapacitation or rehabilitation allowances, counselling and homemaking services, and post-sanatorium care. This assistance, with some exceptions, is administered by the

municipality with substantial financial support from the province, which, in turn, is reimbursed by the Federal Government under the Unemployment Assistance Act for 50 p.c. of the provincial and municipal assistance given (see p. 306).

The provincial departments of public welfare have regulatory and supervisory powers over municipal administration of general assistance and may require certain standards as a condition of provincial aid. Length of residence is not a condition of aid in any province, but the residence of the applicant as defined by statute determines which municipality may be financially responsible for his aid. This rule does not apply in three provinces; British Columbia and Saskatchewan have equalized municipal payments and Quebec does not require its municipalities to contribute to general assistance costs. Provinces with unorganized areas take responsibility for aid in these districts. Under the federal Unemployment Assistance Act, all provinces have agreed that residence shall not be a condition of assistance for applicants who move from one province to another. For persons without provincial residence (usually a period of one year), aid may be given by the province or the municipality and a charge-back may or may not be made to the province or municipality of residence.

The formula for provincial-municipal sharing of costs is determined by the province. In Newfoundland, general assistance is the responsibility of the province and is administered by the Department of Public Welfare. In Prince Edward Island, the Department of Welfare and Labour provides direct social assistance in rural areas and assumes 75 p.c. of the cost of assistance granted by the City of Charlottetown and the incorporated towns and villages; aid to needy families where the breadwinner is suffering from tuberculosis is borne entirely by the province. In Nova Scotia, assistance is administered by the municipality, which receives reimbursement from the Department of Public Welfare for two thirds of the cost of the aid provided and one half of the cost of administration; allowances for certain disabled persons are administered by the province. In New Brunswick, the province reimburses each municipality to the extent of one dollar per capita of the population plus 70 p.c. of expenditures on general assistance in excess of that amount, and also pays 50 p.c. of the cost of administration.

In Quebec, the Department of Family and Social Welfare reimburses authorized agencies and municipal departments for the full cost of aid to persons in their own homes. It takes full responsibility for aid to persons who are unfit for work for at least 12 months, for supplementary allowances and allowances to needy widows and spinsters 60–65 years of age. The cost of aid to unemployable persons in homes for special care, including nursing homes, is borne two thirds by the province and one third by the institution. In Ontario, the Department of Public Welfare reimburses municipalities up to a prescribed maximum for 80 p.c. of their expenditures for general welfare assistance, and for 90 p.c. of expenditures for aid to persons in excess of a given proportion of the population in the municipality. Aid for rehabilitation services and aid on behalf of foster children, for which the municipalities are reimbursed 50 p.c., are excluded in these calculations. The province administers allowances to needy widows and unmarried women 60–65 years of age.

In Manitoba, the province administers aid to mentally or physically incapacitated persons whose disability is likely to last more than 90 days, and to persons unable to work because of their age. Aid to other needy persons, termed indigent relief, is the responsibility of the municipalities which are reimbursed through the provincial Department of Welfare to the extent of 40 p.c. of the costs, or at a higher rate if costs exceed a specified amount. In Saskatchewan, through the Department of Social Welfare and Rehabilitation, the province reimburses the municipalities for approximately 93 p.c. of the cost of assistance granted to needy persons. In Alberta, the province reimburses the municipalities for 80 p.c. of the value of the assistance given. The provincial Department of Public Welfare has full responsibility for allowances payable to persons who are mentally or physically handicapped for a period likely to last for more than 90 days, and to persons who because of their age are not able to be self-supporting. The Department maintains two hostels and one welfare centre to care for unemployable single homeless men without municipal domicile.

British Columbia, through its Department of Social Welfare, reimburses the municipalities on a pooled basis for 90 p.c. of the total cost of social assistance to needy persons. Also, the province shares equally with the municipalities expenditures on salaries of social workers; a municipality with fewer than 15,000 persons may arrange to have the Department undertake social work within the municipality and reimburse it at the rate of 60 cents per capita per year.

Subsection 3.—Services for the Aged

In all provinces, homes for the aged and infirm are provided under provincial, municipal or voluntary auspices. Voluntary homes generally are provincially inspected in accordance with prescribed standards and in some provinces must be licensed. Most provinces contribute to the maintenance of elderly persons in homes for the aged, either through general assistance or through statutes that relate particularly to these homes. Also, 50 p.c. of the payments on behalf of assistance cases in homes for the aged and infirm (homes for special care) are met by the Federal Government (see p. 313).

Several provinces make capital grants toward the construction of homes, and in five provinces capital grants are also available to municipalities, voluntary organizations, or limited-dividend companies for the construction of low-rental housing.

Newfoundland maintains a home for the aged and infirm at St. John's and pays part or all of the cost of maintaining needy old people in homes for the aged and boarding homes. In 1955, a grant of 20 p.c. of costs, to be paid over a ten-year period, was made to a religious organization for the construction of a home, and provision is made for grants to similar projects under other auspices. The province is authorized by the Senior Citizens (Housing) Act, 1960 to guarantee the repayment of loans made under the National Housing Act to limited-dividend companies constructing hostels or housing for the elderly and to guarantee the cost of operating such projects. The aged and infirm in Prince Edward Island are cared for in two institutions operated by the Department of Welfare and Labour. In Nova Scotia, the aged are cared for in municipal or county homes, in homes operated by religious or private organizations and in private boarding homes. The province reimburses the municipalities for two thirds of their expenditures for the maintenance of needy persons in municipal homes, subject to compliance with specified standards of care and accommodation. Homes for the aged receiving aid from the provincial government are subject to provincial inspection. Homes for the aged in New Brunswick are operated under municipal, religious, fraternal and private auspices and receive no direct financial support from the province. Voluntary and proprietary homes are subject to provincial licensing and inspection and must meet standards contained in regulations under the Health Act. Under the Social Assistance Act, 1960, the province contributes to the maintenance of needy persons in municipal homes.

Institutional care for indigent old people in Quebec is provided through charitable institutions under the Public Charities Act. The Homes for the Aged Act authorizes the province to erect and maintain homes for the aged and housing projects, or to make grants to voluntary organizations for this purpose. Standards in homes are governed by regulations under the Public Health Act.

Under the Ontario Homes for the Aged Act, municipalities must provide institutional or boarding-home care for the aged. The province contributes 50 p.c. of the costs of constructing approved homes and 70 p.c. of their net operating and maintenance costs. It also pays up to 70 p.c. of the costs of maintenance in approved boarding homes. Homes for the aged under voluntary auspices are approved, inspected and assisted under the Charitable Institutions Act, which provides for grants in aid of construction equalling 50 p.c. of costs up to $2,500 per bed and maintenance grants of 75 p.c. of the amount spent by the organization up to $3.40 per day for each resident. The Elderly Persons Housing Aid Act provides for grants to limited-dividend housing corporations building low-rental housing for elderly persons. In 1962, Ontario passed the Elderly Persons Social and

Recreational Centres Act, the first of its kind in Canada. This Act enables groups of interested citizens to provide social and recreational centres for elderly residents of a community. The province will meet up to 30 p.c. of the cost of constructing or buying a building for such a centre if the local municipality contributes 20 p.c.

Institutions and boarding homes for the aged and infirm in Manitoba are supervised and licensed by the Department of Health and Public Welfare under public health legislation. Under the Elderly Persons Housing Act, the province makes construction grants to municipalities and charitable organizations equalling one third of the costs of constructing or acquiring and renovating housing accommodation and homes for the aged. Grants may not exceed $1,400 for one-person housing units, $1,667 for two-person housing units, $1,200 per bed for new homes for the aged, and $700 per bed for homes that have been renovated. Under the Social Allowances Act, 1959, the province bears the entire cost of assistance to those who, because of age or incapacity, require care for more than 90 days by another or in a home for the aged.

Aged and infirm persons in Saskatchewan are cared for in four provincial nursing homes and in voluntary homes for the aged. The latter are inspected and licensed under the Housing Act. This Act also empowers the province and municipalities to subscribe to the stock of limited-dividend housing companies building low-rental accommodation for older persons; the province may also make loans to municipalities to assist them in subscribing. Capital grants amounting to 20 p.c. of construction costs and maintenance grants of $40 per bed per year may be made to municipalities, churches or charitable organizations sponsoring approved homes or housing projects. Costs of maintaining needy persons in homes for the aged are shared by the province and the municipalities under the Social Assistance Act.

Under what are termed 'master agreements', the Province of Alberta bears the cost of constructing and equipping homes for the aged and housing units on municipal land. Projects are operated by provincially incorporated foundations which include municipal councilmen in their membership; net costs of operation are borne by the municipalities. The province also meets up to 80 p.c. of the cost incurred by municipalities for the maintenance of elderly persons in housing projects and municipal or private homes. Private homes are municipally licensed.

The Province of British Columbia operates a home for elderly homeless men, a provincial infirmary for the chronically ill and, for senile and psychotic patients, three provincial homes for the aged. It also licenses and supervises homes for the aged and boarding homes and, where necessary, shares with the municipalities on a 90-10 basis the cost of maintaining needy residents. Under the Elderly Persons Housing Aid Act, the province makes grants amounting to one third of construction costs to municipalities and non-profit corporations, including religious and service organizations, engaged in building homes or low-rental housing units for elderly citizens.

Subsection 4.—Child Care and Protection

Child welfare services, which include child protection and care, services for unmarried parents and adoption services, are provided in all provinces under provincial legislation and are administered by a division of child welfare within the provincial department of welfare. The program may be administered by the provincial authority or the responsibility may be delegated to local children's aid societies, that is, to voluntary agencies with boards of directors, operating under charter and under the general supervision of provincial departments; in Quebec, child welfare services are administered by recognized voluntary agencies and institutions, religious and secular. In Newfoundland, Prince Edward Island, Saskatchewan and, to a large extent, in Alberta, they are administered by the province; in the larger urban centres of Alberta there is some delegation of authority to the municipality. In Ontario and New Brunswick, a network of local children's aid societies, operating under

statutory authority, is responsible for the services. In Nova Scotia, Manitoba and British Columbia, services are administered by local children's aid societies in the heavily populated areas and by the province in other areas.

Children's aid societies and the recognized agencies in Quebec receive substantial provincial grants and sometimes municipal grants and in many areas they also receive support from private subscriptions or from community chests or united funds. Maintenance costs for children in care of a voluntary or public agency may be borne entirely by the province—as in Alberta, Manitoba, Prince Edward Island and Newfoundland—or partly by the municipality of residence and partly by the province.

The child welfare agencies, provincial or private, have the authority to investigate cases of alleged neglect and, if necessary, to apprehend a child and to bring the case before a judge upon whom rests the responsibility of deciding whether in fact the child is neglected. When neglect is proven, the court may direct that the child be returned to his parent or parents, under supervision, or be made a ward of the province or a children's aid society or, in Quebec, be placed under the authority of a suitable person or agency. The appropriate agency is then responsible for making arrangements to meet the needs of the child in so far as community resources permit. The services may involve casework with families in their own homes, or care may be provided in foster boarding homes, in adoption homes or, for children who need this form of care, in selected institutions. Children placed for adoption may be wards or they may be placed on the written consent of the parent. Adoptions, including those arranged privately, number about 13,000 annually.

Child welfare agencies make use of the small selective institution for placement of children who are forced to be away from their own homes for a short period or who may need preparation for placement in foster homes, and also for teen-age children who may find it easier to fit into a group setting than into a foster home. The development of small, highly specialized institutions, which function as treatment centres for emotionally disturbed children, is of particular significance. Institutions for children are governed by provincial child welfare legislation or by special statutes dealing with welfare institutions, and by provincial or municipal public health regulations. The institutions are generally subject to inspection and in some provinces to licensing, and are usually required to make reports to the province on the movement of children under their care. Sources of income may include private subscriptions, provincial grants, and maintenance payments on behalf of children in care, payable by the parents, the placing agency, or the responsible municipal or provincial department.

Services to unmarried parents include casework services to the mother and possibly to the father, legal assistance in obtaining support for the child from the father, and foster-home care or adoption services for the child. Support for unmarried mothers may be obtained under general assistance programs. In many centres, homes for unmarried mothers are operated under private or religious auspices.

Day nurseries for the children of working mothers are established only in the larger centres and chiefly under voluntary auspices. Licensing is required in five provinces but Ontario is the only province with a Day Nurseries Act. This Act sets out standards for operation and licensing and provides for provincial reimbursement of one half of the operating and maintenance costs of municipally sponsored day nurseries, which are established in most of the industrial centres in that province.

Section 4.—International Welfare

Canada plays an active role in a number of international agencies concerned with social welfare development. Notable among these is the United Nations Social Commission, which studies and reports on world social conditions, including such special aspects as levels of living, community development, social services and social defence. Canada is also a member of the Executive Board of the United Nations Children's Fund (UNICEF) which provides assistance to mothers and children in less-developed countries. Other

international agencies with welfare interests, in whose work Canada participates, include the International Labour Organization (see Index) and the International Social Security Association. Through the Colombo Plan and other bilateral aid programs, Canada provides social welfare assistance as well as other kinds of help to developing countries (see p. 155).

In addition to these activities and contributions by the Canadian Government, Canadian voluntary agencies are also active in providing aid to developing countries and participating in international discussions of welfare matters.

This work, whether governmental or voluntary, has taken on new significance in the current United Nations Development Decade, with the growing realization throughout the world that progress depends upon people as much as upon machines and materials. Having pioneering experience in many fields of social development, Canada is equipped to give special assistance in the promotion of human welfare abroad.

PART III.—HEALTH AND SOCIAL WELFARE EXPENDITURES

Section 1.—Government Expenditures on Health and Social Welfare

In the seven years ended Mar. 31, 1957-63, expenditures of all levels of government on health and social welfare grew from $2,004,000,000 to $3,868,000,000, an increase of over 90 p.c. If these figures are adjusted to take account of the growth in population, the increase in per capita expenditures, from $125 to $207, was somewhat less—about 65 p.c. Government expenditures may also be measured in relation to the national accounts; on this basis, annual government expenditures on health and social welfare rose over the period under review from 9.4 p.c. to 12.5 p.c. of the national income and from 6.5 p.c. to 9.4 p.c. of the gross national product.

The federal share of health and social welfare expenditures rose from 70.0 p.c. in 1956-57 to 73.9 p.c. in 1958-59; correspondingly, provincial and municipal shares fell, respectively, from 24.8 p.c. to 22.2 p.c. and from 5.2 p.c. to 3.9 p.c. However, since 1958-59 provincial expenditures have grown more rapidly than federal expenditures mainly because of hospital insurance outlays which, although divided almost equally between federal and provincial governments, form a relatively larger part of provincial expenditures on health and social welfare than they do of corresponding federal expenditures. Thus, the federal share of government outlays on health and social welfare dropped to 69.3 p.c. in 1962-63 and the provincial share rose to 27.7 p.c., a level not reached since 1944. Municipal expenditures on health and social welfare declined steadily in percentage terms in the seven-year period, owing mainly to the introduction of hospital insurance, which relieved the municipalities of much of the cost of hospital care for indigents.

Of considerable interest is the growing proportion of government expenditures on health and social welfare taken up by health programs; in 1956-57, such programs accounted for $470,000,000 or 23 p.c. of the total and in 1962-63 for $1,238,000,000 or almost 32 p.c.

An outline of the principal components for 1962-63 shows the magnitude of the major programs and services—family allowances payments amounted to $532,000,000, old age security payments to $734,000,000, unemployment insurance benefits to $403,000,000, veterans pensions and allowances to $176,000,000 and $82,000,000, respectively, and payments from the Prairie Farm Emergency Fund to $15,000,000. These income maintenance programs were entirely the responsibility of the Federal Government. Federal-provincial income maintenance programs required expenditures of $76,000,000 for old age assistance, $7,000,000 for blindness allowances, $39,000,000 for disabled persons allowances and over $200,000,000 for unemployment assistance, the latter including some municipal expenditure. Workmen's Compensation Boards spent $97,000,000 on cash benefits for pensions and compensation and the provincial governments spent about $40,000,000 on mothers' allowances. Welfare services for Indians and for veterans and the national employment service accounted for $38,000,000 at the federal level and child welfare services required an expenditure of almost $48,000,000 by provincial governments.

In the field of health, federal grants to the provinces under the Hospital Insurance and Diagnostic Services Act totalled $337,000,000 and grants for hospital construction and general health grants to the provinces and municipalities amounted to $50,000,000. The Federal Government spent $23,000,000 on its Indian and Northern Health Services and $46,000,000 on hospital and treatment services for veterans. Provincial expenditures on hospital care are estimated to have totalled $575,000,000, and $75,000,000 was spent on other health services. Workmen's Compensation Boards paid $40,000,000 for medical aid and hospitalization, and municipal governments spent $70,000,000 on health.

1.—Total, per Capita and Percentage Distribution of Government Expenditures on Health and Social Welfare, by Level of Government, Years Ended Mar. 31, 1958-63

Year Ended Mar. 31—	Federal	Provincial	Municipal	Total
	EXPENDITURES			
	$'000,000	$'000,000	$'000,000	$'000,000
1958	1,755.1	572.1	112.6	2,439.8
1959	2,084.7	627.4	109.3	2,821.3
1960	2,162.2	754.7	106.4	3,023.3
1961	2,359.9	885.7	109.0	3,354.6
1962	2,575.8	984.3[p]	108.0[1]	3,668.1
1963	2,682.3	1,071.7[1]	114.5[1]	3,868.5
	PER CAPITA EXPENDITURES			
	$	$	$	$
1958	105.67	34.44	6.78	146.89
1959	121.53	36.57	6.37	164.47
1960	123.20	43.00	6.06	172.27
1961	131.28	49.27	6.06	186.62
1962	140.32	53.62[p]	5.88[1]	199.82
1963	143.57	57.36[1]	6.13[1]	207.06
	PERCENTAGE DISTRIBUTION			
1958	71.9	23.4	4.6	100.0
1959	73.9	22.2	3.9	100.0
1960	71.5	25.0	3.5	100.0
1961	70.4	26.4	3.2	100.0
1962	70.2	26.8	3.0	100.0
1963	69.3	27.7	3.0	100.0

[1] Estimated.

Section 2.—Expenditures on Personal Health Care

Expenditures made on personal health care services, for the purposes of this Section, include the amounts spent by hospitals and the amounts received by physicians, dentists, pharmacists for prescription services, and by other paramedical professionals in the provision of health care and treatment directly to individuals. No attempt is made to include expenditures on public health, or public or private capital expenditures such as the building or extension of hospitals or other health facilities. Also excluded are the cost of administration of public health programs and other technical services as well as the cost of administering voluntary profit or non-profit health insurance plans. On the other hand, expenditures by the three levels of government on behalf of individuals are included.

Canadians spent an estimated $1,804,000,000 in 1962 on personal health care, which is two and two fifths times the $735,000,000 they spent in 1953. The annual rate of increase

during that period averaged 10.5 p.c., varying from 8.2 p.c. in 1955 to 13.6 p.c. in 1956. The per capita expenditure, which was $49.51 in 1953, rose to $90.71 in 1961 and an estimated $97.12 in 1962. The population increase during the period was 25.1 p.c.

The proportion of the gross national product represented by expenditures on personal health care was 2.9 p.c. in 1953 and 4.5 p.c. in 1962. Thus, one in every $22 of production in Canada in 1962 was for personal health care, goods and services as compared with one in every $34 ten years previously.

2.—Expenditures on Personal Health Care, 1953-62

NOTE.—Figures exclude expenditures on public health and expenditures for capital purposes.

Year	Hospital Services					Physicians' Services	Prescribed Drugs[5,6]	Dentists' Services	Other[6,7]	Total[4]
	Active Treatment[1]	Mental[2]	Tuberculosis[2]	Federal[3]	All Hospitals[4]					
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
1953..	280.4	57.8	29.4	36.4	404.0	176.6	48.8	60.5	45.0	734.9
1954..	314.0	64.5	30.4	37.9	446.8	188.6	52.1	66.4	50.0	803.9
1955..	342.4	68.9	29.9	38.8	480.1	206.5	59.5	68.6	55.0	869.7
1956..	380.8	77.6	30.6	40.8	529.9	240.1	71.8	81.5	65.0	988.3
1957..	422.9	87.5	31.0	45.3	586.8	269.2	84.5	87.3	70.0	1,097.8
1958..	462.3	99.0	30.4	48.4	640.1	295.5	90.3	98.1	85.0	1,209.0
1959..	542.6	111.6	29.6	50.3	734.1	326.8	106.5	100.1	95.0	1,362.5
1960..	625.2	120.2	29.0	53.9	828.3	346.5	110.0	112.4	105.0	1,502.2
1961..	714.8	132.8	28.2	56.8	932.5	374.0	114.0	118.8	115.0	1,654.3
1962[8]	798.8	144.1	27.9	60.1	1,031.0	395.2	120.0	172.4	125.0	1,803.6

[1] Includes gross expenditures of public and private acute, chronic and convalescent hospitals in 1953-57 and, in non-participating provinces, in 1958-60; includes gross expenditures of budget review and contract hospitals in 1961 and 1962 and, in participating provinces, in 1958-60; excludes expenditures of mental, tuberculosis and federal hospitals. [2] Includes gross expenditures of public and private hospitals; excludes expenditures of federal hospitals. [3] Includes acute, chronic, convalescent, mental and tuberculosis hospitals of the Department of National Health and Welfare and the Department of Veterans Affairs; excludes hospitals of the Department of National Defence. [4] Items may not add to totals because of rounding. [5] Sold by retail drugstores only. [6] Estimated. [7] Includes estimated expenditures for private duty nurses, chiropractors, osteopaths and optometrists; excludes all employees of hospitals.

PART IV.—NATIONAL VOLUNTARY HEALTH AND WELFARE ACTIVITIES

A number of national voluntary agencies carry on important work in the provision of health and welfare services, planning research and education, supplementing the services of the federal and provincial authorities in many fields and playing a leading role in stimulating public awareness of health and welfare needs and in promoting action to meet them. The functions of twenty important voluntary agencies are described in the 1962 Year Book at pp. 270-274.

Voluntary Medical Insurance.—About 8,600,000 Canadians, or 47 p.c. of the population of Canada, had some protection against the costs of physicians' services at the end of 1961. This protection was provided by 64 non-profit plans with an enrolment of 5,450,000, and at least 45 private companies giving surgical coverage to 3,650,000 persons; overlapping enrolment in the two groups amounted to about 500,000. The 8,600,000 net total was 2,700,000 above the 1955 figure, which represented only 38 p.c. of the population but was 200,000 below the 1960 total of 8,800,000. The decrease no doubt reflects the increasing coverage of government hospital and medical insurance programs.

The non-profit plans took in $127,900,000 in premiums and $3,800,000 in other revenue in 1961, paid out $111,700,000 in benefits and $10,500,000 for administration, and were left with a surplus of $9,500,000. Thus, for every dollar of premiums, 87 cents were paid

out in benefits, which amounted to $20.51 per person covered. In 1955, benefit payments had been $41,400,000, representing 89 cents of the premium dollar and amounting to only $13.17 per person.

Profit-making private companies offer several classes of health protection—surgical, medical and major medical. Because surgical enrolment is the most widespread and because an individual often must take out surgical insurance to be eligible for the other kinds, the surgical enrolment figure is regarded as indicative of total private enrolment. Benefit payments in all classes amounted to $54,700,000 in 1961, or $14.97 per person; in 1955, the total was $19,300,000 and the ratio $6.25.

PART V.—VETERANS SERVICES*

The Department of Veterans Affairs administers most of the legislation comprising the Veterans Charter and provides administration facilities for the Canadian Pension Commission, which administers the Pension Act and Parts I to X of the Civilian War Pensions and Allowances Act; for the War Veterans Allowance Board, which administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act; and for the Secretary-General (Canada) of the Commonwealth War Graves Commission.

The main benefits now available to veterans consist of medical treatment for those eligible to receive it, land settlement and home construction assistance, educational assistance for children of the war dead, veterans insurance, general welfare services, unused re-establishment credit, disability and widows' pensions and war veterans allowances. The work of the Department, excepting the administration of the Veterans' Land Act, is carried out through 17 district offices and five sub-district offices in Canada and one district office in England. There are seven Veterans' Land Act district offices and 25 regional offices established to administer the benefits of the Act.

The Department's continuing effort to keep alive the memory of Canada's war dead was in 1963 highlighted by the first showing of its 40-minute film, *Fields of Sacrifice*, produced by the National Film Board. This film, of Canadian war cemeteries and war memorials throughout the world and flashbacks of military engagements, was planned to show Canadians how their war dead are remembered and to reassure next-of-kin, few of whom can hope to visit these graves, that a grateful country honours and cherishes the memory of its defenders. The world premiere took place at Ottawa on Oct. 23, 1963, in the presence of Their Excellencies the Governor General and Madame Vanier; the premiere of the French version, *Champs d'honneur*, was held in Quebec City on Nov. 20; showings of both versions followed in the other provincial capitals.

Section 1.—Pensions and Allowances

Disability and Dependants Pensions

Canadian Pension Commission.—The Canadian Pension Commission administers the Pension Act (RSC 1952, c. 207, as amended) and Parts I to X of the Civilian War Pensions and Allowances Act (RSC 1952, c. 51, as amended). The members of the Commission are appointed by the Governor in Council who may also impose upon the Commission duties in respect of any grants in the nature of pensions, etc., made under any statute other than the Pension Act. It reports to Parliament through the Minister of Veterans Affairs.

The Commission adjudicates on claims for injury or disease resulting in disability or death, incurred during service with the Canadian Navy, Army or Air Force in time of war or peace. The Commission may also supplement, up to Canadian rates, awards of pension to or in respect of Canadians for disability or death suffered as a result of service in the British or Allied Forces during World War I or World War II, or may pay pension at Canadian rates in cases where the claim has been rejected by the government of the country concerned.

* Prepared by the Department of Veterans Affairs, Ottawa.

The Pension Act.—Previous issues of the Year Book contain information on the development of Canadian pension legislation together with yearly statistics of numbers and liabilities. The Pension Act has not been amended since 1961.

Disability pension is payable to former members of the Armed Forces who suffered "the loss or lessening of the power to will and to do any normal mental or physical act" as a result of military service in the Canadian Navy, Army or Air Force since the commencement of World War I. The place of residence and economic circumstances of the recipient have no bearing on the amount that may be paid, pension being payable in accordance with the degree of disability found to exist on medical examination from time to time. Similarly, pension to a widow whose husband's death was incurred on or attributable to service is not affected by her place of residence or economic situation.

The annual rates for a 100-p.c. disability for all ranks up to and including that of Colonel and equivalent are:—

	$
Pensioner	2,160
Wife	720
One child	324
Two children	564
Each additional child	192

For assessments lower than 100 p.c., the awards are proportionately less. The rate of personal pension is higher if the pensioner held a rank higher than Colonel or equivalent rank at the time the disability was incurred, but the additional pension for wives and children remains the same for all ranks.

Attendance allowance, which is payable to a pensioner who is totally disabled, helpless and in need of attendance, and which varies from a minimum of $480 to a maximum of $1,800 depending on the degree of attendance required, is paid in addition to pension. Although a pensioner must be totally disabled to receive this allowance, the disability resulting in the need of attendance may be non-pensionable.

The annual rate of pension for widows and children of all ranks up to and including that of Colonel and equivalent rank are:—

	$
Widow	1,656
One child	648
Two children	1,128
Each additional child	384

Rates for widows are higher if the deceased veteran held a rank higher than that of Colonel or equivalent rank, but those for children remain the same for all ranks.

The Civilian War Pensions and Allowances Act, Parts I to X, provides for the payment of pensions to or on behalf of persons who served in certain civilian groups that were closely associated with the World War II war effort and who suffered injury or death as a result of such service; these include merchant seamen, saltwater fishermen, auxiliary services personnel, ferry pilots of the RAF Transport Command, firefighters who served in Britain, etc.

1.—Pensions in Force under the Pension Act as at Dec. 31, 1963

Service	Disability		Dependant		Disability and Dependant	
	Pensions in Force	Liability	Pensions in Force	Liability	Pensions in Force	Liability
	No.	$	No.	$	No.	$
World War I	39,111	36,533,382	14,334	22,904,405	53,445	59,437,787
World War II	106,655	85,186,666	16,623	22,655,114	123,278	107,841,780
Peacetime	1,770	1,126,537	559	1,053,441	2,329	2,179,978
Special Force	1,779	1,227,205	185	281,341	1,964	1,508,546
Totals	**149,315**	**124,073,790**	**31,701**	**46,894,301**	**181,016**	**170,968,091**

War Veterans Allowances and Civilian War Allowances

War Veterans Allowance Board.—The War Veterans Allowance Board administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act and reports to Parliament through the Minister of Veterans Affairs. The Board, consisting of eight members, including a chairman and a deputy chairman, appointed by the Governor in Council, is a quasi-judicial body and is independent as far as its decisions are concerned. A detailed outline of the Board's functions and responsibilities is given in the 1961 Year Book, p. 302.

War Veterans Allowances.—The War Veterans Allowance Act provides an allowance to eligible veterans, widows and orphans who, because of age or incapacity, are unable to follow an occupation from which they may derive maintenance and ensures that their income does not fall below the stated scale. The Act came into force on Sept. 1, 1930 and has been amended 11 times, the last time in 1961. Restrictions governing income, personal property limits and real property and the monthly rates of allowances are as shown in the 1962 Year Book, p. 289. Application for an allowance must be made to the District Authority of the regional district in which the applicant resides. The functions and responsibilities of the District Authorities, of which there are 19, are described in the 1963-64 Year Book, p. 325.

During 1963, the War Veterans Allowance Board reviewed 2,332 recipients' cases comprising referrals by District Authorities, Treasury Officers and others. In addition, the Board conceded service eligibility for 540 applicants for War Veterans Allowance from allied veterans; 946 appeals were adjudicated of which 512 were disallowed, 228 allowed and the remainder deferred or withdrawn; the eligibility of certain classes of applicants for widows allowance was ruled upon, 166 of which were allowed and 36 disallowed. The District Authorities considered 12,780 applications, approving 8,933; and, to ensure continued eligibility, 80,611 recipients were either interviewed or had their financial circumstances checked. At Dec. 31, 1963, there were 81,682 recipients of War Veterans Allowances made up of 55,165 veterans, 26,232 widows and 285 orphans; 436 of the total resided outside Canada. The annual liability for all recipients was $83,462,923.

Civilian Pensions and Allowances.—Part XI of the Civilian War Pensions and Allowances Act provides an allowance to certain civilians with service in a theatre of actual war during either World War I or World War II and to pensioners under Parts I to X of the Act. The service requirements of these civilians are outlined in the 1963-64 Year Book, p. 326. The restrictions governing income, the personal property and real property limits and the monthly rates of allowances are identical to those in the War Veterans Allowance Act shown in the 1962 Year Book, p. 289.

During 1963, the War Veterans Allowance Board reviewed 81 cases referred by District Authorities, Treasury Officers and others, dealt with 84 appeals allowing 49, and conceded service eligibility to 357 applicants. The District Authorities considered 553 applications, approving 308, interviewed 1,134 recipients in connection with continued eligibility, and checked 97 other cases. As of Dec. 31, 1963, there were 783 recipients of Civilian War Allowances comprising 625 civilians, 156 widows and two orphans; 12 recipients resided outside Canada. The annual liability for the total number was $908,098.

Veterans' Bureau

The Veterans' Bureau, which is a branch of the Department of Veterans Affairs, assists former members of the Armed Forces and their dependants and former members

of the various auxiliary organizations, such as merchant seamen, firefighters and others, in preparing and presenting claims to the Canadian Pension Commission; it has been in operation for 33 years. The Chief Pensions Advocate, who heads the Bureau at Ottawa, is assisted by pensions advocates, most of whom are lawyers located in the departmental district offices. The pensions advocates appear as counsel for applicants before the Appeal Boards of the Commission and, in addition, advise pensioners and applicants upon any provision of the Pension Act or phase of pension law or administration that may have a bearing on pension claims. No charge is made for the services of the Bureau.

During 1963, the Veterans' Bureau submitted 6,228 claims to the Canadian Pension Commission for adjudication. These included 1,491 claims presented to appeal boards of the Pension Commission, of which 35 p.c. were wholly or partially granted. During the year, 1,198 straight entitlement claims were submitted to the Canadian Pension Commission, based on service in World War I and peacetime, of which 130 were wholly or partially granted; claims based on service in World War II and Korea numbered 2,760, of which 1,034 were wholly or partially granted; and of the 779 miscellaneous claims submitted, 493 were wholly or partially granted.

Section 2.—Welfare Services

Federal welfare services for veterans are carried out by the Welfare Services Branch, the functions of which include the administration of assigned statutes; the conducting of field work and reporting for other branches of the Department, the Canadian Pension Commission, the War Veterans Allowance Board and Services Benevolent Funds; and the provision of a rehabilitation and welfare program of advice and counselling including referral where indicated to other public or private agencies, veterans organizations, etc.

War Service Grants.—Payments under the War Service Grants Act to veterans of World War II and the Korean War include war service gratuities now payable only in certain cases where delay of application is acceptable, and re-establishment credit for which eligible veterans may apply up to Oct. 31, 1968. Payment of the credit, except for a balance of $50 or less, is not made in cash to the veteran but is released on his behalf for specific purposes. Up to the end of 1963, a total of $314,671,229 had been paid out and unused balances amounted to $9,031,028.

2.—Re-establishment Credits Paid, by Required Purpose, 1962 and 1963

Purpose	1962	1963	Purpose	1962	1963
	$	$		$	$
Homes	**602,974**	**208,355**	**Business**	**136,193**	**43,434**
Purchased under National Housing Act	2,793	93	Purchase of a business	333	498
Purchased other than under National Housing Act	13,270	6,638	Working capital	19,452	7,461
Repairs, etc.	86,672	27,629	Tools and equipment	116,408	35,475
Furniture and equipment	487,907	168,364	**Miscellaneous**	**463,254**	**143,296**
Reduction of mortgage	12,332	5,631	Insurance, annuities, etc.	194,210	32,038
			Special equipment for training	5,675	2,367
			Clothing	178,244	72,041
			Reimbursements	85,125	36,850
			Totals	**1,202,421**	**395,085**

Assistance Fund.—Supplementary assistance is available to recipients of war veterans allowances living in Canada whose incomes are lower than a stated maximum and who are in need. Such assistance is given as continuing monthly grants based on the monthly costs of shelter, fuel, food, clothing, personal care and certain health needs or as single grants to meet emergencies. The following statement summarizes activity during 1962 and 1963; as monthly grants may be continued from year to year, the number assisted in a given period is greater than the number applying.

Item		1962	1963
Persons assisted	No.	18,264	19,664
Persons applying during year	"	5,719	6,212
Applicants assisted	"	5,013	5,506
Proportion of applicants assisted	p.c.	88	89
Fund expenditures during year	$	3,105,042	3,416,734
Proportion of expenditures given in monthly grants	p.c.	90	92
Persons in receipt of continuing monthly grants	No.	14,230	14,743

Education Assistance to Children of War Dead.—Help with the cost of post-secondary education for the children of those whose deaths have been attributed to military service is provided by the Children of War Dead (Education Assistance) Act. Assistance is confined to the cost of training in Canada at any educational institution which requires secondary school graduation, matriculation or equivalent standing for admission, including, in addition to universities and colleges, such facilities as hospital nursing schools and provincial technological institutes. From its inception in July 1953 to the end of 1962, expenditures totalled $3,747,349 of which $1,814,907 was spent in allowances and $1,932,442 in fees. By the end of 1963, 1,198 children of Canada's war dead had been assisted to obtain university and other advanced education degrees and diplomas; 146 had obtained degrees in arts and science, 134 in education, 65 in engineering and applied science, 19 in social work, 12 in medicine, 11 in law, 52 in other university faculties, 296 registered nurses, 161 school teachers and 101 in administrative and technological fields. At the same date there were 759 university undergraduates and 267 students in non-university courses receiving assistance.

Returned Soldiers Insurance.—The Returned Soldiers Insurance Act (SC 1920, c. 54, as amended) provided eligibility to contract for life insurance with the Federal Government up to a maximum of $5,000 to any one veteran of World War I. No policies have been issued since Aug. 31, 1933. Of 48,319 policies issued in the amount of $109,299,500, there were 7,557 with a value of $16,126,704 in force at the end of 1963.

Veterans Insurance.—The Veterans Insurance Act (RSC 1952, c. 279 as amended) is the World War II counterpart of the Returned Soldiers Insurance Act and enabled veterans following discharge and widows of those who died during service to contract with the Federal Government for a maximum of $10,000 life insurance. Veterans with active service in Korea are also eligible for this insurance. The period of eligibility to apply for this insurance ends Oct. 31, 1968. Up to Dec. 31, 1963, 52,114 policies in the amount of $168,978,500 had been issued and 29,885 with a value of $94,309,561 were still in force.

3.—Death Claims Intimated to Dec. 31, 1963

Year	Returned Soldiers Insurance		Veterans Insurance	
	No.	$	No.	$
1921-57	11,469	23,819,439	1,576	4,419,236
1958	486	902,324	254	687,145
1959	436	835,327	283	806,546
1960	462	928,255	357	1,096,010
1961	422	867,230	364	947,148
1962	435	839,709	394	1,185,463
1963	445	863,174	398	1,068,246

Rehabilitation and Welfare.—The Welfare Officers at Departmental District Offices collaborate closely with other branches of the Department, other government agencies at all levels and private agencies and organizations in assisting veterans and their dependants to deal with problems of social adjustment, particularly those associated with physical disabilities or the impediments of increasing age. The latter are occurring more frequently, of course, as the age of the veteran population increases. Sheltered workshops are operated at Toronto and Montreal and home assembly work is provided in other centres, where the poppies and memorial wreaths and crosses associated with Remembrance Day are produced. Finished products are sold to the Dominion Command of the Royal Canadian Legion.

Section 3.—Treatment Services

Treatment Activity.—The Treatment Services Branch of the Department of Veterans Affairs provides medical, dental and prosthetic services for entitled veterans throughout Canada. Service is also provided for members of the Armed Forces, the Royal Canadian Mounted Police, and the wards of other governments or departments at the request and expense of the authorities concerned. Prosthetic services are described in detail in the 1961 Year Book, pp. 291-292.

The primary responsibility of the Branch is to provide examination and treatment to disabled pensioners for their pensionable disabilities. Other main groups of veterans receiving treatment are war veterans allowance recipients (but not their dependants), veterans whose service and need make them eligible for domiciliary care, and veterans whose service and financial circumstances render them eligible for free treatment or at a cost adjusted to their ability to pay. If a bed is available, any veteran may receive treatment in a Departmental hospital on a guarantee of payment of the cost of treatment. The pensioner receives treatment regardless of his place of residence but service to other veterans is available in Canada only. Where Departmental facilities are not available, treatment may be received at the expense of the Department in an outside hospital by a doctor of the veteran's choice.

Under the federal-provincial hospital insurance program, DVA hospitals are recognized for the provision of insured services to veterans. Any necessary premiums may be paid on behalf of veterans in receipt of war veterans allowance. The Veterans Treatment Regulations remain the authority for the treatment of veterans (and others) in DVA institutions and elsewhere under Departmental responsibility, regardless of whether or not the hospitalization is at the expense of the insurance plan.

Medical Staff and Training Programs.—Many of the professional staffs of Departmental active treatment hospitals are employed on a part-time basis; in the main they are recommended for appointment by the Deans of Medicine of the universities with which the hospitals are affiliated. Most members of the medical staffs are engaged in teaching and private practice, and hold appointments on the medical faculties of the various universities. In the active treatment institutions, medical teaching programs are maintained, which are considered essential to attract highly qualified professional men and thus ensure the highest quality of medical care. All active treatment hospitals have been approved by the Royal College of Physicians and Surgeons of Canada for postgraduate teaching in medicine and surgery, and the majority are approved also for advanced postgraduate training in the various specialties. An extensive intern-resident program is in effect in the medical specialties as well as in other fields such as physiotherapy, occupational therapy, dietary, psychology, laboratory and medical social services. A school for the training of nursing assistants is operated at Camp Hill Hospital in Halifax. The school has an annual capacity of 70 and graduates are offered employment in other Departmental hospitals.

Medical Research.—During 1963, there were 88 projects in progress under the clinical research program. This program is varied but in the main deals with conditions

affecting aging, which the Department is in a special position to investigate. Self-contained clinical investigation units have been set up in active treatment hospitals located at Montreal, Toronto, London, Winnipeg and Vancouver. (See also p. 279.)

Hospital Facilities.—Treatment is provided in 11 active treatment hospitals located at Halifax, N.S., Saint John, N.B., Quebec City, Montreal and Ste. Anne de Bellevue in Quebec, Toronto and London in Ontario, Winnipeg, Man., Calgary, Alta., and Vancouver and Victoria, B.C.; also in a health and occupational centre at Ottawa, Ont., and in two domiciliary care homes located at Saskatoon, Sask., and Edmonton, Alta. The rated bed capacity of these institutions at Dec. 31, 1963 was 8,918 beds. It should also be noted that in Ottawa both acute and chronic cases that require definitive treatment are admitted to the National Defence Medical Centre. An additional 571 beds are available in veterans pavilions situated at St. John's, Nfld., Regina, Sask., and Edmonton, Alta. Pavilions are owned by the Department but are operated by the parent hospital, and medical staffs are provided by the Department.

Section 4.—Land Settlement and Home Construction

Up to the end of 1963, 235,822 applications for qualification under the Veterans' Land Act had been submitted, a number equivalent to over 22 p.c. of the Canadian veteran population of World War II. Of these, 71 p.c. were issued qualification certificates and 93,404 (almost 10 p.c. of the veteran population) were approved for financial assistance under the Act. The total amount expended was $564,353,065, an average of over $6,000 per veteran. Of the veterans established, 29,952 were assisted on farms, 53,153 on small holdings, 1,251 as commercial fishermen and 5,479 on federal and provincial lands. In addition, 4,038 were assisted with the construction of houses on city-size lots for an expenditure of $35,421,983, and 1,657 Indians on Indian reservations were given grants amounting to $3,705,210.

By the same date, 10,818 farmers, 13,717 small holders and 363 commercial fishermen had acquired title to their properties and 20,571 farmers, 20,393 small holders and 714 commercial fishermen had earned their ten-year conditional grants. Similarly, 3,997 veterans on federal and provincial lands and 1,296 Indian veterans had earned their ten-year conditional grants. The total of all grants earned amounted to $86,310,767. Since inception, 9,318 farmers already established under the VLA, 3,377 small holders and 24 commercial fishermen had obtained additional loans.

As a result of the 1962 amendments to the VLA, operations in 1963 reached their highest level in 15 years. Although there were fewer loans made to farmers, small holders and commercial fishermen not previously established under the Act—2,970 compared with 3,219 in 1962—additional loans numbered 3,275 compared with 2,543 in the previous year and total expenditures increased to $42,086,000 from $33,395,000. The number of advances approved for federal and provincial land establishments and the number of approvals for home-building remained about the same—44 compared with 41, and 151 compared with 155, respectively.

General supervision is given to veteran farmers by VLA Credit Advisers, with special attention given to farmers maintaining records. A total of 884 farmers are recorded as keeping detailed farm account books and in 1963 the Farm Service Division of the VLA analysed 633 farm accounts for veteran farmers in the western provinces, covering 16 different types of enterprises or combinations of enterprises. The Ontario Agricultural College analysed 200 accounts maintained by veteran farmers in Ontario, and Truro Agricultural College analysed 51 accounts maintained by farmers in the Maritime Provinces. The Quebec Provincial Government has agreed to analyse farm account books for veteran farmers in that province.

A group contract was entered into with an insurance company in June 1963 under which the life of a veteran may, with his approval, be insured in an amount sufficient to provide for the repayment to the Director of the VLA of the amount of such indebtedness.

All veterans indebted to the Director were notified of the availability of this insurance and, by the end of the year, 2,424 had applied for insurance to cover a total indebtedness of $14,951,500; premiums paid amounted to $23,929 and the total paid out was $9,300 (one death).

Since inception of the Act, construction was started on 32,943 houses—1,244 of them in 1963 compared with 1,256 in 1962. In addition, loans were made to improve 29,767 houses and farm buildings—2,934 in 1963. Recently, more of this construction has been done by private contractors and the interest in construction schools held for veterans has decreased. Enrolment in such schools since inception of the Act was 21,942; 269 were enrolled in 1963 compared with 461 in 1962.

The number of properties appraised for veteran settlement in 1963 was 4,192; since inception, 120,720 properties have been appraised.

Veterans continue to maintain a favourable record of repayment. To the end of March 1963, instalments falling due since inception amounted to $163,000,000, of which 99.3 p.c. was paid. In addition, prepayments amounted to more than $6,400,000, bringing the total collected to 103.2 p.c. of the amount due and owing.

4.—Summary of Settlement and Expenditures under the Veterans' Land Act, as at Dec. 31, 1963

Item	Full-Time Farming	Small Holdings	Commercial Fishing	Provincial Lands	Federal Lands	Indian Reserves	City-Size Lots	Total
Approved for financial assistance.....No.	29,951	53,153	1,251	4,936	543	1,657	4,038	95,529
Amount of public funds expended.....$	214,204,517	332,378,461	5,762,677	10,840,081	1,167,329	3,705,210	35,421,983	603,480,258
Approximate average expenditure per approval..... $	7,152	6,253	4,606	2,196	2,149	2,232	8,772	6,317
Total conditional grants earned.....No.	20,571	20,393	714	3,778	219	1,272	—	46,947
Average amount of grant earned..... $	2,064	1,496	1,792	2,295	2,320	2,243	—	1,838
Grants earned, title released.....No.	9,375	10,084	347	3,778	219	1,272	—	25,075

5.—Summary of House Construction under the Veterans' Land Act, as at Dec. 31, 1963

Item	Full-Time Farming	Small Holdings	Commercial Fishing	Provincial Lands	Federal Lands	Indian Reserves	City-Size Lots	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Houses completed (from 1942)	2,128	23,895	306	1,416	127	—	3,890	31,762
Houses under construction....	93	924	5	4	3	—	152	1,181
Contracts let (work not yet started).....	146	464	3	86	1	—	—	700
Net Approvals for New Housing.....	**2,367**	**25,283**	**314**	**1,506**	**131**	—	**4,042**	**33,643**

Section 5.—Commonwealth War Graves Commission

The Imperial War Graves Commission was incorporated on May 21, 1917 under the Royal Charter granted by His Majesty in Council on a recommendation made by the Imperial War Conference in April of that year. The name was changed by a supplemental Royal Charter on Apr. 1, 1960 to the Commonwealth War Graves Commission. The Governments of Britain, Canada, Australia, New Zealand, South Africa, India and Pakistan are members of the Commission. South Africa, after becoming a republic, requested and

obtained permission from the other Commonwealth Governments to remain a member of the Commission and is represented by an Ambassador in London. The Minister of Veterans Affairs is the Agent of the Commission in Canada and the office of the Secretary-General of the Canadian Agency is in the Veterans Affairs Building, Ottawa.

The Commission is entrusted with the marking and maintenance in perpetuity of the graves of those of the British Empire and Commonwealth Armed Forces who lost their lives between Aug. 4, 1914 and Aug. 31, 1921, and between Sept. 3, 1939 and Dec. 31, 1947, and with the erection of memorials to commemorate those with no known grave. In many of the cemeteries and plots a central feature is the Cross of Sacrifice or the Great Stone of Remembrance.

The area of responsibility of the Canadian Agency is the Continent of North America but it has also certain duties of inspection in Argentina, the Bahamas, Barbados, Bermuda, Brazil, British Guiana, British Honduras, Chile, Costa Rica, Cuba, Falkland Islands, French West Indies, Guatemala, Hawaiian Islands, Jamaica, Leeward Islands, Netherlands Antilles, Panama Canal Zone, Peru, Puerto Rico, Trinidad, Uruguay and Windward Islands.

In North America the Agency has commemorated 18,944 Commonwealth war dead in almost 3,000 cemeteries. Approximately 4,100 servicemen of both Wars, missing in operations while based in North America, are commemorated on memorials erected at Victoria, B.C., Halifax, N.S., and Ottawa, Ont. In Oakwood Cemetery, Montgomery, Alabama, the Agency has erected the only Cross of Sacrifice in the United States.

CHAPTER VII.—EDUCATION

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—FORMAL EDUCATION*

There is a high degree of relationship between education and standard of living—to a great extent, the general level of education shapes the nation's destiny. The amount of education given to each person in Canada has increased decade by decade until now the dream of a fair measure of education for all is almost a reality. The 1961 Census showed that of the out-of-school population, 1.7 p.c. had no schooling, 45.3 p.c. had elementary schooling, 47.0 p.c. had secondary schooling, 3.1 p.c. had some university training and 2.9 p.c. had one or more university degrees. These proportions varied from province to province; for example, the percentage with a university degree varied from 0.8 in Newfoundland and 1.5 in Prince Edward Island to 3.3 in British Columbia and 3.4 in Ontario. Improvement over the years is indicated by the fact that 3.9 p.c. of the out-of-school population aged 25 to 44 had university degrees compared with 3.4 p.c. of the population aged 45 to 54 and 2.7 p.c. of those aged 55 to 64. In the 15 to 19 age group, 1.1 p.c. reported no schooling.

The acceleration of social change during the past two decades has already had some impact on educational institutions and is disturbing the traditional functioning of the school systems. Many problems have arisen, including that of preparing experts for both old and new types of jobs. With knowledge increasing at an explosive rate and the demands of industry expanding, the possibilities for specialization at the technical, undergraduate and graduate levels are multiplying rapidly. There is a noticeable trend toward large educational organizations and mass processing of people, particularly in the metropolitan areas and at the university level. The growing use of automatically controlled mechanical-electrical communications systems, together with new data processing procedures, programmed instruction machines and related media, will soon lead to extensive changes in educational procedures. Also of immediate concern is the increase in the number of students, especially at the college and postgraduate levels, with concomitant

* Prepared in the Education Division, Dominion Bureau of Statistics.

demands for more staff and more money. Change is evident in every province but particularly so in Quebec where the school system is receiving special attention in the economic and social adjustment taking place in that province.

It should also be noted that the rural areas have presented Canada with its most insistent education problem. About 30 p.c. of the nation's population are classed as rural dwellers, some living in small communities or well organized farm districts but many others scattered over great areas, miles from town or school. During the past decade it is in the re-organization and centralization of rural education that the greatest changes have been made.

Section 1.—Administration and Organization of Education

Under the terms of the British North America Act, 1867, the provincial governments have jurisdiction over the conduct of formal education within their respective boundaries, with certain exceptions. Thus, Canada has ten provincial systems of education and, although they have much in common, no two are identical. The greatest divergencies occur in Quebec, which because of its ethnic and religious composition has a dual system comprising Roman Catholic and Protestant sectors; in Newfoundland where a somewhat loosely knit denominational organization is in operation; and in the Yukon and Northwest Territories which, because of remoteness and scattered population, have special problems. The Quebec, Newfoundland and Territorial systems are discussed under separate headings.

Each province has a Department of Education headed by a Cabinet Minister. The Deputy Minister is in each case a permanent civil servant. Under him are department heads responsible for such areas as elementary education, secondary education, teacher training, special services, education services, curriculum and research, vocational education, registration and other phases, depending on the needs of the province. Inspectors or superintendents maintain liaison between the department and the school boards and teachers. In each province, statutes known as the School Law or Laws, together with the regulations issued by the Department of Education, form the basis for school organization and administration.

Elementary and Secondary Education

Within the framework of each provincial jurisdiction, public elementary and secondary education is administered by local education authorities operating under the School Act. These school boards or boards of education are responsible for establishing and maintaining schools, employing teachers, providing pupil transportation where needed, and budgeting for the money required to operate the schools, which is raised through local taxation supplemented by certain government grants and sometimes through debenture financing. Local boards may be elected, appointed, or partly elected and partly appointed. They differ in number of members from three in most of the small rural units to five, seven or even twelve or more for urban units. Where larger units in rural areas have been established, there are central boards for the units representing the component districts, although there may be local boards retaining some custodial and advisory duties. The larger unit, replacing rural districts which were usually about four miles in extent, has been introduced by legislation in several provinces and made optional in others in an effort to provide better school facilities and greater equalization of costs and to mitigate the problems caused by a chronic shortage of teachers.

The public school system normally provides 12 or 13 years or grades, depending on the province. Common patterns for elementary and secondary levels are 8-4 or 8-5, 6-3-3 or 6-3-4, or 7-5 but the trend is toward six elementary years with six or seven years of secondary schooling. The generally accepted age of entrance to regular classes is now six years, although there has been an increased demand for kindergarten and nursery schools that has not been satisfied in many areas because of pressure for accommodation at the higher levels.

In several provinces Roman Catholic or Protestant minorities may organize separate schools under public auspices; and in all provinces religious groups, private organizations and individuals have established private schools at the elementary and secondary levels. Many of these schools, which are small in number except in Quebec, tend to place greater emphasis on character building and cultural subjects than do the public day schools. Nevertheless, in general they follow the standard curriculum fairly closely and prepare students for university or for entrance into the business world. Private schools in Quebec, most of which are operated by various orders of the Roman Catholic Church, are more numerous than in the other provinces.

In all provinces, increasing provision is being made for children who need special programs, particularly for those in the cities where numbers warrant such attention. There are in Canada six schools for the blind and eleven schools for the deaf and in a number of centres classes are held for hard-of-hearing pupils and for those with poor vision. Other physically handicapped children for whom instruction is provided include cerebral-palsied, orthopaedic, and hospitalized and home-bound tubercular and delicate children, as well as the mentally retarded and emotionally disturbed. In addition to the special assistance given to the handicapped, a limited number of classes are conducted for mentally gifted children. In some larger urban schools bright pupils are grouped into separate classes where they may be provided with an enriched program of studies; slow learners are also grouped in order that they may be given special attention suitable to their capabilities.

As might be expected, there is considerable variety in curriculum followed from province to province and, although some interest has been shown in the possibility of having a uniform program of study across Canada, there are changes being made that tend to make the curriculum more varied and more applicable to the individual needs of the students.

Parent-teacher and home and school organizations are numerous and active across Canada, working toward better schooling and giving community leadership in many areas connected with child instruction and welfare.

Newfoundland.—The education system in Newfoundland has remained much the same as it was when that province became part of Canada in 1949. The system has always been denominational in character and is a natural outgrowth of Newfoundland's social, geographical and economic situation—the result of the active leadership of the churches in the past and the fact that effective supervision from a central administration of numerous small scattered schools would have been difficult and costly. The system is mainly administered on a local basis by the five largest denominational groups—Roman Catholic, Anglican, United Church, Salvation Army and Pentecostal Mission—but includes also a limited number of common or amalgamated and community schools. However, it is controlled and financed by the provincial Department of Education, the work of which is directed by the Deputy Minister and five superintendents, each in charge of the schools of his faith. The Island is divided into educational districts for each denomination, and the local authority in each district is an appointed Board of Education, of which the local clergyman is always a member. The Boards appoint teachers, pay salaries out of government grants and look after school property. The amalgamated and community schools are administered directly by the Department. Despite their differences in administration, there is one course of study followed by all schools. Examinations are conducted and diplomas and scholarships awarded by an inter-denominational body made up of representatives of the major denominations and of the Department of Education. There is a close liaison in the field of education between Newfoundland and the Maritime Provinces.

Quebec.—Quebec's education system operates on a unique working compromise which was reached after nearly a century of struggle on the part of two cultures, both of which recognized education as fundamental to their way of life. Two distinct publicly administered systems operate under a common Act of the Legislature. About seven eighths of the population are Roman Catholic and the remainder forms the non-Roman Catholic, predominantly Protestant, system. Organization of the non-Roman Catholic schools is

similar to that in the other provinces, whereas the Roman Catholic system is patterned somewhat after the French education system and is unique in Canada. The difference in religion is accentuated by the difference in language—teaching in most Roman Catholic schools is carried out in French and in the Protestant schools, with perhaps one or two exceptions, in English. Private schools are financed and administered by private organizations and comprise schools for infants, elementary and secondary schools, classical colleges, commercial schools and institutions giving courses at university level. Public schools are maintained through local taxes supplemented by provincial subsidies and are administered by school commissions whose members are elected in accordance with the Education Act; they are free and accessible to all children of school age.

Up to and including grade 7 in the Roman Catholic public schools, classes consist of pre-school and elementary courses. The secondary program includes a general section and a scientific section, in addition to which some public schools offer a commercial section, a 12th-year special course, and a classical section. English-language Roman Catholic schools follow their own program in primary and secondary education. For the first two years at secondary level, all students are grouped in the general section and for the last two years the course is divided into general, commercial and college preparatory—the latter leading to entrance into the English-language universities. Some schools offer a 12th-year course corresponding to the first year of university. The Protestant public schools teach a seven-year primary course and a four-year secondary course, divided into three sections. Two of these sections lead to examinations for the High School Leaving Certificate with which the student may proceed to university.

Private schools, both Roman Catholic and Protestant, give education equivalent to that of the public schools. However, at the secondary level there exist the classical colleges, which are the reservoir from which the Roman Catholic universities obtain a great number of their students. Most classical colleges teach an eight-year classical course which leads to the baccalaureate degree (bachelor of arts).

There is considerable emphasis placed on special education in Quebec which includes tuition in the arts, industrial and technical studies and courses in agriculture, the latter including household science.

In Quebec, education has recently been undergoing rapid change and the trend is to provide an organization more closely resembling that in the other provinces in which there is a unified governmental authority at the provincial level. Following the recommendations of the Royal Commission of Inquiry on Education (constituted early in 1961 and issuing the first volume of its Report early in 1964), the Quebec Legislature in the Spring of 1964 passed Bill 60 providing for the creation of a new administrative structure for Quebec's education system. The Department of Youth and the Department of Public Instruction have been replaced by a Department of Education. The former Minister of Youth has been appointed Minister of Education and the former head of the Planning Bureau in the Department of Youth has been named Deputy Minister. The latter is assisted by two Associate Deputy Ministers—one for the Roman Catholic sector and the other for the Protestant sector. Also abolished by the new Act is the Council of Public Instruction (and its Catholic and Protestant Committees of 44 and 22 members, respectively), which long constituted the real authority over the separately administered Catholic and Protestant public school systems. In its stead, as a purely consultative body in education policy-making, there is being set up (July 1964) a representative body entitled the Superior Council of Education, intended to provide a channel of communication between the public and the Ministry and assist in keeping the education system in constant contact with the evolution of society.

The Yukon and Northwest Territories.—In the Yukon Territory, the school system is operated by the Territorial Government through a superintendent of schools and the Territorial civil service at Whitehorse, responsible to the Commissioner of the Yukon. It includes public schools with high school departments at Whitehorse and Dawson and public schools at such other settlements as Haines Junction, Mayo and Teslin. St. Mary's Separate School operates in Dawson as a day school and the Convent of Christ

the King in Whitehorse as a residential school. The Indian Affairs Branch of the federal Department of Citizenship and Immigration pays fees to the Yukon Government covering attendance of Indian children living near Territorial day schools, and the Education Division of the Northern Administration Branch of the Department of Northern Affairs and National Resources at Ottawa offers advice on educational policy to the Minister and Territorial authorities.

In the Northwest Territories, education is the joint responsibility of the Federal and Northwest Territorial Governments, with the former being particularly charged with responsibility for the education of Indians and Eskimos. Except within the three municipally organized school districts at Yellowknife and Hay River, the Department of Northern Affairs and National Resources (through its Education Division) operates an integrated school system on behalf of the Federal and Territorial Governments, with costs shared in proportion to the number of students enrolled. Yellowknife Public School and Separate School Districts and Hay River Separate School District are financed partly by local taxation and partly through grants-in-aid from the Federal and Northwest Territorial Governments; the Education Division provides inspection and supervisory services.

The British Columbia and Alberta education curricula, subject to increasing modifications, are prescribed for the schools of the Yukon Territory and the Northwest Territories, respectively. Marked expansion is taking place in both Territories in the provision of school accommodation and basic elementary and secondary education for all children in the Territories and for Eskimo children in northern Quebec, as well as vocational training for students and young adults showing interest and special aptitude. This program, which is an integrated one for the children of all races in the North, is being developed through construction of schools and student residences, curricula designed for a northern environment, bursaries and other student aids, and special vocational training projects appropriate to both local craftsmanship and mechanical trades in such fields as construction, transportation and mining.

Higher Education

In chartering universities, it has been the practice to leave to the universities the management of their own affairs without outside interference. But changes are taking place—universities are depending more and more on government grants, both provincial and federal, and on various research grants to carry out their special functions, and governments and industry are more aware of their dependence on the products of the universities. Also, there is greater need for co-ordinating the efforts of the universities to ensure enough places for those who seek admission, to provide additional services to the community through university-sponsored leadership, and to guarantee the universities adequate funds to meet increasing demands.

Canada has 59 universities and colleges that provide instruction and have authority to confer degrees (exclusive of those with power to confer degrees in theology only). A few of these hold some of their degree-conferring powers in abeyance, being in federation or association with another university. In addition, there are close to 300 institutions offering courses at university level. There is at least one university in each province.

The first Canadian college was the Collège des Jésuites opened in Quebec in 1635 but few others were established until after 1800. Most of the early institutions were brought into being by the churches and later others were established by provincial governments and non-denominational groups. Some of those begun under church control are now independent of both church and state.

There are now three main classes of universities—provincial, church-related and independent. In some the language of instruction is French, in some English, and in a few both French and English. They vary in size from junior colleges enrolling fewer than 25 university-grade students to multi-faculty universities with more than 10,000 full-time students and additional thousands of part-time and extension students.

Although there are variations, most students enter the university or the *cours collégial* of a *collège classique* after the completion of from eleven to thirteen years of elementary and secondary schooling. In from three to five years, courses of instruction lead to a bachelor's degree in arts, pure science, and such professional fields as engineering, business administration, agriculture, and education. Courses in law, theology, dentistry, medicine and some other fields are longer—usually requiring for admission completion of part or all of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is normally the master's or licence—at least one year beyond the first degree—and the third is the doctorate, normally requiring at least two additional years.

Most universities state their requirements for admission to first-degree courses in terms of the certificates of completion of secondary schooling issued by the department of education of the province in which they are located. As a general rule, they accept equivalent certificates from other provinces and countries as qualification for entrance. Some institutions admit students at the junior matriculation level, after eleven or twelve years of schooling, others only at the senior matriculation level, which is one year more advanced.

Growing numbers of students from abroad attend Canadian universities, in both undergraduate and graduate courses. Some are assisted by scholarship and fellowship funds provided by Canadian agencies and institutions, some by governmental or private agencies of their own countries, and many come to Canada at their own expense. Most courses are open to all who are fully qualified, although in some universities and in such faculties as law and medicine crowding has made it necessary to restrict the number of candidates accepted.

Student Aid.—The most important step forward in the field of student aid was made very recently by the passage by the Federal Government of the Canada Student Loans Act (SC 1964, c. 24), assented to July 28, 1964. This Act facilitates the making of loans to full-time students at the post-secondary level through the guaranteeing of the interest payable on loans made by the banks while the borrower continues to be a student and for a period of six months thereafter, and the guaranteeing of payment of the principal and interest after the expiration of that period. Loans may be for an amount up to $1,000 a year for five successive years, totalling $5,000. Thus, the student is not required to pay any interest on his loan or repay any part of the capital until six months after he has completed his studies. When he takes over the debt at that time the government stands behind him, guaranteeing his loan, moderating its cost to him and taking over in case of his death. One of the main purposes of this legislation is to make it possible for students whose university education would otherwise drag on over many years of part-time work or night courses to complete their university education more quickly and to reap its intellectual and financial benefits at an earlier age.

Previously, financial assistance in the form of scholarships, bursaries, fellowships, grants-in-aid, assistantships, and loans was available to some but not to the majority of students; this assistance was given by the Federal Government through various departments and agencies and by provincial governments, universities, business and industrial corporations, voluntary associations and professional societies.* It is not the intention of the new Act to supersede these forms of assistance, although some plans may be modified and possibly a few discontinued. But the large national plan will, no doubt, carry the main financial burden, leaving the other bodies better able to consider local conditions and the personal needs of students.

* Details may be found in the calendars of the universities; in *Awards for Graduate Study and Research* (1963 ed.) published by the Canadian Universities Foundation, Ottawa; in the *National Student Aid Information Service*, 15 Welland Ave., St. Catharines, Ont.; and in UNESCO's annual listing, *Study Abroad*.

Trade and Technical Education and Training

The introduction of more complex technology, data processing and other industrial production practices has caused widespread changes in the employment pattern, creating an employer demand for more education and training of staff members at all levels. The result has been an unprecedented expansion of technical and vocational education facilities and programs which has, in turn, stimulated a close examination of the objectives, practices, techniques, accomplishments and standards inherent in all phases of the vocational training program.

Both the concept and the scope of the services required in this field have been advancing steadily. There is general acceptance of the idea that vocational-technical education neither substitutes for nor competes with general education but forms a complementary sector of education; that man can achieve his fullest self-realization and render his greatest service through socially useful, efficient work and that modern vocational-technical education should contribute to that end from late adolescence to retirement; and that vocational education for adults as well as for youth is a public responsibility which must be provided, as needed, throughout man's working life. Education of this nature is of national concern and has a direct impact upon material prosperity, the national economy and the standard of living.

The pattern of vocational education and training in Canada varies from province to province and there are also variations within the provinces. However, there are three basic types of institutions offering vocational education—trade schools, secondary schools, and post-secondary technical institutes. Courses at the trade school level do not usually require high school graduation; the grade level demanded, which varies according to province or trade, ranges from grade 8 to grade 11 or even grade 12. On the other hand, enrolment in technical institutes presupposes high school graduation or at least high school standing in such relevant subjects as mathematics and the sciences. Most of the trade schools and institutes of technology across Canada are provincially operated, but many municipal school boards provide vocational courses as part of the regular high school program in technical or composite-type schools. In addition, many private trade schools offer a wide variety of business, trade and technical courses, some through correspondence. Vocational education is also carried out under a system of apprenticeship training. Such training is done mainly on the job with classes taken at the trade schools either during the evening or on a full-time basis during the day for periods ranging from three to ten weeks a year.

Recognizing the importance of a high level of occupational and technical competence in the economic development of the country, the Federal Government, through the Vocational-Technical Branch of the Department of Labour, is interested in helping the provinces maintain a balance in the development of programs at different levels—for youth preparing to enter the labour market, for the trade and other occupational training and re-training of adults (pre-employment and upgrading courses), and for advanced technical training. Under the Technical and Vocational Training Act, passed in 1960, a number of federal-provincial measures have been introduced providing federal financial assistance to enable the provinces to provide training adequate to their needs and in the national interest. These measures consist of: (1) a capital assistance program; (2) nine Technical and Vocational Training Agreements covering Technical and Vocational High School Training Program, Technician Training Program, Trade and Other Occupational Training Program, Training Program in Co-operation with Industry, Program for the Training of the Unemployed, Program for the Training of the Disabled, Program for the Training of Technical and Vocational Teachers, Training Program for Federal Departments and Agencies, and Student Aid; and (3) an Apprenticeship Training Agreement.

The capital assistance program, under which the Federal Government pays 75 p.c. of the provincial expenditure up to a specified total for each province, has given a tremendous impetus to the development of training facilities. As of Mar. 1, 1964, projects valued at over $583,400,000 had been approved; the cost of new schools approved amounted to

$465,400,000 and the cost of additions and alterations to existing schools was $117,900,000. These projects will provide a total of 159,417 new student places. They are summarized by province as follows:—

Province or Territory	New Schools	Major Projects Involving Additions to Existing Schools	Minor Projects Involving Additions to Existing Schools	New Student Places
	No.	No.	No.	No.
Newfoundland	13	1	1	3,570
Prince Edward Island	2	—	6	1,380
Nova Scotia	7	7	1	2,838
New Brunswick	6	2	7	2,545
Quebec	26	67	9	12,333
Ontario	201	70	18	111,841
Manitoba	1	13	43	2,180
Saskatchewan	3	5	—	3,654
Alberta	24	14	2	13,190
British Columbia	8	10	3	5,712
Yukon Territory	1	—	—	144
Northwest Territories	—	1	—	30
Totals	292	190	90	159,417

In addition to assisting financially with the provision of physical facilities for training, the Federal Government shares in the operating costs of the various programs conducted under the Technical and Vocational Training Agreements, including the Apprenticeship Training Agreement. These programs are closely correlated with the common objectives of training the country's labour force at all levels below university and in all fields.

Of particular concern is the need to upgrade both the educational and vocational competence levels of those already in the labour force. The Federal Government undertakes to share the expenditures made by employers in developing and operating approved training programs for their employees, particularly basic training for skill development, re-training of technologically displaced persons, and apprenticeship training; higher level and other training projects are also encouraged. A Manpower Consultative Service has been established to assist industry with problems encountered in the fields of manpower training and employment and to interest itself in manpower research.

A limited survey of organized training programs for apprentices, first-line supervisors and skilled tradesmen in such fields as manufacturing, transportation and communications, mining, quarrying and oil wells, and public utilities was conducted by the Dominion Bureau of Statistics in 1963. Results revealed that almost 17 p.c. of the establishments surveyed conducted some organized training programs, with an incidence of 8 p.c. for establishments employing from 15 to 50 persons and 25 p.c. for those with 50 or more employees. Without doubt, it is more difficult for the smaller firms to arrange such courses, which perhaps can best be provided co-operatively or through day-release or other part-time classes conducted in trade and vocational schools.

Federal Involvement in Education

According to the report of the Royal Commission on Government Organization, there were, in 1960, twenty-four Federal Government departments or agencies involved in an annual expenditure on education services amounting to over $168,000,000. Federal contributions to education include: grants under the University Grants Program administered by the Canadian Universities Foundation and based on a current rate of $2 per head of population; assistance to students by the Department of National Defence through the Regular Officer Training Plan and the maintenance of three federal Armed Services colleges (the Royal Military College of Canada at Kingston, Ont., Royal Roads at Victoria, B.C., and Collège Militaire Royal de Saint-Jean at St. Jean, Que.); aid to veterans and to children of war dead by the Department of Veterans Affairs; awards by the National Research Council to graduate students in pure and applied science, and by the Defence Research Board for extramural research by universities; grants for the training of health workers by

the Department of National Health and Welfare; vocational training grants by the Department of Labour; language and citizenship classes administered by the Department of Citizenship and Immigration; training projects in and out of Canada under the Colombo and other external assistance plans by the External Aid Office; educational film production by the National Film Board; and the National Gallery and other awards.

A large federal contribution is made through the Canada Council. The Council, formed in 1957, was granted $100,000,000, half of which was to be distributed to Canadian institutions of higher education over a ten-year period for specific building or equipment supply purposes, eligibility and payment to be based essentially on the scheme used for university grants. The interest on the other $50,000,000 was to be used to assist the development of the arts, humanities and social sciences through graduate scholarships and grants to individuals and organizations in these fields (see pp. 363-365).

One of the most spectacular federal contributions to education in recent years has resulted from the passing of the Technical and Vocational Assistance Act in December 1960, by which the Federal Government agreed to contribute to each province 75 p.c. of the total amount expended by that province up to Mar. 31, 1967 on the building and equipping of vocational training facilities and also to share the cost of training technicians, vocational teachers and students in technological training programs, and the training or re-training in the classroom of unemployed persons, physically disabled persons and apprentices, etc. (see p. 335).

Another important contribution to education will be made through the Canada Student Loans Act, which was passed by the Federal Parliament on July 28, 1964. Through the provisions of this Act a full-time student at the post-secondary level will be able to secure an interest-free loan of up to $1,000 a year for five successive years—a total of $5,000 to be repaid commencing six months after he ceases to be a full-time student. (See also p. 334.) The total loan provision for the loan year commencing in 1964 is $40,000,000; loan provision for subsequent years will be an amount that bears the same relationship to $40,000,000 as the estimated number of persons in Canada aged 18-24, inclusive, bears to the estimated number of persons in Canada of the same age group in 1964.

Correspondence Courses.—The federal Department of Veterans Affairs has long been engaged in preparation and distribution of correspondence courses for veterans, Armed Services personnel and, at a later stage, for selected groups of civilians. In 1960-61, the Department offered 95 courses—12 courses at the elementary or introductory level, 32 courses at the secondary level (including senior matriculation), 16 courses in agriculture and small holdings, and other special courses.

The Department of Justice, which administers the federal penitentiaries, encourages inmates to take academic or vocational correspondence courses from the Department of Veterans Affairs and provincial Departments of Education. All Department of Veterans Affairs courses are available to the inmates and the fees are paid by the Department of Justice. During the past ten years about 40 p.c. of the inmates who enrolled in these courses have been successful.

The Civil Service Commission conducts a correspondence course in office management for civil servants who aspire to supervisory positions.

External Aid in Education.—The External Aid Office of the Department of External Affairs reported 160 Canadian school teachers overseas in 1963 under its own or other programs, such as that of the Canadian University Students Overseas Organization. About 90 of these teachers were in Africa and one third of them were engaged in teacher training. In addition, 24 Canadian university professors were at universities in developing countries, in some cases as a result of 'twinning' arrangements between a Canadian and a foreign institution. Other Canadians served abroad with the United Nations Educational, Scientific and Cultural Organization and similar international organizations.

Canada played host to about 1,000 technical trainees who were at Canadian schools and universities and in industry under the Colombo, Special Commonwealth Assistance,

and other federally sponsored or assisted plans. An additional 230 students were at Canadian universities under the Commonwealth Scholarship Plan, 83 of these arriving for the first time in Canada in September 1963. Private organizations sponsored many other students from abroad and still others came to Canada at their own expense. In all, there were probably over 8,500 students from outside Canada attending Canadian universities and colleges, from approximately 150 foreign countries and enrolled at about 150 different institutions. During the past few years, the proportion of students from outside Canada to total enrolment at Canadian universities and colleges has remained at about 6 p.c.

Education Planning

This is an age of educational growth—*quantitatively* in the shape of exploding enrolments and sky-rocketing costs and *qualitatively* in the form of changing methods and diversified courses. Accompanying deep concern about rising public investment in education, and stimulated by the shortage of skilled manpower, is a developing interest on the part of educators, sociologists and economists in the possibilities of more efficient planning of education systems to better meet the needs of the nation, the separate provinces and the individual student. Moreover, it is of interest to all that in an age of technological change, with high unemployment and heavy demand for trained skills, the educational ideal of maximum development for the individual should include preparation to adjust to changing employment opportunities.

One obvious reason why education planning is receiving special attention by such international bodies as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Organization for Economic Co-operation and Development (OECD), the International Bureau of Education (IBE) and the International Labour Office (ILO) is that it is now realized more fully that economic growth is generated at least as much by 'human' capital as by 'physical' capital. One major difference between improving physical capital and improving human capital is that the latter takes so much more time. There is a direct relationship between the demands of the labour force and the schooling provided for youth; and so the investment in education, which is now the nation's largest business, must be guided partly by manpower needs. Granted the fact that it takes at least two decades to train a senior scientist or university professor, it is clear that planning becomes a necessity, both by the individual making such an investment in education and by the various institutions contributing to this investment. At the same time, the many and rapid changes in modern technology, the increasing complexity of human knowledge, the unprecedented amount of leisure time available, and the fact that every skilled worker and tradesman will probably have to learn three or more trades during his career, all place a premium on flexibility of mind—the ability to make adjustments caused by automation and other technological advances.

Education planning is assuming an increasingly important place in Canada's educational activities. To meet requests for information, the Education Division of the Dominion Bureau of Statistics conducted a limited survey of education planning by Departments of Education, large school boards and universities during the summer of 1963; additional information was obtained on comparative studies of planning in such countries as the Union of Soviet Socialist Republics, Japan, the United States, Sweden, France, Italy, Germany, the Netherlands, Spain, Britain, New Zealand, Australia and Yugoslavia.

The DBS survey was concerned with education at all levels and with manpower needs. Only plans that extended two or more years in advance were considered as planning. The survey covered, in the main, projections of future enrolments, projections of numbers and types of schools and of school facilities, projections of numbers and types of teachers required, estimates of capital and operation expenditures, forecasts of numbers entering the labour force, and plans for relating changes in educational programs to future manpower needs.*

*DBS Report to be published in 1964.

That Canada is moving to solve some of the more pressing of the educational problems is indicated by the number of royal commissions appointed in recent years. This is one method of planning that has, in some cases, considered proposed plans and made recommendations based on special research. Its weakness is that it is not a continuous process.

The Parent Commission in Quebec laid the foundation for the passage, in May 1964, of Bill 60, which introduces a complete re-structuring of the former dual system of Quebec education. In that province there has always been great emphasis placed on fitting young people for the role they will play in society. Recently, because of change in the industrial structure of the province caused by increased automation and accelerated industrialization, members of Quebec's former Departments of Youth and Education have realized that the whole structure of education should be examined and changes made where expedient. The Parent Commission report, including the submissions made, recommends rather sweeping changes; and the report of the Committee of Studies on Technical and Professional Education relates education to manpower and provides a possible plan for some five years ahead, at which time it is expected that some balance between supply and demand will be achieved, which can then be continued through making new adjustments as conditions warrant.

In Ontario, the Robarts Plan is considered as representative of the changes being made and of the redistribution of pupils at the secondary level into several optional streams. At the same time it has been deemed desirable to establish a Curriculum Institute separate from government, with the prospect for expanding responsibility. Today's educators have a formidable task in seeking to select what to teach, especially in cumulative fields such as the natural and behavioural sciences. If this accumulation is plotted on a time line, beginning with the birth of Christ, it is estimated that the first doubling of knowledge occurred in 1750, the second in 1900, the third in 1950 and the fourth in 1960.

At the level of higher education the trend in Ontario is toward planning university education for the whole province and building the plan around existing institutions which are co-operating. To effect this there is an Advisory Committee on University Affairs made up of the Department of Education, university and outside representatives. There is also an Advisory Committee of Presidents of Provincially Assisted Universities which has prepared a report on *The Structure of Post-Secondary Education in Ontario, 1962-1970*, and a supplementary report in 1963 containing recommendations for the future organization of higher education after surveying the area and considering forecasts and suggestions from various universities. It is proposed that a Department of Higher Education be established to ensure balanced growth and to provide for adequate graduate and undergraduate education in Ontario.

Progress in New Brunswick is being made pursuant to the report of the Royal Commission on Higher Education in New Brunswick published in 1962. The report recommended that the institutional framework for higher education be modified to ensure that adequate institutions be provided for both English-language and French-language students at the undergraduate and graduate levels. It dealt with questions of finance, of controlling the establishment of new universities, of priority for programs and the continuance of grants to some institutions in other provinces (in connection with enrolment of New Brunswick students outside their home province), scholarships, bursaries and related problems.

In British Columbia, elementary-secondary education has been influenced by the Chant Commission report, and the report *Higher Education in British Columbia and a Plan for the Future*, by Dr. John B. Macdonald, President of the University of British Columbia, published in 1962. It is interesting to note that, whereas the problem in New Brunswick was essentially that of consolidating many relatively small institutions, in British Columbia it was a matter of changing from a policy of having one centralized university with a branch, to establishing additional universities to meet present and future needs.

These are but a few of the major changes undertaken across Canada; in fact, planning bodies are to be found at all levels and the degree of sophistication is increasing both in the collection of data and complexity of methods and in co-operation with other planning bodies.

Section 2.—Statistics of Schools, Universities and Colleges

Elementary and secondary schools may be classified as publicly controlled, privately controlled, or federal. Municipal schools, most numerous by far, include elementary and secondary (or high) schools. Provincial schools include vocational institutes, trade schools, teacher-training colleges, and schools for the blind and deaf. Private schools may be academic, business (commercial), trade schools or correspondence schools (which are chiefly trade or commercial). Correspondence courses are also available through the various provincial Departments of Education. Federal schools include schools for Indians, schools for residents of the Northwest Territories, and overseas schools for children of members of the Armed Forces or for Armed Forces personnel.

Institutions of higher education may be provincially controlled, church controlled, independent or federal military colleges. In addition to universities and colleges, there are institutes of technology, theological institutions, and schools for such specialized fields as nursing, agriculture, fisheries, fine arts, chiropractic, religious education, and other types. Some of these are provincial, some private.

Continuing or adult education takes a variety of forms and reaches all levels from the basic English courses provided for newly arrived immigrants to courses of university level. Most organized classes for adults operate under the auspices of universities, colleges, local school boards, churches or other community organizations.

Table 1 shows full-time enrolment at all levels each year for the period 1954-55 to 1963-64 and Table 2 shows the number of schools, teachers and pupils for all types of education institutions, classified by province, for the school year 1962-63. In all types of schools the number of pupils has been increasing. The increase was first noticed at the elementary level some six years after the birth rate began to rise during the war years. About eight years later the children born during the War were entering high school and four years later they began entering university. The number of teachers is rather closely related to the number of students although the trend is toward larger classes. On the other hand, the number of schools has remained fairly constant, the increase caused by the construction of new and larger schools in urban areas being counterbalanced by the closing of many one-room rural schools.

1.—Full-Time Enrolment in Elementary and Secondary Schools, and in Universities and Colleges, School Years 1954-55 to 1963-64

School Year	Elementary and Secondary Schools[1]			Universities and Colleges
	Elementary Grades[2]	Secondary Grades	Total	
	No.	No.	No.	No.
1954-55	2,604,543	539,281	3,143,824	68,320
1955-56	2,726,762	608,683	3,335,445	72,737
1956-57	2,842,501	653,938	3,496,439	78,504
1957-58	2,959,467	646,360	3,605,827	86,754
1958-59	3,084,346	748,098	3,832,444	94,994
1959-60	3,208,269	802,690	4,010,959	101,934
1960-61	3,319,450	882,247	4,201,697	113,864
1961-62	3,404,654	1,002,723	4,407,377	128,894
1962-63	3,494,116[3]	1,097,486[3]	4,591,602[3]	141,388
1963-64	3,594,215[p]	1,192,883[p]	4,787,098[p]	158,270[p]

[1] Includes publicly controlled, private and federal schools. [2] From kindergarten to and including grade 8 in all provinces except Quebec; grade 8 included with secondary grades in Quebec. [3] Includes preliminary figures for Quebec.

2.—Schools, Teachers and Enrolment for All Types of Education Institutions, by Province, School Year 1962-63

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Elementary and Secondary Education—						
Public and Separate—						
Schools	1,249	442	1,134	1,219	6,095	7,251
Teachers	4,789	1,072	7,176	6,268	54,402	54,176
Pupils	137,700	26,277	190,527	156,491	1,214,447	1,528,214
Overseas (DND)—						
Schools	...	...	...	...	...	...
Teachers	...	...	...	...	...	...
Pupils	...	...	...	...	...	...
Indian—[1]						
Schools	—	1	8	9	24	104
Teachers	—	2	32	25	95	280
Pupils	—	33	806	639	2,716	6,953
Blind—						
Schools	—	—	1	—	3	1
Teachers	—	—	23	—	56	33
Pupils (home province)	33	4	66	42	264	181
Deaf—						
Schools	—	1	1	—	5	1
Teachers	—	1	43	—	118	87
Pupils (home province)	66	11	121	98	948	570
Private—						
Schools	4	5	22	13	654	146
Teachers	33	40	250	169	6,290	1,991
Pupils	446	857	6,078	2,491	94,375	32,458
Higher Education—						
Institutions	3	2	16	10	212	65
Students (full-time university grade)	1,998	705	7,034	4,896	47,324	39,269
Teacher-Training—						
Teachers' Colleges—						
Institutions	—	1	1	1	108	11
Teachers	—	2	31	30	1,225	259
Students	—	75	416	581	12,908	5,514
Faculties of Education—						
Faculties[2]	1	1	5	3	5	2
Teachers	18	2	15	14	118	61
Students[2]	1,122	53	291	254	1,736	773
Vocational Education—						
Enrolment—						
Trade courses (pre-employment) (1960-61)	836	152	1,446	1,016	8,132	3,604
Trade courses (apprentices)[3]	475	—	841	1,805	[4]	3,539
Vocational high school courses	475	165	916	5,500	21,226	95,834
Post-secondary courses	—	—	294	149	5,924	3,990
Private business schools	—	[5]	484	654	5,900	5,526
Private trade schools	—	—	117	—	5,362[6]	2,656
Adult Education—						
Part-Time Enrolment—						
Universities (1961-62)	900	390	8,309	10,619	52,376	70,940
Provincial governments (1961-62)	3,315	691	11,886	22,230	288,078	153,001

For footnotes, see end of table, p. 342.

2.—Schools, Teachers and Enrolment for All Types of Education Institutions, by Province, School Year 1962-63—concluded

Item	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Elementary and Secondary Education—						
Public and Separate—						
Schools	1,801	1,950	1,280	1,357	81	23,859
Teachers	8,253	9,246	13,136	13,311	439	172,268
Pupils	204,172	220,345	322,227	359,320	8,996	4,368,716
Overseas (DND)—						
Schools	...	...	...	...	...	22
Teachers	...	...	...	...	...	439
Pupils	...	...	...	...	...	7,302
Indian—[1]						
Schools	80	73	41	81	1	422
Teachers	230	213	200	225	5	1,307
Pupils	5,839	5,263	4,527	5,953	112	32,841
Blind—						
Schools	—	—	—	1	—	6
Teachers	—	—	—	18	—	130
Pupils (home province)	19	24	23	90	3	749
Deaf—						
Schools	1	1	1	1	—	12
Teachers	9	25	23	26	—	332
Pupils (home province)	109	107	117	195	9	2,351
Private—						
Schools	57	29	37	103	—	1,070
Teachers	531	282	325	984	—	10,895
Pupils	11,375	4,782	6,486	23,395	—	182,743
Higher Education—						
Institutions	10	17	11	8	—	354
Students (full-time university grade)	7,741	7,024	9,837	15,560	—	141,388
Teacher-Training—						
Teachers' Colleges—						
Institutions	1	2	—	—	—	125
Teachers	22	41	—	—	—	1,610
Students	469	993	—	—	—	20,956
Faculties of Education—						
Faculties[2]	2	2	2	2	—	25
Teachers	10	20	95	135	—	488
Students[2]	208	1,192	2,964	3,053	—	11,646
Vocational Education—						
Enrolment—						
Trade courses (pre-employment) (1960-61)	2,550	2,894	2,821	2,522[7]	—	25,973
Trade courses (apprentices)[3]	1,012	883	4,367	3,546	—	16,468
Vocational high school courses	4,653	5,359	6,890	11,394	—	152,412
Post-secondary courses	—	218	1,154	202	—	11,931
Private business schools	1,170	977	1,648	2,551	—	18,910
Private trade schools	555	1,717	616	695	—	11,718
Adult Education—						
Part-Time Enrolment—						
Universities (1961-62)	10,304	13,623	26,427	13,301	—	207,189
Provincial governments (1961-62)	43,337	22,261	37,752	84,303	1,443	843,161[8]

[1] Day, residential and hospital schools administered by the Federal Government. [2] Also included with "Higher Education" [3] Includes indentured apprentices taking full-time, part-time and correspondence courses. [4] Included under "Trade courses (pre-employment)". [5] Included with Nova Scotia. [6] School year 1961-62. [7] Includes only students being trained under federal-provincial agreements. [8] Includes enrolment in courses sponsored by public libraries, business colleges, teacher-training institutions, and Federal Government departments not distributed by province.

An attempt has been made to tabulate total expenditure on education, including formal education at all levels, vocational training of all types and also expenditure on cultural activities related to education such as adult night classes, fine arts and handicraft courses, and libraries, museums and art galleries. Such expenditure for the year 1960 is presented in Table 3, classified by source. Details of income of school boards for publicly controlled elementary and secondary schools for the years 1958-60 are given at p. 347 and financial statistics for universities and colleges at pp. 351-352.

3.—Total Expenditure on Formal Education, Vocational Training and Related Cultural Activities, by Source of Funds, 1960

Type of Education	Local Taxation	Provincial Governments[1]	Federal Government	Fees	Other Sources	Total Expenditure
	$'000	$'000	$'000	$'000	$'000	$'000
Formal Education—						
Elementary and Secondary—						
Public schools	651,858	520,696	17,030	4,519	23,471	1,217,574
Handicapped outside the public schools	645	11,607	...	...	355	12,607
Government correspondence schools	...	1,455	...	592	...	2,047
Reform schools	...	744	...	...	...	744
Indian and Eskimo education	...	...	34,314	...	...	34,314
Private schools	...	...	...	37,877	9,015	46,892
Totals, Elementary and Secondary	652,503	534,502	51,344	42,988	32,841	1,314,178
Teacher-training outside universities	...	15,405	26	728	12	16,171
Higher Education—						
Current operating expenditure	411	75,415	20,031[2]	45,991	13,226	155,074
Plant expenditure from current funds	287	36,142	8,408	...	...	44,837
Research in universities	6	963	13,357	...	6,570	20,896
Defence colleges	...	...	5,030	...	...	5,030
Scholarships	...	5,212	3,892	...	5	9,109
Other	...	51	412	...	...	463
Totals, Higher Education	704	117,783	51,130	45,991	19,801	235,409
Undistributable expenditure	...	...	299	...	...	299
Totals, Formal Education	**653,207**	**667,690**	**102,799**	**89,707**	**52,654**	**1,566,057**
Vocational Training—						
Institutes of technology	...	10,487	1,795	1,371	93	13,746
Apprenticeship	...	2,635	1,670	73	282	4,660
Trade training	...	7,532	667	768	34	9,001
Primary industries and homemaking	...	2,719	155	18	361	3,253
Unemployed	...	661	935	1	2	1,599
Handicapped	...	621	410	...	...	1,031
Health and welfare personnel	...	819	2,533	4	3	3,359
Inmates of reform institutions	...	376	309	...	...	685
Indians and Eskimos	...	...	281	...	...	281
Other vocational training costs	...	132	1,939	16	...	2,087
Provincial capital expenditures	...	12,511	[3]	...	...	12,511
Private business colleges	...	...	...	3,925	...	3,925
Totals, Vocational Training	**...**	**38,493**	**10,694**	**6,176**	**775**	**56,138**
Cultural Activities—[4]						
Adult education, including night schools	[5]	2,458	302	19	...	2,779
Fine arts	..	3,061	1,423	62	...	4,546
Handicrafts	..	320	—	...	1	321
Libraries[6]	14,100	3,979	581	63	1,057	19,780
Archives, museums and art galleries	..	2,344	3,463	...	...	5,807
National Film Board productions	...	...	930	...	...	930
Cultural societies—grants	..	112	17	...	...	129
UNESCO—grant	...	...	425	...	...	425
Totals, Cultural Activities	**14,100**	**12,274**	**7,141**	**144**	**1,058**	**34,717**

[1] Includes the Yukon and Northwest Territories. [2] No direct grants were paid to universities of Quebec; see text on p. 351. [3] Capital grants from the Federal Government are included in the appropriate classification above. [4] Limited to reported expenditures of public funds. [5] Included in "Elementary and Secondary—Public schools". [6] Includes capital costs from current funds.

Subsection 1.—Elementary and Secondary Schools

Control.—Direct control and operation of public schools is by school boards, which operate under school laws and regulations. Through amalgamations and consolidations, schools are now operated by boards of larger units, local boards within larger units, independent boards for rural schools, towns or cities, and some by official trustees appointed by the province in lieu of a board. As their designations imply, private schools are administered by private organizations and federal schools by federal authorities.

Table 4 gives the number of active public school boards in each province in the school year ended in 1963 and indicates the type of board, the number of official trustees and the number of board members elected or appointed to these boards.

4.—Active School Boards and School Trustees, by Province, School Year 1962-63

Province or District	Boards of Larger Units	Local Boards within Larger Units	Independent Local Boards	Total Boards	School Boards Composed of Trustees who are—			School Trustees
					All Elected	Some Appointed Some Elected	All Appointed	
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	284	—	—	284	—	—	284	3,129
Prince Edward Island	14	—	436	450	448	2	—	1,453
Nova Scotia	35	42	1,261	1,338	1,261	—	77	4,311
New Brunswick	14	409	80	503	473	16	14	2,277
Quebec—								
Roman Catholic	27	405	1,141	1,573	1,571	—	2	8,259
Protestant	9	58	144	211	209	—	2	1,239
Ontario	953	11[1]	2,909	3,873	3,533	52	288	17,918
Manitoba	61	38	1,337	1,436	1,436	—	—	4,685
Saskatchewan	57	4,720	357	5,134	5,134	—	—	16,335
Alberta	59	—	142	201	201	—	—	890
British Columbia[2]	82	—	5	87	87	—	—	568
Mackenzie District	—	—	3	3	3	—	—	11
Totals	**1,595**	**5,683**	**7,815**	**15,093**	**14,356**	**70**	**667**	**61,075**

[1] Boards of Education—all members of Toronto Metropolitan Board. [2] In addition, 12 school districts are under an official trustee or trustees.

Enrolment.—Table 5 shows enrolment of all elementary and secondary pupils in Canada and in Department of National Defence schools overseas, and classifies them by grade. Private schools and schools for Indian and Eskimo children are included in these figures. Enrolment in private schools accounted for 4 p.c. of the total 1962-63 enrolment at the elementary and secondary levels. Schools operated by Federal Government departments, that is, schools for Indian children, schools in the Territories and overseas schools for children of Service personnel, accounted for about 1 p.c. of the total.

School enrolment has been increasing in recent years much more rapidly than the general population. Annual rates of increase in total school enrolment for the four most recent years ranged from 3.8 p.c. to 4.9 p.c.; the country's population during the same period increased annually by amounts varying from 1.8 p.c. to 2.2 p.c.

5.—Enrolment in Publicly Controlled, Private and Federal Schools, by Grade, School Year 1962-63

Grade	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec[p]	Ontario
	No.	No.	No.	No.	No.	No.
Kindergarten	6,088	165	18,849	75	16,711	105,980
Grade 1	15,875	3,062	17,742	17,709	144,052	158,887
Grade 2	14,812	2,793	18,448	16,671	144,671	148,292
Grade 3	14,550	2,662	18,537	16,570	147,551	141,710
Grade 4	14,240	2,543	18,313	15,982	140,704	132,158
Grade 5	13,824	2,597	17,296	16,445	135,028	130,743
Grade 6	12,723	2,472	17,230	15,042	124,534	123,366
Grade 7	12,335	2,547	17,360	14,947	113,130	120,545
Grade 8	11,114	2,618	15,426	13,519	113,962	114,735
Grade 9	10,366	2,069	13,983	11,931	93,715	124,810
Grade 10	6,841	1,733	11,147	9,213	66,491	98,919
Grade 11	4,779	1,098	8,296	6,350	51,278	69,098
Grade 12	95	681	3,447	3,969	9,655	52,502
Grade 13	...	...	...	535	564	26,216
Auxiliary	50	29	876	495	8,921	15,988
Special	454	98	461	168	571	3,676
Totals	**138,146**	**27,167**	**197,411**	**159,621**	**1,311,538**	**1,567,625**

Grade	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.[1]	DND Schools Overseas	Canada
	No.	No.	No.	No.	No.	No.	No.
Kindergarten	6,142	3,366	663	8,823	374	880	168,116
Grade 1	23,547	24,307	36,297	40,921	1,750	1,013	485,162
Grade 2	22,193	23,358	35,883	38,458	1,422	853	467,854
Grade 3	21,484	22,932	34,007	37,305	1,225	718	459,251
Grade 4	20,706	21,506	32,230	35,242	956	630	435,210
Grade 5	20,123	21,068	30,810	33,670	829	564	422,997
Grade 6	19,330	19,555	28,480	31,861	595	495	395,683
Grade 7	19,087	19,131	27,601	31,531	582	496	379,292
Grade 8	17,233	18,240	26,013	31,630	432	486	365,408
Grade 9	17,270	18,082	25,588	30,518	356	443	349,131
Grade 10	14,352	15,715	21,545	26,811	252	336	273,355
Grade 11	12,234	11,800	17,559	20,701	154	195	203,542
Grade 12	6,572	9,666	16,479	15,221	120	135	118,542
Grade 13	...	...	...	2,790	2	58	30,165
Auxiliary	1,077	1,285	60	3,096	59	—	31,936
Special	36	379	25	90	—	—	5,958
Totals	**221,386**	**230,390**	**333,240**	**388,668**	**9,108**[2]	**7,302**	**4,591,602**

[1] Includes Ungava District of Quebec. [2] Total for Yukon Territory was 3,104 pupils.

Teaching Staffs.—Between the school years ended in 1943 and 1963 the number of teachers in the publicly controlled schools of the ten provinces increased 128 p.c. from 75,321 to 171,927. The number of men teachers increased 241 p.c. and the number of women teachers 99 p.c.

In 1963, in nine provinces (excluding Quebec), 83 p.c. of the teachers had at least senior matriculation and one year of teacher-training, and an additional 9.5 p.c. had one year less schooling. Median experience in the eight provinces outside of Quebec and Ontario has increased slowly from 6.8 years in 1943 to 8.3 years in 1963, despite the large number of new teachers each year. Many of these have been recruited by the cities, where the median experience has declined from a high of 16.7 years in 1946 to 13.4 in 1954 and 9.3 years in 1963.

Between 1943 and 1963 the median salaries of all teachers in the nine provinces other than Quebec increased by 321 p.c. from $1,075 to $4,522, while that for teachers in one-room schools increased by 250 p.c. from $853 to $2,983. The annual rate of increase has naturally fluctuated considerably, ranging from 1.8 p.c. in 1941 to 16.8 p.c. in 1948. The increase in 1963 over 1962 was 2.4 p.c. as compared with 3.9 p.c. for 1962 over 1961.

6.—Teachers and Principals in Publicly Controlled Elementary and Secondary Schools, School Year 1962-63

Province and Sex	Number	Median Salary	Median Experience	Fully Qualified[1]	University Graduates
	Teaching Elementary Grades[2]				
		$	yrs.	p.c.	p.c.
Newfoundland M.	1,136	2,192	2.7	22.9	6.1
F.	2,685	2,391	3.4	13.6	2.6
Prince Edward Island M.	88	2,696	4.0	30.7	6.8
F.	771	2,556	7.5	14.9	1.4
Nova Scotia M.	494	3,534	5.3	84.6	32.0
F.	4,723	2,908	10.8	65.5	10.0
New Brunswick M.	455	2,959	3.9	46.8	19.8
F.	4,071	2,638	8.7	33.5	2.8
Quebec	...	...	...	...	...
Ontario M.	9,805	4,911	5.6	95.6	20.1
F.	29,459	4,206	6.8	88.7	5.4
Manitoba M.	1,376	3,658	5.3	86.5	14.8
F.	4,383	3,640	7.6	85.6	6.9
Saskatchewan M.	1,705	4,107	5.3	97.9	11.7
F.	5,060	4,062	8.3	97.5	2.6
Alberta M.	1,600	5,292	6.8	92.2	37.8
F.	6,843	4,571	9.6	88.0	8.0
British Columbia M.	2,226	5,436	6.9	92.8	33.1
F.	5,672	4,885	7.5	89.7	10.4
	Teaching Secondary Grades[3]				
		$	yrs.	p.c.	p.c.
Newfoundland M.	655	4,079	6.0	44.7	48.7
F.	313	3,809	10.0	36.7	38.7
Prince Edward Island M.	101	4,019	5.5	49.5	41.6
F.	112	3,450	11.7	31.3	27.7
Nova Scotia M.	973	4,851	8.7	80.0	68.7
F.	986	4,267	12.2	63.8	55.6
New Brunswick M.	910	4,798	7.8	55.6	47.8
F.	832	3,892	11.9	38.2	32.3
Quebec	...	...	...	...	...
Ontario M.	10,089	7,194	6.7	70.8	84.1
F.	4,823	6,464	5.4	74.4	88.8
Manitoba M.	1,549	5,442	7.3	66.1	69.2
F.	945	5,008	9.3	60.5	62.1
Saskatchewan M.	1,673	6,576	12.3	65.0	63.7
F.	808	5,475	12.1	50.4	50.7
Alberta M.	2,910	7,088	10.4	68.4	72.1
F.	1,783	5,775	11.8	49.3	51.3
British Columbia M.	3,636	7,184	10.4	86.3	72.3
F.	1,777	6,290	10.7	74.3	68.5

[1] Fully qualified at the elementary level are teachers with junior matriculation and two or more years, or senior matriculation and one or more years of professional training. At the secondary level they are teachers with junior matriculation and four or more years, or senior matriculation and three or more years of schooling, of which one year was professional training. [2] Comprises teachers and principals instructing or supervising kindergarten and elementary grades only, and those instructing or supervising both elementary and secondary grades in rural schools with five or fewer classes. Teachers and principals in Ontario are classified as elementary according to the provincial *Report of the Minister, 1962*. [3] Comprises teachers and principals instructing or supervising secondary grades only, and those instructing or supervising both elementary and secondary grades in urban centres and in rural schools with six or more classes. Teachers and principals in Ontario are classified as secondary according to the provincial *Report of the Minister, 1962*.

Financial Support.—Table 7 shows details of the income of public school boards for the years 1958-60. In most provinces, local taxation is the most important source of revenue followed by provincial government grants. In 1960, all other sources of income accounted for less than 3 p.c. of total current revenue. Newfoundland differs significantly

from other provinces in its method of school finance. Local taxation is non-existent outside of four School Tax Authorities and provincial grants are the major source of income with other sources accounting for 12 p.c. of current revenue.

Usually school boards requisition the local municipalities for the sums needed to balance their budgets after taking account of provincial grants and other income. Exceptions to this rule are mostly in areas where there is no municipal organization and where the school boards assess and levy taxes themselves. School taxes are levied on land and buildings and, in some cases, on improvements and personal property. Several provinces have taken steps to equalize real property assessment.

Only four provinces collect and publish figures for debenture indebtedness, although it is the usual practice in all provinces, except Newfoundland, for boards to finance new construction, at least in part, by issuing debentures. Provincial aid toward capital expenditures may take the form of a percentage of total cost, a fixed amount per classroom or assistance with debenture debt charges. Many provinces guarantee debentures issued by school boards and others assist in marketing them.

7.—Income of School Boards of Publicly Controlled Elementary and Secondary Schools, by Province, Years Ended Mar. 31, 1958-60

NOTE.—The receipts shown in this table do not include any amounts raised by loans or the sale of bonds or debentures as all revenue of this nature must be repaid ultimately with money raised by local taxation. Figures from 1914 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Province and Year	Income from—			Total Current Revenue Recorded	Debenture Indebtedness[1]
	Provincial Government Grants	Local Taxation	Other Sources		
	$'000	$'000	$'000	$'000	$'000
Newfoundland....1958	11,533	163	1,682	13,378	..
1959	12,861	205	1,838	14,904	..
1960	14,879	212	2,073	17,164	..
Prince Edward Island....1958	1,220	1,178	101	2,499	..
1959	1,565	1,273	60	2,898	..
1960	2,154	1,333	70	3,557	..
Nova Scotia....1958	12,567	14,329	372	27,268	..
1959	14,038	16,878	457	31,373	..
1960	15,859	19,185	493	35,537	..
New Brunswick....1958	6,829	14,797	612	22,238	..
1959	8,508	16,211	832	25,551	..
1960	9,135	17,830	1,200	28,165	..
Quebec....1958	56,042	122,191	6,176	184,409	264,789
1959	63,936	144,046	6,864	214,846	289,782
1960	76,838	162,446	7,260	246,544	342,709
Ontario....1958	129,552	197,656	12,412	339,620	..
1959	150,157	240,149	11,843	402,149	..
1960	160,791	267,041	12,970	440,802	..
Manitoba....1958	13,190	24,400	639	38,229	27,145
1959	20,244	27,935	142	48,321	34,849
1960	24,776	30,899	82	55,757	48,065
Saskatchewan....1958	20,579	34,613	991	56,183	27,693
1959	25,443	35,111	1,506	62,060	37,170
1960	28,965	38,815	1,701	69,481	44,790
Alberta....1958	48,810	41,092	1,887	91,789	95,580
1959	50,830	46,671	1,727	99,228	107,716
1960	56,118	54,354	1,359	111,831	115,628
British Columbia....1958	43,217	45,128	1,935	90,280	..
1959	48,576	53,226	1,925	103,727	..
1960	55,043	59,494	2,332	116,869	..

[1] Net figures, after deduction of sinking funds.

Subsection 2.—Universities and Colleges

Institutions.—According to the latest information available at the time of going to press, there were in Canada 354 institutions of higher education offering one or more years of degree-credit courses—304 under the control of religious bodies (264 Roman Catholic), 23 under provincial government control, three under Federal Government control, and 24 under private non-denominational control. These institutions were distributed by province as follows:—

Province	*Active Degree-Granting Institutions*	*Other Institutions*	*Total*
	No.	No.	No.
Newfoundland	1	2	3
Prince Edward Island	1	1	2
Nova Scotia	9	7	16
New Brunswick	6	4	10
Quebec	8	204	212
Ontario	21	44	65
Manitoba	3	7	10
Saskatchewan	5	12	17
Alberta	2	9	11
British Columbia	3	5	8
TOTALS	59	295	354

Enrolment.—Full-time university-grade enrolment continues to increase year by year and indications are that enrolments may well be double the 1963-64 figure of 158,270 in about ten years. Table 8 shows full-time enrolment by province for the academic years ended 1961-64. In the latest year, in addition to full-time students, there were about 50,000 part-time university-grade students (including about 6,000 graduate students) in attendance during the regular 1963-64 winter session and nearly 7,000 students taking university-grade credit correspondence courses.

8.—Full-Time Regular Winter Session University-Grade Enrolment, by Province, Academic Years Ended 1961-64

Province	1960-61		1961-62		1962-63		1963-64	
	Total	Graduate Only[1]	Total	Graduate Only[1]	Total	Graduate Only	Total	Graduate Only
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	1,240	33	1,757	17	1,998	34	2,244	47
Prince Edward Island	570	—	683	—	705	—	738	—
Nova Scotia	5,820	147	6,409	172	7,034	242	7,722	269
New Brunswick	4,070	90	4,533	149	4,896	181	5,153	199
Quebec	38,000	1,981	43,156	2,307	47,324	2,813	53,579	3,310
Ontario	32,100	2,599	35,871	2,903	39,269	3,328	44,182	4,189
Manitoba	6,360	251	6,947	294	7,741	296	8,802	564
Saskatchewan	5,630	210	6,329	226	7,024	253	7,811	315
Alberta	7,140	350	8,499	471	9,837	656	11,000	825
British Columbia	13,070	857	14,710	808	15,560	633	17,039	845
Totals	**114,000**	**6,518**	**128,894**	**7,347**	**141,388**	**8,436**	**158,270**	**10,563**

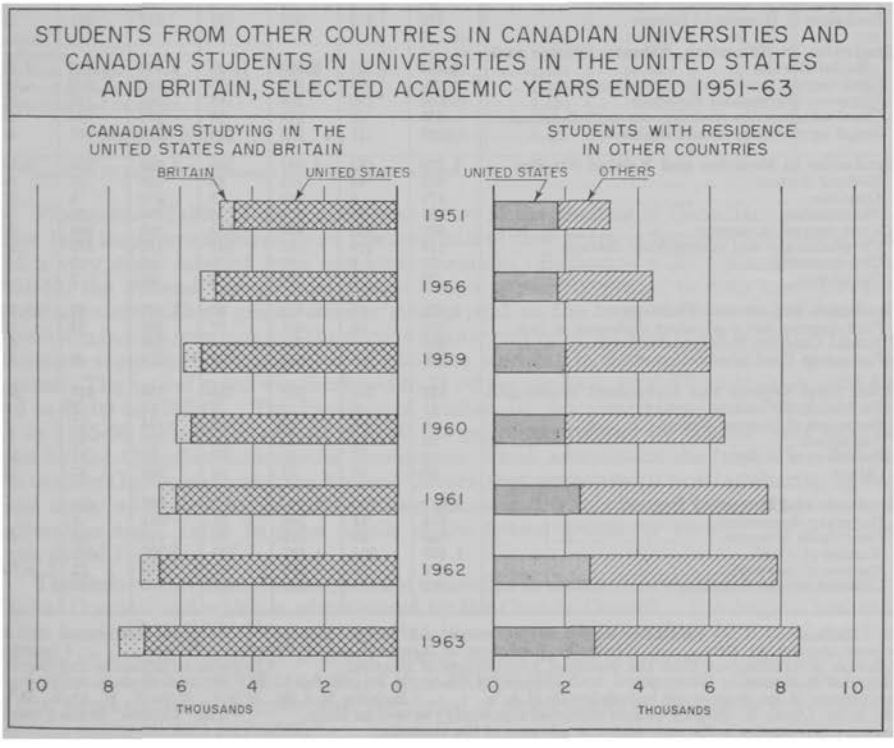
[1] All theology enrolment included as undergraduate prior to 1962-63.

Foreign enrolment has risen considerably during the past decade, with a larger proportion of students from countries other than the United States and Britain coming to Canadian institutions, as shown in Table 9. In 1962-63 about one of every 16 full-time university students in Canada was a resident of a country other than Canada. Hong Kong, Trinidad and Tobago, and Britain each accounted for over 500 students while France, Pakistan, India and Jamaica contributed from 100 to 400 each. About 150 other countries or territories were represented in the figures.

9.—Students from Other Countries in Canadian Universities, and Canadian Students in Universities in the United States and Britain, Selected Academic Years Ended 1931-63

Academic Year Ended—	Total Full-Time University Enrolment in Canada	Students with Residence in—					Enrolment from Other Countries in Canada		Canadians Studying in—	
		United States	Britain	British West Indies	Newfoundland[1]	Other Countries	From all Countries	From British Commonwealth Only	United States[2]	Britain[3]
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1931.....	32,926	1,506	333	54	175	236	2,304	..	1,313	212
1941.....	36,319	1,478	41	74	174	289	2,056	..	1,458	..
1951.....	68,306	1,758	164	252	...	1,014	3,188	..	4,528	372
1956.....	72,737[r]	1,773	281	635	...	1,696	4,385	..	4,990	404
1961[r].....	113,864	2,362	582	1,210	...	3,097	7,251	3,294	6,058	502
1962.....	128,894	2,660	577	1,251	...	3,412	7,900	3,552	6,571	559
1963.....	141,388	2,845	650	1,153	...	3,870	8,518	3,763	7,004	657

[1] Before 1949, Newfoundland was considered as being a country outside Canada. [2] Data from the Institute of International Education, New York. [3] Data from the Association of Universities of the British Commonwealth, London, England. Newfoundland is included with Canada for all years.



Graduates.—Table 10 gives figures for graduates in most faculties for the academic years ended 1961-64; breakdown by sex for 1963-64 was not available at the time of going to press.

10.—Graduates from Universities and Colleges, Academic Years Ended 1961-64

NOTE.—Figures for 1920-36 are given in the 1938 Year Book, pp. 993-997, and for 1937-60 in the corresponding table of subsequent editions.

Field of Study	1960-61[r]		1961-62[r]		1962-63		1963-64
	Total	Female	Total	Female	Total	Female	Total[1]
	No.	No	No.	No.	No.	No.	No.
Graduates in Arts, Pure Science and Commerce	**10,338**	**2,896**	**12,231**	**3,516**	**13,955**	**3,959**	**15,820**
Bachelors of Arts[2]	7,614	2,549	9,250	3,154	10,532	3,560	11,870
Bachelors of Science (in Arts)[3]	1,614	287	1,879	310	2,237	352	2,700
Bachelors of Commerce[4]	1,110	60	1,102	52	1,186	47	1,250
Graduates in Applied Science	**2,614**	**8**	**2,673**	**7**	**2,435**	**5**	**2,510**
Bachelors of Applied Science in Engineering	2,412	8	2,437	4	2,246	2	2,300
Bachelors of Architecture[5]	84	—	120	3	96	3	110
Bachelors of Forestry	115	—	110	—	88	—	100
Bachelors of Fisheries	3	—	6	—	5	—	—
Graduates in Agriculture, Veterinary Science and Household Science	**637**	**286**	**710**	**299**	**763**	**336**	**815**
Bachelors of Agricultural Science	311	12	351	9	357	13	375
First degrees in Veterinary Science	56	4	72	3	85	2	90
Bachelors of Household Science	270	270	287	287	321	321	350
Graduates in Education, Library Science and Social Service	**3,119**	**1,217**	**3,833**	**1,595**	**4,369**	**1,845**	**4,920**
First degrees in education or pedagogy	2,430	903	3,009	1,158	3,495	1,379	4,000
Librarian degrees and diplomas	199	130	268	189	265	195	270
Physical education first degrees and diplomas	245	69	321	90	337	104	350
Social service degrees and diplomas	245	115	235	158	272	167	300
Graduates in Medicine and Related Studies	**1,778**	**582**	**1,934**	**705**	**1,989**	**709**	**2,085**
Medical doctors	842	65	846	86	826	65	850
Dentists	179	8	229	8	259	5	275
Pharmacists	281	86	281	78	293	75	300
First degrees in nursing	302	302	384	383	386	386	400
Physiotherapy and occupational therapy	118	118	147	147	173	173	200
Chiropractic	28	2	19	1	19	3	25
Optometry	28	1	28	2	33	2	35
Graduates in Law and Theology	**1,556**	**85**	**1,519**	**67**	**1,457**	**67**	**1,525**
First degrees and equivalent diplomas in law	697	35	661	37	588	24	600
Roman Catholic theological colleges	562	—	530	—	545	—	575
Protestant theological colleges[6]	297	50	328	30	324	43	350
Other First Degrees and Equivalent Diplomas	**198**	**137**	**202**	**131**	**253**	**132**	**325**
Bachelors of Fine and Applied Arts	11	8	14	9	13	8	15
Bachelors of Interior Design	9	8	10	8	24	11	25
Journalism	25	14	26	12	33	15	35
Bachelors of Music	88	67	80	57	77	51	100
Others	65	40	72	45	106	47	150
Graduate and Honorary Degrees	**3,017**	**506**	**3,374**	**640**	**3,827**	**698**	..
Honorary doctorates	265	14	240	11	254	7	..
Doctorates in course	305	26	321	26	421	34	450
Masters of Arts[7]	1,408	294	1,497	339	1,705	402	3,700
Masters of Science[8]	672	46	753	47	843	72	
Licences (except Theology)[9]	367	126	563	217	604	183	

[1] Estimated. [2] Includes Bachelors of Letters and Social Science. [3] Some institutions include Science degrees in Arts. [4] Includes Bachelors of Accounting and Secretarial Science. [5] Includes diplomas in Architecture from the School of Architecture of Montreal. [6] Includes all diplomas and degrees except for Bachelors of Divinity. [7] Includes M. Com., M.Ed., M.Paed., M.S.W., as well as M.A. In some institutions, M.Sc. degrees are included with M.A.'s. [8] Includes M.A.Sc., M.S.A., M.Sc.F., M. Arch., M.V. Sc., M.Sc. Dent., M. Surgery (where conferred separately) as well as M.Sc. [9] The "Licence" in the French-language universities is the next degree in advance of the Bachelor.

Teaching Staffs.—Table 11 shows the trend in university teaching staffs since 1955.

11.—Full-Time Teaching Complement in Universities and Colleges, Academic Years Ended 1955-64

NOTE.—Figures from 1957 are estimates based on returns from institutions representing about 50 p.c. of the total enrolment. Figures for all years include some research personnel and junior and sessional lecturers and assistants.

Academic Year Ended—	Teachers	Academic Year Ended—	Teachers
	No.		No.
1955	6,474	1960	9,200
1956	6,719	1961	9,755
1957	7,000	1962	10,540
1958	7,500	1963	11,670
1959	8,200	1964	12,940

Table 12 gives median salaries, by rank and region, for the staffs of 17 major institutions for 1963-64.

12.—Median Salaries of Teachers at 17 Universities, Academic Year 1963-64

NOTE.—Institutions include: *West*—Universities of Manitoba, Saskatchewan, Alberta, British Columbia; *Central*—Bishop's, McGill, Queen's, Toronto, Victoria, Trinity, McMaster, Western Ontario; *Atlantic*—Acadia, Dalhousie, St. Francis Xavier, Mount Allison, New Brunswick.

Rank	Region				Staff Complement
	Atlantic Provinces	Central Provinces	Western Provinces	Total	
	$	$	$	$	No.
Deans	13,125	17,625	16,225	16,125	109
Professors	11,150	13,977	13,373	13,457	1,169
Associate professors	8,828	10,223	10,224	10,113	1,450
Assistant professors	7,254	8,150	7,985	8,002	1,796
Instructors and lecturers	6,069	6,534	6,400	6,421	1,030
Totals, All Ranks	**7,919**	**9,451**	**9,050**	**9,103**	**5,567**[1]

[1] Includes 13 ungraded professors not distributed above.

Finances.—Table 13 gives a ten-year series of the finances of Canadian universities. Since 1952 they have received more than one half of their revenue from government grants and a very small amount from municipal councils. Beginning with the academic year 1951-52, the Federal Government has provided university grants to help meet current operating costs. These grants were originally paid on the basis of 50 cents per head of population in each province and the eligible institutions received their share of the provincial allotment according to the number of full-time students in undergraduate and graduate courses. The rate of grant was increased to $1.00 per capita in 1956-57, to $1.50 in 1958-59 and to $2.00 in 1962-63. The Province of Quebec did not accept this grant for the years up to 1955-56. From 1956-57 to 1959-60 the payments refused by Quebec were held in trust by the Canadian Universities Foundation, which administers the fund. In 1960-61 the Quebec Government and the Federal Government negotiated a new tax-sharing agreement under which Quebec provides its own grants and is reimbursed by an abatement of corporation tax. Table 14 gives details of the federal grants for each of the academic years ended 1962-64.

The Federal Government also provides assistance to universities through the University Capital Grants Fund which is administered by the Canada Council. The original amount in the fund was $50,000,000, to be granted in amounts not exceeding 50 p.c. of specific building or capital equipment projects, having regard to the population of each province. Up to the end of March 1963, a total of over $30,000,000 had been paid. Grants are paid in four equal instalments spread over the period of construction so that there is a time lag between approval and payment.

The Canada Council was also endowed with an additional $50,000,000, the interest on which is available for the provision of scholarships or other assistance in the fields of the arts, humanities and social sciences (see also pp. 363-365).

13.—Current Income and Expenditure of Universities and Colleges, Academic Years Ended 1952-61

NOTE.—In 1952 and 1953, institutions included represent about 80 p.c. of the total full-time university-grade enrolment. For subsequent years figures given are an estimate of the total current revenue and expenditure of universities and colleges.

Academic Year Ended—	Current Income					Total Current Expenditure
	Endowments and Investments	Government Grants	Student Fees[1]	Miscellaneous	Total[1]	
	$'000	$'000	$'000	$'000	$'000	$'000
1952	3,127	18,733	14,025	4,647	40,532	40,792
1953	3,185	25,284	14,544	5,208	48,221	47,195
1954	2,979	26,554	14,260	6,675	50,468	50,116
1955	3,651	41,786	21,285	9,037	75,759	76,057
1956	4,692	45,107	21,600	8,938	80,337	80,427
1957	5,014	49,911	25,105	10,733	90,763	86,521
1958	4,375	57,118	30,867	10,304	102,664	102,991
1959	4,668	70,843	33,546	11,373	120,430	121,113
1960	5,082	82,515	40,789	14,132	142,518	143,311
1961	5,332	110,183	45,991	14,396	175,902	175,970

[1] Board and lodging not included.

14.—Federal Government University Grants, by Province, Academic Years Ended 1962-64

NOTE.—Figures for 1952-61 are given in the corresponding table of previous Year Books beginning with the 1955 edition.

Province and Academic Year Ended—	Institutions	Eligible Enrolment	Total Grants	Grant per Eligible Student
	No.	No.	$	$
Newfoundland 1962	1	1,757	672,225	390.88
1963	1	1,998	940,000	470.47
1964	1	2,244	962,000	428.70
Prince Edward Island 1962	2	683	157,784	229.79
1963	2	705	212,000	300.71
1964	2	734	214,000	291.55
Nova Scotia 1962	13	6,372	1,113,834	173.50
1963	13	6,943	1,492,000	214.89
1964	13	7,505	1,512,000	201.47
New Brunswick 1962	6	4,532	880,812	197.90
1963	6	4,892	1,214,000	248.16
1964	4	5,143	1,228,000	238.77
Quebec[1]	...	...	...	...
Ontario 1962	31	31,999	9,325,428	292.33
1963	30	35,185	12,684,000	360.49
1964	31	39,964	12,896,000	322.69
Manitoba 1962	8	6,853	1,295,065	201.74
1963	8	7,583	1,870,000	246.60
1964	8	8,516	1,900,000	223.11
Saskatchewan 1962	13	6,182	1,397,189	224.49
1963	14	6,907	1,860,000	269.29
1964	14	7,652	1,866,000	243.86
Alberta 1962	6	8,080	2,008,685	247.27
1963	6	9,379	2,740,000	292.14
1964	6	10,446	2,810,000	269.00
British Columbia 1962	5	14,418	2,409,060	169.48
1963	5	15,159	3,318,000	218.88
1964	5	16,516	3,390,000	205.26
Totals[1] 1962	**85**	**80,876**	**19,360,082**	**240.02**
1963	**85**	**88,751**	**26,330,000**	**297.00**
1964	**84**	**98,720**	**26,778,000**	**271.00**

[1] See text on p. 351 *re* Quebec.

Subsection 3.—Vocational Education

Table 15 summarizes the data on full-time vocational training classes. The duration of these classes may vary from three weeks taken annually by indentured apprentices at provincially operated trade schools, to two-year vocational high school courses or three-year post-secondary courses offered in provincial technical institutes. Numerous skills are taught, ranging from short courses in welding or typing to extended courses for instrument technicians or aircraft maintenance men. Students taking two-year or three-year vocational courses in public secondary schools may, upon completion, enter employment or may continue other formal training in a trade school or a technical institute.

In addition to the full-time vocational courses, a great variety of part-time instruction is offered by both public and private institutions as an alternative to full-time training or as an attraction to the individual interested in a hobby.

15.—Full-Time Enrolment in Vocational Courses, School Year 1961-62

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Publicly Sponsored—						
Trade courses for the unemployed and disabled	349	97	629	3,041	6,442	7,516
Vocational high school courses	503	140[1]	905	4,528	21,429[1]	70,751
Post-secondary technical courses	—	—	32	78	7,753	3,959
Apprenticeship courses	198	—	309	102	1,497	3,295
Privately Sponsored—						
Trade school courses	—	—	107	—	5,362	3,370
Business school courses	—	569		646	5,900	5,316
Totals	**1,050**	**2,788**		**8,395**	**48,383**	**94,207**

Item	Man.	Sask.	Alta.	B.C.	Canada
	No.	No.	No.	No.	No.
Publicly Sponsored—					
Trade courses for the unemployed and disabled	1,530	897	998	1,332	22,831
Vocational high school courses	4,139	4,900	11,280[1]	8,620[1]	127,195[1]
Post-secondary technical courses	—	168	1,032	197	13,219
Apprenticeship courses	1,008	905	3,778	612	11,704[2]
Privately Sponsored—					
Trade school courses	588	2,307	757	806	13,297[3]
Business school courses	1,014	807	1,403	2,324	17,979[4]
Totals	**8,279**	**9,984**	**19,248**	**13,891**	**206,225**

[1] Estimate. [2] In addition, there were 10,961 part-time students and 357 students taking correspondence courses. [3] Excludes 12,771 part-time students and 31,758 students taking correspondence courses from private trade schools and business schools. [4] Excludes some 21,000 part-time students.

Subsection 4.—Adult Education

Universities and colleges, federal, provincial and municipal governments, and a wide variety of private schools and organizations provide for adult education activities in Canada and a number of national voluntary organizations assist in co-ordinating these efforts, the most important being the Canadian Association for Adult Education and l'Association canadienne de l'éducation des adultes.

Annual DBS surveys from 1957-58 to 1961-62 show pronounced increases in enrolment in courses for credit toward a high school diploma or a university degree, and substantial enrolments in vocational adult courses. Enrolments in courses on social and other cultural subjects did not increase as rapidly but each year account for important portions of the total enrolment.

In 1961-62, 88 universities and colleges reported a total course enrolment of 207,189, of whom 47.9 p.c. were working for credit toward a university degree, and 22.4 p.c. were in professional training and refresher courses. Informal study included community development groups, fine arts, literature and language classes, current events study groups and marriage preparation courses. Federal and provincial government departments conducted or assisted municipal boards to conduct courses with a total enrolment of 744,482, of whom 15.7 p.c. took academic subjects for credit toward a high school diploma, and 37.7 p.c. vocational courses. Government agencies also sponsored public health courses, language and citizenship classes for new Canadians, French-English conversation groups, leadership training, and fine arts courses. Other sponsors who reported, as indicated in Table 16, brought the total enrolment to more than 1,000,000, or one of every 12 persons 15 years of age or over in the population as of June 1962.

In addition to organized classes and courses, sponsors of adult education arranged public lectures, film showings, exhibits, performances and similar activities, which drew a total attendance of 3,293,678. Institutions and agencies offering programs of adult education prepared television and radio programs, information materials, and exhibits for fairs and conferences. The National Film Board and Canadian Broadcasting Corporation co-operated with other sponsors in the production of program materials and the staffs of adult education agencies provided consultative services to organizations and individuals.

16.—Adult Education Activities, School Year 1961-62

Province and Sponsor	Part-Time Enrolment in—			Total Enrolment	Attendance at Public Lectures, etc.
	Academic Subjects	Vocational and Professional Training	Informal Courses		
	No.	No.	No.	No.	No.
Newfoundland—					
Universities	30	85	785	900	12,268
Government[1]	1,827	1,387	101	3,315	2,948
Prince Edward Island—					
Universities	360	30	—	390	—
Government[1]	—	541	150	691	57,301
Nova Scotia—					
Universities	2,721	4,193	1,395	8,309	28,990
Government[1]	1,250	8,195	2,441	11,886	37,000
New Brunswick—					
Universities	6,708	893	3,018	10,619	9,225
Government[1]	6,850	13,060	2,320	22,230	20,621
Quebec—					
Universities	33,039	7,944	11,393	52,376	207,839
Government[1]	25,108	42,552	220,418	288,078	178,150
Ontario—					
Universities	32,227	15,964	22,749	70,940	410,812
Government[1]	31,765	69,144	52,092	153,001	34,672
Manitoba—					
Universities	6,967	2,342	995	10,304	72,584
Government[1]	4,916	20,858	17,563	43,337	333,414
Saskatchewan—					
Universities	5,386	4,952	3,285	13,623	70,685
Government[1]	9,005	7,595	5,661	22,261	203,193
Alberta—					
Universities	6,899	7,618	11,910	26,427	68,422
Government[1]	6,284	23,240	8,228	37,752	324,168
British Columbia—					
Universities	5,025	2,457	5,819	13,301	308,918
Government[1]	19,974	33,073	31,256	84,303	3,141

[1] Operated and assisted by federal and provincial departments and agencies.

16.—Adult Education Activities, School Year 1961-62—concluded

Territory and Sponsor	Part-Time Enrolment in—			Total Enrolment	Attendance at Public Lectures, etc.
	Academic Subjects	Vocational and Professional Training	Informal Courses		
	No.	No.	No.	No.	No.
Yukon Territory	6	49	20	75	105
Federal Government	9,953	60,988	6,612	77,553	396,251
Public libraries	—	—	5,781	5,781	512,971
Business colleges	—	24,624	—	24,624	—
Teacher-training institutions	—	37,670	—	37,670	—
Trade schools	—	52,332	—	52,332	—
Totals, 1961-62[1]	**215,878**	**420,480**	**413,992**	**1,050,350**	**3,293,678**
Totals, 1960-61[1]	**171,723**	**366,171**	**393,011**	**930,905**	**3,802,987**

[1] Unduplicated enrolment.

PART II.—CULTURAL ACTIVITIES RELATED TO EDUCATION

Section 1.—The Arts and Education*

Fine Art Schools, Galleries and Organizations.—Fine art (architecture, painting and drawing, commercial and decorative arts, graphics, ceramics and sculpture) appears as an elective subject of the faculty of arts in a number of universities, where it may be taken as one of five, six or more subjects for a year or two. In Mount Allison University, McGill University, Sir George Williams University, Queen's University, McMaster University, Assumption University and the Universities of Manitoba, Saskatchewan, Alberta and British Columbia, there is a sufficient number of courses to allow the taking of a Bachelor degree with specialization in fine art. At the University of Toronto an Honour Bachelor degree in art history and archaeology is offered, and a Master degree in architecture may be obtained at McGill University and at the Universities of Toronto, Manitoba and British Columbia.

There are many schools of art not requiring any fixed academic standing for admission, as they are more concerned with the technical development of the artist. The most widely known of these are:—

Nova Scotia College of Art, Halifax, N.S.
École des Beaux-Arts, Quebec, Que.
École des Beaux-Arts, Montreal, Que.
School of Art and Design, Montreal Museum of Fine Arts, Montreal, Que.
Ontario College of Art, Toronto, Ont.
University of Manitoba School of Fine Arts, Winnipeg, Man.
School of Art, Regina College, Regina, Sask.
Provincial Insitute of Technology and Art, Banff School of Fine Arts, Banff, Alta.
(affiliated with the University of Alberta, Edmonton)
Vancouver School of Art, Vancouver, B.C.

Courses in these schools vary in length with the requirements of the individual student but may extend over as many as four years. Summer schools of art are sponsored by some of the foregoing institutions, by universities, and by various independent groups; such courses are listed in *Some Summer Courses in the Arts in Canada* published by the Canadian Cultural Information Centre.*

* Further information on this subject may be obtained from the Canadian Cultural Information Centre, 56 Sparks St., Ottawa.

Public art galleries in the principal cities perform valuable educational services among adults and children. Children's Saturday classes, conducted tours for school pupils and adults, radio talks, lectures and concerts are features of the programs of the various galleries. Many of these institutions supply their surrounding areas with travelling exhibitions, and organizations such as the Maritime Art Association, the Western Canada Art Circuit, the Art Institute of Ontario and the Queen's Art Circuit have been founded to carry on the work on a regional basis. The National Gallery of Canada has a nation-wide program of this nature. It is the third largest circulating agency in North America. The principal art galleries are:—

Beaverbrook Art Gallery, Fredericton, N.B.
Montreal Museum of Fine Arts, Montreal, Que.
National Gallery of Canada, Ottawa, Ont.
Public Library and Art Museum, London, Ont.
Art Gallery of Toronto, Toronto, Ont.
Art Gallery of Hamilton, Hamilton, Ont.
Winnipeg Art Gallery, Winnipeg, Man.
Norman Mackenzie Art Gallery, Regina, Sask.
Edmonton Art Gallery, Edmonton, Alta.
Calgary Allied Arts Centre, Calgary, Alta.
Vancouver Art Gallery, Vancouver, B.C.
Art Gallery of Greater Victoria, Victoria, B.C.

Other Fine Art Organizations.—The leading art organizations of national scope, exclusive of museums and art galleries, include the following:—

Association of Canadian Industrial Designers
Canadian Arts Council
Canadian Group of Painters
Canadian Guild of Potters
Canadian Handicrafts Guild
Canadian Museums Association
Canadian Society of Graphic Art
Canadian Society of Painter-Etchers and Engravers
Canadian Society of Painters in Water Colour
Canadian Society of Landscape Architects and Townplanners
Community Planning Association of Canada
Federation of Canadian Artists
Federation of Canadian Woodcarvers
Royal Canadian Academy of Arts
Royal Architectural Institute of Canada
Sculptors' Society of Canada
Town Planning Institute of Canada.

The National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquis of Lorne, then Governor General, had recommended and assisted the founding of the Academy and among the tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. The group of pictures that formed the nucleus of the collection was selected by the Marquis. Until 1907 the National Gallery was under the direct control of a Minister of the Crown but in that year, in response to public demand, an Advisory Arts Council consisting of three laymen was appointed by the government to administer grants to the National Gallery. Three years later, the first professional curator was appointed.

In 1913, the National Gallery was incorporated by Act of Parliament (RSC 1952, c. 186) and was placed under the administration of a Board of Trustees appointed by the Governor General in Council; its function was to encourage public interest in the arts and to promote the interests of art throughout the country. Under such management, the Gallery increased its collections and developed into an art institution worthy of international recognition. Today, the Gallery administration comes under the aegis of the Secretary of State. The Board of Trustees, now composed of nine members representing all sections of Canada, meets twice annually.

In 1960, the Gallery entered a new era in its history when the entire national collection and the staff and equipment necessary to its maintenance were transferred to new modern quarters—the Lorne Building in downtown Ottawa—and, for the first time, the Gallery had adequate well-lighted space for hanging its permanent works of art and for displaying travelling exhibitions.

The Gallery's collections are of indisputable taste and quality. They have been built up along international lines and give the people of Canada an indication of the origins from which their national tradition is developing. The collection of Canadian art, the most extensive and important in existence, is continually being augmented by the purchase of works from the Biennials of Canadian Art and other sources. The collections of Old Masters include twelve important works acquired from the Liechtenstein collection; extensive war collections; the Massey collection presented to the Gallery during 1946-50 by the Massey Foundation; a collection of French paintings; prints and drawings; and diploma works of the Royal Canadian Academy. The prints and drawings collection consists of more than 5,000 items.

The services of the Gallery include the operation of a reference library open to the public which contains more than 10,000 volumes and periodicals on the history of art and other related subjects; the operation of an Exhibition Extension Service which prepares and circulates travelling exhibitions, provides educational services such as lectures offered to the general public across Canada, and organizes guided tours for visitors to the Gallery at Ottawa; the production of publications, films, reproductions, didactic exhibitions and other aids to art appreciation; and assistance to Canadian artists participating in important international exhibitions such as the Biennials held in Paris, Venice and São Paulo. The Conservation and Scientific Research Division of the Gallery, which had been handling requests for technical information on works of art from public and private collections across Canada, was in 1964 renamed the National Conservation Research Laboratory in recognition of its expanding services to the country as a whole. The major function of this section is the conservation of the national art collection by the application of the highest international standards. Studies are conducted on the effects of environment on works of art, the durability of artists' materials and the scientific identification of artistic techniques. The services of the Laboratory are offered to government departments and art museums and are to be extended in the near future.

Performing Arts Schools.—Music, the most widespread of the performing arts (which also include opera, drama, and ballet and dance) is a degree course in a number of universities. The University of Toronto offers a Doctorate and a Master degree in music; a Bachelor degree or Licentiate in music may be obtained at Acadia University, Laval University, McGill University, Mount St. Vincent University, St. Joseph's University, St. Louis University and the Universities of Montreal, Toronto, Manitoba, Alberta and British Columbia; and a Bachelor degree with specialization in music may be obtained at Mount Allison University, St. Francis Xavier University, Queen's University and the Universities of Sherbrooke, Western Ontario and Saskatchewan. Advanced instruction is also given at the Brandon College School of Music, the Advanced School of Contemporary Music, Toronto, the Institute of Music and Dramatic Art, Montreal, and the Banff School of Fine Arts. The Royal Conservatory of Opera School, Faculty of Music of the University of Toronto, trains students in all phases of operatic production, and summer courses are held at Banff and the University of British Columbia.

A Bachelor degree with specialization in drama may be obtained at the Universities of British Columbia, Alberta and Saskatchewan and at Queen's University, and advanced instruction is given at the Banff School of Fine Arts. The Manitoba Theatre School, the Medhurst Theatre School, Toronto, the National Theatre School of Canada, Montreal, and the New Play Society Theatre School, Toronto, are also of importance in this field. The ballet and dance schools of national importance are the National Ballet School, Toronto,

Les Grands Ballets Canadiens, Montreal, the Canadian School of Ballet, Winnipeg and the Okanagan Valley, the Banff Summer School and the University of British Columbia Summer School.

Section 2.—Museums and Education

Modern museums, in Canada and elsewhere, are breaking away from the old concept of being mere repositories and are assuming an important role as educational and cultural centres. They have an advantage over other agencies of education in that they are able to provide, for study and exhibition, actual, original objects as well as descriptions and pictures of such objects. Canadian museums of history and science offer many educational services to the public through exhibits, guided tours, lectures, and scientific and popular publications. The following museums have staff members who are specifically charged with organizing programs in education and providing extension services:—

Nova Scotia Museum, Halifax, N.S.
McGill University Museums, Montreal, Que.
National Museum of Canada, Ottawa, Ont.
Royal Ontario Museum, Toronto, Ont.
Saskatchewan Museum of Natural History, Regina, Sask.

Other museums that conduct educational and extension programs using the regular curatorial and administrative staff are:—

The New Brunswick Museum, Saint John, N.B.
Museum of the Province of Quebec, Quebec, Que.
The Manitoba Museum, Winnipeg, Man.
Provincial Museum of Natural History and Anthropology, Victoria, B.C.

Direct work with schools may involve the holding of classes within the museum or visits of museum lecturers, with exhibits, to the schools. More informal are the guided tours for visiting school classes, the lending of specimens, slides, filmstrips or motion picture films to schools, and the training of student-teachers in the educational use of the museum. A number of museums have special programs for children, not directly associated with school work. These include Saturday lectures and film showings, activity groups, nature clubs and field excursions.

For adults, museums offer lectures, film showings, and guided tours, the latter usually available throughout the year. Staff members may be sent to give lectures to service clubs, church groups, parent-teacher associations, and hobby clubs. The latter, such as naturalists' groups, mineral clubs and astronomy societies, may use the museum as their headquarters. Travelling exhibits are prepared for showing at local fairs, historical celebrations and conventions. At least seven Canadian museums have had regular radio or television programs; and others have made occasional contributions. Some historical museums stage annual events during which the arts, crafts or industries represented by the exhibits are demonstrated to the public.

The National Museum of Canada.*—The National Museum originated in the Geological Survey of Canada and its early history is inseparable from that institution. The first united Parliament of Upper and Lower Canada met in Montreal in 1841. In July of that year the Natural History Society of Montreal and the Literary and Historical Society of Quebec petitioned the Government to carry out a geological survey. As a result a resolution was passed in the Estimates on Sept. 10, to defray the expenses of a Geological Survey of the Province of Canada.

William E. Logan was appointed the first director of the Geological Survey in 1842. He and his assistant, Alexander Murray, undertook their first field work in 1843, and their collections formed the humble beginnings of the National Museum. Logan was much more than a mere geologist and his interests extended to other branches of natural science. His

* Prepared by Dr. R. Glover, Director, Human History Branch, and Dr. A. W. F. Banfield, Director, Natural History Branch, National Museum of Canada, Ottawa.

diaries contain accurate drawings of named plants. He wrote in his annual report for the year 1852-53: "It may be a consideration whether a growing country like Canada could not afford to anticipate what future importance may require in the nature of a national museum and at some future time not far distant, erect an appropriate edifice especially planned for the purpose."

In the meantime, the officers of the Geological Survey continued to collect for the geological museum. In 1856, Elkanah Billings, a palaeontologist, was added to the staff, the first of a number of specialists, and the legislation passed that year to continue the work of the Geological Survey specified the establishment of a geological museum, open to the public, to exhibit specimens, books and instruments.

In 1874, the practice of recording the number of visitors to the Museum was commenced; from May 1874 to April 1875, the number of visitors was 1,017 and by the year ended April 1896 it had reached 31,595. In 1874, the distribution of specimens of minerals, rocks and other natural history objects to schools was started with a donation to the Board of School Teachers of Elora, Ont. The first organized Museum lecture program was undertaken in 1912, with a series of lectures for young people after school; by 1915, Saturday morning lectures for children and evening lectures for adults—both features of the Museum program today—were in operation.

The scope of the Museum was enlarged in the "Act to make better provision respecting the Geological and Natural History Survey of Canada and for maintenance of the Museum in connection therewith", of Apr. 28, 1877. In that Act the Survey was instructed "to study and report upon the flora and fauna of the Dominion" and "to continue to collect the necessary materials for a Canadian museum of natural history, mineralogy and geology". As early as the Act of 1856, the Geological Survey of Canada had been authorized "from time to time" to distribute publications relative to the Survey. From this authority developed the Museum's celebrated series of scientific bulletins presenting the researches of its staff.

The Act of 1877 established the Geological Survey and the Museum on a continuing basis and permitted the appointment of specialists in connection with natural history research. John Macoun was appointed to establish the division of biology in 1882. He was an eminent botanist who had accompanied the expedition of Sanford Fleming to explore Western Canada in 1871. Macoun's report of 1874 laid the groundwork for the establishment of western Canadian agriculture. He also published a catalogue of Canadian birds. In 1895 under the third Director of the Geological Survey, George M. Dawson, the Museum entered the field of Canadian anthropology.

Prior to 1880, the Museum occupied several buildings in Montreal but that year the Geological Survey moved to Ottawa, occupying the former Clarendon Hotel on Sussex Street. Construction of the Victoria Memorial Museum building was started in 1904 and the Geological Survey moved in in 1910. The Museum began an expanded program of research and exhibition under the direction of R. W. Brock, then Director of the Geological Survey of Canada. Unfortunately this program was curtailed during World War I because the burning of the Parliament Buildings, in 1916, forced Parliament to occupy the Museum building until 1919. Later, expansion of the exhibition halls was handicapped by the Museum sharing its building with the National Gallery of Canada and the Geological Survey of Canada.

However, in 1927, the Governor General in Council gave authority "to designate the museum branch of the Department of Mines as the National Museum of Canada". In 1950, the National Museum of Canada was transferred to the Department of Resources and Development (now the Department of Northern Affairs and National Resources) and in 1964 it was transferred to the Department of the Secretary of State. Since the end of the Second World War, particularly after the appointment of Dr. Frederick J. Alcock as Chief Curator, the Museum has increased its research, education and exhibition staff in order to play a more important role in the cultural life of Canada and perform the tasks properly assigned to the National Museum of Canada.

The responsibilities of a great museum include the collection, preservation, storage and study of objects related to the various disciplines that fall under its purview. The next step is the undertaking of research by specialists in those fields and the publication of their findings to increase the total knowledge of their subjects. Typically, museums exhibit items from their collections as intrinsically beautiful displays and also to teach the public the scientific background to the subject. This leads to the educational program of museums which usually includes lectures, workshops, guided tours for children and activity groups, travelling exhibits, loans, library service, and radio and television programs.

The National Museum of Canada is now organized to present all these facets for the enjoyment and education of the people of Canada. It is divided into two Branches—the Human History Branch and the Natural History Branch. The Human History Branch contains the divisions of Archaeology, Ethnology and Folklore, and a recently organized History division. Under the Natural History Branch are the divisions of Zoology, the National Herbarium, and Geology and Palaeontology. Services common to both Branches are concerned with exhibitions, education and technical and administrative functions. The total staff in 1963-64 was 137 persons including 32 professional and administrative personnel, 66 technical and operational personnel and 39 prevailing rate and part-time assistants.

The 1964 field research program in natural history included 12 expeditions to various parts of Canada. Their work included the collection of mammals from the southern Prairie Provinces and northern Yukon Territory, birds from the exterior of British Columbia, fishes from the Queen Elizabeth Archipelago, reptiles and amphibians from Nova Scotia and Manitoba, and a study of the molluscs of the Hudson Bay drainage and marine invertebrates of southwestern British Columbia. Botanical expeditions were sent to northern Ontario and Quebec, southern British Columbia and the Niagara peninsula of southern Ontario. In addition, special investigations of Canadian invertebrate groups were sponsored at various Canadian universities.

The past five years have seen a marked growth in the research carried out by the Human History Branch. Much of this has been done under contract by scholars whose work is wholly or partly financed by the Museum, on the understanding that the Museum shall receive their collections and the right to publish their reports. This system has proved valuable in forging links between the National Museum and universities or other museums, and in developing archaeology and ethnology in Canada as well as in enriching the national collection and the museum's publications. The work in archaeology has covered such subjects as Dorset and pre-Dorset cultures in the Arctic, early occupation of Yukon Territory and British Columbia, and archaeology on the prairies, in western and central Ontario and in the Maritimes. Many demands have been made on the Museum to assist or perform "salvage archaeology" in areas where new hydro developments or road-building mean that archaeological work must be done immediately or never. Ethnological research has included folklore studies and the collection of folk music in many parts of Canada as well as the study of Indians and Eskimos.

The exhibition program in 1963-64 included the completion of the Hall of Canadian Mammals and the renovation of the exhibits of small mammals and the Hall of Birds. Plans were laid for the exhibition halls to be built for the new National Museum Building to be opened on July 1, 1967. The educational program continued with weekly lectures for adults, Saturday morning film programs for children, the junior nature study club, the school loan collection, children's classes, guided tours, and the Canadian collection of nature photographs.

Section 3.—The Educational and Cultural Functions of the Canadian Broadcasting Corporation

Many hours of educational and semi-educational programs are broadcast annually by the Canadian Broadcasting Corporation's radio and television facilities. Whether these programs are directed to children or adults, entertainment is combined with information

whenever possible. Spoken-word programs, presented as readings, talks, discussions, documentary programs, dramatizations or in forms combined with music, cover a very wide range of interests.

Programs of an adult education nature are presented frequently by the CBC English Networks, and co-operation in program planning is received from various educational organizations. The CBC is an active participant in the Joint Planning Commission, a body established by the Canadian Association for Adult Education for exchange of information and co-ordination of plans for adult education in Canada.

Citizens' Forum, a series broadcast on radio and television for many years by the CBC, uses discussions, public debates and small seminars to describe important issues of the day. *Citizens' Forum*, or *The Sixties* as it is known on television, is arranged jointly by the Canadian Association for Adult Education and the CBC. Its French counterpart, *Place publique*, is planned in co-operation with l'Association canadienne de l'éducation des adultes. Similar types of broadcasts are prepared specially for rural listeners under *National Farm Radio Forum* which is arranged by the CBC in co-operation with the Canadian Federation of Agriculture and the Canadian Association for Adult Education. This unique educational program involves listening groups who continue the discussion of the topic at the conclusion of the program and funnel their opinions to provincial and national centres for use and distribution. Other daily service and educational programs are provided for farmers. *Country Calendar* and *Country-time* are weekly half-hour television programs of a service and educational nature designed to keep farmers and the general public in tune with agricultural conditions and developments. *Le réveil rural* on radio and *Les travaux et les jours* on television are French-language counterparts of the English farm programs.

In addition to *Citizens' Forum*, regular television programs are *CBC Newsmagazine* and *Document*, both of which present weekly half-hour interview and documentary programs. *Caméra '64* on the French television network reports on national and international events and actualities. A series of English television documentaries and dramatizations, entitled *Explorations*, examines questions in the fields of sociology and history. Special programs on the Winter Conference of the Canadian Institute on Public Affairs are also broadcast. This three-day weekend conference examines sociological questions in open meetings and group discussions.

For a little more than a decade, the summer evening sessions of the Couchiching Conference have been broadcast. This week-long conference, organized jointly with the Canadian Institute on Public Affairs, examines Canadian and international affairs in open meetings and group discussions. Other radio programs of an educational nature are *Science Review*, which focuses on important discoveries in the field of the natural sciences and their branches, and *L'Université radiophonique internationale*, a French network series of talks exchanged with other countries on cultural and scientific subjects.

The French network series, *Les Chansons de la maison* offers programs relating to parents and children, and general questions sent in by parents are answered by psychologists. For women listeners, the daytime program *Fémina* is presented five times a week. The French network also broadcasts a number of weekly programs dealing with fine arts, music, literature, theatrical arts, sciences, religion and philosophy under the auspices of Le Service des émissions éducatives et d'affaires publiques.

Take Thirty, a new week-day television show for women, has a different 'flavour' on each program—entertainment and interviews of performers; travel topics and features on events in Canada and abroad; cooking, child care and household management; discussions on social problems; and interviews with men and women from the sporting world. The closest radio counterpart of *Take Thirty* is *Trans-Canada Matinee*.

In addition to its school and pre-school broadcasts and other entertaining and informative children's programs on radio and television, the CBC has given time to higher education through co-operation with universities in Toronto, Montreal and Ottawa to broadcast television series locally under the title *Live and Learn*. These programs have been designed to give a general appreciation of academic subjects such as physics, chemistry, literature

and psychology. Experimentally, the University of Toronto and the CBC have produced *Beginning Russian*, through which viewers could prepare themselves for university course credits; other experiments in the production of courses for university credits are in progress in Montreal. CBC Radio's *University of the Air* presents lectures by professors distinguished in their particular fields.

English network radio and television schedules of the CBC have always reflected the many facets of Canadian culture, the basic principles of a national broadcasting service in this country being that a national service must be a complete service for all sections of the population, link all parts of the country, be Canadian in content and character, and serve the two main language groups and the various geographical regions.

As the centenary of Confederation draws near, the CBC has taken steps to share in celebrating the occasion in 1967. During the past two years, there has been an increase in the number of CBC programs devoted to Canadian ideals and heritage. Special programs have been produced for radio and television covering all phases of Canadian history, bringing, through dramatic documentary productions, the story of Canada to Canadians from coast to coast. Radio and television profiles of Canada's political leaders have given new life to the pages of the country's history and future programming plans include co-operation with the National Film Board in producing many more dramatic documentaries and biographies over the next few years. A start has been made on an oral-history project for which outstanding Canadians in many walks of life are presenting personal reminiscences on audiotape and film for future use.

Effective Oct. 1, 1964, *The Learning Stage*, which deals with literature, sociology, science, music, labour relations, philosophy, ecology, creative processes, theatre, arts, ethics, political science and French, will be broadcast on CJBC Monday to Friday. This is the only English program to be presented on the French-language CBC station in Toronto. In 1964, the CBC and the French-language National Catholic Office for Mass Media launched its third annual six-week program to prepare non-professional specialists in educational television and radio. The program was expanded to include, in addition to specialized producers and script writers as in previous years, trained teachers who can make the best use of the programs thus produced. There were 30 'students' in the group, including 13 priests, two nuns, two brothers and 13 women and men college and primary teachers; the 30 were delegated from all over the Province of Quebec.

Section 4.—The Educational and Cultural Functions of the National Film Board

The National Film Board, an agency of the Federal Government, was established by Act of Parliament in 1939 and reconstituted by the National Film Act in 1950. In the years since its establishment, the Board has grown from a supervisory body over Canadian Government motion picture activities to a national documentary film-producing and -distributing organization whose films about Canada are seen wherever people may freely assemble. The Board produces and distributes filmstrips and still photographs on Canadian themes in accordance with its primary function outlined in the Act "to initiate and promote the production and distribution of films in the national interest". Films are produced primarily in the English and French languages and, whenever possible, foreign language versions are prepared to increase the usefulness of Board films in foreign countries.

The 16mm. community film program is based on a nation-wide system of film circuits, film councils and libraries, strongly supported by organizations and individuals engaged in community activities. There are more than 700 national, provincial and community film distribution outlets from which thousands of 16mm. prints are available for public use throughout the country. These prints are acquired for circulation by purchase or by loan from the Board.

A large part of the 16mm. community film audience is reached through classroom showings, indicating progress in the development of audio-visual aid programs in Canadian

schools and universities. Another noticeable trend is the more selective use of films by community organizations and groups for particular purposes. This is attributed in part to the availability of Board productions which present series of film studies related to central themes, and to the availability of a broad range of topics which include individual films particularly suited to group objectives and programs.

Films produced by the Board are shown in commercial theatres and on television in Canada and abroad and newsreel features are also issued regularly for theatrical and television purposes. Distribution of theatrical subjects is arranged by contract with commercial distributing organizations.

A substantial proportion of the Board's production and distribution program is concerned initially with television at home and abroad. Series of original films are shown regularly over English-language and French-language networks in Canada. Individual films from the Board's extensive general library are available to CBC and privately operated stations. Abroad, because of expanding television facilities in many countries, Board films are seen by audiences which could not otherwise be reached.

In addition to commercial distribution through theatres and television in other countries, 16mm. print circulation is carried on through posts of the Departments of External Affairs and Trade and Commerce, through National Film Board territorial offices at London in England, Paris in France, New York, Chicago and San Francisco in the United States, New Delhi in India, and Buenos Aires in Argentina, as well as through libraries operated by various education agencies. Hundreds of prints of National Film Board films are also sold in other countries each year. Exchange agreements are in effect between the Board and government film-producing organizations in other lands; this means that films of various nations are freely exchanged with those of Canada, aiding international understanding.

The National Film Board maintains a library of more than 150,000 still photographs, which are available at nominal cost to magazines, newspapers and other periodicals wishing to present current information about Canada.

Section 5.—The Canada Council

As a result of recommendations made by the Royal Commission on National Development in the Arts, Letters and Sciences, appointed in 1949, the Canada Council was established in 1957 to promote the study and the enjoyment of, and the production of works in the arts, humanities and social sciences. A sum of $100,000,000 from the public treasury was granted to the Council, one half of which was placed in a University Capital Grants Fund to assist institutions of higher learning to expand their building facilities in the arts, humanities and social sciences, and the remainder set up as an Endowment Fund, the current annual income from which is approximately $3,100,000.

The Council is made up of 19 members appointed by the Governor in Council for terms of three years, plus a chairman and a vice-chairman who are selected for five-year terms. Members are ineligible for reappointment during the 12 months following their second consecutive term on the Council. The organization must meet at least three times a year to consider applications made to it by organizations and individuals across the country. The day-to-day administrative work is carried out by a permanent staff in Ottawa.

University Capital Grants Fund.—One of the principal responsibilities of the Council is toward Canada's institutions of higher education. The Fund enables the Council to make grants to universities and other institutions of higher learning by way of capital assistance in respect of building projects in connection with the arts, humanities and social sciences, with the following limitations: (1) a grant for any one project may not exceed one half the total expenditure made in respect of that project; (2) in any province the aggregate of the grants made may not exceed an amount that is in the same proportion

to the aggregate amount credited to the University Capital Grants Fund as the population of the province (latest census) is to the aggregate population of the provinces in which there is a university or other similar institution of higher learning. By Mar. 31, 1964 more than $54,160,000 had been authorized for payment by the Council and 75 institutions had drawn upon the Fund for a wide variety of buildings. Libraries, classrooms and residences claimed the major share.

Aid to Individuals.—Because in 1957 less than 10 p.c. of the graduate fellowships available in Canada were for studies in the humanities and social sciences, the Canada Council allocated over $1,000,000 from the income of the Endowment Fund to the establishment of a scholarship and fellowship program to assist in meeting the rapidly growing needs of the future for university teachers. In seven years, more than 3,000 scholars have been aided through awards at the master's, doctorate and postdoctorate level. As a further stimulus to academic pursuits, grants are made to universities to enable them to bring outstanding lecturers to their campuses and travel grants are awarded to permit Canadians to attend international conferences and thus maintain contact with scholars from other countries.

Individual assistance is also given in the arts. In seven years more than 950 scholarships have been awarded to enable singers, dancers, painters, writers and other performing and creative artists to continue their studies or perfect their arts. Other artists had benefited from the Council's program of commissioning grants; such grants enable theatres, orchestras, soloists, art galleries or museums to commission and perform or display original works by Canadian artists.

Aid to Organizations.—A large proportion of the revenue from the Endowment Fund is devoted to a program of assistance to organizations in the arts and letters. Since income from this source is limited, the Council seeks to support the best talent possible, which involves a large investment in some of the major population centres and at the same time covers other areas of the country. This it does by combining grants for excellent service in local or regional areas with awards to enable organizations to travel to more remote parts of the country where the arts are less readily available. It also seeks to ensure local support by insisting that organizations receiving grants find additional revenue from other sources. In the year ended Mar. 31, 1964, the Council gave about $1,440,000 to organizations in the arts, humanities and social sciences. Of this sum, $1,104,000 went to arts organizations—about $357,000 to music, $109,000 for festivals, $528,000 for opera, theatre and ballet, $68,000 for the visual arts and $35,000 for art publications. There were both large and small grants, and groups assisted ranged from the National Ballet of Canada ($86,500), the Montreal Symphony Orchestra ($45,500), the Canadian Opera Company ($76,500) and the Stratford Shakespearean Festival ($45,000) to Le Théâtre Universitaire Canadien ($5,000), the London Public Library and Art Museum ($2,000) and the periodical *The Fiddlehead* ($500). These sums covered a variety of purposes, from regular seasonal programs to cross-Canada tours and the commissioning of new works.

Considerably less assistance went to organizations in the humanities and social sciences since the bulk of the scholarship program is directed toward these subjects. Aid was given to visiting lecturers, to publications and to several academic projects. Altogether, $336,000 was given for these purposes.

UNESCO.—The Act establishing the Canada Council also provided that the organization should undertake certain functions in relation to the United Nations Educational, Scientific and Cultural Organization. The Council accordingly established a National Commission for UNESCO with 30 members and approximately 48 organizations with "co-operating body status", and also provided the secretariat for the Commission. With the assistance of the National Commission, the Council is responsible for the co-ordination of UNESCO program activities in Canada, for Canadian participation in UNESCO program activities abroad, and for proposals for future UNESCO programs. In all these matters the Council works in close association with the Department of External Affairs and serves

as the normal channel of communication between the Department and the Commission. In the year ended Mar. 31, 1964, the Council spent approximately $100,000 in respect to the National Commission.

Section 6.—Library Services

The National Library.—The National Library of Canada came into existence formally on Jan. 1, 1953 by the proclamation of the National Library Act (RSC 1952, c. 330). On the same date it absorbed the Canadian Bibliographic Centre, which had been engaged in preliminary work and planning since 1950. The Act established a National Library Advisory Council, consisting of the National Librarian, who serves as Chairman, the Parliamentary Librarian, and twelve appointed members, at least one of whom must be from each of the ten provinces.

By 1963, although the Library was still housed in temporary quarters and only a limited purchasing program could be undertaken, the book collection consisted of about 250,000 volumes, supplemented by microcopies of more than 100,000 additional titles. Under the terms of the Copyright Act and the Library's own Book Deposit Regulations, 6,903 titles were received in the year ended Mar. 31, 1964, 4,244 of which were related in some direct way to Canada.

Canadiana, the Library's monthly catalogue of new books and pamphlets relating to Canada, described over 12,000 items in 1963; these included trade and general publications, and official publications of the federal and provincial governments. *Canadiana* has been published since 1950 and is cumulated annually; a cumulated index is in preparation.*

The National Union Catalogue lists over 8,000,000 volumes in more than 200 government, university, public and special libraries in all provinces. New accessions are reported regularly by these libraries, and the Union Catalogue thus forms a continuously up-to-date key to the main book resources of the country. During the year ended Mar. 31, 1964, the Reference Division was asked to locate 23,149 titles and it is noteworthy that copies of 75 p.c. of them were found in Canadian libraries. About one third of the requests were for books in the field of science and technology and 80 p.c. were for books published since 1925.

In addition to *Canadiana*, the National Library publishes bibliographies and the annual cumulation of the *Canadian Index to Periodicals*.

The contract for the construction of the permanent National Library and Archives Building, on Wellington Street west of the Parliament Buildings in Ottawa, was awarded in May 1963. The $10,000,000 building will be ready for occupancy in the summer of 1966.

The National Science Library.—The National Research Council Library serves as the library for the Council and as the National Science Library of Canada. Plans for developing a central scientific library were proposed as early as 1924 by the Honorary Advisory Council for Scientific and Industrial Research, established in 1916 and now known as the National Research Council (see pp. 371-377). The Library grew slowly until 1928 when the Council's first research laboratories were set up. Since then it has been developed to parallel the growth and expansion of the laboratories and the national interests and activities of the Council with the result that in 1953, under an agreement with the more recently established National Library, the National Research Council Library formally assumed responsibility for national library services in the fields of science and technology. By 1963, the Library's collection, comprising over 500,000 volumes, was growing at the rate of 130,000 items a year and included journals and other serial publications, books, pamphlets and technical and research reports. The bulk of this material is housed in the main Library with smaller and more specialized collections in six branch Libraries.

The resources of the Library are made available by means of an extensive inter-library loan and photocopying service. For purposes of current awareness, the Library issues

*A list of 400 selected titles of "Books About Canada", prepared by the National Librarian, appears in Chapter XXVIII of this volume.

twice a month its *Recent Additions to the Library*, and a list of *Serial Publications in the Library* is also issued at frequent intervals through the use of data processing equipment. Reference and research services include answering requests for scientific information, literature searches and the compilation of abstracts and bibliographies, and the identification and location of obscure publications.

The Canadian Index of Scientific Translations, a card index to the location of completed English translations in Canada and other countries, is maintained by the Library. Translations of scientific articles prepared by the Library's Translations Section are listed and made available in Canada and abroad. A complete English translation of the Russian journal *Problemy Severa* (*Problems of the north*) is also the responsibility of this Section.

The National Science Library is responsible for the publication of the *Union List of Scientific Serials in Canadian Libraries* and the *Directory of Canadian Scientific and Technical Periodicals*.

Public Libraries.—Municipal, regional and provincial public libraries serve most of the urban, suburban and rural population of Canada. Provincial government agencies are responsible for public library service, and delegate this authority to municipal and regional boards, which organize, and largely finance, public library systems for local populations. Provincial agencies provide general supervision, grants and, in some cases, technical services and other assistance.

In addition to books and other printed material for children and adults, they provide films and filmstrips, and organize public lectures and other group activities. Public libraries are playing an increasingly important role in the lives of Canadian students of all ages, assisting them to complete school assignments and further their education. Distribution agencies include branches and depots, bookmobiles and other vehicles, boats in Newfoundland, and aircraft in the Yukon and Northwest Territories.

In 1962, public libraries in Canada stocked more than 15,500,000 books, or just under one book per capita, and the total book circulation was 65,143,573, or 3.5 per capita. They spent $1.18 per capita on current operating payments and another 0.17 cents per capita on capital and debenture items, or a total of just over $25,000,000. Local funds accounted for almost 80 p.c. of this amount and provincial grants for 13.7 p.c., the remainder coming from other sources.

1.—Summary Statistics for All Public Libraries, 1962

Province or Territory	Population Served	Libraries	Stock of Books, Periodicals and Pamphlets	Circulation	Current Operating Payments	Full-Time Staff
	No	No	No.	No.	$	No.
Newfoundland	470,000	3	315,082	704,410	177,808	39
Prince Edward Island	106,000	2	122,709	238,762	49,576	9
Nova Scotia	486,381	13	424,956	2,074,138	756,334	102
New Brunswick	241,448	7	205,865	952,359	229,230	44
Quebec	2,934,704	222	2,430,228	4,712,062	2,178,071	304
Ontario	5,961,679	315	7,636,775	35,781,670	11,950,924	1,556
Manitoba	514,903	18	501,818	2,833,385	915,080	138
Saskatchewan	430,144	59	689,032	2,407,122	1,015,525	140
Alberta	857,209	144	1,286,105	5,394,473	1,599,679	223
British Columbia	1,392,184	77	1,938,152	10,033,812	3,054,101	407
Yukon and Northwest Territories	12,423	14	29,637	11,380	4,767	—
Totals, 1962	**13,407,075**	**874**	**15,580,359**	**65,143,573**	**21,931,095**	**2,962**
Totals, 1961[r]	**11,068,661**	**855**	**14,528,002**	**60,268,470**	**19,347,788**	**2,755**

University, College and School Libraries.—Libraries in 67 universities and colleges with enrolments of 100 or more full-time students had more than 8,000,000 volumes in stock in the academic year 1961-62, or 65 volumes per full-time student. Expenditures of these libraries averaged $67.18 per student and amounted to a total of more than $8,500,000. The full-time staff of the libraries numbered 1,236, almost one third of whom were professional librarians.

Close to 2,000 schools in 277 urban centres of over 10,000 population had centralized school libraries in 1961-62, serving more than 1,100,000 pupils. These libraries contained 5,190,200 volumes, or 4.7 per pupil served, and an average of $2.18 per pupil was spent on books and other library materials. One half of the libraries employed full-time or part-time librarians; the other libraries reported no staff. Most of the staff were employed in secondary schools.

2.—Book Stocks in the Larger Academic Libraries and Enrolment Served, by Province, Academic Year 1961-62

Province	University and College Libraries				Centralized School Libraries			
	Libraries	Volumes	Enrolment Served	Expenditures per Full-Time Student[1]	Libraries	Volumes	Enrolment Served	Payment for Books per Pupil
	No.	No.	No.	$	No.	No.	No.	$
Newfoundland	1	68,768	1,763	50.02	13	9,657	6,554	0.88
Prince Edward Island	2	27,384	761	25.22	8	13,342	3,908	1.21
Nova Scotia	7	507,953	6,467	42.31	61	120,108	30,889	0.96
New Brunswick	4	257,042	5,374	46.57	49	74,201	25,059	0.88
Quebec	14	2,092,835	34,462	58.07	701	1,555,876	312,674	1.64
Ontario	22	3,528,102	40,601	85.05	558	1,598,341	404,060	2.21
Manitoba	7	439,541	8,477	52.33	75	272,925	50,921	3.33
Saskatchewan	2	227,637	6,257	54.03	59	175,871	25,149	2.89
Alberta	4	343,073	9,979	84.03	213	635,588	100,946	3.47
British Columbia	4	638,506	15,885	64.27	221	734,291	144,991	2.17
Totals	**67**	**8,130,841**	**130,026**	**67.18**	**1,958**	**5,190,200**	**1,105,151**	**2.18**

[1] Full-time and equivalent.

Special Libraries.—The latest figures available for special libraries are for 1961. In that year 580 government and private special libraries contained more than 5,600,000 volumes as well as large stocks of pamphlets, periodicals, microcards, microfilms and other material. Most of the special libraries were located in Ontario (250), Quebec (150), and British Columbia (52).

3.—Summary Statistics for Special Libraries, 1961

NOTE.—These statistics are based on *Directory of Special Libraries and Information Centers*, Detroit, Gale Research Company, 1963.

Type	Libraries	Book-stock	Subjects					Staff
			Science and Technology	Business and Finance	Medicine	Law	Other	
	No.	No.	No	No.	No.	No.	No.	No.
Federal Government	140	2,330,543	65	8	3	7	57	590
Provincial government	123	1,434,137	23	6	13	14	67	337
Professional, business and technical	317	1,848,815	95	56	37	25	104	619
Totals	**580**	**5,613,495**	**183**	**70**	**53**	**46**	**228**	**1,546**

Library Education.—Five Canadian universities give degree courses in library science —McGill, Montreal, Ottawa, Toronto and British Columbia. In 1963, there were 229 bachelor of library science graduates, about 70 p.c. of whom were women. More than 40 p.c. secured positions in university libraries, almost one fifth in public libraries, about one tenth in school libraries, and the remainder in special libraries and elsewhere. The median beginning salary of the graduates was $4,875.

4.—Median Salaries of Librarians in Professional Positions, 1961-62

Position	Public Libraries in Centres of over 25,000 Population	Regional and Co-operative Public Libraries	Provincial Public Library Services	University and College Libraries (1962-63)	Total Professional Librarians
	$	$	$	$	No.
Chief Librarian	7,350	5,875	7,875	8,700	146
Assistant Chief Librarian	7,832	...	...	7,833	36
Division, Department or Branch Head	6,885	...	7,000	6,750	171
General Librarian	5,535	4,875	6,000	5,244	672

CHAPTER VIII.—SCIENTIFIC AND INDUSTRIAL RESEARCH

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The characteristic problems of this country, particularly its large area, its small population and its unique industrial structure, have led to a typically Canadian organization of research. Early research was, of course, related to the primary industries. Geological mapping and agricultural research were almost the only areas of activity until the beginning of the present century. In 1898 research in the field of fisheries was assigned to an independent honorary board which has continued to the present as the Fisheries Research Board. In 1916 the Federal Government set up the National Research Council; its early duties were to encourage and stimulate research in the universities through grants and scholarships and it entered active research only with the establishment of its own laboratory system in the late 1920's and early 1930's. Great expansion in scientific research took place during the War when the National Research Council assumed the responsibility for research for the three Armed Services including the development of atomic energy. At the end of the War, the Council returned to its previous activities—the promotion of research in the universities and research for secondary industry. The Defence Research Board was established in the Department of National Defence with responsibility for military research. In 1952, the Crown corporation, Atomic Energy of Canada Limited, was established to proceed with the development of atomic energy in Canada, and certain other Crown corporations such as Eldorado Mining and Refining Limited and Polymer Corporation, and Canada's largest national utility, the Canadian National Railways, developed important research programs.

Concurrently with these advances, the traditional departments of the Federal Government expanded and strengthened their research facilities—in particular, the Department of Agriculture and the departments responsible for mining, fishing, forestry and health. Medical research was long carried on in the hospitals and universities but received its first organized government support in 1938, support which increased rapidly after the War. Also, the provincial governments, with their responsibilities for education and for natural resources, contributed considerably to the support of research in the universities and seven provinces have now established or assisted financially in the establishment of research councils or foundations. Hydro-electric utilities in three provinces are provincially

operated and each has important research facilities; most particularly The Hydro-Electric Power Commission of Ontario has a large laboratory equipped to provide research services for all its technical activities and also to undertake both *ad hoc* and long-range research programs.

Industrial research has been slow to develop in Canada. While certain large industries, particularly the chemical industry and pulp and paper industry, had a long history of successful research effort, the primary resource base of other industries was not conducive to the establishment of industrial laboratories. Also, the prevalence of foreign-owned manufacturing companies exerted considerable influence on the development of industrial research. Canadian subsidiaries of foreign companies had ready access to the research and development results of their parent companies and Canadian companies had little incentive to establish their own laboratories or to develop products specifically for the Canadian market. However, Canadian industry in general is now developing extensive research facilities and becoming much more aware of the advantages to be gained therefrom.

There are no large profit-making research institutes in Canada although several laboratories are available to undertake consulting, testing and experimental work in technological and engineering fields. Nor are there many non-profit research institutes in operation. The Ontario Research Foundation is the largest of this type in Canada. It is a self-governing research institute that engages in research and development on contract for manufacturers, departments of government and on its own account. Although initially financed by an endowment fund subscribed partly from industry and partly from government, its current revenue is derived largely from sponsored research. The British Columbia Research Council operates in a similar manner. Co-operative research through research associations is likewise a minor factor in Canadian research activity. The Pulp and Paper Research Institute of Canada (see Forestry Chapter) is the only example of a major research association. This institute is supported by industry but, from the outset, has been closely associated with McGill University and for many years the Federal Government provided a grant which was five years ago replaced by the construction and equipping of a laboratory for the use of the Institute; in the fall of 1963 it was announced that the Federal Government would make available $3,000,000 to extend these laboratory facilities to meet the increasing demands of the pulp and paper industry for more advanced and diversified research essential to the maintenance of its competitive position in world markets.

Thus, there are three main sectors of research in Canada—government research, university research and research in industry. These three elements are covered in some detail in the following Sections and Subsections.

Mechanism for the Federal Science Policy.—In the federal sphere, the ultimate authority for policy on science resides in the Cabinet. To exercise this authority there was established by the National Research Council Act (RSC 1952, c. 239, as amended) a Cabinet committee known as the Committee of the Privy Council on Scientific and Industrial Research. This Committee comprises those Cabinet Ministers having departments with scientific responsibilities and certain other Ministers who have an indirect concern with scientific affairs. The executive departments and agencies advise the Privy Council Committee on the scientific aspects of their own departmental responsibilities and on the organization and support of research required for their own purposes. The National Research Council, on the other hand, advises the Committee on general science policy, particularly on research in the universities, in industry and in fields not specifically the responsibility of the executive departments or agencies.

In 1949 the Privy Council Committee broadened the structure of its advisory mechanism by the addition of an advisory body of senior officials to which it might turn for joint advice on the formulation and conduct of government scientific policies. Thus the Committee has now two advisory bodies—the National Research Council and the Advisory Panel. The Council, being composed of non-government scientists representing the universities, industry and labour, is admirably suited to keep the Committee informed of

the effect of government policy on the scientific activities of the country at large and to advise on the actions necessary to maintain the universities and independent research institutes in a healthy condition. The Panel, on the other hand, being composed of senior government officials, is the appropriate body to consider government policy affecting departmental activities and to advise the Committee on government action. The President of the National Research Council, as chairman of both bodies, provides for co-ordination and the proper division of responsibilities.

On Apr. 30, 1964, the Federal Government announced that a Scientific Secretariat would be established shortly to assemble and analyse information about the government's scientific programs and their inter-relation with other scientific activities throughout Canada. This organization, which will be a small fact-finding and analytical group serving in a staff capacity without executive authority, will be established as part of the Privy Council Office. Its function is to provide day-to-day support in the work of the Privy Council Committee.

Section 1.—The National Research Council*

History and Organization.—Organized research in Canada on a national basis dates from 1916 when the Government of Canada established the Honorary Advisory Council for Scientific and Industrial Research—now known by the short title "National Research Council". The early Council provided for the planning and integration of research work, organization of co-operative studies, postgraduate training of research workers, and prosecution of research through grants to university professors. This promotion and encouragement of research formed the basis of the Council's work from 1916 to 1924.

The creation of a central research institute, to carry on research in pure science in relation to standards of measurement, quality and composition of material, and in science applied to the industries of Canada, had been urged as early as 1918. A special committee of Parliament endorsed the proposal and in 1924 the Research Council Act was revised to include national research laboratories. Temporary quarters were secured and research on magnesian refractories for steel furnaces was carried out so successfully that a wartime industry, established during World War I, was re-established on a large scale. As a result of this achievement, the Government, in 1929-30, provided funds for new research facilities.

The National Research Building on Sussex Drive, Ottawa, was opened in 1932 and in 1939 construction was begun of an aerodynamics building on a 130-acre site on the Montreal Road, just east of the city. This site now comprises some 400 acres and houses most of the Council's laboratories. A Prairie Regional Laboratory built on the campus of the University of Saskatchewan has been in operation since June 1948, and an Atlantic Regional Laboratory on the campus of Dalhousie University in Halifax, N.S., was opened in June 1952.

Under the terms of the Research Council Act, the National Research Council has charge of all matters affecting scientific and industrial research in Canada that may be assigned to it by the Committee of the Privy Council on Scientific and Industrial Research. In discharging these responsibilities, the Council may undertake, assist or promote research. Its duties include the utilization of Canada's natural resources; the improvement of industrial processes and methods; the discovery of processes and methods likely to expand existing industries or to develop new ones; the utilization of industrial wastes; investigation and determination of physical standards, methods of measurement, and fundamental properties of matter; the standardization and certification of scientific and technical apparatus used by government and industry; the determination of standards of quality for materials used in public works and government supplies; investigation and standardization, at the request of industry, of industrial materials or products; and research intended to improve conditions in agriculture. The Council also has the duty of advising the Privy

* Prepared by R. A. Lay, Public Relations Office, National Research Council of Canada, Ottawa.

Council Committee on questions of scientific and technological methods affecting the expansion of Canadian industries or the utilization of the country's natural resources. As a service to Canadian science, the Council maintains scientific liaison offices in Ottawa, London, Washington and Paris. The liaison officers abroad also serve as scientific attachés in the Canadian diplomatic missions. The National Research Council Library, with holdings of more than 500,000 volumes in science and technology (including 12,000 journals and other serials), acts as the National Science Library of Canada (see also p. 365).

The Council's laboratories are organized in nine divisions and two regional laboratories, each with its own director. Five divisions are engaged in applied and fundamental studies in the natural sciences—biosciences, applied and pure chemistry, and applied and pure physics. Four others are devoted chiefly to engineering work—building research, mechanical engineering, radio and electrical engineering, and the National Aeronautical Establishment. The two regional laboratories carry out research related to the resources of the Prairie and Atlantic regions.

During World War II, the Council was responsible for all research carried out for Canada's three Armed Services. After the War, most of the military work was transferred to the Defence Research Board (see Chapter XXVII). Another wartime development, the Atomic Energy Project, was constituted as a separate Crown company, Atomic Energy of Canada Limited, in 1952 (see pp. 378-383).

A Medical Research Council, fully responsible for the support of medical research but functioning under the general administration of the National Research Council, was established in November 1960 (see pp. 390-391).

The National Research Council consists of the President, two Vice-Presidents (Scientific), one Vice-President (Administration) and 17 other members, each of the latter group being appointed for a term of three years and chosen to represent industry, labour, and research in science and engineering. Many of the members are drawn from Canadian universities. The Council reports to Parliament through the Committee of the Privy Council on Scientific and Industrial Research.

The Council's current operating budget is about $54,000,000. Approximately $19,000,000 is required for foundation work—scholarships and research grants in science and engineering, plus the activities of the Medical Research Council—and the remainder is used to operate the laboratories and to provide for the Council's Industrial Research Assistance Program. Of the Council's 2,600 employees, some 730 are scientists and engineers.

Links with Industry.—The application of science to Canadian industry has always been one of the major concerns of the National Research Council. Since 1917, representatives of industry, government and the universities have co-operated, through NRC Associate Committees, in solving pressing industrial and economic problems. There is a constant flow of personnel and information between NRC laboratories and those of industry, and roughly 90 p.c. of the Council's own effort involves applied research intended for industrial use. Contract research on specific projects and a wide variety of testing and standardization work are undertaken. Inventions from NRC laboratories are carried through the patent stage, then made available for manufacture through Canadian Patents and Development Limited (see p. 119).

One of the Council's most important activities is its Technical Information Service. This consists of field engineers who visit manufacturing establishments, and a staff of trained researchers in Ottawa who use the technical literature available through the Council's library. All inquiries are handled but the Service is particularly interested in helping small firms with no research or information facilities. Free advice is given on all aspects of materials and processing, equipment, plant design and packaging and on such topics as wage incentives and inventory control.

Direct financial assistance for research performed by Canadian industry was begun by the Council during 1962. Under this arrangement the Council makes grants supporting

long-term applied research and development work proposed and carried out by industry. Aid is given on a shared-cost basis, with industry supplying at least half the funds for any one project. Companies of all sizes, representing a wide range of industrial activity, are eligible for assistance and the companies retain all rights arising from the work. In 1963-64, at a cost of $1,600,000, the Council supported 88 research projects carried out by 56 Canadian firms. This work gave rise, also, to more than 350 new research positions.

Foundation Aspects.—University research in science and engineering has been supported by the Council since its inception in 1916. This aid has been of considerable help to the universities in building up the excellent graduate schools that now exist in Canada. Awards to individuals make up most of the university support program. Included are research grants to university staff used for employing assistants and purchasing equipment and supplies, postgraduate scholarships, and post-doctorate fellowships. Approximately 1,400 research grants and 850 scholarships and fellowships were awarded in the year ended Mar. 31, 1964, at a cost of $12,600,000.

General promotion and encouragement of university research—the remainder of the program—includes publication of seven Canadian journals of research; contributions to scientific organizations and functions, Canadian membership in international scientific unions, and the administrative costs of the program. Expenditures for these activities in 1963-64 totalled $1,140,000. An annual *Report on University Support* describes the foundation program in detail.

In 1948 the Council instituted a program of post-doctorate fellowships, open to Canadians and to the nationals of all other countries. Originally these were tenable in the Council's own laboratories but the training and experience brought to the work by the young scientists proved so stimulating that the program has been gradually expanded. Fellowships are now tenable at Canadian universities (these are considered part of the university support program), in the laboratories of Atomic Energy of Canada Limited, and in the federal Departments of Agriculture, Forestry, Mines and Technical Surveys, and National Health and Welfare. More than 250 of these awards are being held at the present time (June 1964), mostly in chemistry, physics and biology.

Biosciences.—This Division's program covers practical problems related to the national economy and fundamental studies in microbiology, biochemistry and biophysics as a basis for future application in agriculture, medicine and industry.

Apparatus and techniques for preparing, preserving and storing food make up a large part of the work, with particular attention in recent years to food freezing, cold storage and refrigerated transport. Recent studies have involved further tests on a process developed in the Division and now widely used in industry for the immersion freezing of poultry, quality loss in poultry meat during freezing and refrigerated storage, and an improved cooling system for frozen food trucks. The physical and chemical reactions preventing coagulation in evaporated milk during sterilization were also investigated. Microorganisms related to the preparation and preservation of food are studied, particularly those found in salted foods and in cheese, and those that grow at low temperatures. A national culture collection of about 3,000 yeasts, bacteria and fungi is maintained.

Considerable effort is devoted, also, to questions of animal and plant physiology. Studies of the mechanisms by which mammals, birds and man adapt to cold have provided important basic information on cell, muscle and metabolic activity, and also serve to explain practical problems such as the high death rate of newly born caribou. Fundamental plant processes such as translocation are investigated, and an exhaustive study is being carried out on strains of blue-green algae believed responsible for cattle deaths. Plant fibres such as cellulose—the skeletal material of plants—and the structure and function of plant cells are also examined.

Other studies involve fermentation mechanisms and enzymology, and the structures of proteins, carbohydrates and fats. One group, among its other projects, is engaged in

long-term statistical studies of protein variability in wheat and wheat exports. The work has been expanded recently to include the effects of weather factors on protein content.

Applied Chemistry.—The Division of Applied Chemistry is concerned with supplying new scientific information for the development of Canada's natural resources and chemical industries. Although formerly much of the work involved solving immediate specific problems, a larger part of the Division's effort is now being devoted to more basic studies. This avoids conflict with industrial laboratories and consultants and, in addition to providing fundamental information, often produces practical results. For instance, a long-term investigation on the contacting of fluids and solids—an operation vital to many chemical engineering procedures—has resulted in a successful commercial operation for drying grain. The same method can be extended easily to chemical reactions and to removing liquids from other materials.

Another long-term project of considerable industrial potential has concerned the factors responsible for the stability, or the destruction, of suspensions of solids in liquids and a method was devised for easily separating almost any suspended solid from the liquid surrounding it. This work was expanded recently to include the separation of dissolved solids. It has been shown that virtually all dissolved salts can be removed from water by filtration through an appropriate medium, and tests with other materials are in progress. Then, too, the study of chemical reactions at very high temperatures—carried on over the past several years—has resulted in the successful preparation of a stable polymer that could not be produced by conventional means.

The twelve sections of the Division are: analytical chemistry, applied physical chemistry, chemical engineering, colloid chemistry, high polymer chemistry, high pressure, kinetics and catalysis, metallic corrosion and oxidation, metallurgical chemistry, physical organic chemistry, rubber and textiles. Much of the work falls under the general headings of petroleum or corrosion chemistry, in that several sections work on topics related to one of these fields.

Pure Chemistry.—The Division of Pure Chemistry is organized around a nucleus of outstanding Canadian chemists who direct about 50 young postdoctorate fellows from all over the world. The work consists of long-term fundamental investigations in physical and organic chemistry.

The work in organic chemistry includes investigation of the structures of alkaloids, studies of the infrared spectra of steroids, and the synthesis of porphyrins and of compounds labelled with isotopes. Other sections deal with chemical kinetics and photochemistry, the study of the ionization potentials of free radicals by mass spectrometry, Raman and infrared vibrational spectroscopy, organic crystal semiconductors, and the application of high resolution proton magnetic resonance techniques to the study of hydrogen bonding and other molecular interactions. Still others study certain aspects of surface chemistry such as the thermal properties of simple solids and imperfections in the bulk and the surface of alkali halide crystals, the heats of micellization by microcalorimetry, and the thermodynamics and stress-strain relationships associated with the absorption of fluids by active carbons. There is also a small group interested in the chemistry of fats and oils.

Applied Physics.—The work in applied physics is divided between research projects likely to be of practical value and the continual development of the fundamental standards on which measurements generally are based. All the fundamental physical standards for Canada are housed and serviced in the Applied Physics Division, which has primary standards equal to any in the world in the fields of mass, length, time, electricity, temperature and radiation. The sections of the Division are: acoustics, diffraction optics, electricity, heat and solid state physics, instrumental optics, interferometry, mechanics, photogrammetric research, radiation optics, and X-rays and nuclear radiations. Industrial problems receive considerable attention, particularly calibration work and industrial noise abatement.

Examples of specific projects under way include a study of physiological noise and its relationship with the threshold of hearing, researches directed toward improving the resolving power of optical systems, the design of a hydrogen maser offering potential as a frequency standard for defining time, measurements on various metals and ceramics aimed at elucidating the mechanism of heat transfer at high temperatures, the establishment of an international standard neutron source, and investigation and application of the very intense and very monochromatic radiation emitted by gas lasers. Several of the Division's developments are being produced commercially; among these are noise-excluding ear defenders, a revolutionary analytical plotter for making maps from aerial photographs (available in two models—one for military and the other for civilian use), six- and five-figure potentiometers, and a precision direct reading thermometer bridge.

Pure Physics.—Investigations are under way on cosmic rays and high energy particle physics, low-temperature and solid-state physics, plasma physics, spectroscopy, theoretical physics and X-ray diffraction. The work is on fundamental problems that do not have immediate application but advance the frontiers of knowledge and supply the basis for further progress in the applied fields. Important advances in the study of cosmic rays and energetic particles have been made recently by means of a specially designed instrument package operating aboard the Canadian earth satellite *Alouette*. The package is sending back vital new information about the Van Allen radiation belts and about the artificial belts created by atomic explosions. (See pp. 383-384.)

The low-temperature and solid-state group studies the electrical, thermal and mechanical properties of metals and semi-conductors especially at very low temperatures. The plasma physics group, only recently established, is expected to make basic contributions to a field which may, in the long run, prove to be of importance in problems of controlled nuclear fusion. In the spectroscopy group, the structures of atoms and molecules are investigated by means of their microwave, visible and ultraviolet spectra, and considerable work has been done on optical masers. The theoretical physics group is at present concerned mainly with theoretical problems basic to the field of plasma physics.

The X-ray diffraction laboratory undertakes fundamental work in molecular and crystal structure and identification problems for government laboratories. X-ray diffraction methods are extremely valuable for identification purposes as they are non-destructive and require only very small amounts of material. Two of the major projects concern narcotics and vanadium minerals.

Building Research.—Technical improvements in housing are the primary concern of this Division. The research program therefore covers all aspects of housing design, building materials and components, and studies in soil, snow and ice mechanics. Regional stations engaged in research and information are maintained in Halifax, Saskatoon, Vancouver and Norman Wells.

Examples of Division projects are the behaviour of cement aggregates and lightweight concretes; the materials and techniques of masonry construction and plastering; atmospheric corrosion of metals; paint and acoustics research; and examination of the performance of walls, windows, chimneys and domestic heating systems. Other studies involve humidity in buildings, air conditioning design data, snow and wind loads on structures, the properties of various soil types including permafrost and muskeg, and the effects on buildings of ground vibrations caused by earthquakes. A unique fire research laboratory provides facilities for all types of fire resistance, fire prevention and fire fighting tests.

As the Division concentrates on building problems peculiar to Canada, much of the work concerns the performance of buildings and building materials in cold weather. In this connection, double-glazed windows and lightweight metal and glass curtain walls, used increasingly in modern buildings, have been examined. Special studies have been made to improve winter building techniques and there is a section devoted to problems of building in the Far North.

Many results of the Division's research are expressed in the National Building Code, an advisory document of building standards now used by municipalities accounting for half the total urban population of Canada. The Division also provides the secretariat and considerable technical assistance to the Advisory Committee that produces the Code.

Mechanical Engineering.—This Division works mainly in the fields of mechanics, hydrodynamics (hydraulic engineering and naval architecture) and thermodynamics. Extensive testing and specification work is undertaken for a variety of industries and for government departments. Much of the work consists of continuing projects related to land, sea and air transportation.

The mechanics activities include mathematical analysis and computation, the development of instruments and servomechanisms, and research on mechanical devices such as gears. One group, working in the field of bio-medical engineering in collaboration with surgeons, has devised a tool for end-to-end joining of blood vessels by a simple stapling operation.

In hydraulics, a number of investigations and models have been made for improving Canadian harbours. A new kind of breakwater has been developed which absorbs waves rather than reflecting them, and a breakwater utilizing this principle has been constructed at Baie Comeau. A promising scheme has also been developed for reducing silt accumulation in harbours by wave energy. The ship laboratory has continued its studies on propeller, rudder and hull design and performance.

Railway work is devoted mainly to locomotives and the riding qualities and mechanical behaviour of freight cars. Improved braking systems and cheaper fuels, lubricants and injectors have been developed. A long-term study is being made of the possible use of gas turbines in locomotives. The application of gas turbines to aircraft taking off and landing vertically is also being explored, together with the thermodynamic, aerodynamic and control problems that this type of aircraft involves. Considerable research is being done on the behaviour of lubricants at high pressures, and that of gases at extremely high temperatures.

National Aeronautical Establishment.—The National Aeronautical Establishment is designed to meet the aeronautical research needs of military and civil aviation, to co-operate with the Canadian aircraft industry, and to carry out its own research program. Its studies therefore centre around problems of aerodynamics, aircraft structures and materials, and flight mechanics.

Aerodynamics research from low speeds up to about 4½ times the speed of sound is carried out in the Establishment's wind tunnels. Considerable attention is being given at present to low-speed problems of vertical and short take-off aircraft. Other studies include work on the aerodynamic characteristics of high-thrust propellers, on wings with submerged fans and on wings immersed in powerful slip-streams. The research on structures and materials involves investigation of aircraft accidents, the theory of structures, fatigue and fracture, flight loads statistics and aircraft hydraulics. The flight mechanics program covers research on flight safety and flying stability and control, the development of a crash position indicator for locating crashed aircraft, atmospheric physics, anti-submarine magnetometry, and the avoidance of aircraft collisions.

A growing and highly diversified program of assistance to smaller industries is developing. Most of the work relates to product development, product improvement, or testing.

Radio and Electrical Engineering.—The work of this Division includes engineering problems of interest to Canadian industry and fundamental research in electrical science. The Division co-operates with the Armed Services and associated industries in designing, producing and evaluating new equipment.

Engineering problems include long-range transmission of high-voltage direct current, corona studies, electronic aids to navigation, current and potential transformer investigations, rocket telemetry, and the development of electronic medical instruments and operating

room facilities. The Division maintains the best-equipped antenna laboratory in Canada and provides considerable assistance to Canadian industry in the development and manufacture of new antennas and radomes. Examples of recent developments by the Division are a compact transistorized marine radar for use by pleasure craft and fishing vessels, an underwater crash position indicator for locating submerged aircraft, an area display electrocardiograph showing the time variation of heart voltage between 70 points on the body, and a creative tape recorder much in demand by electronic music studios. A highly mobile counter-mortar radar designed by the Division went into commercial production in 1961.

Fundamental studies are carried out in the fields of radio astronomy, upper atmosphere research, surface physics, and solid state physics. The Division is currently developing a radio observatory in Algonquin Park which will feature a radiotelescope having a parabolic reflector 150 feet in diameter. This apparatus is expected to be fully operational in the spring of 1966. A radiotelescope 33 feet in diameter is now in operation at the site.

Atlantic Regional Laboratory.—The Atlantic Regional Laboratory is engaged in practical and fundamental studies related to the resources and industries of the Atlantic Provinces. The work follows three general lines: chemical reactions at high temperatures; structures and reactions of naturally occurring organic compounds; and the biochemistry and physiology of fungi, marine algae, mosses, lichens, ferns and higher plants. Examples of specific projects are studies of the nucleic acids of seaweeds, a botanical survey of the peat bogs of Newfoundland and Labrador, and the determination of the molecular structure of several new substances isolated from marine plants. A number of new compounds have also been isolated from land plants, and these are being investigated. The high temperature studies are aimed at providing basic information of use in steel-making and related industries.

A recent development of considerable significance is the establishment of a close working relationship with Dalhousie University, Halifax. Under the new arrangement, students acceptable to the University's Faculty of Graduate Studies may now carry out research in the Atlantic Regional Laboratory, directed by Laboratory staff members holding unpaid appointments in the Faculty. The immediate aim of the scheme is to expand the facilities for graduate studies in the Atlantic Region. In the long run, the objective is to help create a strong scientific background conducive to large-scale development by industry.

Prairie Regional Laboratory.—One of the chief aims of the Prairie Regional Laboratory is to develop wider uses for crops grown on the prairies. This is achieved by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs. Research is therefore carried out on the properties and reactions of plant components, and on the biological, chemical and engineering processes for turning them into other compounds. The development of oil-seed crops as alternatives to seed crops has received considerable attention.

For some time, the Laboratory has studied major plant constituents such as carbohydrates, protein, starch, lignin and fibres. An example of this work is the definition of the chemical structure of several polysaccharides found in cereal grains and important in baking, milling and fermentation technology. Attention is also being given to minor plant constituents—such as phenols, flavonoids and terpenes, which are known to have fungicidal and germicidal properties. A laboratory has been set up to systematically study extractives from local plants and shrubs.

The engineering and process development group is engaged in research on continuous fermentation processes, pulping processes on wood and straw fibres, and the effects of glyceride structure of fats and oils on the quality of margarines and shortenings. Large-scale processing and pilot-plant-scale operations are carried out. There is also a group working in the field of mycology, which is concerned with the production of new chemicals, antibiotics, alkaloids and amino acids.

Section 2.—Research in the Atomic Energy Field*

The high energy yield from the fission of uranium is the key to the prospect of economic nuclear electric power. The yield is so high that the cost of the raw uranium is a very minor component of the cost of electric power. It will be about 5 p.c. of the total and may be contrasted with 50 p.c. or more paid for coal in some large conventional generating stations. The largest component in the over-all economy of nuclear power systems is reactor plant construction and a minor (10 p.c. to 15 p.c.) component is fuel fabrication.

Hitherto the major atomic energy activity in Canada has been uranium mining and refining for export in support of military uses. A major transition, however, is taking place in which uranium production is giving place to engineering and construction of nuclear-electric generating stations. This phase will last until nuclear plants are established in such numbers and capacity throughout the world that the market for uranium revives and overtakes its former peak. There is some prospect that the economic advantages of the heavy-water reactors designed in Canada will lead to the adoption of this type in many other countries, with the creation of a market for heavy water that is expected to be produced competitively in Canada. The expected export of nuclear generating stations, heavy water and uranium fuel is appearing as a new near-term prospect on a small but significant scale.

In Canada, plans are already taking account of a revolutionary increase in the size of electricity-generating stations. The full-scale 200-megawatt reactor at present under construction has come to seem small (1 megawatt = 1,000 kilowatts). Steam turbines and conventional stations are now appearing in larger capacities and the prospects of long-distance high-voltage transmission to interconnect centres of load, together with the lower unit power costs that result from operating on a larger scale, cause utilities to plan large generating stations of 2,000 megawatts and more. The Canadian design of nuclear power reactor appears capable of expansion to keep pace, and will yield even more benefit than the conventional plant in the resulting reduction of unit power cost.

It is also significant that since lower unit power costs result from larger stations there is a new incentive for large utilities to export power from their systems and Canadian policy is changing to allow such export from Canada. Since the planning and construction of major power plants takes many years, these trends are not expected to be extensively realized before the 1970's. However, the prospect has already had its effect on atomic energy research and development.

Three Federal Government organizations have the basic responsibilities for atomic energy in Canada: (1) the Atomic Energy Control Board, responsible for all regulatory matters concerning work in the nuclear field; (2) Eldorado Mining and Refining Limited, with a double function as a producer of uranium and as the Government's agent for the purchase of uranium from private mining companies; and (3) Atomic Energy of Canada Limited, concerned with nuclear research and development, the design and construction of reactors for nuclear power, and the production of radioactive isotopes and associated equipment, such as cobalt-60 Beam Therapy units for the treatment of cancer, and large installations for the sterilization of medical supplies and other uses.

The Atomic Energy Control Board does not itself conduct research, but it gives substantial grants to universities to further independent studies and to provide the equipment without which the universities would find it difficult to train the nuclear research workers of tomorrow. The National Research Council also has made grants in the atomic energy field. In 1962-63 the total of all these grants was $1,245,000.

* Prepared by Dr. W. B. Lewis, Senior Vice-President (Science), Atomic Energy of Canada Limited, Chalk River, Ont.

Eldorado operates research and development laboratories in Ottawa and uses them to support its uranium mining and processing at Beaverlodge in northern Saskatchewan and its refining plant at Port Hope, Ont. Eldorado co-operates with the Department of Mines and Technical Surveys, which carries out background research on the production and use of uranium.

Atomic Energy of Canada Limited (AECL) has an eleven-man Board of Directors, including individuals from private industry, public and private power companies and the universities. The company's major plant is near Chalk River, Ont., and its Head Office and Commercial Products Division are in Ottawa. A new research centre has been established at Whiteshell, Man. The Power Projects Division in Toronto directs the engineering of power reactors and nuclear generating stations. The first project was NPD, a nuclear power demonstration plant to produce 20 megawatts of electricity, now in operation at Rolphton near the Chalk River establishment; its design and construction were carried out in collaboration with the Canadian General Electric Company Limited and The Hydro-Electric Power Commission of Ontario. The Power Projects Division of AECL, with the assistance of Ontario Hydro, has also designed and is constructing a full-scale nuclear power plant, known as CANDU, which will supply 200 megawatts of electricity to the Ontario Hydro system. This plant is being built at Douglas Point near Kincardine on Lake Huron. By agreement, Ontario Hydro will purchase the plant when it is in satisfactory operation. Larger units producing 500 megawatts are being designed for Ontario Hydro to build up generating stations of 2,000 megawatts or more. An Advisory Committee on Atomic Power Development keeps all other utilities fully informed of the progress being made. This Committee, which was set up by the Federal Government in 1954, meets periodically at Chalk River to assess the economic prospects of nuclear power throughout the country.

Because of the great pace of technological development in nuclear power throughout the world, AECL devotes a major effort to collaboration with many organizations. These include industrial firms and the scientific and engineering departments of universities in Canada and, through foreign government agencies and several international organizations, many technical groups in other countries. For example, the Canadian General Electric Company is under contract to design and construct WR-1, an organic-cooled experimental reactor, for the Whiteshell Nuclear Research Establishment. The Canadian General Electric and Canadian Westinghouse companies are AECL's chief contractors for fuel element fabrication, and other work related to Canada's nuclear power program is carried out in collaboration with Shawinigan Engineering, Orenda Engines Division of Hawker Siddeley Canada Limited, Canadian Westinghouse Company Limited, Montreal Locomotive Works Limited and Montreal Engineering Company Limited. In general, AECL's policy is to stimulate the interest of private industry in the development of nuclear power so that these firms can take over construction of power plants when the time arrives, leaving AECL free for fundamental studies and developing new reactor concepts. For some years AECL expects to continue a consulting engineering role in the design of nuclear generating stations. AECL also lends general support to the nuclear and related studies of Canadian universities and lets contracts to the universities on specific problems.

In the international field, close ties are kept with the United States Atomic Energy Commission and the United Kingdom Atomic Energy Authority, both of which have representatives permanently at Chalk River. There is an agreement with the United States for co-operative work on heavy-water-moderated reactors; it provides for the free exchange of all technical data in this field and a commitment by the USAEC to spend $5,000,000 in the United States on research and development related to reactors of Canadian design. Collaboration has also been established with the International Atomic Energy Agency, the Organization for Economic Co-operation and Development, and Euratom, as

well as with Australia, Japan, Pakistan, Sweden, Switzerland, West Germany, India, U.S.S.R. and, less formally, with Denmark, France and Norway. In India, a major experimental reactor—the Canada-India Reactor—similar to NRX at Chalk River was constructed and was formally inaugurated in January 1961.

A 200-megawatt plant similar to that at Douglas Point is also being constructed in India on a co-operative basis, known as the Rajasthan Atomic Power Project (RAPP).

Chalk River Nuclear Laboratories.—At this research and development establishment, basic and applied research is carried on by about 200 professional scientists and engineers supported by 300 technicians devoted to research in nuclear physics, nuclear chemistry, radiobiology, reactor physics, radiation chemistry, environmental radioactivity, physics of solids and liquids, and other subjects, using as their primary facilities the two major reactors, NRX and NRU, the auxiliary reactors, ZEEP, PTR and ZED-2, the tandem Van de Graaff accelerator and analytical facilities such as a precision beta-ray spectrometer, mass spectrometers, electron microscopes, multi-channel pulse analysers, automatic recorders, and analogue and digital electronic computers.

Basic research is carried on in many fields, especially that of the structure of atomic nuclei, and of the interactions of neutrons, not only with individual nuclei but also with liquids and crystalline solids, particularly those involving energy transfer. For nuclear structure studies, the tandem Van de Graaff has made pioneer work possible by providing multiply charged ions of precisely known energy and direction. It has proved possible to produce nuclei in specific energy states by different routes and to identify and analyse the states, thereby deducing the spin and other characteristics and discovering, for example, a correlated series of rotational states in the nucleus neon-20. Not only is this important to a basic understanding of nuclear structure, but it also finds application in unravelling the complex of nuclear reactions responsible for the genesis of nuclei in the interior of stars.

Studies of neutron interactions with matter are made possible by the intense beams of neutrons available from the NRU reactor. By monitoring the neutrons in cosmic radiation, it has been possible to find correlations with the occurrence of solar flares and contribute to the recent advances of knowledge of phenomena in interplanetary space. Isotope techniques have brought about revisions in the basic theory of chemical reactions induced by radiation. This basic research may find a useful application in the technology of using an organic liquid as coolant in nuclear power reactors.

Since extracted plutonium is no longer required, the fuel in the NRX reactor has been changed from natural uranium metal to a combination of natural uranium oxide and a uranium-235 aluminum alloy. The available neutron flux has been increased thereby, while keeping the heat production at 42 megawatts. At the end of 1963, the fuelling of NRU was revised similarly. In this case the thermal neutron flux has been kept constant while the heat production has been reduced from 200 to 60 megawatts.

The research facilities of the NRX and NRU reactors have continued to attract individual scientists as well as teams from other countries. A team of scientists from Harwell (Br.) and other countries is using a system of choppers for studying details of the slowing-down of neutrons by moderators. Both in NRX and NRU the exceptional facilities for irradiations in high temperature water, steam and organic liquids have brought teams from Britain and the United States and individuals from West Germany and Sweden to conduct tests important for the design of future power reactors.

Nuclear Power Prospect.—The generation of electricity by nuclear power on a competitive economic basis is expected to be established by the type of reactor now under construction by the Power Projects Division of AECL. This promise rests on the attainment of very-low-cost fuelling by an extremely simple system that has proved satisfactory in the Nuclear Power Demonstration Station reactor where there has been no fuel failure in the first two years of operation. The fuel is uranium dioxide specially prepared from

CANADIAN NUCLEAR REACTORS IN OPERATION, UNDER CONSTRUCTION OR APPROVED FOR CONSTRUCTION

Name	Location	Date of Start-up	Power	Fuel	Moderator	Coolant	Use
Zero Energy Experimental Pile (ZEEP).	Chalk River, Ont.	1945	100 w.	Natural uranium metal or oxide	Heavy water	—	Lattice experiments
National Research Experimental (NRX).....	Chalk River, Ont.	1947	42,000 kw.	Natural uranium oxide and enriched uranium alloy	Heavy water	Ordinary water	Research and isotope production
National Research Universal (NRU).....	Chalk River, Ont.	1957	60,000 kw.	Enriched uranium alloy	Heavy water	Heavy water	Research and isotope production
Pool Test Reactor (PTR).....	Chalk River, Ont.	1957	100 w.	Enriched uranium alloy	Ordinary water	Ordinary water	Reactivity and absorption measurements
Toronto University Sub-critical Reactor.....	Toronto, Ont.	1958	—	Natural uranium metal	Heavy water	—	Research and teaching
McMaster Nuclear Reactor (MNR).....	Hamilton, Ont.	1959	1,000 kw.	Enriched uranium metal	Ordinary water	Ordinary water	Research
ZED-2.....	Chalk River, Ont.	1960	100 w.	Natural uranium metal or oxide	Heavy water	—	Lattice experiments
Canada-India Reactor (CIR).....	Bombay, India	1960	40,000 kw.	Natural uranium metal	Heavy water	Ordinary water	Research and isotope production
Nuclear Power Demonstration (NPD).....	Rolphton, Ont.	1962	20,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power demonstration
Canadian Deuterium-Uranium (CANDU)....	Douglas Point, Ont.	1964-65	200,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power

natural uranium entirely in Canada. A wide range of tests in hot channels in the NRX and NRU reactors at heat ratings and energy yields in excess of those required has established that this oxide fuel is incomparably more dependable than the uranium metal fuel for which the NRX and NRU reactors were originally designed. No provision for reprocessing the irradiated fuel is involved, for, by careful attention in the reactor design to minimize any waste of neutrons, a yield of over 9,000 megawatt-days of heat is expected from a ton of uranium before it is discarded. This results in a prospective fuelling cost of about one mill (0.1 cent) per kilowatt-hour of electricity, to be compared with about three mills from coal at $8 a short ton.

Canada has access to such an abundance of coal, oil and natural gas that the competitive cost level for electric power is lower than in many other countries. Nuclear power plants of the types under construction in Britain and the United States were assessed as unable to reach a low enough cost level, at least until several successive plants have been built and operated to discover where economies are possible. Plants of the CANDU type do not promise to be significantly cheaper in total initial outlay, but the fuelling cost can be so much less that meeting the competitive target is a very real prospect.

The low fuelling cost derives as much from the details of the design proposed as from the general type of reactor chosen. Some of the important features seem worthy of mention. The first full-scale plant will generate 220 megawatts with a steam-cycle efficiency of 33.3 p.c., so that the reactor has to supply 660 thermal megawatts to the steam-raising plant. The reactor is essentially a tank of heavy water, 20 feet in diameter and 16.5 feet long, lying horizontally. It is penetrated by 306 fuel channels parallel to the axis on a 9-inch-square lattice. Each channel is a zirconium-alloy pressure tube of 3.25 in. inside diameter and about 0.16 in. thick. The fuel consists of bundles of 19 rods, 0.6 in. in diameter and 19.5 in. long, made of dense uranium dioxide in thin zirconium-alloy tubes. Heat is taken from the fuel directly by heavy water that passes at 560°F to the steam boiler, where normal water is raised to saturated steam at 483°F and 38 atmospheres. These details show that the design represents a very considerable advance over that originally conceived in 1956, and the improvement bears promise that continued progress will lead to costs well below the economic target. As examples of the advance, it may be noted that, for the same electric power output, the total heat production of the reactor has been brought down from 790 to 700 megawatts, the efficiency of the steam cycle itself has risen from 27.9 p.c. to 33.3 p.c., and the length of fuel rod has been reduced from 86 to 30 kilometers. The prospective fuelling cost has dropped from 1.85 mill/kwh. to 1.0 mill/kwh. On the other hand, no over-all reduction has been achieved in the capital cost estimates which remain in the range of $300 to $400 per electrical kilowatt for the whole plant. However, a reduction is expected now that manufacturing experience has been gained which can be used in future construction. Even greater reductions in unit power cost are in prospect from an increase in the capacity of the reactor to 500 megawatts of electricity and the incorporation of several such units in a large generating station.

An evaluation was completed in 1963 of the relative prospects of four types of large power reactor for which development work was well advanced. All are heavy water moderated and would not require any reprocessing of spent fuel. The fuel could be natural uranium or slightly enriched in the form of uranium dioxide or uranium carbide. The differences lie in the coolant and steam cycle. The four coolants are pressurized (perhaps partly boiling) heavy water (as in CANDU), fog or wet steam, ordinary boiling water, and an organic liquid. The fog and boiling water reactors would pass steam directly to the turbine; the heavy water and organic liquid would raise steam via a heat exchanger. Cost estimates were based on experience in the construction of CANDU and carried out by the

same experts. It appeared that in the large sizes the construction costs were all comparable, showing only small differences that may not be significant. A larger difference arose from fuel fabrication costs. The results are summarized as follows.

UNIT POWER COSTS FOR LARGE GENERATING STATIONS

Coolant	Reactors: No.	Reactors: Electrical Power/mw.	Capital Cost: $/kw.	Capital Cost: mill/kwh.	Fuel: mill/kwh.	Operating: mill/kwh.	Total: mill/kwh.
D_2O	1	x 203	383	3.56	0.9	1.0	5.46
	2	x 203	344	3.19	0.9	0.8	4.89
	3	x 203	331	3.07	0.9	0.7	4.67
	1	x 457	252	2.34	0.82	0.73	3.89
	2	x 457	236	2.19	0.82	0.60	3.61
	3	x 457	231	2.14	0.82	0.56	3.52
	4	x 457	228	2.12	0.82	0.54	3.48
	1	x 750	222	2.06	0.71	0.56	3.33
	2	x 750	203	1.88	0.71	0.49	3.08
H_2O Fog	1	x 454	251.9	2.34	0.88	0.70	3.92
Boiling H_2O	1	x 457	257	2.39	0.71	0.70	3.80
Organic	1	x 457	234.3	2.18	0.44	0.86	3.48

Operating experience from NPD has been very satisfactory. Not only has there been no fuel failure, but the reactivity has been slightly higher than expected with some fuel now in the reactor over 5,000 mw.d/tonne U and the average 1,900 mw.d/tonne U (megawatt-days of heat per 1,000 kilograms of uranium). Heavy water losses have not proved excessive and have been reduced already to less than 6 lb./day. An availability of 90 p.c. or more appears a reasonable long-term prospect. On-power fuel changing is now routine and more than 60 fuel bundles have been so changed. In the NRX and NRU reactors at Chalk River, experience with defective fuel has been deliberately sought in fuel at ratings higher than required in the power reactors. Satisfactory techniques have been established for locating a defective element and for cleaning up the released radioactive fission products from the coolant system.

Section 3.—Space Research in Canada*

During 1963 there was a steady increase in Canadian space activities. The interests of Canadian scientists continue to be mainly in the field of aeronomy with particular, though not exclusive, emphasis on the high-latitude atmospheric and magnetospheric phenomena which are now generally believed to be related to the various disturbances on the sun. Canada, with its large land mass extending on both sides of the auroral zone, is ideally located for studies of medium- and high-latitude atmospheric phenomena and Canadian scientists have long been active in this exciting field. While many of the older programs of ground-based observations are still of great importance and are being carried out, the new measurements from satellites and rockets are making a significant contribution to knowledge of solar-terrestrial relations and in the next few years the importance of these studies using the new space techniques will increase.

The satellite program of the Defence Research Board, carried on in collaboration with the United States National Aeronautics and Space Administration (NASA), continues to form a major part of the Canadian space activities. The Canadian satellite 1962 Beta

* Prepared (May 1964) by Dr. D. C. Rose of the National Research Council, Ottawa.

Alpha (*Alouette*), which was launched on Sept. 29, 1962, is still in orbit. Its instruments are functioning satisfactorily and there is every indication that it will continue to operate and send back scientific data for many months to come. The satellite carries a number of experiments but its main objective is the sounding of the ionosphere from above. The ionosphere is the diffuse layer of highly-conducting gas lying between heights of about 60 to 300 miles. It reflects radio waves over a wide band of frequencies and is of great practical importance for communications. The underside of the ionosphere has been studied for many years by the technique of sending a short pulse of radio waves up from the ground and examining this pulse after it had been reflected back from the ionized regions. The satellite *Alouette*, however, was the first spacecraft to provide scientists with a continuous sounding of the ionosphere from above.

Other instruments carried by the satellite enable studies to be made of radio waves from outer space and very low frequency electromagnetic waves whose propagation is influenced by the earth's magnetic field. There are also a number of detectors to study cosmic rays, energetic particles in the Van Allen radiation belts and the artificial radiation introduced by high-altitude nuclear explosions. Data are transmitted from the satellite to the ground stations in several countries around the world and the magnetic tape records are sent to Ottawa for analysis. Scientific results to date have been most gratifying and the satellite measurements have added greatly to knowledge of the earth's upper atmosphere.

The over-all design and construction of the spacecraft were carried out by the Defence Research Telecommunications Establishment. Some components were made by Canadian industry and the cosmic ray instruments were the responsibility of the National Research Council. The cost of the launching vehicle, the actual launching and much of the data recovery were undertaken by the NASA as part of its international co-operative program. This joint Canadian–United States program is continuing. Work on *Alouette B*, the successor to the present satellite, is well advanced and the spacecraft will be ready for testing in 1964. *Alouette B* will be the first of four satellites to be built in Canada for the International Satellites for Ionospheric Studies (ISIS) series. These vehicles, to be launched at intervals during the next five years, will carry more sophisticated instruments and orbit at greater heights than *Alouette I*.

Much of the increase in Canadian space activities has been the result of the re-opening of the rocket range at Fort Churchill in Manitoba. Following a disastrous fire, it was reopened in November 1962 and brought into full operation early in 1963. The range is operated for both Canadian and American users by the United States Air Force under a joint agreement of the Governments of Canada and the United States.

Rockets have a special role in the space programs because there is an important region of the upper atmosphere that is too low for satellite orbits and too high to be reached by balloons or aircraft. This is the region between heights of about 25 and 200 miles. It is here that one finds the absorbing layers in the lower ionosphere which cause radio blackouts and it is here that one detects the complex atmospheric processes which produce the visible aurora. Because the axis of the earth's magnetic field is tilted, the auroral zone sweeps down across Canada and Churchill lies almost in the middle of this zone. This region of the atmosphere is therefore of great interest and importance to Canadian scientists. For many years investigations were limited to ground-based radio and optical measurements but now rockets are being used to carry instruments right into the aurora. These measurements, *in situ*, of electron density, temperature and charged particles will ultimately lead to a proper understanding of the aurora and high-latitude disturbances.

Many of the rockets fired at Churchill are of Canadian design and development. These are the Black Brant rockets which were pioneered by the Defence Research Board and are now produced commercially in Winnipeg. The first in the series, the *Black Brant I*, was an experimental vehicle and is now obsolete. *Black Brant II* is a 17-inch diameter vehicle capable of carrying 150 lb. of payload to over 100 miles. *Black Brant III* is a smaller rocket, 10 inches in diameter which will lift 40 lb. to about 100 miles. *Black*

Brant IV will be a combination of *II* and *III* and will go to a height of about 600 miles. *Black Brant V* is an optimum design of the *II*. Most of the flights have been made with the *II*'s but the *III*'s have been tested and these and the *IV*'s will be coming into use in 1964.

Along with the increased activity in Canadian space programs there has been a general broadening of interests. The Meteorological Branch of the Department of Transport (DOT) has formed a Meteorological Satellite Data Laboratory in order to promote applications of satellite observations to the problems of meteorology and ice reconnaissance. In the field of communications satellites, the DOT has reached an agreement with NASA whereby Canada will participate in the testing of such spacecraft as *Telstar*, *Relay* and *Syncom* and an experimental ground station is planned to obtain information for the development and use of communication satellite systems.

It would be quite misleading to suggest that space programs are limited to government departments. Canadian universities are now very active in this field. At present there are nine university groups preparing instruments for rockets, balloons or satellites for upper atmospheric studies. Canadian industry is also filling an important role in the space age. Civilian contractors are producing both instruments and space vehicles. Other firms have entered the field of system design and are providing high-level consulting service on problems pertaining to communications satellites. Important fundamental research on materials and in the field of plasma physics is also being carried on in industrial laboratories. This industrial contribution to the Canadian space effort is increasing and must now be counted as a very important part of its space programs.

Section 4.—Other Scientific and Industrial Research Facilities

This Section outlines research facilities and activities other than those covered in Sections 1, 2 and 3—various federal departments and agencies, provincial organizations, universities and industry. The first three types of institutions—federal, provincial and university—have, of course, an interest in problems of industrial significance. As already stated, though many Canadian industries now possess research facilities—some of them quite extensive—much of the industrial research to date has been done under government auspices.

Subsection 1.—Federal Organizations

Research activities in the various Federal Government departments and agencies have expanded rapidly, at first because of the need for speeding up the production of raw materials, which were for many years the basis of Canada's export trade, and later because of increasing interest in the processing of raw materials, the necessity of meeting the needs of national defence and the developing consideration for many human and resource requirements. In addition to the activities of the National Research Council and Atomic Energy of Canada Limited, dealt with in Sections 1, 2 and 3, federal agencies involved in research include the Departments of Agriculture, Forestry, Fisheries, Mines and Technical Surveys, National Defence, National Health and Welfare, and Northern Affairs and National Resources.

The scientific work of the Department of Agriculture is described in Chapter XI of this volume, the investigations conducted by the Board of Grain Commissioners in Chapter XXI, the specialized work in scientific forest research in Chapter XII, scientific services concerned with Canada's mineral resources conducted by the Department of Mines and Technical Surveys in Chapters I and XIII, investigational work of the Department of Fisheries in Chapter XV, research of the Canadian Wildlife Service of the Department of Northern Affairs and National Resources in Chapter I, medical and other research conducted by the Department of National Health and Welfare and other agencies in Chapter VI, and the work of the Defence Research Board in Chapter XXVII.

Late in 1963 the Department of Northern Affairs and National Resources completed the first permanent scientific research laboratory to be built north of the Arctic Circle. This laboratory, at Inuvik, N.W.T., has year-round facilities specially designed for Arctic research and will serve as a base for extensive field studies in the Western Arctic. It will accommodate a permanent staff of eight scientists from many disciplines and up to 16 visiting researchers. The operation of the laboratory is in charge of a Manager working under the direction of the Northern Co-ordination and Research Centre of the Department.

Subsection 2.—Provincial Organizations

Five of Canada's provincial governments have established research councils or foundations and two others (Ontario and British Columbia) have assisted financially in the setting up of such organizations. Most provincial governments have university laboratories to consult, particularly about local industrial and agricultural problems, and many individual departments have facilities for research in their particular fields of endeavour or assist research through the provision of financial aid to students working in those and other scientific fields. Agriculture is particularly well covered because of its importance as an export industry but the provinces are also intensely interested in their other natural resources. Their efforts in the fields of agriculture, forestry, mining and fisheries are outlined in the Chapters dealing with those subjects (see Index).

Nova Scotia Research Foundation.—This body was created by the Government of Nova Scotia in 1946 to give its people scientific and technical assistance in finding new and better ways to utilize the resources of the forest, the sea, the farm, the mine and the process industries. To this end it seeks to correlate and further scientific work on local problems and available resources. It assists universities, colleges, research groups, industries, provincial and federal departments and individuals by loans of equipment, grants, scholarships, laboratory and summer assistants, library, cartographic, photogrammetric and translation services, and technical information. It has supported or collaborated in work on breeding new varieties of plants and root nodule bacteria; on antibiotics, poultry, blueberry culture, coal-burning equipment, the constitution and gasification of coal, the non-destructive testing of mine equipment, the utilization of anhydrite, diatomite, fish waste, gypsum, seaweed, slag, slab wood and fertilizing materials. It has conducted geophysical, geological, air pollution, and seaweed surveys as well as forest aphid, forest ecology and genetic studies and has assisted studies on the nutrient cycles of lakes, on X-ray crystallography, and on pressures in underground strata. Its Geophysical Division is equipped to undertake all types of magnetometric, gravimetric, resistivity, seismic and electromagnetic explorations. The Technical Services Division provides free technical information to industries in the province and offers them research and development services and facilities in the fields of physics, chemistry, engineering and operations research. A *Research Foundation Bulletin* is issued from time to time to keep industry advised of Foundation activities and also of important discoveries in science and technology.

The New Brunswick Research and Productivity Council.—The aims of this Council, established by an Act of the Legislature in 1962, are *inter alia* to "promote, stimulate and expedite continuing improvements in productive efficiency and expansion in the various sectors of the New Brunswick economy". The Council receives an operating grant from the provincial government and support in specific areas from federal sources. Buildings are being designed for erection on a site adjacent to (and ultimately upon) the campus of the University of New Brunswick. Staff, numbering six at the beginning of 1964, is expected to increase to 15 during the year and 35 in five years time. Current efforts of the Council are centred on work simplification, management training and applied research to solve specific problems facing provincial industry. The Council also supports research in universities throughout the province. Applied research projects to be undertaken during 1964 will be chiefly in the fields of food technology, mineralogy and mechanical and chemical

engineering. Policies are established by 13 Council members representative of provincial industry, government and education and control is through this Council and a limited number of specialist committees. The Council chairman reports annually to the Premier of the province.

Manitoba Research Council.—The Manitoba Research Council was created by the Government of Manitoba in 1963 under the sponsorship of the Department of Industry and Commerce. The Council operates under an Act as an agency of the government and is financed by provincial government appropriations, although fees and service charges may be levied on specific firms or individuals who use the services of the Council. The objects of the Council are both to promote and carry on research and scientific inquiries in the field of agriculture, other natural resources and industry and to help secure for the Manitoba economy the benefits of research carried on elsewhere. Although it will promote and may engage in pure research, the Council's primary aim is to encourage applied research and the commercial use of new concepts, methods and techniques in the province. The preponderance of small industry in Manitoba and their need for assistance in developing a more sophisticated production capability to improve their competitive position in domestic and world markets was the major technical requirement leading to the establishment of the provincial Research Council.

The operations of the organization are the direct responsibility of seven persons representative of natural-resource-based industry, manufacturing and labour. Although the Council is sponsoring a number of research projects on the industrial application of the province's natural resources, the provision of permanent laboratories is not contemplated at the present time. In the immediate future the Council will continue to sponsor research projects particularly for those industries using the products of the province's primary resources. It is also engaged in a program to co-ordinate existing private and public research facilities within the province.

The Council maintains an office in the Provincial Government Administration Building (the Norquay Building) in Winnipeg.

Saskatchewan Research Council.—This Council was set up in 1947 under an Act of the Government of Saskatchewan. The Council carries out research in the physical sciences, both pure and applied, with the aim of improving the provincial economy. It is therefore particularly concerned with the commercial exploitation of provincial resources and the scientific aspects of business. At first the Council had no scientific personnel and laboratory facilities of its own. Its research program was carried on at the University of Saskatchewan and was promoted by means of grants to members of the staff and scholarships to graduate students. The 1947 Act was amended in 1954 to empower the Council to acquire property, employ staff and conduct its own financial affairs. Laboratory buildings were erected on the university campus in 1957 and were extended in 1963. In the present program of research the emphasis is on water and mineral resources, fields of agriculture not covered by other organizations, and technical assistance to industry. A large part of the program is carried out by the permanent staff, now numbering about 60, but some of the Council's research is still promoted by grants to university staff. The members of the controlling body, the Council proper, are appointed by the Lieutenant-Governor in Council and consist of representatives of the government, industry and the university.

Research Council of Alberta.—The Province of Alberta set up a Scientific and Industrial Research Council in co-operation with the University of Alberta in 1921, the promotion of mineral development within the province being the chief purpose leading to its establishment. The Council operates under an Act somewhat similar to that which set up the National Research Council and is principally financed by provincial government appropriations. The present program is directed to the application of basic and applied science toward the development of the natural resources of the province and toward the establishment of new industrial operations within the province. Investigations in the

Council laboratories and pilot plant are organized into two branches—the Earth Sciences Branch which includes all work on groundwater geology, geological surveys and research, mineral beneficiation and soils, and the Fuels Branch which includes work on coal, petroleum, natural gas, chemical process and product development, and gasoline and oil testing. There are, in addition, project groups dealing with industrial engineering services, highway research, a co-operative program on cloud physics with reference to the hail problem, and a number of special projects.

The operations of the organization are controlled by a Council of ten individuals representative of the government, the university and industry. The various research projects are reviewed by advisory committees composed of specialists in each field, drawn from industry, the university and the provincial government.

The main Council laboratories are located on the University of Alberta campus.

The Ontario Research Foundation.*—The Ontario Research Foundation, established in 1928, operates as an independent corporation, deriving its powers from a special Act of the Legislature and governed by a Board of Governors appointed by the Lieutenant-Governor in Council of Ontario. The organization was financed initially by an endowment fund composed of subscriptions from commercial and industrial corporations, from private individuals, and a grant from the provincial government. However, most of its current income is derived from contract research undertaken for industry, although income is also obtained from the various government departments for research and other work undertaken on a contract basis. The Foundation is concerned primarily with the development of industry and the development of Ontario's natural resources through the application of scientific research. However, Foundation activities are not confined to the province; research contracts are routinely handled for any organization, without reference to location. Being primarily an industrial research institution, the Foundation's main areas of scientific endeavour are chemistry, physics, metallurgy, biochemistry, textiles and engineering. Other Foundation departments, such as parasitology and physiography, are engaged particularly in studies related to Ontario's natural resources. A field engineering and technical information service is provided free to industry, sponsored by the Ontario Department of Economics and Development and by the National Research Council.

British Columbia Research Council.*—This Council is a non-profit, industrial research institute with offices and laboratories on the campus of the University of British Columbia. Its function is to enable even the smallest firms to improve their competitive position in Canadian and world markets by the use of the most up-to-date scientific knowledge. The Council provides a free technical information service in collaboration with the National Research Council, carries out contract research for clients on a confidential basis and initiates "in house" research programs designed to promote and utilize the resources of the province. The Council is active in the areas of applied biology, chemistry, engineering, physics, operations research, industrial market studies and economic feasibility studies.

Subsection 3.—University Research

Research conducted in the universities falls into three broad categories: projects undertaken by the student under the guidance of a professor or committee to meet requirements for an advanced degree; research undertaken by the professor, which may be of a more or less continuous nature; and larger research projects undertaken co-operatively on a faculty or inter-faculty basis in university laboratories or in such specialized institutions connected with the university as medical research laboratories, institutes of microbiology and hygiene, science service laboratories and faculties of agriculture, utilizing the services of some undergraduate but mostly graduate students.

* See also p. 370.

Outside financial support for university research comes primarily from four sources: agencies and departments of the Federal Government including the National Research Council, the Medical Research Council and the Defence Research Board, which provide grants for approved and contracted government-sponsored research (the financial aspects of which are shown in the statement on p. 397); industry, which supports both basic and applied research; private foundations, which provide grants for approved research, sometimes in selected fields; and provincial governments.

The total range of individual and group research projects carried on in Canadian universities is encyclopaedic. Some information on the areas covered may be obtained from such annual publications as *Education Studies in Progress in Canadian Universities** and from four annual National Research Council publications—*Students Registered in the Graduate Schools of Canadian Universities in Physical and Earth Sciences; Students Registered in the Graduate Schools of Canadian Universities in Architecture and Engineering; Students Registered in the Graduate Schools of Canadian Universities in Life Sciences;* and *Statistical Summary of Students Registered in the Graduate Schools of Canadian Universities in Physical and Earth Sciences, in Architecture and Engineering and in Life Sciences.* Also, the annual reports of individual institutions give information on grants and gifts for research and list current staff publications which combine to offer a kaleidoscopic view of current activities in the field of university research.

Much of the financial support for university research is provided by the Federal Government through the National Research Council. Such support is described as: *direct,* consisting of support to individuals in the form of scholarships, fellowships and grants-in-aid of research; and *indirect,* consisting of assistance related to the promotion and encouragement of research at the universities, such as contributions to scientific organizations and function, publication of research journals, and the administrative expenses of the program. The National Research Council is responsible for determining policy for and administering the program. A wide variety of committees, comprised mainly of university scientists appointed for varying terms, assist in carrying it out.

Federal expenditures by the NRC on university research programs during the years ended Mar. 31, 1962 and 1963 were as follows:—

Item	*1961-62*	*1962-63*
	$	$
DIRECT UNIVERSITY SUPPORT		
Scholarships—		
National Research Council	927,537	1,268,504
Fisheries Research Board	24,460	24,445
NATO Science Committee	7,729	25,881
Fellowships—		
National Research Council	449,695	552,561
NATO Science Committee	113,208	96,049
Associateships (Dental)—		
National Research Council	—	9,767
Grants-in-Aid—		
National Research Council—		
Operating	5,142,118	6,088,450
Major equipment	686,575	736,212
Special major installations	250,000	475,000
General research	467,000	470,000
Travel	78,225	65,495
Atomic Energy Control Board	700,000	770,000
TOTALS, DIRECT UNIVERSITY SUPPORT	8,846,547	10,582,364

* Canadian Education Association, Research and Information Division, 151 Bloor St. W., Toronto 5, Ont.

Item	1961-62	1962-63
	$	$
INDIRECT UNIVERSITY SUPPORT		
National Research Council—		
Special activities	253,320	404,453
International affiliations	52,244	56,339
Associate committee's administrative expenses	115,330	65,646
Research journals publication costs	352,913	376,561
Administration of program	192,085	192,621
TOTALS, INDIRECT UNIVERSITY SUPPORT	965,892	1,095,620
TOTALS, UNIVERSITY SUPPORT	9,812,439	11,677,984

Bursaries awarded in 1962-63 had an individual value of $2,000 per annum; studentships, $2,400; special scholarships, $2,400; NRC post-doctoral overseas fellowships and NATO science fellowships, $3,500 (single), and $4,500 (married males); experimental psychology scholarships, $2,400; graduate dental research fellowships, $2,500 to $5,000; post-doctoral fellowships held at Canadian universities, $4,000 (single), and $5,000 (married males).

During 1962-63, operating grants were given in the following fields, with additional grants for major equipment: biology, chemical and metallurgical engineering, chemistry, computers, earth sciences, engineering and physics; operating grants only were given for oceanography, experimental psychology, dental research, pure and applied mathematics and space research. Special major installations grants were made to the Physics Department of the University of Saskatchewan ($250,000) and to the Physics Department of the University of Alberta ($225,000). Atomic Energy Control Board grants were made to the following universities: Alberta, Saskatchewan, Manitoba, Laval, Montreal, Queen's, McMaster and McGill. Travel grants were provided to attend conferences, international association meetings, congresses, etc.

Starting with the year ended Mar. 31, 1963, the NRC is awarding a limited number of senior research fellowships to Canadian university staff members beyond the age of 35 years who have been granted sabbatical leave. These awards are calculated on the basis of $4,000 (single) and $5,000 (married) per annum plus a contribution toward travel. Six such fellowships were awarded in 1962-63, representing the following universities: British Columbia, Ottawa, Queen's, McMaster and McGill.

The Medical Research Council is concerned mainly with the development of medical research and the support of medical research workers in the university centres of Canada. Its program, therefore, is almost entirely extramural. Research in the broad field of medical sciences is supported chiefly through an extensive program of grants-in-aid of investigations proposed and carried out by members of the staffs of Canadian universities and their affiliated hospitals and institutes, and through the provision of personnel support, chiefly by means of fellowships and associateships.

Operating grants support the normal operating costs of the research; major equipment grants provide for the purchase of units of special research equipment; travel grants are awarded to investigators to enable them to visit other laboratories or attend scientific conferences. A general research grant is given to the Dean of each of the twelve Canadian medical schools, to be used at his discretion for the development of medical research in his university.

Under the Medical Research Associateship Program, salaries are provided for a limited number of highly qualified independent investigators working in Canadian universities; in 1962-63 there were 29 Associates. Fellowships are awarded for advanced training and experience in research in the medical sciences; during 1962-63, 82 awards were accepted. To stimulate the interest of honour students in research and to give them early training, each Canadian medical school is provided with funds for two summer undergraduate scholarships valued at $1,000 each, tenable for a period of three months.

During the 1962-63 academic year, the Medical Research Council participated in several special activities: it contributed to the cost of the Annual Scientific Meeting of the Western Regional Group, sponsored jointly by the Medical Research Council and the National Cancer Institute of Canada; it provided funds to permit a visiting scientist of international reputation to spend three months at Dalhousie University; and it contributed to the cost of collecting human pituitary glands for the production of human growth hormone to be used in research.

Expenditures by the Council for the years 1961-62 and 1962-63 were as follo vs:—

Program	*1961-62*	*1962-63*
	$	$
Fellowships	242,039	353,408
Associateships	238,198	305,307
Summer scholarships	24,000	24,000
Grants-in-aid of research	2,673,456	3,428,556
General research grants	96,000	144,000
Travel grants	10,276	17,790
Special activities	16,031	23,700
TOTALS, EXPENDITURES ON PROGRAMS	3,300,000	4,296,761
Administrative costs	61,006	62,255
TOTALS, EXPENDITURES	3,361,006	4,359,016

Subsection 4.—Industrial Research

Industrial research in Canada is changing very rapidly. The emergence of the country as a highly industrialized society, its entrance into multitudinous fields of production, the rapid growth of many large nation-wide industries, the serving of a discriminating domestic market and the meeting of competition from abroad have had the effect of making Canadian manufacturing establishments research conscious and many of the larger ones now possess competent research organizations.

On Nov. 29, 1962, an amendment was passed by Parliament to the Income Tax Act, allowing corporate taxpayers, commencing in 1962, to deduct 150 p.c. of their increased expenditures on scientific research for industrial purposes when computing taxable income. This amendment is evidence of the Federal Government's desire to encourage industrial research. It is early to assess the effects of these tax incentives. Although expenditures for research purposes continue to rise, such increases depend on many factors and there is not necessarily a short-run relationship between tax encouragement and higher research spending. However, the first results of the amendment seem to be along the line of encouragement to existing research and development departments to continue and extend their efforts rather than to establish new programs aimed at developing new products or processes.

Industrial Research and Development Expenditures.—The latest DBS survey of expenditures on industrial research in Canada was conducted in 1963 and provided figures for the calendar year 1961 and estimates for the year 1962. These figures are summarized in the following tables; details are contained in DBS publication *Industrial Research and Development Expenditures in Canada, 1961* (Catalogue No. 13-520). Results of the next survey, covering 1963 expenditures with estimates for 1964, are expected to be available during the winter of 1964-65.

The type of industrial research and development covered by these surveys ranges from pure research designed to obtain new knowledge in the physical and life sciences to conceiving and developing new products and processes, or major changes in products and processes, and bringing them to the stage of production. Such activities as market research and process and quality control are excluded. Companies surveyed were asked to report the cost of research and development done within the company in Canada and payments

for research done outside the company in Canada; estimates of payments for research and development conducted outside the company and outside of Canada were also requested.

Total figures show considerable fluctuation in expenditures on research and development over the years surveyed. However, this fluctuation has been caused largely by variations in Federal Government contracts to the aircraft sector of the transportation equipment industry. If all funds received from the Federal Government are removed from annual expenditures, a trend of continuous expansion is revealed. In 1961, 523 firms reported research expenditures; of these, 16 accounted for one half of all intramural research expenditures.

1.—Total Research and Development Expenditures, 1955-62

Year	Expenditure on Research and Development in Canada		Expenditure on Research and Development Outside Canada	Total
	Done Within Reporting Company	Done Outside Reporting Company		
	$'000,000	$'000,000	$'000,000	$'000,000
1955	51.4	1.9	12.1	65.4
1957	124.5	4.2	19.8	148.5
1958 (estimate)	132.5	[1]	27.0	159.5
1959	96.6	3.3	21.7	121.6
1960 (estimate)	81.7	[1]	27.3	109.0
1961	113.3	4.3	31.2	146.4[2]
1962 (estimate)	118.3	[1]	35.4	153.7

[1] Included with expenditures outside Canada. [2] Since extramural payments shown for 1961 include a number of payments which become intramural expenditures for the recipient firms, the total has been adjusted to exclude duplication.

Three industries—transportation equipment, electrical products, and chemicals and chemical products—have accounted for more than one half of all research and development performed in Canada every year since 1955. In 1961, for the first time, the research and development expenditures of the transportation equipment industry, which are used largely for aircraft development, did not exceed those of every other industry. In that year the electrical products industry, which includes electronic equipment, was the leading performer of industrial research and development.

2.—Research and Development Expenditures in Canada, by Major Industrial Group, 1959 and 1961

Group	1959		1961	
	Amount	P.C. of Total	Amount	P.C. of Total
	$		$	
Transportation equipment	26,464,397	26.5	19,863,486	17.2
Electrical products	16,027,237	16.0	21,765,159	18.9
Chemicals and chemical products	14,430,145	14.4	20,970,037	18.2
Totals	56,921,779	56.9	62,598,682	54.3
Other industries	42,952,756	43.1	52,557,544	45.7
Grand Totals	**99,874,535**	**100.0**	**115,156,226[1]**	**100.0**

[1] This total is not equal to the sum of intramural and Canadian extramural expenditures; it has been adjusted to account for those payments that are intramural for one firm but extramural for another.

Table 3 shows intramural research and development expenditures over the four years 1959-62. The transportation equipment industry is given separately because of substantial fluctuations in its expenditures. Most of the other industries have increased their research

and development activities over the period; the chemical and electrical products industries reported the greatest absolute increases, together having accounted for over 40 p.c. of total intramural expenditures (excluding those of transportation equipment) since 1955.

3.—Intramural Research and Development Expenditures, by Industry, 1959-62

Industry	1959	1960[1]	1961	1962[1]
	$	$	$	$
Mining, quarrying and oil wells	4,907,029	5,168,654	6,727,567	6,368,903
Manufacturing—				
Foods and beverages	1,793,626	1,971,900	2,784,502	3,335,989
Rubber products	1,219,165	1,199,140	1,371,755	1,295,777
Textile products	1,395,769	1,462,940	1,057,633	976,000
Wood products	102,081	109,096	61,088	63,900
Paper products	6,571,953	6,822,565	7,003,047	7,084,784
Furniture and fixtures	27,500	33,156	116,800	118,000
Primary metal	6,626,528	7,557,460	7,488,118	8,069,250
Metal fabricating	1,724,907	1,810,620	2,182,490	2,144,350
Machinery	3,121,907	3,089,325	4,814,738	5,210,377
Electrical apparatus and supplies	15,903,065	17,551,660	21,745,019	23,480,119
Non-metallic mineral products	1,353,830	1,444,771	1,357,936	1,527,760
Products of petroleum and coal	3,761,700	4,224,000	5,038,500	6,304,000
Chemicals and chemical products	14,133,296	12,818,696	20,251,461	21,260,933
Other manufacturing (incl. tobacco and tobacco products, leather products, clothing and knitting mills, and miscellaneous)	3,004,378	2,617,766	5,194,825	6,487,507
Transportation, storage, communication and other utilities	2,779,440	3,126,460	3,102,796	3,610,000
Other non-manufacturing (incl. construction industry, scientific and engineering services and trade associations)	2,593,485	2,600,840	3,100,363	3,239,850
Totals (excl. transportation equipment)	71,019,659	73,609,049	93,398,638	100,577,499
Transportation equipment	25,570,722	8,072,106	19,856,661	17,680,830
Totals, All Industries	**96,590,381**	**81,681,155**	**113,255,299**	**118,258,329**

[1] Estimates based on the companies' intentions for these years.

The product group for which the largest percentage of research and development expenditures was made in 1961 was the chemicals group (17.5 p.c.). Aircraft and parts, which in 1959 accounted for almost one quarter of intramural expenditures, declined considerably in relation to other product groups in 1961. In that year the aircraft and parts product group received only 15.7 p.c. of the expenditures, almost $6,000,000 less than in 1959. After chemicals and aircraft, the product groups receiving the largest amounts were, as in 1959, electronics and primary metals.

4.—Intramural Research and Development Expenditures, by Product Group, 1961

Product Group	Amount	P.C. of Total	Product Group	Amount	P.C. of Total
	$			$	
Aircraft and parts	17,831,092	15.7	Machinery (except electrical)	6,212,215	5.5
Chemicals (except drugs and medicines)	19,780,636	17.5	Motor vehicles and parts	1,681,975	1.5
Drugs and medicines	2,789,438	2.5	Petroleum and natural gas	4,935,351	4.4
Electrical equipment (except electronics)	9,743,112	8.6	Primary metals	13,299,359	11.7
Electronics	15,561,769	13.7	Professional and scientific instruments	1,096,660	1.0
Fabricated metals	2,835,754	2.5	Other	10,461,758	9.2
Forest Products—					
Pulp and paper	6,089,000	5.4			
Other	937,180	0.8	**Totals**	**113,255,299**	**100.0**

The relative contributions of the different sources of funds for intramural research and development changed from 1959 to 1961. The proportion of research funds provided by the performing companies themselves increased again in 1961, while research and development funds from government sources continued to decline. Research contracts given to firms by other companies were measured separately in 1961, and were found to account for almost 5 p.c. of all intramural expenditures. The electrical products and the transportation equipment industries received the largest amounts of external funds from all sources, such funds amounting to 51.8 p.c. and 38.4 p.c., respectively, of their total intramural expenditures on research and development.

5.—Sources of Funds for Intramural Research and Development, by Industry, 1959 and 1961

Industry and Year	Reporting Company	Parent, Affiliated or Subsidiary Companies	Government Funds	Contract Work for Other Companies	Other	Total
	$	$	$	$	$	$
Mining, quarrying and oil wells.....1959	4,817,385	27,000	—	—	62,644	4,907,029
1961	5,266,827	521,536	35,000	822,204	82,000	6,727,567
Manufacturing—						
Foods and beverages.....1959	1,588,587	205,039	—	—	—	1,793,626
1961	2,444,402	340,100	—	—	—	2,784,502
Rubber products.....1959	956,388	262,777	—	—	—	1,219,165
1961	1,367,055	—	4,700	—	—	1,371,755
Textile products.....1959	1,363,769	32,000	—	—	—	1,395,769
1961	1,037,633	20,000	—	—	—	1,057,633
Wood products.....1959	102,081	—	—	—	—	102,081
1961	60,338	750	—	—	—	61,088
Furniture and fixtures.....1959	27,500	—	—	—	—	27,500
1961	116,800	—	—	—	—	116,800
Paper and allied industries.....1959	4,463,779	868,918	22,294	—	1,216,962	6,571,953
1961	4,443,637	863,219	35,200	190,991	1,470,000	7,003,047
Primary metal.....1959	3,085,863	3,467,217	59,520	—	13,928	6,626,528
1961	5,040,118	2,440,000	—	—	8,000	7,488,118
Metal fabricating.....1959	1,683,446	19,561	21,900	—	—	1,724,907
1961	2,101,195	2,700	78,595	—	—	2,182,490
Machinery.....1959	3,121,907	—	—	—	—	3,121,907
1961	4,778,258	36,480	—	—	—	4,814,738
Transportation equipment.....1959	11,506,473	100,000	13,964,249	—	—	25,570,722
1961	12,237,694	111,900	6,777,229	529,838	200,000	19,856,661
Electrical products.....1959	8,745,939	752,146	6,386,856	—	18,124	15,903,065
1961	10,478,918	239,720	9,465,281	1,561,100	—	21,745,019
Non-metallic mineral products.....1959	676,060	677,770	—	—	—	1,353,830
1961	1,321,936	36,000	—	—	—	1,357,936
Petroleum and coal products.....1959	1,939,719	1,821,981	—	—	—	3,761,700
1961	3,178,500	1,783,000	—	77,000	—	5,038,500
Chemicals and chemical products..1959	13,556,529	495,811	17,396	—	63,560	14,133,296
1961	19,305,358	767,364	178,739	—	—	20,251,461
Other manufacturing (incl. tobacco and tobacco products, leather products, clothing and knitting mills, and miscellaneous).....1959	2,127,528	286,307	342,135	—	248,408	3,004,378
1961	2,452,244	42,000	1,470,281	1,230,300	—	5,194,825
Transportation, storage, communication and other utilities.....1959	2,779,440	—	—	—	—	2,779,440
1961	3,012,796	—	—	90,000	—	3,102,796

5.—Sources of Funds for Intramural Research and Development, by Industry, 1959 and 1961—concluded

Industry and Year	Reporting Company	Parent, Affiliated or Subsidiary Companies	Government Funds	Contract Work for Other Companies	Other	Total
	$	$	$	$	$	$
Other non-manufacturing (incl. the construction industry, scientific and engineering services and trade associations)						
1959	899,913	733,140	294,489	—	665,943	2,593,485
1961	345,395	1,035,000	143,223	963,527	613,218	3,100,363
Totals						
1959	**63,442,306**	**9,749,667**	**21,108,839**	—	**2,289,569**	**96,590,381**
1961	**78,989,104**	**8,239,769**	**18,188,248**	**5,464,960**	**2,373,218**	**113,255,299**
Percentage of Total Funds						
1959	65.7	10.1	21.8	—	2.4	100.0
1961	69.8	7.3	16.0	4.8	2.1	100.0

Section 5.—Federal Government Expenditures on Scientific Activities

Biennial surveys carried out by the DBS give information on Federal Government expenditures on scientific activities for the years ended Mar. 31, 1959-65. Each survey covers the actual costs of the preceding year and the estimated expenditures for the current year incurred by the physical and life sciences; the social and psychological sciences are not included. For purposes of the survey, "scientific activities" include scientific research and development, scientific data collection, scientific information and scientific scholarships. Data are also compiled on capital expenditures on plant for scientific activities and on personnel employed in research and development.

As shown in Table 6, total 1962-63 costs of scientific activities were slightly lower than those incurred in 1961-62 but estimates indicate a rise of 16 p.c. in 1963-64 and of 12.5 p.c. in 1964-65. Among the departments and agencies, the National Research Council records the greatest increase during the period, its 1964-65 expenditures of $62,600,000 being 56.1 p.c. higher than those for 1961-62. The departments and agencies listed in Table 6 accounted for 92 p.c. of the Federal Government's expenditure on scientific activities in 1958-59 but their relative share will decrease to 80 p.c. by 1964-65. During the latest year, each of six other departments—Industry, Fisheries, Forestry, National Health and Welfare, Northern Affairs and National Resources, and Transport—reported its intention to spend more than $5,000,000 on scientific activities.

Federal expenditures on scientific activities are classified in greater detail in Table 7 for the years ended Mar. 31, 1963 and 1965. In this table, expenditures by the Department of National Defence, which make up almost one quarter of the total, are shown separately.

6.—Summary Statistics of Federal Government Expenditures on Scientific Activities, Years Ended Mar. 31, 1962-65

(Millions of dollars)

Activity	1961-62[1]	1962-63	1963-64[1]	1964-65[1]
Activity—				
Conduct of research and development, including grants-in-aid of research	192.7	188.9	219.6	243.0
Capital expenditures on plant for scientific activities	37.0	28.9	36.3	45.9
Scientific data collection	21.1	25.0	26.7	27.9
Scientific information	5.6	9.7	10.1	11.2
Scholarship and fellowship programs	2.5	3.1	3.9	5.6
Totals, Scientific Activities	**258.9**	**255.6**	**296.6**	**333.6**

[1] Estimated.

6.—Summary Statistics of Federal Government Expenditures on Scientific Activities, Years Ended Mar. 31, 1962-65—concluded

(Millions of dollars)

Department or Agency	1961-62[1]	1962-63	1963-64[1]	1964-65[1]
Department or Agency—				
Agriculture (incl. Grain Research Laboratory)	32.1	29.6	30.6	33.7
Atomic Energy (incl. Atomic Energy Control Board and Atomic Energy of Canada Ltd.)	40.7	39.4	46.5	54.7
Mines and Technical Surveys (incl. Dominion Coal Board)	39.9	39.4	38.9	40.9
National Research Council (incl. Medical Research Council)	40.1	44.7	52.5	62.6
National Defence—				
Armed Forces	32.1	26.1	30.2	36.8
Defence Research Board	34.7	31.8	28.5	39.3
Others	39.3	44.6	59.4	65.6
Totals, Departments and Agencies	**258.9**	**255.6**	**296.6**	**333.6**

[1] Estimated.

7.—Federal Government Expenditures on Scientific Activities by Department or Agency, Years Ended Mar. 31, 1963 and 1965

Department or Agency	1962-63				1964-65[1]			
	Conduct of Research and Development	Other Scientific Activities	Capital Expenditures	Total Funds Applied	Conduct of Research and Development	Other Scientific Activities	Capital Expenditures	Total Funds Applied
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Department of Agriculture (incl. Grain Research Laboratory)	25,128	948	3,523	29,599	26,463	1,008	6,229	33,700
Atomic Energy (incl. Atomic Energy Control Board and Atomic Energy of Canada Ltd.)	29,963	90	9,349	39,402	36,797	50	17,807	54,654
Department of Defence Production–Department of Industry	8,000	—	—	8,000	19,500	—	—	19,500
Department of Fisheries	7,948	1	2,358	10,307	8,665	5	2,293	10,963
Department of Forestry	7,104	1,639	642	9,385	7,948	1,874	2,863	12,685
Medical Research Council	3,644	724	—	4,368	5,354	1,680	—	7,034
Department of Mines and Technical Surveys	11,887	20,351	7,197	39,435	12,795	22,893	5,225	40,913
Department of National Health and Welfare	5,396	589	961	6,946	5,583	919	822	7,324
National Research Council	34,225	4,188	1,949	40,362	43,896	6,144	5,487	55,527
Department of Northern Affairs and National Resources	1,266	2,437	398	4,101	2,440	2,848	598	5,886
Department of the Secretary of State	170	2,819	7	2,996	175	3,192	—	3,367
Department of Transport	1,277	209	348	1,834	4,529	220	591	5,340
Department of Veterans Affairs	410	—	—	410	439	—	—	439
Other civilian departments or agencies	616	3	5	624	276	3	8	287
Totals, excluding National Defence	**137,034**	**33,998**	**26,737**	**197,769**	**174,860**	**40,836**	**41,923**	**257,619**
Department of National Defence	51,885	3,803	2,190[2]	57,878	68,168	3,917	3,940[2]	76,025
Armed Forces	*22,301*	*3,664*	*96*[2]	*26,061*	*30,882*	*3,750*	*2,135*[2]	*56,767*
Defence Research Board	*29,584*	*139*	*2,094*	*31,817*	*37,286*	*167*	*1,805*	*39,258*
Totals, All Departments and Agencies	**188,919**	**37,801**	**28,927**	**255,647**	**243,028**	**44,753**	**45,863**	**333,644**

[1] Estimated. [2] Capital expenditures by two of the three Services are unavailable.

About three quarters of the payments made by the Federal Government on scientific activities are for the conduct of research and development. Although the Government continues to perform most of this research within its own establishments, its support of outside research is increasing; in 1961-62 intramural expenditures accounted for 80 p.c. of the total but by 1964-65 this percentage will have fallen to about 69. The proportion performed by Canadian industry, which was 11 p.c. in 1961-62, will have increased to 20 p.c. by 1964-65, and that performed in Canadian universities will have increased from 7 p.c. to 10 p.c. in the same comparison.

8.—Federal Government Expenditures on the Conduct of Research and Development, Years Ended Mar. 31, 1962-65

(Millions of dollars)

Performing Organization	1961-62[1]	1962-63	1963-64[1]	1964-65[1]
Reporting department or agency	154.5	148.9	159.8	167.1
Profit organizations	20.8	20.2	36.8	48.1
Educational institutions and individuals at such institutions	14.0	16.9	19.0	24.4
Others (incl. non-profit organizations, other governments and foreign recipients)	3.4	2.9	4.0	3.4
Totals, Expenditures	**192.7**	**188.9**	**219.6**	**243.0**

[1] Estimated.

As shown in Table 9, the proportion of government funds allotted to the support of research and development in the physical sciences increased over the period 1962-63 to 1964-65 from about 70 p.c. to 74 p.c., and engineering continued to receive more than 55 p.c. of these funds. Within the life sciences, more than one half of the research and development expenditures continue to support the agricultural sciences. Table 9 also classifies research and development expenditures by area of investigation. It is noteworthy that expenditures in the field of space travel and communications increased from 0.9 p.c. of the total in 1962-63 to 3 p.c. in 1964-65. In the latter year, approximately 16 p.c. of the research and development expenditures will be allotted to nuclear science research and 35 p.c. to military research.

9.—Federal Government Expenditures on the Conduct of Research and Development, by Scientific Field and Area of Investigation, Years Ended Mar. 31, 1963 and 1965

(Millions of dollars)

Scientific Field	1962-63	1964-65[1]
Scientific Field		
Physical Sciences	**132.7**	**179.1**
Engineering	73.8	105.3
Aeronautical	*11.6*	*20.6*
Chemical	*2.5*	*3.1*
Civil	*2.4*	*2.4*
Electrical and electronic	*19.2*	*28.2*
Mechanical	*9.6*	*17.8*
Other	*28.6*	*33.2*
Astronomy	1.5	1.8
Chemistry	11.9	15.2
Geology and other earth sciences	7.6	9.0
Metallurgy	3.1	3.6
Meteorology	1.5	2.0
Oceanography	3.6	3.9
Physics, nuclear	7.0	10.0
Physics, non-nuclear	18.7	22.2
Other	4.0	6.1

Scientific Field and Area of Investigation	1962-63	1964-65[1]
Scientific Field—concl.		
Life Sciences	**56.2**	**63.9**
Agricultural sciences	30.9	33.1
Biological sciences	14.4	17.7
Medical sciences	10.9	13.1
Totals, All Scientific Fields	**188.9**	**243.0**
Area of Investigation		
Nuclear science	31.5	38.6
Space travel and communications	1.7	7.3
Military science	60.2	84.9
Other projects	95.5	112.2

[1] Estimated.

Section 6.—A Selection of Canadian Achievements in Science and Technology, 1800-1964*

There can be nothing *authoritative* or *definitive* about any list of Canadian achievements in science and technology, since even the ground rules for selecting individual items are based, at best, on a cross-section of personal opinions. The compilation offered here is thus admittedly tentative and arbitrary, almost by definition—or rather, by lack of definition. After all, what exactly is *technology*? What do we mean by *achievements*? And, perhaps the most vexing question of all, when is an achievement *Canadian*?

The invention of the telephone is a case in point. The patent was issued to Alexander Graham Bell (a Scotsman) on Feb. 16, 1876, for work done the previous year in Boston (a city in the United States), but Bell himself is said to have fixed the date and place of the invention as the summer of 1874 at his father's house in Brantford, Ontario (in Canada). It was two years later, Aug. 10, 1876, that the famous first telephone message was sent a distance of 8½ miles over wires lent by the Dominion Telegraph Company, between Brantford and Paris (Ontario). This was the crucial experiment by which Bell proved that the telephone could be of commercial value. The question may well be asked: What role does the accident of geography play in a great achievement when the basic work was done elsewhere?

It should also be made quite clear that the list of achievements merely mentions typical landmarks in the vast panorama of scientific, agricultural and industrial progress in Canada. The vital role played by inventors and innovators in the development of a modern nation becomes obvious even to the superficial reader of the accomplishments set out in the list; but the brilliant contributions of these individuals must not blind us to the extremely valuable work of thousands of eminent Canadians who devoted their lifetime to science, medicine, engineering, education, research administration, exploration, etc., and who happened to be involved in the *gradual* solution of a great variety of problems rather than concentrating on the *spectacular* solution of a single one.

On the whole, most of the outstanding Canadian accomplishments are linked with the transportation and communication facilities that are the life-lines of this vast country with its small population. Many individual items were developed elsewhere but Canadians put them together and adapted them to Canadian conditions. Canada's railways, airlines, radio and television networks, the St. Lawrence Seaway and the Trans-Canada Highway are existing monuments to the ability of Canadians to meet the challenge of their tremendous, rigorous and complex country.

1796 John McIntosh, while clearing his farm near Dundela, Ont., found and transplanted several apple trees; the delicious red apples from one of these became famous and McIntosh gave them his own name. His son, Allan, developed the variety which is now grown in many parts of North America.

1804 David Fife, farming near Peterborough, Ont., developed the first Canadian wheat to be resistant to rust. His plant-breeding efforts were the fore-runners of large-scale, systematic, government-sponsored agricultural experiments. Rapid development of high-quality grain production, especially in Western Canada, made it possible for Canada to become one of the world's leading wheat exporters.

1847 Daniel Massey, a farmer near Cobourg, Ont., bought a small foundry and started manufacturing basic farm tools. This was the humble beginning of Massey-Ferguson, one of Canada's best-known establishments and one of the world's leading farm-machinery manufacturers. In addition to its great contribution to Canadian agriculture and industry, the Massey family became prominent in the cultural development of the country.

1851-52 C. N. Tripp of Woodstock, Ont., started to develop the "gum beds" along Black Creek (some 30 miles southeast of Sarnia) to recover asphalt. His discovery of oil in this region led to the drilling of the world's first commercial oil well by Hamilton industrialist James M. Williams at what is now Oil Springs, Ont. Ever since that time, Canada has been in the forefront of all phases of oil exploration, drilling, pumping, pipeline building, and refining.

1852 Frederick Newton Gisborne, having developed a method of insulating a wire so that it would be impervious to saltwater corrosion, successfully laid an undersea telegraph cable from

*Compiled by Dr. John R. Kohr, National Research Council of Canada, Ottawa.

Tormentine, N.B., to Carleton Head, P.E.I., and then conceived the idea of establishing telegraphic communications with Europe by way of Newfoundland. He enlisted the co-operation of the Newfoundland Government and the financial support of Cyrus W. Field, thus assuring the laying of the Cape Breton-to-Newfoundland Cable in 1856 and the Atlantic Cable in 1858.

1874 Alexander Graham Bell arranged an experiment for the first telephone message to be transmitted over a relatively long distance, thus proving that the telephone had commercial possibilities. The message was sent a distance of 8½ miles—one way—over wires lent by the Dominion Telegraph Company, between Brantford and Paris, Ont.

1883 The first working model of a revolving snow shovel, invented in 1869 by J. W. Elliott of Toronto, Ont., and further developed by O. Jull and the Leslie Brothers of Orangeville, Ont., was placed on trial in the Canadian Pacific Parkdale yards at Toronto. The rotary snow plows in use today are descendants of this shovel and are indispensable for rail operation in many parts of the world—from Archangel to the Andes. Canadians continue to be among the leaders in the design of various other snow-clearing and over-snow vehicles.

1884 Sir Sanford Fleming's system of international standard time measurements was adopted by the International Prime Meridian Conference held at Washington, D.C. Without this system, transcontinental time tables would be a nightmare of local time notations.

1892 Thomas Ahearn, a pioneer in the field of electrical engineering, produced the world's first meal cooked by electricity, during a demonstration of his new stove at the Windsor Hotel, Ottawa.

1901 Guglielmo Marconi succeeded in receiving at St. John's, Nfld., wireless signals transmitted across the Atlantic Ocean from England. This feat may be considered Marconi's greatest triumph, especially since it disproved the theory of some distinguished mathematicians that communication by means of electric waves would be impossible beyond the 200-mile range, owing to the curvature of the earth. Although this epoch-making achievement can by no means be considered *Canadian*, it had a direct bearing on Canada's early role in wireless telegraphy. When a telegraph and cable company claimed a monopoly to receive transatlantic signals in Newfoundland, Marconi gave up further tests and made plans to return to Italy via New York but, upon landing at North Sydney, he was persuaded by Johnston (then a newspaper editor and a Member of Parliament and subsequently Deputy Minister of Marine and Fisheries) and by G. H. Murray (then Premier of Nova Scotia) to consider a site on Cape Breton for his wireless base to Europe. Johnston and Marconi seem to have encountered surprisingly little resistance to their proposal of having the Canadian Government provide Marconi with the sum of $75,000 for the erection of the Cape Breton station. Thus, one of Canada's great systems of communications got its early start.

1902-03 Ernest Rutherford (later Baron Rutherford of Nelson), Professor of experimental physics at McGill University, Montreal, and Frederick Soddy, then demonstrator in chemistry, developed the disintegration theory of radioactivity—"a staggeringly bold hypothesis to come from two comparatively young workers . . . it triumphed because, and only because, no other theory was capable of explaining the then known facts of radioactivity" (H. R. Robinson). Their investigations made McGill for the time being the world centre of research in atomic science and stimulated higher education throughout Canada.

1903 The world's first electrolytic lead-refining plant using the Betts cell process was installed at the smelter at Trail, B.C. Subsequent developments in the metallurgy of lead include a gradual improvement in roasting practices, culminating in double sintering, and the development of the slag-fuming process for the recovery of lead and zinc from blast-furnace slag.

1903 With the appointment of Dr. Charles Saunders (later Sir Charles Saunders) as Dominion Cerealist, Canada entered a new phase as an agricultural world power. Dr. Saunders and his co-workers developed the early-ripening Marquis wheat which played an important role in the opening up of the prairies. Subsequently, he was instrumental in developing Ruby, Garnet and Reward wheat adapted to special prairie conditions.

1903-32 Frederick Walker (Casey) Baldwin became internationally known for his work on hydrofoils, which permit boats to skim over the water at very high speed. The principles now employed in hydrofoil craft were first developed by Casey Baldwin. A Canadian Navy craft was named the *KC-B* in his honour.

1907 Alexander Graham Bell organized the Aerial Experiment Association at Baddeck, N.S. The other participants in this venture—the first aeronautical research establishment in Canada—were two young Canadian engineers, F. W. (Casey) Baldwin and J. A. D. McCurdy, together with two United States citizens, Thomas Selfridge and Glenn Curtiss. Outstanding among the many contributions made by this group was the invention of the aileron for lateral control.

1910 J. A. D. McCurdy, one of the world's outstanding aviation pioneers, transmitted a wireless message in flight, thus establishing the world's first aeroplane-to-ground communication. Operation of modern airlines would be unthinkable without the link provided by communications systems for the control of air transport.

1911 The most remarkable achievement of Canadian tunneling is the system of spiral tunnels on the CPR line through the Kicking Horse Pass in the Rocky Mountains. The tunnels compose a gigantic figure eight, more than 1.1 miles in length, with a gain in elevation of 104 feet and a gradient of only about 1.7 p.c.

1921 Dr. Frederick G. Banting (later Sir Frederick Banting), working in the laboratory of Dr. J. J. R. MacLeod at the University of Toronto, and with the aid of Charles H. Best, succeeded in isolating insulin—one of the great medical discoveries of all time. In the following months, J. B. Collip found a means of purifying insulin. Use of this substance has revolutionized the therapy of diabetes and has led to a fuller understanding of carbohydrate metabolism.

1923-27 Wallace Rupert Turnbull of Rothesay, N.B., invented the controllable-pitch propeller, which has given aircraft more flexible performance and greater safety.

1927 The first transcontinental radio network in the world was set up in connection with the Diamond Jubilee of Confederation, through the co-operation of the railway companies, telegraphs, the Bell Telephone Company, and the Department of Marine. Later, after the formation of the CRBC and then the CBC, Canada had the longest radio network in the world. When Canada began, through the CBC, a television service in 1952, its growth in terms of availability to Canadian homes is claimed to have been the fastest in the world.

1930 The Consolidated Mining and Smelting Company of Canada installed, at Trail, B.C., the equipment with which to recover sulphur dioxide from roaster and sinter gases that formerly went to waste. The gas was used to make sulphuric acid, which in turn became the basic ingredient in the manufacture of chemical fertilizers. This was the beginning of a fertilizer plant that ranks among the largest in the world.

1932 Dr. L. M. Pidgeon, then a research chemist with the National Research Council (subsequently Professor and Head of the Department of Metallurgical Engineering, University of Toronto), developed a process for production of metallic magnesium, employed by one plant in Canada and five plants in the United States. By making the extraction of magnesium metal from calcined dolomite commercially feasible, Dr. Pidgeon's process terminated Canada's dependence on foreign sources for magnesium.

1934 Dr. Wilder G. Penfield, one of the world's great neurosurgeons, became director of the newly founded Montreal Neurological Institute where, under his leadership, many brilliant discoveries were made in the mysterious territory that still surrounds the functioning of the human brain.

1934 Food scientists and technologists from industry, the universities, and three Federal Government laboratories, working under the auspices of the Canadian Committee on Food Preservation, started work on the design of refrigerated railway cars, which proved to be quite superior to earlier types. As a result, Canadian railways now operate cars capable of maintaining temperatures of 5°F. with little spatial variation within the car; moreover, the new design eliminates mechanical equipment that would increase maintenance costs and require skilled servicemen at frequent check-points across the country. The group was also successful in applying the 'jacketed' or 'cold-wall' principle to refrigeration in trucks, trailers and freighters.

1934-59 The world's first bush aircraft, the *Norseman*, designed and manufactured by Robert Noorduyn at Montreal, was especially useful in opening up the Canadian North; *Norseman* aircraft are favoured by aviators across the world for performance over rugged country. Other Canadian aircraft that achieved world reputation in northern flying, especially for their short take-off and landing ability, are the *Otter*, the *Beaver* and the *Caribou*.

1939 Dr. W. R. Franks and his colleagues invented the antigravity suit designed to prevent blackout in fliers when making tight turns or when pulling suddenly out of a power dive. As Wing Commander Franks, the inventor became Director of Aviation Medical Research for the RCAF. Experiments leading to the development of this rubber suit containing fluid to counteract the forces of gravity became invaluable in the subsequent design of various space suits.

1945 T. R. Griffith and J. L. Orr (now Research Adviser to the Deputy Minister, Department of Industry) of the National Research Council obtained a patent on the prevention and removal of ice or frost from aircraft parts. The electro-thermal de-icing method developed by these inventors and their associates is now in use on many major airlines and has contributed significantly to flight safety and efficiency.

1947 At Chalk River, Ont., the NRX nuclear reactor went into operation. It was then, and so remained for several years, the most powerful research reactor in the world. Canada has continued to play a leading role in reactor design, not only for research but also for the production of radioactive isotopes and for the development of nuclear power.

1949 The world's first aluminum highway bridge at Arvida, Que., was designed and built by Aluminum Company of Canada engineers. Today, Canadian-developed processes permit increasing use of aluminum in heavy construction around the world.

1950 One of the most dramatic as well as beneficial applications of Canada's nuclear reactor technology was the development of the Cobalt-60 cancer teletherapy unit. Atomic Energy of Canada Ltd. has supplied these units for installation in hospitals all over the world.

1953 Dr. R. U. Lemieux, working at the National Research Council's Prairie Regional Laboratory in Saskatoon, Sask., achieved the first synthesis of sucrose. This substance is commercially known as cane or beet sugar and is still the cheapest energy-producing foodstuff. While the synthesis of sugar has no immediate industrial or commercial impact, its scientific value has earned Dr. Lemieux and his group world-wide recognition.

1954 The refinery of the Sherritt Gordon mine at Fort Saskatchewan, Alta., commenced operations using the ammonia-leach process worked out by Prof. F. A. Forward and his associates at the University of British Columbia. (Prof. Forward now is Director of the Scientific Secretariat, Prime Minister's Office, Ottawa.) The leaching method eliminates both roasting and smelting by treating the nickel concentrates from the mine with air and ammonia under pressure. The nickel, copper, cobalt and sulphur are dissolved, leaving iron and other impurities in the tailings. The copper is precipitated out of the solution by chemical means and the nickel, treated by hydrogen under pressure, is precipitated as a fine powder. It is noteworthy that this nickel refinery also recovers ammonium-sulphate fertilizers as a by-product, at the rate of some 70,000 tons annually.

1954–58 Relocation of Aklavik, N.W.T., to a new townsite, Inuvik, was the largest building research and town planning project ever to be undertaken in the Canadian North. The systematic studies connected with this undertaking revealed, for the first time, the extent to which permafrost can affect northern construction and the safeguards required to counteract the influence of permafrost.

195– Dr. J. F. Morton, then with the Laboratory of Hygiene, federal Department of National Health and Welfare, developed the tissue culture used to produce the polio vaccine. The method, put into operation by the Connaught Laboratories, Toronto, represents a large part of Canada's contribution to the advance of polio immunization.

1962 U. V. Helava, working in the photogrammetric research section of the National Research Council's Division of Applied Physics, invented the Analytical Plotter—a revolutionary instrument which ushered in a new era in map-making, surveying and satellite photography. The Plotter substitutes mathematical projection for the mechanical projection on which all other plotters rely.

1962 Dr. Neil Bartlett, then an Assistant (now Associate) Professor of Chemistry at the University of British Columbia, achieved world-wide fame when he prepared the first true compound of the rare gas xenon. By successfully combining xenon with another gas to form a stable compound (a reaction previously regarded as impossible) he overthrew a number of existing theories on chemical bonding and also opened up a new field of scientific investigation which may lead to unexpected industrial applications.

1962 For the first time, a country other than the U.S.S.R. and the U.S.A. had a satellite in orbit, with the successful launching of Canada's *Alouette*. The satellite is still in orbit (1964), sending a wealth of valuable and reliable data back to the computing centre in Ottawa. Scientists, engineers and technicians of Canada's Defence Research Board share with Canadian aircraft and electronics firms the main credit for this remarkable space venture.

1963 G. L. E. Jarlan, working in the National Research Council's hydraulics laboratory, invented the perforated breakwater, a design likely to revolutionize the construction of sea walls. While conventional breakwaters do not permit berthing under heavy wave action, the design dissipates wave energy by a seaward vertical wall that is perforated by large-diameter holes and backed by a wave chamber. The wave entering the chamber is reduced by friction and turbulence; water spilling back out of the holes creates a counter-wave which meets the next on-coming wave and reduces its force. The constant filling and emptying of the chamber reduces the wave action, thus providing a quiet harbour for ships berthed on the opposite side of the structure. The world's first full-scale perforated breakwater was built at Baie Comeau, located on the north shore of the St. Lawrence River about 250 miles east of Quebec City.

1963 Automotive engineer John Smeaton developed a two-seater vehicle for use on any terrain or in water and in all extremes of climate. The vehicle, known as *Penguin* and manufactured by Pengor Limited of Carleton Place, Ont., is the latest of a whole family of transport facilities invented by Canadians for travel in the northern bush, e.g., in muskeg country. Thousands of these vehicles, which are light enough to be shipped by air, have been ordered by various industries, government departments, and sportsmen in Canada and abroad.

CHAPTER IX.—CRIME AND DELINQUENCY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Canadian Criminal Law and Procedure†

The system under which justice is administered in a State is never rigid. To have it so would be neither expedient nor indeed possible. A judicial system must grow and adapt itself to the requirements of the people and the exact limits of the powers of different legislative bodies require continued definition.

The criminal law of Canada has as its foundation the criminal common law of England built up through the ages and consisting first of customs and usages, and later expanded by principles enunciated by generations of judges. There is no statutory declaration of the introduction of English criminal law into those parts of Canada that are now the Provinces of New Brunswick, Nova Scotia and Prince Edward Island. Its introduction there depends upon a principle of the common law itself by which English law was declared to be in force in uninhabited territory discovered and planted by British subjects, except in so far as local conditions made it inapplicable. The same may be said of Newfoundland although the colony dealt with the subject in a statute of 1837. In Quebec its reception depends upon a Royal Proclamation of 1763 and the Quebec Act of 1774. In each of the other provinces and in the Yukon and Northwest Territories the matter has been dealt with by statute.

The judicial systems of the provinces as they exist today are based upon the British North America Act of 1867. Sect. 91 of the Act provides that "The exclusive legislative authority of the Parliament of Canada extends to . . . the criminal law, except the constitution of courts of criminal jurisdiction but including the procedure in criminal matters" By Sect. 92 (14), the legislature of the province exclusively may make laws in relation to "the administration of justice in the province, including the constitution, maintenance and

* Except as otherwise credited, this Chapter has been revised in the Judicial Section, Health and Welfare Division, Dominion Bureau of Statistics.

† Prepared by the Criminal Law Section, Department of Justice, Ottawa.

organization of provincial courts, both of civil and criminal jurisdiction and including procedure in civil matters in its courts". The Parliament of Canada may, however (Sect. 101), establish any additional courts for the better administration of the laws of Canada. It should be noted that the Statute of Westminster, 1931 effected important changes, particularly by abrogating the Colonial Laws Validity Act, 1865 (Br.) and confirming the right of a dominion to make laws having extraterritorial operation. Particulars of the federal judiciaries are given in Chapter II, pp. 77-79, and provincial judiciaries are dealt with briefly at p. 79; more detailed information on provincial judiciaries is given in the 1954 Year Book, pp. 47-55.

At the time of Confederation each of the colonies affected had its own body of statutes relating to the criminal law. In 1869, in an endeavour to assimilate them into a uniform system applicable throughout Canada, Parliament passed a series of Acts, some of which dealt with offences of special kinds and others with procedure. Most notable of the latter was the Criminal Procedure Act, but other Acts provided for the speedy trial or summary trial of indictable offences, the powers and jurisdiction of justices of the peace in summary conviction matters and otherwise, and the procedure in respect of juvenile offenders.

Codification of the criminal law through a Criminal Code Bill founded on the English draft code of 1878, Stephen's *Digest of Criminal Law*, Burbidge's *Digest of the Canadian Criminal Law*, and the relevant Canadian statutes was brought about by the Minister of Justice, Sir John Thompson, in 1892. This Bill became the Criminal Code of Canada and came into force on July 1, 1893. It must be remembered, however, that the Criminal Code was not exhaustive of the criminal law. It was still necessary to refer to English law in certain matters of procedure and it was still possible to prosecute for offences at common law. Moreover, Parliament has declared offences against certain other Acts, e.g., the Narcotic Control Act, to be criminal offences and the same was done in the Defence of Canada Regulations and the Wartime Prices and Trade Board Regulations (neither now in force) promulgated under the authority of the War Measures Act.

It is often difficult to distinguish between 'law' and 'procedure'. Procedure may be interpreted to relate simply to the organic working of the courts but, in a wider sense, it may also affect the rights or alter the legal relations arising out of any given state of facts. For present purposes it will be useful to note that writers on jurisprudence describe law as being substantive or adjective. "Substantive law is concerned with the ends which the administration of justice seeks; procedural (adjective) law deals with the means and instruments by which these ends are to be obtained."* With reference to the criminal law, the former may be taken to include the provisions concerning criminal responsibility, the definition of 'offences' and the punishment for those offences, and the latter to include provisions for enforcement, e.g., powers to search and to arrest, for the modes of trial and for the proof of facts. Broadly speaking, the Criminal Code observes the distinction although it might appear that the provisions for preventive detention of habitual criminals and dangerous sexual offenders partake of the nature of both classes.

An examination and study of the Criminal Code was authorized by Order in Council dated Feb. 3, 1949, and the Commission assigned the task of revising the Code presented its report with a draft Bill in February 1952. After coming before successive sessions of Parliament it was finally enacted on June 15, 1954 and the new Criminal Code (SC 1953-54, c. 51) came into effect on Apr. 1, 1955. A short outline of the system that existed under the repealed Code together with the major revisions effected by the new Code is given in the 1955 Year Book, pp. 295-298.

* Salmond on *Jurisprudence*, 7th Edition, p. 496.

Since the new Code came into force several amendments have been made, for the most part in relation to procedure. Among the most notable of these, as well in point of procedure as of substance, are: an amendment in 1956 providing that motions for leave to appeal to the Supreme Court of Canada in criminal cases should be heard by a quorum (at least five) of judges of that Court instead of a single judge; amendments effected by SC 1959, c. 41, providing a statutory extension of the definition of "obscenity" and making provision for seizure and condemnation of offending material without a charge necessarily being laid against any person; extensive amendments relating to the allowing of time for payment of fines; amendments dealing with offences committed in aircraft in flight over the high seas; an amendment forbidding the publication in a newspaper or broadcast of a report that any admission or confession was tendered in evidence at a preliminary inquiry or a report of the nature of such admission or confession unless the accused has been discharged or, if the accused has been committed for trial, the trial has ended.

The Parole Act (SC 1958, c. 38), brought into force on Feb. 15, 1959, revises the parole system and provides for the establishment of a National Parole Board (see pp. 420-422).

It is most important to note that in 1960 (SC 1960, c. 44) Parliament enacted what is known as the Canadian Bill of Rights. Although the Act sets out further details, its general scope appears in Sect. 1, which reads as follows:—

> "1. It is hereby recognized and declared that in Canada there have existed and shall continue to exist without discrimination by reason of race, national origin, colour, religion or sex, the following human rights and fundamental freedoms, namely,
>
> (*a*) the right of the individual to life, liberty, security of the person and enjoyment of property, and the right not to be deprived thereof except by due process of law;
>
> (*b*) the right of the individual to equality before the law and the protection of the law;
>
> (*c*) freedom of religion;
>
> (*d*) freedom of speech;
>
> (*e*) freedom of assembly and association; and
>
> (*f*) freedom of the press."

Although the Bill of Rights has been invoked on various occasions, the courts have not held it to affect the operation of the Criminal Code.

In 1961 (SC 1960-61, cc. 43-44), the offence of murder was divided into capital and non-capital. The death penalty was abolished in relation to the offence of non-capital murder. Also in 1961 the term *criminal sexual psychopath* was dropped and the term *dangerous sexual offender* substituted. More detailed information is available in the 1962 Year Book, pp. 354-355.

Section 2.—Adult Offenders and Convictions

Offences may be classified under two headings, "indictable offences" and "offences punishable on summary conviction" Indictable offences are grouped in two main categories: (1) offences that violate the Criminal Code and (2) offences against federal statutes. These include the graver crimes. Offences punishable on summary conviction—those not expressly made indictable—include offences against the Criminal Code, provincial statutes and municipal by-laws. It is debatable how far some summary conviction offences are of a criminal nature and whether their increase indicates an increase in crime. Many are breaches of municipal by-laws and contrary to public safety, health and comfort, as, for example, parking violations or practising trades without licence but, on the other hand, summary conviction offences may include such serious charges as assault and contributing to juvenile delinquency.

The following Subsection 1 deals with adults convicted of indictable offences, Subsection 2 with young adult offenders convicted of indictable offences, Subsection 3 with convictions for summary conviction offences and Subsection 4 with appeals.

Subsection 1.—Adults Convicted of Indictable Offences

Statistics of indictable crimes are based on persons, so that it may be possible to evaluate the population engaged in prohibited activities and to help in the treatment of anti-social behaviour in terms of subject-centred action. In the present counting system, while individuals may be charged with more than one offence, only one offence is tabulated for each person. This offence is selected according to the following criteria: (1) if the person were tried on several charges, the offence selected is that for which proceedings were carried to the farthest stage—conviction and sentence; (2) if there were several convictions, the offence selected is that for which the heaviest punishment was awarded; (3) if the final result of proceedings on two or more charges were the same, the offence selected is the more serious one, as measured by the maximum penalty allowed by the law; (4) if a person were prosecuted for one offence and convicted of another—for example, charged with murder and convicted of manslaughter—the offence selected is the one for which the person was convicted.

In 1962 there were 42,935 adults charged with 81,181 indictable offences, of whom 38,663 were found guilty of 71,507 offences. In the previous year there were 43,161 adults charged with 81,867 indictable offences, of whom 38,679 were found guilty of 71,262 offences.

1.—Persons Convicted of Indictable Offences, with Ratio per 100,000 Population 16 Years of Age or Over, by Province, 1961 and 1962

Province or Territory	Persons Convicted		Persons Convicted per 100,000 Population 16 Years of Age or Over	
	1961	1962	1961	1962
	No.	No.	No.	No.
Newfoundland	703	905	274	343
Prince Edward Island	42	75	65	114
Nova Scotia	1,383	1,353	297	287
New Brunswick	1,038	1,194	290	327
Quebec	8,064	7,698	245	228
Ontario	13,985	13,764	339	329
Manitoba	2,368	2,191	391	357
Saskatchewan	1,743	1,675	293	282
Alberta	4,012	4,246	477	493
British Columbia	5,092	5,313	465	478
Yukon and Northwest Territories	249	249	1,103	1,092
Canada	**38,679**	**38,663**	**330**	**324**

At the time of going to press, the classification of indictable offences by type of offence was not available for 1962. Table 2 gives this classification for 1961 offences, compared with 1960. Class I covers offences against the person and in 1961 there were 5,234 males and 299 females convicted in this category, mostly for assaults of various kinds. Classes II to IV deal with offences against property. Thefts predominate among the offences in these classes, and breaking and entering and robbery, serious crimes which involve acts of violence, are the next most numerous. Class V deals with offences relating to currency and Class VI with miscellaneous offences; among the latter, the most numerous convictions are for offences connected with gaming, betting and lotteries. In 1961 there were 315 men and 171 women convicted under federal statutes of whom 290 men and 170 women were offenders under the Narcotic Control Act.

2.—Persons Charged and Convicted of Indictable Offences, by Class of Offence, 1960 and 1961

Class of Offence	1960			1961			Increase or Decrease in Persons Convicted
	Persons Charged	Persons Convicted		Persons Charged	Persons Convicted		
		M.	F.		M.	F.	
	No.	No.	No.	No.	No.	No.	p.c.
Criminal Code							
Class I.—Offences against the Person	**6,113**	**4,750**	**235**	**6,847**	**5,234**	**299**	**+11.1**
Abduction and kidnapping	44	34	—	51	34	—	—
Assault, causing bodily harm, common, on police and obstruction	4,220	3,375	175	4,586	3,581	191	+ 8.3
Offences against females[1]	930	687	26	1,017	757	38	+11.5
Causing death by criminal negligence,[2] manslaughter and murder	207	108	4	208	107	7	+ 1.8
Attempted murder, causing bodily harm and danger	178	104	11	215	129	14	+24.3
Duties tending to preservation of life	17	12	1	27	19	4	+76.9
Other offences against the person	517	430	18	743	607	45	+45.5
Class II.—Offences against Property with Violence	**8,267**	**7,537**	**105**	**8,485**	**7,731**	**132**	**+ 4.9**
Breaking and entering a place, extortion and robbery	8,267	7,537	105	8,485	7,731	132	+ 2.9
Class III.—Offences against Property without Violence	**19,933**	**16,610**	**1,701**	**21,748**	**17,741**	**2,101**	**+ 8.4**
Fraud and false pretences	2,414	1,929	222	2,835	2,185	287	+14.9
Having in possession	1,974	1,657	68	2,255	1,837	77	+11.0
Theft	15,545	13,024	1,411	16,658	13,719	1,737	+ 7.1
Class IV. — Malicious Offences against Property	**752**	**623**	**30**	**915**	**760**	**33**	**+21.4**
Arson and other fires	98	75	8	115	80	11	+ 9.6
Other interference with property	654	548	22	800	680	22	+23.2
Class V.—Forgery and Other Offences Relating to Currency	**1,158**	**987**	**109**	**1,376**	**1,146**	**150**	**+18.2**
Forgery and uttering forged documents	1,077	925	103	1,219	1,009	140	+11.8
Offences relating to currency	81	62	6	157	137	10	+116.2
Class VI.—Other Offences	**2,585**	**2,078**	**220**	**3,242**	**2,589**	**277**	**+24.7**
Criminal negligence in operation of motor vehicles	31	27	—	79	73	—	+170.4
Driving while ability to drive is impaired	223	202	1	224	214	4	+ 7.4
Driving while intoxicated	15	11	2	10	10	—	−23.1
Gaming, betting and lotteries	531	437	34	712	552	54	+28.7
Keeping bawdy houses	154	36	102	192	41	135	+27.5
Various other offences	1,631	1,365	81	2,025	1,699	84	+23.3
Totals, Criminal Code	**38,808**	**32,585**	**2,400**	**42,613**	**35,201**	**2,992**	**+ 9.2**
Federal Statutes							
Narcotic Control Act	516	290	151	520	290	170	+ 4.3
Other statutes	19	16	1	28	25	1	+52.9
Totals, Federal Statutes	**535**	**306**	**152**	**548**	**315**	**171**	**+ 6.1**
Grand Totals	**39,343**	**32,891**	**2,552**	**43,161**	**35,516**	**3,163**	**+ 9.1**

[1] Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction. [2] Includes causing death in the operation of a motor vehicle or otherwise.

Table 3 shows that 47.9 p.c. of the persons convicted of indictable offences in 1962 had not gone beyond elementary school grades in education, 51.3 p.c. were 24 years of age or younger, 34.5 p.c. were between the ages of 25 and 44, and 77.6 p.c. lived in urban centres. Of these offenders, 91.9 p.c. were males, 87.0 p.c. were born in Canada, 62.0 p.c. were unmarried, 20.9 p.c. were recorded as labourers and 11.3 p.c. had no remunerative employment.

3.—Persons Convicted of Indictable Offences classified by Occupation, Marital Status, Sex, Birthplace, etc., 1961 and 1962

Item	1961	1962	Item	1961	1962
	No.	No.		No.	No.
Total Persons Convicted	**38,679**	**38,663**	SEX		
TYPE OF OCCUPATION			Male	35,516	35,515
			Female	3,163	3,148
Agriculture	1,661	1,594	EDUCATIONAL STATUS		
Armed Services	332	476			
Clerical	1,362	1,216	Unable to read or write	424	517
Commercial and managerial	2,180	2,296	Elementary	18,533	18,004
Construction	4,559	4,147	High school	14,412	14,710
Finance	69	74	Superior	499	483
Fishing, trapping and logging	1,468	1,518	Grade not stated	396	482
Labourer	7,989	8,098	Not given	4,415	4,467
Manufacturing and mechanical	3,566	3,653			
Mining	633	514	AGE		
Service—					
Domestic	906	1,026	16 to 19 years	11,178	11,337
Personal	1,217	1,218	20 to 24 years	8,481	8,504
Professional	444	443	25 to 44 years	13,693	13,350
Public and protective	93	79	45 years or over	3,580	3,600
Other	138	126	Not given	1,747	1,872
Student	2,340	2,529			
Transportation and communications	2,966	2,775	BIRTHPLACE		
			Canada	33,543	33,634
Unemployed and retired (incl. housewives)	4,662	4,388	British Isles and other Commonwealth	914	923
Not given	2,094	2,493	United States	297	307
			Europe	2,074	1,874
MARITAL STATUS			Asia	68	82
			Other foreign countries	31	26
			Not given	1,752	1,817
Single	23,980	23,979			
Married	10,513	10,482	RESIDENCE		
Widowed	404	408			
Divorced	373	343	Urban centres	30,438	30,008
Separated	1,556	1,601	Rural districts	6,563	7,245
Not given	1,853	1,850	Indeterminate	595	681
			Not given	1,083	729

Female Offenders.—There were 3,148 female offenders convicted of indictable offences in 1962 compared with 3,163 in 1961. Of these offenders, Ontario accounted for 1,270, British Columbia 520 and Quebec 430. The ratio of female offenders convicted to total convictions moved downward from 8.2 p.c. in 1961 to 8.1 p.c. in 1962 with a provincial range from 2.7 p.c. in Prince Edward Island to 10.1 p.c. in Manitoba and 9.8 p.c. in British Columbia.

4.—Females Convicted of Indictable Offences, by Province, 1961 and 1962

Province or Territory	Females Convicted		Females Convicted to Total Convictions	
	1961	1962	1961	1962
	No.	No.	p.c.	p.c.
Newfoundland	68	64	9.7	7.1
Prince Edward Island	1	2	2.4	2.7
Nova Scotia	83	78	6.0	5.8
New Brunswick	35	48	3.4	4.0
Quebec	493	430	6.1	5.6
Ontario	1,255	1,270	9.0	9.2
Manitoba	267	221	11.3	10.1
Saskatchewan	100	112	5.7	6.7
Alberta	323	393	8.1	9.3
British Columbia	528	520	10.4	9.8
Yukon and Northwest Territories	10	10	4.0	4.0
Canada	**3,163**	**3,148**	**8.2**	**8.1**

Multiple Convictions.—Table 5 shows the number of persons having more than one conviction at a court appearance for the years 1958 to 1962. Multiple convictions occur most often in cases of forgery and uttering, false pretences, theft, having in possession, and breaking and entering.

5.—Persons Convicted of More than One Offence at the Time of Trial compared with Persons Convicted of One Offence, 1958-62

Item	1958	1959	1960	1961	1962
	No.	No.	No.	No.	No.
Persons Convicted of—					
2 offences	4,685	4,396	4,940	5,463	5,669
3 offences	1,469	1,515	1,904	2,040	2,046
4 offences	852	816	933	1,080	1,023
5 offences	463	474	569	593	594
6 offences	290	298	365	357	389
7 offences	191	215	256	279	262
8 offences	180	166	196	207	194
9 offences	110	109	155	146	140
10 offences	104	69	109	125	118
11 to 20 offences	364	334	392	423	416
21 offences or over	163	113	119	144	151
Totals, Convicted of More than One Offence	8,871	8,505	9,938	10,857	11,002
Totals, Convicted of One Offence	25,675	22,587	25,505	27,822	27,661
Grand Totals	**34,546**	**31,092**	**35,443**	**38,679**	**38,663**

Disposition of Cases and Previous Convictions.—Of all suspects before the courts for indictable offences in 1962, 90.0 p.c. were adjudged guilty. There was considerable variation among provinces with New Brunswick showing 98.0 p.c. and Ontario 86.7 p.c.

6.—Persons Charged and Convicted of Indictable Offences, by Province, 1961 and 1962

Province or Territory	1961			1962		
	Persons Charged	Persons Convicted		Persons Charged	Persons Convicted	
	No.	No.	p.c.	No.	No.	p.c.
Newfoundland	722	703	97.4	951	905	95.2
Prince Edward Island	42	42	100.0	81	75	92.6
Nova Scotia	1,585	1,383	87.3	1,539	1,353	87.9
New Brunswick	1,051	1,038	98.8	1,218	1,194	98.0
Quebec	8,997	8,064	89.6	8,559	7,698	90.0
Ontario	16,198	13,985	86.3	15,872	13,764	86.7
Manitoba	2,514	2,368	94.2	2,347	2,191	93.4
Saskatchewan	1,826	1,743	95.5	1,770	1,675	94.6
Alberta	4,269	4,012	94.0	4,467	4,246	95.1
British Columbia	5,697	5,092	89.4	5,870	5,313	90.5
Yukon and Northwest Territories	260	249	95.8	261	249	95.4
Canada	**43,161**	**38,679**	**89.6**	**42,935**	**38,663**	**90.0**

In 1962, 26.5 p.c. of the convicted persons had no previous conviction, 14.2 p.c. had previously been found guilty of one offence and 34.7 p.c. had two or more earlier convictions. Court records for the other 24.6 p.c. were not obtained.

7.—Persons Charged with Indictable Offences, Disposition of Cases and Previous Convictions, 1961 and 1962

Item	1961	1962	Item	1961	1962
	No.	No.		No.	No.
Charged	43,161	42,935	Males convicted	35,516	35,515
Acquitted	4,173	3,962	Females convicted	3,163	3,148
Disagreement of jury	8	1	First conviction	10,566	10,269
Stay of proceedings	225	243	Second conviction	5,265	5,479
No Bill	22	20	Reiterated convictions	13,877	13,405
Detained because of insanity	54	46	Not given	8,971	9,510

Sentences, Method of Trial and Court Proceedings.—Table **8** summarizes the sentences given for indictable offences, Table **9** shows the method of trial and disposition of cases, and Table **10** shows persons charged and convicted of indictable crimes according to trial court.

Two kinds of sentences maintain for a certain period of time a relationship between the person dealt with by the court and the legal institutions of a community—probation and commitment to an institution. There are several types of institutions to which a person can be committed, such as penitentiaries, reformatories, gaols and industrial farms. Theoretically, every institution has a specific purpose which is supposed to be taken into account when arriving at a legal decision. In practice, however, the availability of an institution in a given community is a factor in determining the decision rendered by the court.

8.—Sentences Given for Indictable Offences, by Province, 1962

Sentence	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Option of fine	260	18	357	276	1,459	2,929	429	386	1,261	1,081	47	8,503
Gaol—												
Under one year	256	29	348	364	2,616	3,230	522	641	1,330	1,788	123	11,247
One year or over	66	2	18	51	231	499	155	97	531	529	16	2,195
Reformatory	1	—	2	1	102	1,724	15	—	—	71	—	1,916
Penitentiary—												
Under two years	—	2	2	7	4	111	5	30	11	13	—	185
Two years and under five	23	5	158	85	690	746	125	98	284	390	21	2,625
Five years and under ten	1	—	16	8	68	128	15	2	24	116	—	378
Ten years and under fourteen	—	—	3	4	14	22	5	1	2	27	1	79
Fourteen years or over	—	—	—	2	7	8	—	—	4	21	1	43
Life	—	—	—	1	4	10	1	—	3	2	—	21
Preventive	—	—	1	—	—	1	—	—	—	1	1	4
Death	—	—	—	—	5	4	—	—	2	2	—	13
Suspended sentence without probation	110	17	162	224	1,352	1,057	635	202	383	485	38	4,665
Suspended sentence with probation	188	2	286	171	1,146	3,295	284	218	411	787	1	6,789
Totals	**905**	**75**	**1,353**	**1,194**	**7,698**	**13,764**	**2,191**	**1,675**	**4,246**	**5,313**	**249**	**38,663**

9.—Method of Trial of Persons Charged with Indictable Offences, showing Disposition of Cases, by Sex and by Province, 1962

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
By Judge and Jury—												
Convicted.....M.	3	4	21	9	105	251	31	20	7	189	7	647
F.	—	—	—	—	1	7	1	1	—	9	—	19
Acquitted.....M.	3	1	10	6	20	102	5	17	1	29	3	197
F.	—	—	1	1	1	6	2	1	—	2	—	14
Detained because of insanity.....M.	—	—	—	—	2	3	—	—	—	2	—	7
F.	—	—	—	—	1	1	—	—	—	2	—	4
Disagreement of jury...M.	—	—	—	—	—	1	—	—	—	—	—	1
Stay of proceedings....M.	—	—	2	—	—	2	—	5	—	11	—	20
F.	—	—	—	—	—	—	—	—	—	3	—	3
No Bill.....M.	—	—	—	—	—	18	—	—	—	—	—	18
F.	—	—	—	—	—	2	—	—	—	—	—	2
By a Judge without Jury—												
Convicted.....M.	1	5	38	3	934	303	19	62	228	114	5	1,712
F.	—	—	2	—	37	13	2	3	12	23	—	92
Acquitted.....M.	—	1	7	1	301	96	5	15	16	40	1	483
F.	—	—	—	—	32	12	—	—	—	3	—	47
Detained because of insanity.....M.	—	—	1	—	—	—	—	—	3	1	—	5
Stay of proceedings....M.	—	—	—	—	—	1	—	2	6	2	—	11
F.	—	—	—	—	—	—	—	1	1	1	—	3
By a Magistrate with Consent—												
Convicted.....M.	490	19	673	542	3,334	7,073	910	834	1,907	2,170	126	18,078
F.	28	1	31	10	120	406	51	34	74	170	5	930
Acquitted.....M.	16	2	91	10	213	855	8	22	77	158	1	1,453
F.	5	—	5	—	14	94	2	1	7	29	—	157
Detained because of insanity.....M.	1	—	1	—	9	5	—	—	—	5	—	21
F.	—	—	—	—	1	—	—	—	—	—	—	1
Stay of proceedings....M.	—	—	—	—	—	—	40	—	—	45	—	85
F.	—	—	—	—	—	—	8	—	—	6	—	14
By a Magistrate, Absolute Jurisdiction—												
Convicted.....M.	347	45	543	592	2,895	4,864	1,010	647	1,711	2,320	101	15,075
F.	36	1	45	38	272	844	167	74	307	318	5	2,107
Acquitted.....M.	18	2	58	5	237	789	15	29	96	153	6	1,408
F.	3	—	9	—	26	120	2	2	14	27	1	204
Detained because of insanity.....M.	—	—	1	1	4	—	—	—	—	1	—	7
F.	—	—	—	—	2	—	—	—	—	—	—	2
Stay of proceedings....M.	—	—	—	—	—	—	58	—	—	32	—	90
F.	—	—	—	—	—	—	11	—	—	6	—	17
Totals, Persons Charged.	**951**	**81**	**1,539**	**1,218**	**8,561**	**15,868**	**2,347**	**1,770**	**4,467**	**5,871**	**261**	**42,934**
Totals, Persons Convicted.....	**905**	**75**	**1,353**	**1,194**	**7,698**	**13,761**	**2,191**	**1,675**	**4,246**	**5,313**	**249**	**38,660**

10.—Persons Charged and Convicted of Indictable Offences according to Trial Court, by Province, 1961 and 1962

Province or Territory and Item	1961					1962				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—										
Charged	661	49	3	9	722	860	84	1	6	951
Convicted	647	49	2	5	703	819	82	1	3	905
Prince Edward Island—										
Charged	38	—	4	—	42	70	—	11	—	81
Convicted	38	—	4	—	42	66	—	9	—	75
Nova Scotia—										
Charged	1,484	5	49	47	1,585	1,450	7	50	32	1,539
Convicted	1,311	5	41	26	1,383	1,285	7	41	20	1,353
New Brunswick—										
Charged	1,033	4	3	11	1,051	1,195	3	6	14	1,218
Convicted	1,022	4	3	9	1,038	1,179	3	4	8	1,194
Quebec—										
Charged	5,990	1,235	1,647	125	8,997	5,823	1,304	1,321	113	8,561
Convicted	5,488	1,224	1,248	104	8,064	5,329	1,292	983	94	7,698
Ontario—										
Charged	15,316	59	644	179	16,198	14,970	79	688	131	15,868
Convicted	13,391	54	437	103	13,985	13,113	73	487	88	13,761
Manitoba—										
Charged	2,227	200	48	39	2,514	2,147	135	26	39	2,347
Convicted	2,099	197	39	33	2,368	2,004	134	21	32	2,191
Saskatchewan—										
Charged	1,698	7	75	46	1,826	1,639	4	85	42	1,770
Convicted	1,643	7	56	37	1,743	1,587	2	65	21	1,675
Alberta—										
Charged	3,935	28	58	248	4,269	4,163	30	38	236	4,467
Convicted	3,732	28	49	203	4,012	3,969	30	31	216	4,246
British Columbia—										
Charged	4,755	610	185	147	5,697	4,774	666	186	245	5,871
Convicted	4,295	595	123	79	5,092	4,333	645	137	198	5,313
Yukon and Northwest Territories—										
Charged	237	—	18	5	260	244	1	6	10	261
Convicted	236	—	10	3	249	236	1	5	7	249
Canada—										
Charged	**37,374**	**2,197**	**2,734**	**856**	**43,161**	**37,335**	**2,313**	**2,418**	**868**	**42,934**
Convicted	**33,902**	**2,163**	**2,012**	**602**	**38,679**	**33,920**	**2,269**	**1,784**	**687**	**38,660**

Subsection 2.—Young Adult Offenders (16-24 Years) Convicted of Indictable Offences

Attention has been focused in recent years on the needs of the young adult offenders of from 16-24 years of age who constitute a promising field for modern reception and diagnostic facilities equipped with educational, trade training and other formative disciplines. While young men and women in this age group account for under 15 p.c. of the total population 16 years of age or over, they form over half the criminal population

committing indictable offences. The group includes some of the most daring offenders who already may be experienced criminals as well as first offenders likely to be turned from crime by further education and training.

There were 19,839 young adult offenders in 1962 compared with 19,659 in 1961; of the former, 6,051 or 30.5 p.c. were 16 or 17 years of age, 5,285 or 26.6 p.c. were 18 or 19 years of age and 8,503 or 42.9 p.c. were between 20 and 24 years. In 1962, there were 18,620 male and 1,219 female young adult offenders convicted of indictable offences compared with 18,425 and 1,234, respectively, in 1961.

11.—Young Adult Offenders, by Age Group, Sex and Province, 1961 and 1962

Year, Age Group and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1961												
16 - 17 years ..... M.	111	21	240	158	1,461	1,882	234	228	437	703	23	5,498
F.	9	—	14	5	65	90	11	15	31	47	2	289
18 - 19 " ..... M.	122	6	230	194	996	1,921	308	247	492	540	25	5,081
F.	5	1	12	4	40	121	47	17	30	33	—	310
20 - 24 " ..... M.	144	10	302	264	1,798	2,642	481	399	811	932	63	7,846
F.	16	—	13	9	105	220	49	21	85	113	4	635
Totals, 1961	**407**	**38**	**811**	**634**	**4,465**	**6,876**	**1,130**	**927**	**1,886**	**2,368**	**117**	**19,659**
1962												
16 - 17 years ..... M.	142	12	262	190	1,526	1,906	186	254	491	770	12	5,751
F.	6	1	14	2	47	109	4	12	37	67	1	300
18 - 19 " ..... M.	141	7	239	174	950	1,857	279	214	545	506	28	4,940
F.	14	—	10	5	50	120	29	18	46	52	1	345
20 - 24 " ..... M.	217	7	316	250	1,688	2,702	460	394	897	938	60	7,929
F.	14	1	19	15	90	213	44	14	75	86	3	574
Totals, 1962	**534**	**28**	**860**	**636**	**4,351**	**6,907**	**1,002**	**906**	**2,091**	**2,419**	**105**	**19,839**

12.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1960 and 1961

(Not available for 1962 at time of going to press)

Class of Offence	1960		1961	
	Males	Females	Males	Females
Criminal Code	No.	No.	No.	No.
Class I.—Offences against the Person	**1,830**	**71**	**1,937**	**85**
Abduction and kidnapping	22	—	23	—
Assault, causing bodily harm, common, on police and obstruction	1,282	63	1,364	56
Offences against females[1]	325	2	321	7
Causing death by criminal negligence,[2] manslaughter and murder	36	—	33	—
Attempted murder, causing bodily harm and danger	39	—	42	4
Duties tending to preservation of life	—	1	1	2
Other offences against the person	126	5	153	16
Class II.—Offences against Property with Violence	**5,283**	**73**	**5,254**	**82**
Breaking and entering a place, extortion and robbery	5,283	73	5,254	82
Class III.—Offences against Property without Violence	**8,906**	**676**	**9,295**	**794**
Fraud and false pretences	441	92	479	112
Having in possession	804	35	881	43
Theft	7,661	549	7,935	639

For footnotes, see end of table.

12.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1960 and 1961—concluded

Class of Offence	1960		1961	
	Males	Females	Males	Females
Criminal Code—concluded	No.	No.	No.	No.
Class IV.—Malicious Offences against Property	**380**	**19**	**456**	**16**
Arson and other fires	32	6	39	4
Other interference with property	348	13	417	12
Class V.—Forgery and Other Offences Relating to Currency	**374**	**49**	**397**	**60**
Forgery and uttering forged documents	351	48	362	58
Offences relating to currency	23	1	35	2
Class VI.—Other Offences	**823**	**97**	**1,018**	**105**
Criminal negligence in operation of motor vehicles	13	—	35	—
Driving while ability to drive is impaired	16	—	45	2
Driving while intoxicated	3	1	2	—
Gaming, betting and lotteries	28	1	29	8
Keeping bawdy houses	6	44	7	49
Various other offences	757	51	900	46
Totals, Criminal Code	**17,596**	**985**	**18,357**	**1,142**
Federal Statutes				
Narcotic Control Act	51	73	65	91
Other statutes	2	—	3	1
Totals, Federal Statutes	**53**	**73**	**68**	**92**
Grand Totals	**17,649**	**1,058**	**18,425**	**1,234**

[1] Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction. [2] Includes causing death in the operation of a motor vehicle or otherwise.

13.—Disposition of Sentences for Indictable Offences, by Sex, 1960 and 1961

(Not available for 1962 at time of going to press)

Disposition of Sentences	1960				1961			
	16-24 Years		25 Years or Over		16-24 Years		25 Years or Over	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Suspended sentence	2,063	224	1,725	346	2,031	218	1,825	408
Probation	4,277	306	1,059	178	4,666	392	1,266	217
Fine	2,988	205	3,922	588	3,090	240	4,391	787
Gaol	5,528	259	6,411	299	5,911	311	7,338	433
Reformatory	1,554	52	486	33	1,446	57	524	37
Penitentiary	1,235	12	1,633	50	1,275	16	1,741	47
Death	4	—	6	—	6	—	6	—

Subsection 3.—Convictions for Summary Conviction Offences

Offences punishable on summary conviction are triable by magistrates and justices of the peace under Part XXIV of the Criminal Code (SC 1953-54, c. 51) or under the provincial summary conviction Acts as the case may be. Data relating to these offences are based on convictions; no information is available on either the number of persons involved in these offences or the number of charges. In these cases, following arrest or summons to appear in court, the accused person must be tried by a magistrate or justice of the peace without the intervention of jury. Such cases are heard in police court with the minimum of delay.

14.—Convictions for Summary Conviction Offences, by Type, 1961 and 1962

Type of Offence	1961	1962	Increase or Decrease 1961-62
	No.	No.	p.c.
Criminal Code	**89,729**	**92,111**	**+ 2.7**
Attempts, conspiracies, accessories, counselling	190	228	+20.0
Attempt to commit suicide	207	241	+16.4
Bawdy house	549	533	− 2.9
Causing disturbance by being drunk	5,651	3,765	−33.4
Common assault	7,542	8,170	+ 8.3
Communicating venereal disease	30	33	+10.0
Contempt of court	74	28	−62.2
Corrupting morals	78	263	+237.2
Cruelty to animals	119	79	−33.6
Damage not exceeding $50 and other interference with property	3,256	3,331	+ 2.3
Disorderly conduct	12,005	15,550	+29.5
Duty of persons to provide necessaries	1,989	1,476	−25.8
Duty to safeguard dangerous places	176	61	−65.3
Fraudulently obtaining food or lodging	1,087	1,052	− 3.2
Fraudulently obtaining transportation	151	155	+ 2.6
Gaming, betting, lotteries	3,097	2,364	−23.7
Injuring bird or animal other than cattle	75	50	−33.3
Intimidation	293	461	+57.3
Motor Vehicle—			
Criminal negligence in operation of motor vehicle	1,045	719	−31.2
Dangerous driving	—	1,592	—
Dangerous operation of vessel, etc	—	192	—
Driving while ability to drive is impaired	23,151	24,768	+ 7.0
Driving while disqualified	5,906	5,926	+ 0.3
Driving while intoxicated	2,125	1,534	−27.8
Failing to stop at scene of accident	4,426	4,999	+12.9
Motor vehicle equipped with smoke screen	34	16	−52.9
Taking motor vehicle without consent	1,404	1,531	+ 9.0
Offensive weapons	1,052	957	− 9.0
Personating peace officer	75	69	− 8.0
Recognizance, breach of	1,340	1,384	+ 3.3
Vagrancy	7,685	6,711	−12.7
Other Criminal Code	4,917	3,873	−21.2
Federal Statutes	**33,678**	**34,978**	**+ 3.9**
Customs	242	234	− 3.3
Excise	743	1,001	+34.7
Fisheries	669	844	+26.2
Food and Drugs	96	147	+53.1
Harbour Board and Merchant Seamen's	3,438	6,548	+90.5
Immigration	59	29	−50.8
Income Tax	4,934	5,084	+ 3.0
Indian—			
Intoxication	8,296	6,717	−19.0
Other	2,706	2,338	−13.6
Juvenile Delinquents—			
Adults who contribute to delinquency	1,977	1,880	− 4.9
Incorrigibility	683	625	− 8.5
Inducing child to leave home, etc	31	67	+116.1
Sexual immorality	371	326	−12.1
Lord's Day	67	132	+97.0
Narcotic Control	30	12	−60.0
National Defence	—	74	—
Railway	1,200	1,054	−12.2
Unemployment Insurance	5,523	4,986	− 9.7
Weights and Measures	106	95	−10.4
Other federal statutes	2,507	2,785	+11.1
Provincial Statutes	**906,750**	**946,962**	**+ 4.4**
Children of Unmarried Parents	635	815	+28.3
Deserted Wives and Children's Maintenance	5,056	5,627	+11.3
Game and Fisheries	6,994	6,314	− 9.7
Highway Traffic—			
Driving without due care and attention	39,185	42,054	+ 7.3
Other traffic	670,385	695,250	+ 3.7
Liquor Control—			
Intoxication	95,592	101,650	+ 6.3
Other	66,743	69,945	+ 4.8
Master and Servant	1,079	1,193	+10.6
Medical, Dentistry and Pharmacy	201	263	+30.8
Mental Diseases	1,168	1,072	− 8.2
Prairie and Forest Fire Prevention	275	153	−44.4
Protection of Children	3,761	1,388	−63.1
Public Health	162	84	−48.1
School Laws	622	452	−27.3
Other provincial statutes	14,892	20,702	+39.0

14.—Convictions for Summary Conviction Offences, by Type, 1961 and 1962—concluded

Type of Offence	1961	1962	Increase or Decrease 1961-62
	No.	No.	p.c.
Municipal By-laws	**256,721**	**268,371**	**+ 4.5**
Intoxication	11,200	16,316	+45.7
Traffic	203,724	197,346	− 3.1
Other	41,797	54,709	+30.9
Prohibited Parking	**1,822,405**	**1,954,227**	**+ 7.2**
Totals, Convictions	**3,109,283**	**3,296,649**	**+ 6.0**

Subsection 4.—Appeals

Appeal is an important safeguard in Canada's legal system and the conviction of a jury or judge may be appealed on the grounds that the verdict was unreasonable, that there was a wrong decision on some question of law or that there was a miscarriage of justice. In 1962 there were 2,301 appeals in indictable cases disposed of by the courts, of which 95 were Crown appeals and 2,206 appeals of the accused. Of the Crown appeals, 34 were from acquittal and 61 from sentence while of the appeals of the accused 822 were from conviction and 1,384 from sentence. Appeals in summary conviction cases disposed of by the courts numbered 1,703 in 1962. Of these, 187 were appeals of the informant and 1,516 appeals of the accused. The informant appeals comprised 155 from acquittal and 32 from sentence and appeals of the accused comprised 1,394 from conviction and 122 from sentence.

Section 3.—Juvenile Delinquents

Juvenile Delinquent, as defined in the Juvenile Delinquents Act, means any child who violates any provision of the Criminal Code or of any federal or provincial statute, or of any by-law or ordinance of any municipality, or who is guilty of sexual immorality or any similar form of vice, or who is liable by reason of any other act to be committed to an industrial school or juvenile reformatory under the provision of any federal or provincial statute. The commission by a child of any of these acts constitutes an offence known as a delinquency.

The upper age limit of children brought before the juvenile courts in the provinces varies. The Act defines a child as meaning any boy or girl apparently or actually under the age of 16 years, or such other age as may be directed in any province. In Prince Edward Island, Nova Scotia, New Brunswick, Ontario and Saskatchewan under 16 is the official age; in Alberta under 16 for boys and under 18 for girls; in Newfoundland under 17; in Quebec, Manitoba and British Columbia under 18 years. In the interests of uniformity, it has been the practice of the Dominion Bureau of Statistics to publish information about juvenile delinquents 16 years of age or over in the annual report on *Statistics of Criminal and Other Offences* and to publish data relating to those under 16 years of age in a report entitled *Juvenile Delinquents*. In 1962, 2,785 juveniles 16 and 17 years of age were found delinquent in those provinces where the upper age limit is under 17 or under 18 years of age.

Included in the statistics of juvenile delinquents are cases (alleged as well as adjudged) which were brought before the courts and dealt with formally. A case was counted separately each time a child appeared before the court for a new delinquency or delinquencies. In instances where multiple delinquencies were dealt with at one court appearance, only one delinquency—the most serious—was selected for tabulation. Delinquencies reported as informal cases by the courts were not included nor were cases of children presenting conduct problems which were not brought to court or which were dealt with by the police, social agencies, schools, or youth-serving agencies. Thus, community facilities for dealing with children's problems may have an influence on the number of cases referred to court and, therefore, an effect on the statistics of juvenile delinquents.

15.—Juveniles brought before the Courts, by Province, and Total Dismissed and Delinquent, 1958-62

Province or Territory	1958	1959	1960	1961	1962	Percentage Change, 1961-62
	No.	No.	No.	No.	No.	
Newfoundland	354	274	421	413	494	+19.6
Prince Edward Island	26	42	35	52	60	+15.4
Nova Scotia	780	723	792	637	941	+47.7
New Brunswick	453	371	481	511	450	−11.9
Quebec	2,434	2,504	2,795	3,101	3,078	− 0.7
Ontario	5,263	5,355	6,698	7,682	8,815	+14.7
Manitoba	891	754	1,212	993	1,014	+ 2.1
Saskatchewan	88	198	275	329	379	+15.2
Alberta	985	980	1,189	1,307	1,269	− 2.9
British Columbia	1,850	2,093	2,111	1,949	2,157	+10.7
Yukon Territory	—	35	—	2	50	+500.0
Northwest Territories	10	—	—	—	—	—
Canada	**13,134**	**13,329**	**16,009**	**16,976**	**18,707**	**+10.2**
Dismissed	416	370	517	570	843	+47.9
Adjourned *sine die*	1,327	1,273	1,527	1,191	1,256	+ 5.5
Delinquent	11,391	11,686	13,965	15,215	16,608	+ 9.2

16.—Percentage Change in the Number of Boys and Girls brought before the Courts, 1953-62

Year	Percentage Change from Preceding Year			Percentage Change from 1952		
	Boys' Cases	Girls' Cases	All Cases	Boys' Cases	Girls' Cases	All Cases
1953	+ 8.3	+11.0	+ 8.5	+ 8.3	+11.0	+ 8.5
1954	− 0.6	− 4.2	− 1.0	+136.9	+156.5	+139.0
1955	+ 3.3	+25.9	+ 5.6	+138.3	+167.8	+141.3
1956	+26.9	+19.4	+26.0	+130.7	+112.7	+128.5
1957	+14.9	+21.0	+15.6	+81.8	+78.2	+81.4
1958	+10.4	+ 8.3	+10.1	+58.2	+47.2	+56.8
1959	+ 2.4	− 5.1	+ 1.5	+43.3	+36.0	+42.4
1960	+19.4	+26.0	+20.1	+40.1	+43.3	+40.3
1961	+ 6.3	+ 4.3	+ 6.0	+17.3	+13.7	+16.9
1962	+10.3	+ 9.1	+10.2	+10.3	+ 9.1	+10.2

17.—Juvenile Delinquents, by Province, 1953-62

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1953	196	33	443	235	773	2,975	360	49	357	952	4	6,377
1954	218	43	440	224	678	2,945	341	59	428	956	—	6,332
1955	254	30	390	202	1,040	3,138	401	57	535	978	—	7,025
1956	336	48	412	311	1,184	3,945	593	44	715	1,391	6	8,985
1957	301	35	492	324	1,351	4,051	708	26	766	1,621	4	9,679
1958	343	25	676	431	2,229[1]	4,108	790	85	906	1,788	10	11,391[1]
1959	262	42	623	355	2,410[1]	4,199	629	182	911	2,038	35	11,686[1]
1960	409	35	682	460	2,692	5,264	1,019	231	1,031	2,042	—	13,965
1961	400	52	551	487	2,801	6,819	723	260	1,230	1,890	2	15,215
1962	484	56	823	435	2,849	7,647	778	216	1,198	2,072	50	16,608

[1] Includes 956 cases in 1958 and 35 cases in 1959 "Adjourned *sine die*", compiled for statistical purposes as juvenile delinquents.

18.—Total Delinquent Children, by Number of Delinquent Appearances, 1962, with Number of Appearances in Previous Years

Number of Delinquent Appearances	Total Delinquent Children	Delinquent Appearances in Previous Years											
		0	1 or More	1	2	3	4	5	6	7	8	9	10+
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1 or more	14,519	11,746	2,773	1,512	563	261	168	89	60	27	20	18	55
1	12,934	10,754	2,180	1,226	440	203	120	68	41	18	13	14	37
2	1,232	792	440	221	88	37	35	16	13	8	5	4	13
3	268	156	112	49	26	12	10	4	5	1	1	—	4
4	51	26	25	10	8	6	—	—	—	—	1	—	—
5	16	8	8	4	—	1	2	—	—	—	—	—	1
6	13	9	4	1	1	1	—	1	—	—	—	—	—
7	2	1	1	1	—	—	—	—	—	—	—	—	—
9	3	—	3	—	—	1	1	—	1	—	—	—	—

19.—Juvenile Delinquents, by Group of Offence, and Ratio per 100,000 Population 7-15 Years of Age, 1953-62

Year	Delinquencies against the Person		Delinquencies against Property with Violence		Delinquencies against Property without Violence		Wilful and Forbidden Acts in respect of Certain Property		Forgery and Delinquencies relating to Currency		Other Delinquencies		Total Convictions	
	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population
1953	169	7	1,416	61	2,415	103	770	33	19	1	1,588	68	6,377	273
1954	184	7	1,444	59	2,489	102	673	28	32	1	1,510	62	6,332	259
1955	181	7	1,548	61	2,767	108	629	25	29	1	1,871	73	7,025	275
1956	250	9	1,888	69	3,572	131	839	31	39	1	2,397	88	8,985	329
1957	254	9	2,005	70	3,764	131	994	35	28	1	2,634	92	9,679	338
1958	346	12	2,268	76	4,436	148	985	33	36	1	3,320	111	11,391	381
1959	265	9	2,408	78	4,748	153	952	31	27	..	3,286	106	11,686	377
1960	369	11	2,953	92	5,694	177	1,272	40	36	1	3,641	113	13,965	434
1961	382	11	3,511	103	6,435	189	1,248	37	33	1	3,606	106	15,215	447
1962	460	13	3,563	102	7,129	204	1,420	41	49	1	3,987	114	16,608	475

20.—Juvenile Delinquents classified by Type of Delinquency, 1958-62

Delinquency	1958	1959	1960	1961	1962
	No.	No.	No.	No.	No.
Manslaughter and murder and causing death by criminal negligence	2	1	—	4	7
Murder, attempt	—	1	—	1	2
Rape and attempt, sexual intercourse and incest	6	4	5	5	12
Indecent assault (male and female)	75	66	96	70	127
Assault, causing bodily harm and danger	17	25	42	36	43
Common assault	214	127	198	223	209
Interfering with transportation facilities	3	3	—	3	—
Other offences against the person	29	38	28	40	60
Breaking and entering a place	2,239	2,375	2,886	3,415	3,427
Robbery and extortion	29	32	66	96	136
Theft and having in possession	4,223	4,517	5,488	6,076	6,787
False pretences and fraud and corruption	19	24	35	35	34
Arson	58	55	91	74	94
Other interference with property	927	897	1,181	1,174	1,326
Forgery and delinquencies relating to currency	36	27	36	33	49
Incorrigibility and vagrancy	813	776	900	842	652
Immorality	253	267	258	238	223
Various other delinquencies	2,448	2,451	2,655	2,850	3,420
Totals	**11,391**	**11,686**	**13,965**	**15,215**	**16,608**

21.—Percentages of Delinquent Boys and Girls, by Age Group, 1961 and 1962

Age Group	1961			1962		
	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
7 - 12 years	23.5	12.0	22.2	24.1	13.6	22.9
13 - 15 years	76.3	87.9	77.6	75.5	86.3	76.7
Not given	0.2	0.1	0.2	0.4	0.1	0.4
Totals	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

22.—Age, Sex and School Grade of Delinquent Boys and Girls, 1962

(B=Boys; G=Girls)

Age	School Grades																Total Delinquents	
	Elementary										Secondary		Auxiliary		Not Given			
	1-4		5		6		7		8									
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No	No.	No.
7 years	39	—	—	—	—	—	—	—	—	—	—	—	1	—	6	—	46	—
8 "	139	6	—	—	—	—	—	—	—	—	—	—	—	—	12	—	151	6
9 "	317	9	13	2	—	—	—	—	—	—	—	—	3	—	30	1	363	12
10 "	354	18	160	6	27	1	3	1	—	—	—	—	7	1	47	3	598	30
11 "	281	15	290	23	211	10	51	4	6	—	2	—	7	1	64	3	912	56
12 "	227	15	337	23	440	40	315	33	61	18	6	3	12	1	92	13	1,490	146
13 "	137	9	288	23	516	43	739	71	479	65	80	13	33	1	148	34	2,420	259
14 "	115	7	204	27	449	42	911	126	1,038	175	687	138	45	6	243	46	3,692	567
15 "	68	14	162	25	329	44	749	107	1,145	159	1,992	321	47	3	542	88	5,034	761
Not given	—	—	—	—	—	—	1	—	1	—	1	—	—	—	60	2	63	2
Totals	**1,677**	**93**	**1,454**	**129**	**1,972**	**180**	**2,769**	**342**	**2,730**	**417**	**2,768**	**475**	**155**	**13**	**1,244**	**190**	**14,769**	**1,839**

23.—Disposition of Delinquents, by Type of Sentence, 1953-62

Year	Reprimanded		Probation of Court		Protection of Parents		Fined or Made Restitution		Detained Indefinitely		Sent to Training School		Final Disposition Suspended		Corporal Punishment		Mental Hospital	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
1953	227	3.6	2,620	41.1	186	2.9	1,147	18.0	28	0.4	1,107	17.4	1,062	16.6	—	—	..	..
1954	199	3.1	2,595	41.0	174	2.8	1,095	17.3	27	0.4	1,121	17.7	1,119	17.7	2	--	..	..
1955	181	2.6	3,067	43.7	365	5.2	1,064	15.1	50	0.7	1,180	16.8	1,118	15.9	—	—	..	..
1956	359	4.0	3,155	35.1	404	4.5	2,015	22.4	30	0.3	1,440	16.0	1,577	17.6	—	—	5	0.1
1957	460	4.7	3,822	39.5	300	3.1	2,261	23.4	63	0.7	1,563	16.1	1,202	12.4	1	--	7	0.1
1958	504	4.4	5,728	50.3	294	2.6	1,624	14.3	13	0.1	1,822	16.0	1,389	12.2	3	--	14	0.1
1959	236	2.0	6,151	52.6	412	3.5	1,810	15.5	9	0.1	1,678	14.4	1,381	11.8	—	—	9	0.1
1960	442	3.2	7,413	53.1	518	3.7	2,289	16.4	42	0.3	1,791	12.8	1,456	10.4	—	—	14	0.1
1961	544	3.6	7,341	48.2	644	4.2	2,148	14.1	89	0.6	1,974	13.0	2,466	16.2	—	—	9	0.1
1962	697	4.2	8,827	53.1	369	2.2	2,219	13.4	89	0.5	1,862	11.2	2,533	15.3	—	—	12	0.1

Section 4.—Adult Correctional Institutions and Training Schools

Subsection 1.—Statistics of Correctional Institutions and Training Schools

Correctional institutions may be classified under four headings: (1) Penitentiaries—operated for adult offenders by the Federal Government in which, generally speaking, sentences of over two years are served; (2) Reformatories—operated for adult offenders by the provinces in which individual sentences of up to two years are served; (3) Common Gaols—operated for adult offenders by the provinces or counties in which sentences of up to two years can be served but in which, generally speaking, short-term sentences are served; and (4) Training Schools—operated by the provinces or private organizations under provincial charter for juvenile offenders serving indefinite terms up to the legal age for children in the particular province.

There is a limited amount of statistical information available with respect to these types of institution. "In custody" figures shown in Table **24** for penitentiaries refer only to those persons under sentence, but the figures for admissions include those received from courts as well as by transfer from other penitentiaries and by cancellation of tickets-of-leave and paroles. Figures for releases include expiry of sentences, transfers between penitentiaries, releases on ticket-of-leave and parole, deaths, pardons and releases on court order. In custody figures for provincial and county institutions may include, in addition to those serving sentences, persons awaiting trial, on remand for sentence or psychiatric examination, awaiting appeal or deportation, any others not serving sentence and, for training school population, juveniles on placement.

Population figures in Tables **24** and **25** are for a given day of the year, which is Mar. 31 except for Quebec gaols where populations are counted as of Dec. 31. These figures represent, in effect, a yearly census of correctional institutions and, as such, are not indicative of the daily average population count. For instance, if an abnormal number of commitments is made to a certain institution on or just prior to Mar. 31, the result will be an unrepresentative population total for the institution in that year.

With regard to the fluctuations that might have occurred during the year between census days, the total population of correctional institutions has shown a general increase since Mar. 31, 1958; totals for training schools and provincial adult institutions have shown a tendency to level off or decline slightly but penitentiary population has increased steadily.

24.—Population in Penitentiaries, Years Ended Mar. 31, 1958-62

Item	1958	1959	1960	1961	1962
	No.	No.	No.	No.	No.
In custody at beginning of year	5,433	5,770	6,295	6,344	6,738
Received during year	3,919	3,918	4,523	4,973	5,541
Discharged during year	3,582	3,393	4,474	4,579	5,123
In custody at end of year	5,770	6,295	6,344	6,738	7,156

25.—Populations in Reformatories and Gaols and in Training Schools, as at Mar. 31, 1958-62

Type of Institution	1958	1959	1960	1961	1962
	No.	No.	No.	No.	No.
Reformatories and Gaols—					
Reformatories for men	3,890	3,806	3,769	4,012	3,670
Reformatories for women	164	172	144	180	171
Common gaols	7,138	7,188	6,983	7,629	8,225
Totals, Reformatories and Gaols	**11,192**	**11,166**	**10,896**	**11,821**	**12,066**
Training Schools—					
Training schools for boys	2,334	2,343	2,423	2,382	2,435
Training schools for girls	1,086	990	965	1,019	1,090
Totals, Training Schools	**3,420**	**3,333**	**3,388**	**3,401**	**3,525**

Subsection 2.—The Canadian Penitentiary Service*

The penitentiaries of Canada are administered by the Commissioner of Penitentiaries, responsible directly to the Minister of Justice. In the year ended Mar. 31, 1964, the federal penitentiary system consisted of six maximum security, four medium security and fifteen minimum security institutions, all for males; one prison for women; one maximum security prison camp for males and females of the Freedomite Doukhobor Sect; and two Correctional Staff Colleges.

The six maximum security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at New Westminster, B.C., Prince Albert, Sask., Stony Mountain, Man., Kingston, Ont., St. Vincent de Paul, Que., and Dorchester, N.B. Persons sentenced to penitentiary terms in Newfoundland are held in the provincially operated institution at St. John's, under financial arrangements authorized by Sect. 14 of the Penitentiary Act (SC 1960-61, c. 53).

The medium and minimum security institutions and the camps receive inmates transferred from the maximum security (receiving) institutions on the basis of their suitability for special forms of training, including vocational training. Of the medium security institutions, two—Collin's Bay Penitentiary and the Joyceville Institution—are within a few miles of Kingston. The other two—the Federal Training Centre and the Leclerc Institution—are close to St. Vincent de Paul.

Eight minimum security correctional camps are operated as extensions of a main institution in their respective areas. These are located at William Head and Agassiz, B.C.; Beaver Creek and Landry Crossing near Bracebridge and Petawawa, Ont.; Gatineau (Gatineau Park) and Valleyfield, Que.; Blue Mountain near Gagetown, N.B.; and Springhill, N.S. Six minimum security farm annexes operate as extensions of the penitentiaries at Dorchester, St. Vincent de Paul, Collin's Bay, Joyceville, Stony Mountain and Prince Albert, respectively. There is also a minimum security industrial satellite at St. Vincent de Paul.

The Prison for Women at Kingston, Ont., receives inmates transferred upon committal to penitentiary in any part of Canada. Prior to Dec. 1, 1960, it operated as a detached portion of Kingston Penitentiary.

The special security Prison Camp for Freedomites of both sexes who have been sentenced to imprisonment in penitentiary is located near Agassiz, B.C., and is called Mountain Prison.

The two Correctional Staff Colleges—one at Kingston and one at St. Vincent de Paul—are for the advanced training of penitentiary officers. The Kingston College serves English-speaking or bilingual officers and the St. Vincent de Paul College is primarily for French-speaking officers from all parts of Canada. These Staff Colleges provide excellent facilities for Service-wide conferences of institutional heads and other special groups of officers.

The Headquarters of the Service is located in Ottawa. During 1962, regional directorates were established at Kingston and St. Vincent de Paul for the Ontario and Quebec areas, respectively. A regional directorate for the western area will start operations in the 1964-65 fiscal year.

Subsection 3.—The National Parole System†

Parole is a means by which an inmate in any institution in Canada, if he gives definite indication of his intention to reform, can be released from prison. The purpose of parole is the protection of society, through the rehabilitation of the inmate. The Parole Board is as much concerned with the protection of society as with the reformation of the inmate, and the welfare of an individual inmate must not be allowed to impair the success of the parole system or the protection of the public.

* Prepared under the direction of A. J. MacLeod, Commissioner of Penitentiaries, Ottawa.
† Prepared by T. G. Street, Chairman, Nationa Parole Board, Ottawa.

The function of the Parole Board is to select those inmates in the various institutions in Canada who show some indication of a sincere intention to reform and to assist them in doing so by a grant of parole. The inmate then is allowed to serve the remainder of his sentence in society, but under supervision and subject to restrictions and conditions as to his conduct and behaviour, which are designed for his welfare and for the protection of society. The Board is not a reviewing authority and is not concerned with the propriety of the conviction or the length of the sentence, but only with the problem of deciding in each case whether or not there is a reasonable chance of reformation. Parole is not a matter of clemency and is not granted on compassionate or humanitarian grounds but only if it appears that there is at least a reasonable chance the inmate will lead a law-abiding life.

The National Parole Board is composed of a Chairman and four Members (one woman) and was formed in January 1959. It operates under the authority of the Parole Act (SC 1958, c. 38) which came into force on Feb. 15, 1959 replacing the former Ticket-of-Leave Act. It has jurisdiction over any adult inmate in any prison in Canada convicted of an offence against an Act of the Parliament of Canada. It also has jurisdiction to revoke or suspend any sentence of whipping or any order made under the Criminal Code prohibiting any person from operating a motor vehicle.

The decision of the Board is based on reports it receives from the police, from the trial judge or magistrate and from various people at the institution who deal with the inmate. Reports are also obtained from a psychologist or psychiatrist, when available. Where necessary, a community investigation is conducted to secure as much information as possible about the man's family and background, his work record, and his position in the community. From all these reports, an assessment is made to determine whether or not he has changed his attitude and is likely to lead a law-abiding life. An inmate need not obtain the services of a lawyer to apply for parole. He may apply by sending a letter to the Board and is assisted in preparing such an application at the institution, or another person may apply on his behalf. The Board automatically reviews all sentences of over two years. As soon as an application is received, a file is opened and investigation begun, the results of which are presented to the Board for decision.

All applications and reports are processed by the Parole Board staff at Ottawa. In addition to the headquarters staff, there are 24 regional officers stationed in ten regional offices across the country. They interview all applicants for parole to give them an opportunity of making verbal representations to a representative of the Board. The regional officers also submit to the Board reports of interviews and their assessment of the inmates' suitability for parole. These men have authority over the parolees in their respective areas and also give information and counsel to all inmates regarding possibility of parole and preparation for it. They may also issue a Warrant of Suspension and have a parolee arrested and placed in custody if it is necessary to prevent a breach of any term or condition of the parole. They are thus able to exercise effective and adequate control over all parolees in their respective areas.

A person on parole is under the care of a supervisor, usually an after-care agency worker or a probation officer, who reports to the regional officer. If he violates the conditions of his parole or commits a further offence or misbehaves in any manner, the Board may revoke his parole and return him to the institution to serve that part of his sentence outstanding at the time his parole was granted. If a parolee commits an indictable offence while on parole, his parole is automatically forfeited and he is returned to the institution to serve the unexpired balance of his sentence, plus any new term to which he was sentenced for the commission of the new offence.

It is essential that the general public should understand that the true purpose of punishment should be the reformation of the offender and not just vengeance or retribution. The treatment and training program in the institutions is a vital part of the correctional process and parole is an extension of this training outside the institution. It is not a matter of pampering prisoners but of trying to reform as many as possible and of giving prisoners a chance to rehabilitate if they seem to deserve it.

During the first five years of its operation the Board reviewed 40,863 cases, including applications for parole and automatic parole review, and granted 10,521 paroles. During the same period the Board revoked 1,033 paroles, which is a general average failure rate over the five-year period of 10 p.c. Of these 1,033 who failed on parole, 532 paroles were forfeited because of the commission of an indictable offence, and 501 were revoked for misbehaviour or the commission of a minor offence.

Section 5.—Police Forces

Organization of Police Forces.—The police forces of Canada are organized in three groups: (1) the federal force, which is the Royal Canadian Mounted Police; (2) provincial police forces—the Provinces of Ontario and Quebec have their own provincial police forces but all other provinces engage the services of the Royal Canadian Mounted Police to perform parallel functions within their borders; and (3) municipal police forces—each urban centre of reasonable size maintains its own police force or engages the services of the provincial police, under contract, to attend to police matters. In addition, the Canadian National Railways, the Canadian Pacific Railway Company and the National Harbours Board have their own police forces.

The Royal Canadian Mounted Police.—The Royal Canadian Mounted Police is a civil force maintained by the Federal Government. It was established in 1873 as the North-West Mounted Police for service in what was then the North-West Territories and, in recognition of its services, was granted the use of the prefix "Royal" by King Edward VII in 1904. Its sphere of operations was expanded in 1918 to include all of Canada west of Port Arthur and Fort William and in 1920 it absorbed the Dominion Police, its headquarters was transferred from Regina to Ottawa and its title was changed to Royal Canadian Mounted Police.

The Force is under the control of the Minister of Justice and is headed by a Commissioner who holds the rank and status of a Deputy Minister. Officers are commissioned by the Crown and are selected from the non-commissioned ranks. The Force has complete jurisdiction in the enforcement of the federal statutes. By arrangement between the federal and provincial governments, it enforces the provincial statutes and the Criminal Code in all provinces exclusive of Ontario and Quebec and under special agreement it polices some 121 municipalities. It is the sole police force in the Yukon and Northwest Territories, where it also performs various administrative duties on behalf of certain departments of the Federal Government. It maintains liaison officers in London and Washington and represents Canada in the International Criminal Police Organization, which has headquarters in Paris.

Of the Force's 17 divisions, 12 are actively engaged in the work of law enforcement, as are some 42 subdivisions and 646 detachments. The five remaining divisions are "Headquarters", "Depot" and "N", which are maintained as training centres, and "Marine" and "Air", which support the operations of the land divisions. A teletype system links the widespread divisional headquarters with the administrative centre at Ottawa and a network of fixed and mobile radio units operates within the provinces. Focal point of the Force's criminal identification work is the Headquarters Identification Branch; its services, together with those of the divisional and subdivisional units and the four Crime Detection Laboratories, are available to police forces throughout Canada. The Force operates the Canadian Police College at which Force members and selected representatives of other Canadian and foreign police forces may study the latest advances in the fields of crime prevention and detection.

The uniform strength of the Force at Mar. 31, 1964 was 6,910, including Marine Constables and Special Constables, at which time it maintained some 1,913 motor vehicles, 18 aircraft, 71 ships and boats, 188 sleigh dogs, 22 police service dogs and 220 horses.

Quebec Provincial Police Force.—The Quebec Provincial Police Force is responsible for the maintenance of peace, order and public safety in the province, and for the prevention and investigation of criminal offences and of violation of the laws of the province.

The province is divided into two almost equal parts known as the Montreal Division and the Quebec Division. The Montreal Division is divided into three subdivisions with headquarters at Granby, Hull and Montreal. The Quebec Division is also divided into three subdivisions with headquarters at Chicoutimi, Quebec and Rimouski. There are 107 detachments throughout the province—55 in the Montreal Division and 52 in the Quebec Division. The strength of the Force at the end of 1963 was 1,739 regular members —36 officers, 289 non-commissioned officers, and 1,414 constables.

The Quebec Provincial Police Force is under the command of a Director General who is assisted by an officer holding the rank of Deputy Director General. Each Division is headed by an Assistant Director. A commissioned officer is in command of each subdivision.

Ontario Provincial Police Force.—The Ontario Provincial Police, which has a uniform strength of 3,000, enforces federal and provincial law in those areas that do not maintain a police department and on all Queen's Highways. The Force is administered, from General Headquarters at Toronto, by a Commissioner who has the rank and status of a Deputy Minister under the Attorney General. Other senior executive officers include two Deputy Commissioners, five Assistant Commissioners, and an Administrative Aide to the Commissioner. Under the "Deputy Commissioner–Services" are the Assistant Commissioners in charge of Administration, Staff Services, and Special Services; under the "Deputy Commissioner–Operations" are the Assistant Commissioners in charge of the Field and Traffic Divisions. Specialized departments under Special Services include the Criminal Investigation Branch, Liquor Control, Precious Metals Theft, Anti-gambling, Anti-rackets, and the Auto Theft Branch.

In the field there are 219 detachments controlled through 17 District Headquarters located at Chatham, London, Burlington, Niagara Falls, Toronto, Mount Forest, Barrie, Peterborough, Belleville, Perth, Long Sault, North Bay, Sudbury, Sault Ste. Marie, Timmins, Port Arthur and Kenora. In addition, there are 40 municipalities policed under contract.

The Force operates one of the largest frequency-modulation radio networks in the world, with 76 fixed radio stations and 778 radio-equipped mobile units, including motorcycles, marine units and a helicopter. Because of territorial peculiarities, the northern districts augment their normal transportation facilities by the use of snowmobiles, swamp buggies, dog teams and a variety of rail transport facilities.

In 1963, in addition to regular constable recruitment, the Force inaugurated its first cadet program, making it possible for qualified young men to create for themselves a career in a long-established police force.

Municipal Police Forces.—Provincial legislation makes it mandatory for cities and towns to furnish adequate municipal policing for the maintenance of law and order in their communities. Also, all villages and townships or parts of townships that have a population density and a real property assessment sufficient to warrant maintenance of a police force, and have been so designated by Order in Council, are made responsible for the adequate policing of their municipalities.

Uniform Crime Reporting.—A new method of reporting police statistics (police administration, crime and traffic enforcement statistics), known as the Uniform Crime Reporting Program, was commenced on Jan. 1, 1962. The program was developed by the Dominion Bureau of Statistics in co-operation with the Canadian Association of Chiefs of Police Committee on Uniform Crime Reporting. Historically, the police have kept track of selected statistics to meet their own needs and have been prepared to give an account of crimes in their jurisdictions. However, the definitions and methods for collecting these statistics were not uniform and the data could not be expressed with consistency on a national, provincial or local basis. With the development of the Uniform Crime Reporting Program, meaningful statistical aggregates became possible. The police were

supplied with a manual of instructions containing standard definitions for the reporting of police administration, crime and traffic enforcement statistics on specially designed statistical forms to be submitted to the DBS.

Police Personnel.—As shown in Table **26**, full-time police personnel (police, civilian employees, etc.) in Canada numbered 32,478 at Dec. 31, 1962. Police strength was 27,744, civilian employees numbered 4,244, trainees 263 (all municipal police), and other employees 227. Thus, there was a ratio of 1.7 police personnel for every 1,000 persons in Canada; the ratio of policemen alone was 1.5. Police personnel ratios in the provinces ranged from 1.0 to 1.4 per 1,000 persons and policemen ratios from 0.9 to 1.4.

The 12,189 police personnel in 12 selected metropolitan areas included 11,979 municipal police personnel, 203 Royal Canadian Mounted Police under contract and seven provincial police under contract. Municipal police personnel numbered 19,217, made up of 18,231 in municipal forces, 897 Royal Canadian Mounted Police under contract and 89 provincial police under contract.

In 1962, 12 policemen were killed by criminal action and five lost their lives accidentally while on duty. Police transport facilities at the end of the year included 5,008 automobiles, 783 motorcycles, 369 boats, 340 horses and 18 aircraft.

26.—Police Personnel, by Type of Force, 1962

Force and Item	Policemen			Civilian and Other Employees			Total
	Male	Female	Total	Male	Female	Total	
	No.	No.	No.	No.	No.	No.	No.
Royal Canadian Mounted Police—							
Actual strength	6,812	—	6,812	644	1,082	1,726	8,538
Authorized strength	6,561	—	6,561	683	1,273	1,956	8,517
Engagements	745	—	745	81	174	255	1,000
Retirements	105	—	105	6	3	9	114
Other separations	228	—	228	62	159	221	449
Ontario Provincial Police—							
Actual strength	2,039	—	2,039	215	184	399	2,438
Authorized strength	2,051	—	2,051	..	..	416[1]	2,467
Engagements	181	—	181	—	—	—	181
Retirements	10	—	10	—	—	—	10
Other separations	73	—	73	—	—	—	73
Quebec Provincial Police—							
Actual strength	1,555	7	1,562	311	175	486	2,048
Authorized strength	1,655	7	1,662	491	232	723	2,385
Engagements	322	—	322	124	90	214	536
Retirements	12	—	12	8	—	8	20
Other separations	124	—	124	58	39	97	221
Municipal Police (excl. RCMP and OPP contracts)–							
Actual strength	16,253[2]	172[2]	16,425[2]	1,168	638	1,806	18,231
Authorized strength[2]	16,428[2]	177[2]	16,605[2]	1,170	646	1,816	18,421
Engagements	1,113[2]	23[2]	1,136[2]	112	159	271	1,407
Retirements	160	1	161	7	12	19	180
Other separations	656[2]	18[2]	674[2]	79	118	197	871
Canadian National Railways Police—							
Actual strength	523	3	526	10	13	23	549
Authorized strength	532	3	535	10	14	24	559
Engagements	64	—	64	1	3	4	68
Retirements	14	—	14	1	—	1	15
Other separations	39	—	39	—	3	3	42
Canadian Pacific Railway Company Police—							
Actual strength	512	—	512	13	13	26	538
Authorized strength	527	—	527	13	13	26	553
Engagements	64	—	64	2	4	6	70
Retirements	10	—	10	—	—	—	10
Other separations	66	—	66	2	4	6	72

For footnotes, see end of table.

26.—Police Personnel, by Type of Force, 1962—concluded

Force and Item	Policemen			Civilian and Other Employees			Total
	Male	Female	Total	Male	Female	Total	
	No.	No.	No.	No.	No.	No.	No.
National Harbours Board Police—							
Actual strength	131	—	131	5	—	5	136
Authorized strength	143	—	143	5	—	5	148
Engagements	10	—	10	—	—	—	10
Retirements	2	—	2	—	—	—	2
Other separations	8	—	8	—	—	—	8
Totals, All Forces—							
Actual strength	27,825[4]	182[4]	28,007[4]	2,366	2,105	4,471	32,478
Authorized strength	27,897[4]	187[4]	28,084[4]	2,372	2,178	4,966[5]	33,050
Engagements	2,499[4]	23[4]	2,522[4]	320	430	750	3,272
Retirements	313	1	314	22	15	37	351
Other separations	1,194[4]	18[4]	1,212[4]	201	323	524	1,736

[1] Not reported by sex. [2] Includes trainees; those on actual strength numbered 259 males and 4 females. [3] Metropolitan Toronto police only. [4] Includes municipal police trainees; see footnote [2]. [5] See footnote [1].

Crime Statistics.—Table 27 shows the number of crimes dealt with by the police in 1962, including offences under the Criminal Code, federal statutes, provincial statutes and municipal by-laws; clearances by charge and otherwise; and the number of adults and juveniles charged. Offences known to the police but discarded as being unfounded are not shown in the table but numbered 26,004 under Criminal Code classifications (except traffic) and 10,932 under other statutes (except traffic). Traffic enforcement statistics are given separately at the end of the table.

During 1962, the police reported 36,075 offences committed against the person, including 217 murders, 6,651 cases of rape or other sexual offence, and 29,076 offences of wounding and other assault (not indecent); all offences against the person resulted in the charging of 18,065 persons, 948 of them juveniles. During the year there were 326,401 cases of robbery, theft and other offences against property, with or without violence, resulting in 67,752 persons charged, 19,386 of them juvenile males and 1,004 juvenile females. Other Criminal Code offences included 30,033 cases of fraud, false pretences, forgery, etc., 1,515 offences of prostitution, 2,422 gaming and betting offences and 2,608 offensive weapon offences. Of the 31,138 federal statute offences reported, 770 were under the Narcotic Control Act and 233 under the controlled drugs part of the Food and Drugs Act. These two classifications resulted in the charging of 526 persons, all of them adults.

During 1962, 63,068 Criminal Code offences under traffic enforcement laws were reported and 1,330,726 traffic offences under federal, provincial and municipal statutes. The former resulted in the charging of 46,646 males and 871 females. The number of motor vehicles stolen was 33,758, or 584.5 per 100,000 vehicles registered; 31,237 or 92.5 p.c. of these vehicles were recovered. The number of traffic accidents reported in 1962 was 492,942, of which 3,387 involved fatalities, 77,116 resulted in injuries, 248,591 involved property damage of over $100 and 163,848 damage of $100 or less. There were 4,020 persons killed in traffic accidents, including 2,831 drivers and passengers, 1,042 pedestrians, 116 cyclists and 31 others, and there were 106,746 persons injured.

During the year, the police were asked to locate 14,443 missing adults and 20,324 missing juveniles; 13,641 adults and 20,058 juveniles were found. The number of drownings reported by the police was 1,323.

27.—Crime Statistics Reported by Police, by Class of Offence, 1962

Class of Offence	Actual Offences[1]	Offences Cleared		Persons Charged			
		By Charges	Otherwise	Adults		Juveniles	
				Male	Female	Male	Female
	No.	No.	No.	No.	No.	No.	No.
Criminal Code	**514,986**	**142,516**	**45,665**	**110,645**	**9,194**	**24,502**	**1,810**
Capital murder	148	83	41	88	3	3	1
Non-capital murder	69	51	4	41	13	1	—
Attempted murder	83	57	11	52	4	4	1
Manslaughter	48	36	1	42	3	1	—
Rape	579	296	95	364	—	29	—
Other sexual offences	6,072	2,774	710	2,293	46	347	37
Wounding	1,258	480	150	436	62	49	6
Assaults (not indecent)	27,818	13,575	7,118	13,013	657	417	52
Robbery	4,951	1,453	229	1,651	56	349	13
Breaking and entering	82,104	16,795	3,265	11,764	209	6,674	149
Theft, motor vehicle	33,482	7,832	1,824	5,801	125	3,177	55
Theft over $50	59,370	8,833	2,797	7,277	550	1,884	91
Theft $50 or under	141,870	22,970	10,529	14,550	2,033	6,619	667
Have stolen goods	4,624	4,197	154	3,174	172	683	29
Fraud, false pretences, etc.	30,033	17,216	2,686	8,986	724	178	33
Prostitution	1,515	1,321	37	345	934	5	12
Gaming and betting	2,422	1,945	144	2,337	126	4	—
Offensive weapons	2,608	1,873	304	1,609	55	191	4
Other Criminal Code (except traffic)	115,932	40,729	15,566	36,822	3,422	3,887	660
Federal Statutes (except traffic)	**31,138**	**24,147**	**2,400**	**21,036**	**1,996**	**573**	**244**
Narcotic Control Act	770	377	64	307	153	—	—
Food and Drugs Act	233	58	21	59	7	—	—
Provincial Statutes (except traffic)	**195,853**	**180,867**	**4,801**	**163,890**	**13,183**	**2,656**	**791**
Municipal By-laws (except traffic)	**54,698**	**39,624**	**8,862**	**36,322**	**3,147**	**1,238**	**99**
	Traffic Enforcement Statistics						
Criminal Code	**63,068**	**48,300**	**1,864**	**46,646[2]**	**871[2]**	..	..
Criminal Negligence—							
Causing death	162	153	1	153[2]	1[2]	..	..
Causing bodily harm	87	69	—	67[2]	1[2]	..	..
Operating motor vehicle	389	342	6	330[2]	4[2]	..	..
Failing to stop at scene of accident	19,822	6,450	1,404	6,161[2]	210[2]	..	..
Dangerous driving	2,948	2,453	127	2,383[2]	28[2]	..	..
Driving while intoxicated	3,778	3,692	32	3,588[2]	70[2]	..	..
Driving while impaired	28,889	28,279	257	27,533[2]	489[2]	..	..
Driving while disqualified	6,993	6,862	37	6,431[2]	68[2]	..	..
Federal Statutes (except parking)	**11,076**	**6,519**	**4,481**	**6,650[3]**	..	..	..
Provincial Statutes (except parking)	**1,029,594**	**979,785**	**33,446**	**969,624[3]**	..	..	..
Municipal By-laws (except parking)	**290,056**	**274,718**	**10,537**	**281,536[3]**	..	..	..

[1] Offences reported or known to police minus those discarded as unfounded; the latter numbered 26,004 under Criminal Code. [2] Includes all ages. [3] All persons charged.

CHAPTER X.—LAND USE AND RENEWABLE RESOURCE DEVELOPMENT*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Until recently, governmental policies relating to Canada's renewable natural resources were directed toward the promotion of settlement on agricultural land and the large-scale utilization of other renewable resources. As a consequence, individual choice and initiative by private citizens was the basis of most action relative to resource utilization, and government programs of resource management and regulation, with some important exceptions, were concerned mainly with the rights and duties of individuals. However, widespread technological changes, particularly in the agricultural and transportation industries, have taken place during the past few decades and there has been a strong trend toward the concentration of an increasing population in urban centres. These changes have been accompanied by a related change in the pattern of land use and such developments, together with evidence of a degree of wind and water erosion and other manifestations of neglect of suitable conservation practices, have indicated the need for considerable planned adjustment in rural areas. Also, the increasing complexity of social organization and the attendant trend toward public decisions respecting resource management and use, have implied the need for improved federal and provincial legislative-administrative organization relative to natural resources.

One of the most important responses to these needs was the "Resources for Tomorrow" Conference held in 1961 to permit examination of problems of resource use and of creating an organizational framework suited to the modern requirement for integrated, comprehensive resource-use planning for social and economic development. Subsequent to this conference, the Canadian Council of Resource Ministers, composed of one representative from each province and one from the Federal Government, was established to perform a similar function on a continuing basis. Previous federal investigations of significance concerned with the general problem of government organization for effective resource use were: the Senate of Canada Special Committee on Land Use, established in 1957 and continuing until 1963; the House of Commons Standing Committee on Mines, Forests and Waters; and the National Conference on Reconstruction, held in 1945. Notable among provincial government efforts along similar lines is the annual British Columbia resources conference.

*Prepared by D. F. Symington, Information-Education Consultant, Department of Forestry, Ottawa.

Constitutionally, administration and disposition of natural resources rests mainly with the provincial governments. Under the British North America Act, fisheries were under federal jurisdiction and the federal and provincial governments shared legislative authority with respect to agriculture, international and interprovincial waters, etc., with federal legislation taking precedence over provincial legislation should conflict arise; however, subsequent interpretations of the Act have established most aspects of control of resources as being matters of provincial jurisdiction. As well, in the years following Confederation certain provinces, by agreement, assumed varying degrees of responsibility for administering the fisheries legislation and other federal resources legislation. Within this general framework, the Federal Government has taken certain steps to establish a national resource policy, to co-ordinate the activity of the various federal departments concerned with resources and relevant social and economic problems, to undertake or share in research, and to provide initiative and financial assistance in the establishment of co-operative federal-provincial programs of resource adjustment and development; and provincial governments have moved significantly to accommodate their administrative structures to the need for integrated, planned resource adjustment and development. Aspects of this trend to accommodate legislative-administrative organization to emerging needs will be apparent in the following descriptions of federal and federal-provincial agencies and programs. In addition, a great number of wholly provincial programs have been instituted, which further illustrate the trend toward integration of activities in resource administration.

Federal participation in land and water conservation programs began before the turn of the present century; starting in 1877, this included the work of the now disbanded Department of the Interior in the field of surveying and development of water resources in Western Canada. Later, such programs included those conducted under the Prairie Farm Rehabilitation Act which was enacted in 1935 to aid in the rehabilitation of the drought-stricken areas of the prairies, the work on the eastern seaboard conducted under the Maritime Marshlands Rehabilitation Act of 1948, water development projects undertaken under the terms of the Canada Water Conservation Assistance Act of 1953 and, most recently, the broad and comprehensive resource development program for all of Canada envisaged under the Agricultural Rehabilitation and Development Act of 1961. Over this period, many projects have been undertaken, both under these legislative measures and under the terms of reference of the federal and provincial government departments and agencies concerned with resource development. They vary in nature and scope but each has as its basic objective the more effective utilization of Canada's land and water resources and the provision of a greater degree of economic stability for the rural areas of the country.

Section 1 gives the currently available data on the land resources of Canada; Section 2 describes the above-mentioned resource development legislation and the results of the implementation of that legislation; Section 3 outlines the organization of the federal and provincial committees established to co-ordinate the work of departments concerned with natural resources; and Section 4 gives brief indication of the federal-provincial programs undertaken by other federal departments and agencies with the same concern.

Section 1.—Land Resources

Information currently available regarding Canada's vast land resources is shown in Table 1, where the land area is classified as occupied agricultural, forest and 'other' land, the latter including urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock. The Department of Forestry estimates that about 48 p.c. of the land area of Canada is forested and, according to the Census of 1961, less than 8 p.c. is classed as occupied farm land. A great part of the 1,606,788 sq. miles of 'other' land is located in the Yukon and Northwest Territories which together have a land area of 1,458,784 sq. miles. The occupied farm land in these Territories is practically nil and the forest area is estimated at 275,800 sq. miles.

1.—Land Area classified as Occupied Agricultural or Forest, by Province

NOTE.—Figures for occupied agricultural land were obtained from the 1961 Census; areas of forest land were compiled by the Department of Forestry from estimates supplied by the Forestry Service in each province.

Description	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
Occupied Agricultural Land—												
Improved—Crops and summer fallow	21	615	518	763	8,218	12,868	17,061	64,223	36,038	1,360	1	141,686
Pasture	6	263	199	312	3,614	5,149	1,125	2,179	2,610	554	1	16,012
Other	5	28	60	72	456	785	508	970	865	121	[1]	3,870
Unimproved—Forest (woodland)[2]	31	463	2,130	1,923	7,033	5,090	2,329	3,430	3,341	1,177	2	26,949
Other	22	131	578	367	2,864	5,137	7,368	29,848	30,941	3,829	9	81,094
Totals, Occupied Agricultural Land	**85**	**1,500**	**3,485**	**3,437**	**22,185**	**29,029**	**28,391**	**100,650**	**73,795**	**7,041**	**13**	**269,611**
Forest Land—												
Softwood— Merchantable	24,422	78	7,270	6,297	75,687	44,110	14,669	14,621	14,483	80,330	35,200	317,167
Young growth	5,835	396	789	2,889	40,922	35,925	20,366	3,413	14,042	87,786	10,000	222,263
Mixedwood—Merchantable	403	133	5,250	7,298	47,500	24,533	5,459	12,736	12,636	—	19,800	135,748
Young growth	269	145	458	2,042	26,281	34,289	6,514	5,046	11,208	—	3,500	89,852
Hardwood— Merchantable	9	13	841	1,939	14,391	6,559	3,403	9,528	5,255	3,945	4,700	50,583
Young growth	244	11	45	952	14,344	17,961	4,767	1,773	13,728	7,953	2,500	64,278
Unclassified[3]	2,680	37	427	2,470	1,500	1,191	3,011	3,122	45,120	28,397	—	87,955
Totals, Productive Forest Land	33,862	813	15,080	23,887	220,625	164,568	58,189	50,239	116,572	208,411	75,700	967,946
Non-productive Forest Land[4]	53,930	121	1,194	442	157,500	97,174	64,632	67,499	41,023	59,227	200,100	742,842
Totals, Forest Land	**87,792**	**934**	**16,274**	**24,329**	**378,125**	**261,742**	**122,821**	**117,738**	**157,595**	**267,638**	**275,800**	**1,710,788**
Net Productive Land[5]	**33,916**	**1,850**	**16,435**	**25,401**	**235,777**	**188,507**	**84,251**	**147,459**	**187,026**	**214,275**	**75,711**	**1,210,608**
Other Land[6]	**55,199**	**213**	**2,773**	**1,992**	**130,583**	**58,411**	**62,892**	**5,224**	**20,751**	**85,777**	**1,182,973**	**1,606,788**
Totals, Land Area[7]	**143,045**	**2,184**	**20,402**	**27,835**	**523,860**	**344,092**	**211,775**	**220,182**	**248,800**	**359,279**	**1,458,784**	**3,560,238**

[1] Less than half a square mile. [2] Included in *Forest Land;* duplication eliminated in the item *Net Productive Land.* [3] Includes areas of recent burn, cut-over or windfall not yet re-stocked. [4] Areas incapable of producing crops of merchantable timber because of adverse climatic, soil or moisture conditions, and reserve forest lands for which no inventories are available. [5] Includes only occupied agricultural land (less forest woodland) plus productive forest land. [6] Comprises all other land such as urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock and also unclassified land. [7] *Net Productive Land* plus *Non-productive Forest Land* plus *Other Land.*

On the basis of information now available, it is estimated that, in addition to the present arable lands across the country, about 40,000,000 acres of virgin land could be used for arable crops if the need arises. However, most of these reserves will require clearing or reclamation measures before they can be used for agriculture. In addition to the present arable land and potential reserves, 55,000,000 to 60,000,000 acres are suitable for wild pasture.

As the Canada Land Inventory (p. 433) progresses, a great deal of detailed information will become available on the land resources of the country, their present utilization and their capability.

Section 2.—Federal and Federal-Provincial Resource Development Legislation and Projects

Prairie Farm Rehabilitation Act

The Prairie Farm Rehabilitation Act was passed in 1935 by the Parliament of Canada, to provide for the rehabilitation of areas subject to drought and wind erosion in Manitoba, Saskatchewan and Alberta. A 1937 amendment broadened its scope to include land utilization and resettlement, and a 1939 amendment removed the time-limit so that the Act might remain in force indefinitely.

As originally conceived, the Act provided for assistance in the conservation and reclamation of land and water resources in the southern plains area of the Prairie Provinces. In the main this has consisted of the establishment of community pastures on land submarginal for cereal crop production, and the conservation of runoff water by constructing dugouts and damming streams. More recently, the program has been extended to embrace the entire settled agricultural area of the Prairie Provinces and the Prairie Farm Rehabilitation Administration has been made responsible for the development of large-scale irrigation and reclamation projects being undertaken by the Government of Canada. The Administration has also been active in the initiating of the Agricultural Rehabilitation and Development Act program (p. 432) in the four western provinces and has taken over from the Research Branch of the federal Department of Agriculture the operation of the tree nurseries at Indian Head and Sutherland, Sask.

The PFRA is administered from its headquarters at Regina by a Director who is responsible to the Deputy Minister of Agriculture in Ottawa. The following is a résumé of current activities.

Water Development.—A major phase of PFRA activities is provision to farmers of engineering and financial assistance in the construction of individual farm, community and large-scale water storage and irrigation projects. Since 1935 assistance has been provided in the construction of more than 90,000 small dams and dugouts to supply water for livestock, irrigation and domestic use. The PFRA provides all engineering surveys required to plan and design such projects and pays a portion of the construction costs, usually about 50 p.c. but larger proportionately when two or more farmers act together to develop water resources. Applications for large water projects are considered individually by PFRA and if approved are constructed under an agreement between the Federal Government and the provincial or local government concerned; PFRA builds the projects and other government bodies operate them. Six irrigation projects in southern Saskatchewan are owned and operated by PFRA, as are the Bow River Irrigation Project northwest of Medicine Hat in Alberta, and the Predevelopment Irrigation Farm associated with the South Saskatchewan River Development Project near Outlook in Saskatchewan. The projects in southwestern Saskatchewan and in Alberta, originally developed as part of the Federal Government's resettlement and rehabilitation program, now serve 160,000 acres of land and provide direct benefits to about 1,000 farmers.

Four to eight million trees are distributed annually to prairie province farmers for farmstead and field shelterbelts; annual production of trees will be increased to 15,000,000 by 1965.

Major Projects.—Where a special need exists, the costs of such projects are usually shared by the federal and provincial governments and PFRA provides engineering services and supervises construction. Examples of major projects undertaken are as follows.

St. Mary Irrigation Project.—The St. Mary Irrigation Project, jointly undertaken by the Federal Government and the Government of Alberta in 1946, is intended to provide water to irrigate 500,000 acres of land between Lethbridge and Medicine Hat. Three important international streams are involved—the St. Mary, the Belly and the Waterton Rivers. The Federal Government is responsible for construction of the main water storage and supply facilities, and the Alberta Government for the irrigation distribution system and agricultural development. A key structure, the St. Mary Dam, was completed in 1951; the diversion of the Belly River into the St. Mary Reservoir was completed in 1958; and the diversion of the Waterton River to the same reservoir via the Belly River Diversion is planned for completion in 1964. Present facilities extend irrigation to 296,000 acres of land, and the Waterton River water will irrigate the other 214,000 acres.

South Saskatchewan River Development Project.—In 1958 the Federal Government and the Government of Saskatchewan reached an agreement to begin construction on a large multi-purpose project which would enable better use to be made of the water resources of the South Saskatchewan River through irrigation, power development, urban water supply, recreational development and improved river control. The project includes the building of two dams—the major one between the towns of Outlook and Elbow and the other adjacent to the divide between the South Saskatchewan and Qu'Appelle Valleys. The cost of all construction associated with the creation of the reservoir will be shared by the federal and provincial governments at a ratio of three to one, the provincial share not to exceed $25,000,000. The Federal Government provides all engineering, supervisory and administration requirements.

When completed, the project will provide water for the irrigation of about 500,000 acres between Elbow and the city of Saskatoon, and in the Qu'Appelle Valley. Power potential at the damsite is 475,000 kwh. The reservoir—140 miles long with a capacity of 8,000,000 acre-feet of water (usable storage of 2,750,000 acre-feet)—will cost an estimated $100,000,000 to construct. The main dam—210 feet high and with an over-all length of 16,700 feet—will be the largest rolled-earth dam in Canada and one of the largest in the world. By the spring of 1964 expenditures on this project had amounted to $70,000,000.

Northwest Escarpment and Interlake Reclamation Project.—By agreement between the Federal Government and the Manitoba Government, certain flood control and land reclamation projects may be jointly undertaken. Investigation and reclamation work has been done to overcome flooding and erosion problems in the Riding, Duck and Porcupine Mountain areas and the Whitemud watershed, consisting of stream channel improvement, dyking, stream bank erosion control and building cutoffs and diversions. However, since 1958, work has been mainly confined to studies in the Wilson Creek headwaters area, and to completion of the reclamation projects on the Fairford and Icelandic Rivers of the Interlake region.

Assiniboine River Reclamation Project.—Flooding problems along the Assiniboine River between Portage la Prairie and Headingly in Manitoba have, over the years, caused damage to farm land, buildings and other property. Flood protection work, which has been carried on for many years, has consisted mainly of dyke construction and channel improvement; however in 1962 an agreement was signed between the governments of Canada and Manitoba for major flood control measures, including a large-scale flood control and water conservation reservoir on the Assiniboine River near Shellmouth, and the construction of a diversion canal near Portage la Prairie to carry Assiniboine River floodwaters to Lake Manitoba; construction of the main dam will begin in 1964.

Community Pasture Program.—The conversion of submarginal land from cereal crop production to pasture has been considered one of the necessary adjustments in land use in the drier areas of the Prairie Provinces. The 1937 amendment of the Act enabled PFRA to withdraw such land from cultivation and assist farmers to move to better areas.

Since then, 75 pastures have been developed, comprising some 2,250,000 acres of land providing controlled summer grazing for 150,000 head of cattle owned by more than 7,500 patrons. Current pasture development under PFRA, and under the cost-sharing Agricultural Rehabilitation and Development Act program, is based on the need to diversify production as a means of improving the position of low income farmers.

Maritime Marshland Rehabilitation Act

The MMRA program was instituted in 1948 by federal legislation to assist Nova Scotia, New Brunswick and Prince Edward Island in preserving and developing tidal marshlands, mainly in the Bay of Fundy area. The Federal Government constructs the protective works and the provinces make arrangements with land owners, provide drainage ditches and encourage proper use of the land. In all, 123 areas totalling more than 81,000 acres have been protected by 250 miles of dyke and 437 aboiteaux, or tidal dams.

One of the modern engineering techniques employed by the MMRA involves construction of large dam structures near the mouths of tidal rivers. These permanently reclaim the lands along such rivers, provide highway crossings and eliminate the continual change in stream-bed location which is characteristic of tidal rivers. The three major structures are: Shepody Dam, completed in 1955 at a total cost of $1,573,000, provides protection of a permanent nature to some 5,500 acres of fertile marshland from saltwater flooding and has reduced maintenance costs to only a fraction of what they were; Annapolis River Dam, completed in 1960 at a total cost of $2,500,000 ($915,000 paid by the Province of Nova Scotia) is a multi-purpose project providing a much needed highway crossing and protection of about 4,300 acres of rich farm land from saltwater flooding; and Tantramar River Dam, completed in 1960 at a total cost of $905,000 ($201,000 paid by the Province of New Brunswick) protects about 18,000 acres of marshland from flooding and provides a crossing over the Tantramar River for the Trans-Canada Highway.

The conservation problems which were the original basis for the MMRA have been largely overcome and, since the inception of the Agricultural Rehabilitation and Development Act program in 1961, the MMRA Administration has functioned in part as a regional ARDA office, and at the request of the provinces has provided engineering assistance on soil and water conservation problems in 37 areas of the Maritime Provinces.

Canada Water Conservation Assistance Act

This Act was passed in 1953 to enable federal participation up to 37.5 p.c. of the cost of construction of dams and other major water conservation and control projects. To date (mid-1964) only Ontario has participated, its three projects being the Ausable River Conservation Program, the Upper Thames River Conservation Program and the Metropolitan Toronto and Region Conservation Program. The over-all cost is estimated at $34,500,000, of which the Federal Government has agreed to provide a maximum of about $13,000,000. To Mar. 31, 1964, the Federal Government had contributed $2,800,000.

Agricultural Rehabilitation and Development Act

The Agricultural Rehabilitation and Development Act was proclaimed in June 1961 and is an important element in Canadian agricultural policy and renewable resources management policy at both national and provincial levels. The Act authorizes the Federal Government to enter into agreements with provincial governments for the joint undertaking of: (1) projects for the alternate use of lands classed as marginal or of low productivity; (2) projects for the development of income and employment opportunities in rural agricultural areas; (3) projects for the development and conservation of soil and water resources; and (4) projects for research relative to the foregoing. Discussions with the provincial governments, beginning in 1961, resulted in the signing, by October 1962, of a general ARDA agreement between the Federal Government and all provincial governments. The General Agreement, operative until 1965,* provides a more detailed interpretation of the Act and establishes an operating policy.

* The first Federal-Provincial Conference on ARDA, held Nov. 26-27, 1964, resulted in the acceptance of a new General Agreement to come into effect Apr. 1, 1965, covering ARDA operations until 1970; the total federal contribution was raised from $50,000,000 to $125,000,000.

The ARDA legislation arose out of recognition of a national interest in achieving better land use, improving the viability of farm units which are at present uneconomic, and of improving income and employment opportunities in rural areas. In many rural areas of Canada, income and living standards are unacceptably low and present land use is faulty or inefficient. To some considerable degree these economic, social and conservation problems, which interact to produce an adverse effect on rural standard of life, arise from farm mechanization; the more efficient, highly mechanized farmers, with adequate land and operating capital, are able to maintain profitable farming operations notwithstanding a relatively low market price for farm produce and the operators of smaller, less mechanized farms are thereby placed at a severe disadvantage. As a result, the number of farms in Canada has decreased since 1931 from about three quarters of a million to fewer than half a million and the trend toward farm consolidation and abandonment is continuing.

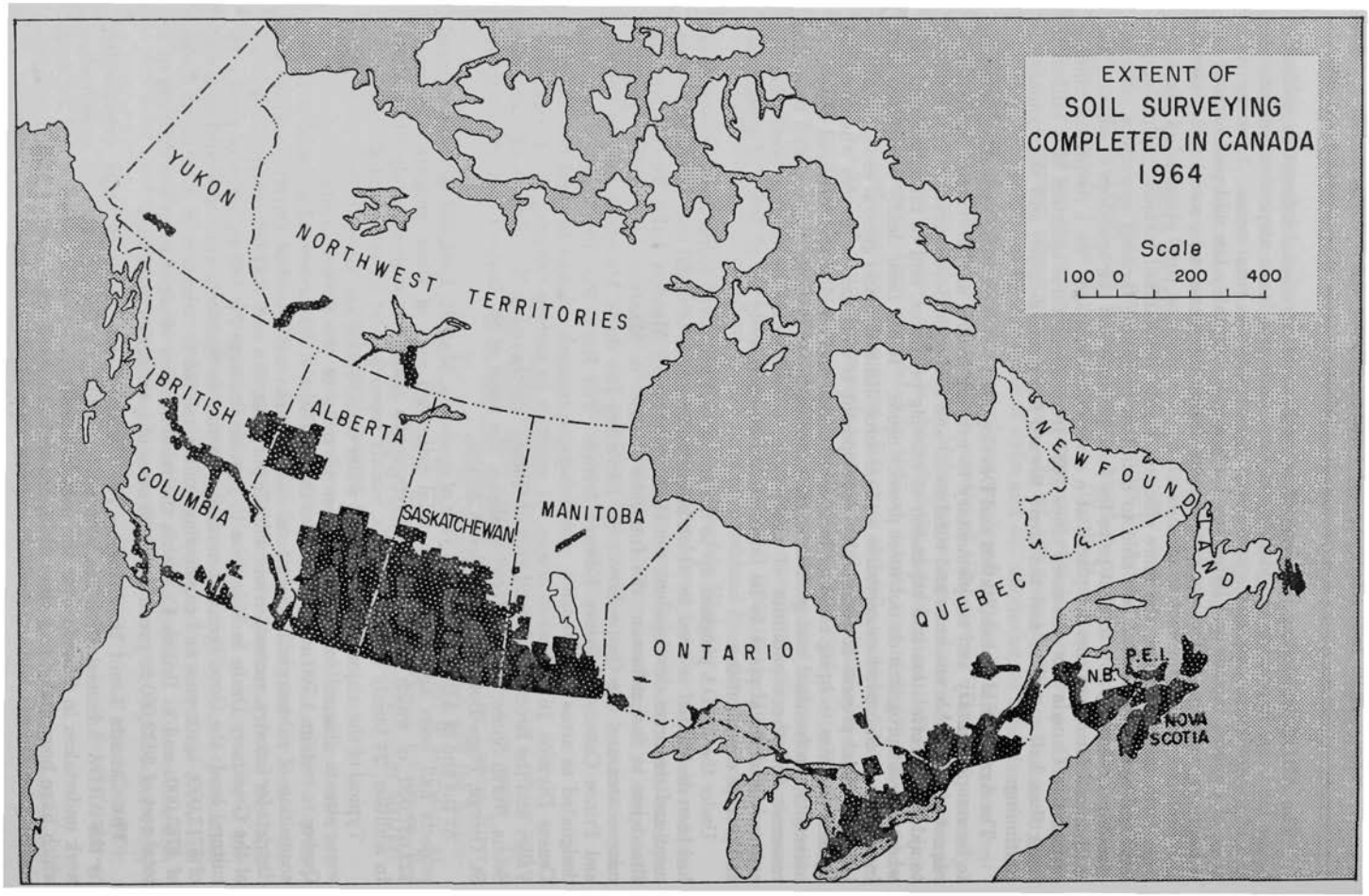
The Agricultural Rehabilitation and Development Act is enabling legislation, intended to be complementary and supplementary to existing federal and provincial legislation in respect of renewable resources and rural social and economic development. It is intended to aid in the correlation and expansion of existing programs, and to fill substantial gaps where current programs do not meet present needs. It has been clearly recognized that, in addition to improved conservation and resource utilization and general economic stimulation, a social process of community development is essential—a process whereby local citizens organize to bring together local institutions and employ the technical counsel of university, professional and governmental agencies to study their physical and economic resources and the capabilities of the people; subsequently developing comprehensive economic and social plans to be implemented co-operatively by all levels of government and private organizations.

Under the ARDA program up to the spring of 1964, seven Rural Development Areas had been designated as areas in which intensive programs of social and economic development and resources development would be undertaken: Meadow Lake, Torch River and Broadview in Saskatchewan; the Interlake District in Manitoba; the Abitibi–Témiscamingue area and the Gaspe–Lower St. Lawrence–Îles de la Madeleine area in Quebec; and Prince County of Prince Edward Island. Ten Rural Research Regions had been designated as areas for intensive, comprehensive research relative to rural development: Census Division 16 in Saskatchewan; 11 counties in eastern Ontario; the Rouge River Valley and the Brome–Stanstead area of Quebec; northeastern New Brunswick; the Nova Scotia North Shore; and, in Newfoundland, the areas of St. Barbe–Coast, St. Andrews–St. George, Fogo–Bonavista, and South Avalon.

At the end of ARDA's first full year of operation, Mar. 31, 1964, 368 federal-provincial projects had been approved. The total estimated cost of these projects was nearly $23,627,000, of which the Federal Government's share was approximately $12,401,000. In addition, 24 purely federal projects, mainly research, cost an estimated $299,000.

Typical of the major ARDA soil and water conservation and alternate land use projects were: stream channel improvement over 10 miles of the Rivière Noire watercourse of Quebec to reclaim 1,700 acres of land for the benefit of 1,480 farmers, at a cost of $247,000; acquisition of submarginal agricultural land in eight north-central Ontario counties and districts for forestry, recreation and wildlife purposes, at a cost of $1,689,000; reconstruction of the Grassmere Drain in Manitoba to provide drainage for 182 sq. miles of good agricultural land; the Good Spirit Community Pasture in Saskatchewan, developed at a cost of $713,000; agronomic and engineering studies related to irrigation in Alberta, at a cost of $783,000; and in British Columbia the rehabilitation of eight irrigation districts at a total cost of $622,000 to preserve 15,000 acres of good agricultural land.

The Canada Land Inventory.—The Canada Land Inventory being co-ordinated by the ARDA Administration has been made possible by the extensive soil classification work undertaken in Canada over the past half-century. The co-operative Soil Surveys, which have been under way since 1935, are staffed by soil specialists of federal and provincial governments and universities and are supported by all senior governments.


EXTENT OF
SOIL SURVEYING
COMPLETED IN CANADA
1964
Scale
100 0 200 400
YUKON
NORTHWEST TERRITORIES
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEWFOUNDLAND
P.E.I.
N.B.
NOVA SCOTIA

For several decades the Soil Surveys have been classifying and mapping land according to its inherent characteristics. Most of the agricultural areas have been mapped at varying scales and degrees of intensity, and maps and reports have been published providing much fundamental information on Canadian soils. Although designed to meet the needs of the agricultural industry, the Surveys provide information that can often be used as a basis for assessment of the capability of land for various possible alternative uses. A second type of land classification, according to its present use, has been carried out over much of Canada, particularly by means of the land-use mapping program of the Geographical Branch of the federal Department of Mines and Technical Surveys which began in 1950. The Dominion Bureau of Statistics, the Economics Division of the Canada Department of Agriculture, and the statistical agencies of the province also provide information on the social and economic factors of land use.

The Canada Land Inventory carries out a third type of land classification—according to its assessed capability for different uses. Increasing competition for the use of land has led to recognition by governments of the need to assess land capability and apply this information to land-use policy and programs. On the basis of much fundamental work in classifying and mapping soils, gathering climatic data, studying present uses, and compiling statistics on productive capacity, it is now possible for scientists in the fields of agriculture, forestry, recreation and wildlife to rate the capability of land, employing classification systems that provide a basis for effective land-use planning in Canada. In October 1963, the Canada Land Inventory was approved as a means of accomplishing this; the Inventory is being planned and implemented co-operatively by the Federal Government and all provincial governments individually with the ARDA Administrations functioning as co-ordinators. The Federal Government will reimburse each province for all additional costs it incurs in the conduct of the Inventory.

The broad objective of the Canada Land Inventory is to classify lands in and adjacent to the settled portions of Canada as to their use capabilities, and to obtain a firm estimate of the extent and location of each class. These lands would be classified according to: their physical capabilities for use in agriculture, forestry, recreation and wildlife management; their present use; and socio-economic factors relative to their present use. This vast amount of information is to be gathered, stored on computer tapes, analysed and published in such a way that the Inventory will become a working tool in resource use and rural development programs across Canada.

During 1963 and 1964, the federal and provincial ARDA organizations have established co-ordination among the approximately 100 agencies of the 11 senior governments which are concerned with the Inventory, and with the numerous universities, non-governmental organizations, and private companies and individuals who are participating in the Inventory. A nation-wide inventory of soil capability for agriculture and forestry is under way, and planning for the other sectors—recreation and wildlife—is proceeding.

Section 3.—Federal and Provincial Co-ordinating Committees

During the two-year period of preparation for the "Resources for Tomorrow" Conference of October 1961, the Federal Government and all provincial governments established interdepartmental committees of departments concerned with natural resources. Subsequent to the Conference, most of these committees continued—usually in an altered form—to meet the newly emerging need for co-ordination among departments for the implementation of the ARDA program. The committees are as follows.

Federal Government.—The Federal Interdepartmental Co-ordinating Committee, comprised of the Ministers of eight departments—Agriculture, Forestry, Fisheries, Finance, Labour, Industry, Citizenship and Immigration, and Northern Affairs and National Resources. The Interdepartmental Advisory Committee for ARDA, comprised of the Deputy Ministers of these Departments. In practice, co-ordination in detail is achieved through sub-committees or *ad hoc* committees.

Newfoundland.—ARDA Co-ordinating Committee, comprised of four Deputy Ministers of the resource departments and education.

Prince Edward Island.—The Ministerial Committee for ARDA, comprised of the Premier and Ministers of the resource, education, tourist development and municipal affairs departments. The Deputy Ministerial Committee for ARDA, comprised of the Deputy Ministers of resource and education departments. County ARDA Committee.

Nova Scotia.—The Resources Development Co-ordinating Committee, comprised of four Deputy Ministers of the agriculture, municipal affairs, lands and forests and attorney general departments, and four senior officials. The Inter-departmental ARDA Committee, comprised of 21 senior officials of the resource, planning and social service departments, ARDA Departmental Committees of the departments of agriculture and lands and forests.

New Brunswick.—Provincial ARDA Committee, comprised of eight Deputy Ministers of the agriculture, lands and mines, fisheries, industry, labour, public works, municipal affairs and youth and welfare departments, the General Manager of the Electric Power Commission, an officer of the Research and Productivity Council, an economic adviser, and two federal officials as consultants.

Quebec.—An interdepartmental committee composed of five Ministers; the ARDA Administration; the Permanent Committee for Resource Development, composed of the Minister of Agriculture and Colonization and the Deputy Ministers of Agriculture and Colonization, Industry and Commerce, Natural Resources, Tourism, Hunting and Fishing, Lands and Forests, and Municipal Affairs; the Economic Planning Council of Quebec, composed of five regular and five associate members selected from the senior officers of the government.

Ontario.—An ARDA Directorate established under the Agricultural Rehabilitation and Development Act of Ontario (1962-63) consists of ten Deputy Ministers or senior officers from seven departments and the University of Guelph. The Directorate reports to the Government of Ontario through the Minister of Agriculture.

Manitoba.—The Manitoba Development Authority is comprised of the Premier, four Ministers, five Deputy Ministers and an Executive Secretary. A Deputy Ministers' Committee on Rural Development and ARDA. A Technical Committee to carry out the instructions of the Deputy Ministers' Committee. Advisory Committees to the Deputy Ministers on Rural Development, Land Use and Soil and Water Conservation.

Saskatchewan.—The Committee on Agricultural and Renewable Resources Development, comprised of the Deputy Ministers of the Departments of Agriculture, Natural Resources, Municipal Affairs and Education, and a representative of the Water Resources Commisson. The Committee is chaired by the Secretary of the Economic Advisory and Planning Board.

Alberta.—The Alberta ARDA Co-ordinating Committee, comprised of the Deputy Ministers of four resource departments, the Director of Lands, and the ARDA Co-ordinator. The Alberta ARDA Advisory Committee, comprised of 14 senior provincial officials of various resource departments and two federal officials.

British Columbia.—The Ministerial Committee for ARDA, comprised of three Ministers representing five natural resources departments. Deputy Ministers Committee for ARDA, comprised of the Deputy Ministers of five resource departments.

Section 4.—Other Federal Resource Agencies and Their Federal-Provincial Programs

The Department of Northern Affairs and National Resources.—This Department engages in many diverse activities including administration of national parks, some of the aspects of water resources under federal jurisdiction, administration of the resources of the Yukon and Northwest Territories, wildlife administration (particularly the Migratory Birds Convention Act) and administration of other natural resources under federal jurisdiction. The Water Resources Branch, the National Parks Branch and the Northern Administration Branch, in particular, deal with natural resources and administer the federal-provincial agreements and programs, which are as follows. *Roads to Resources Agreements*: made with all provinces between 1958 and 1960, involve construction of access roads mainly to mining, lumbering and tourism areas; total federal expenditure to 1964 was approximately $53,000,000, matched by equal provincial expenditure. *Canada Water Conservation Assistance Act* (see p. 432). *Fraser River Board*: established in 1949 to study flood control, hydro development, etc. The Federal Government has spent

about $1,800,000 on research and other activities to date; British Columbia has spent a similar amount.* *Columbia River Agreements*: signed in 1963 and 1964 to define the rights and obligations to British Columbia under the Columbia River Treaty and related arrangements. *Prairie Provinces Water Board*: comprised of one member from each of the Prairie Provinces and two members from the Federal Government; its function is to recommend water allocation from interprovincial streams to each province. *Nelson River Investigation*: established in 1963 to study power sites on the river and the means of achieving their development. The Nelson River Programming Board and Administrative Committee, the former comprising three federal and three Manitoba members and the latter two members each, have completed preliminary engineering studies of power potential of the system at a cost, up to Mar. 31, 1964, of approximately $500,000 to the Federal Government and a similar amount to Manitoba. *Greater Winnipeg Floodway Program*: an agreement with Manitoba in 1962 provides for the construction of a floodway for the Red River, to extend from St. Norbert past Lockport, at a cost to the Federal Government of nearly $37,000,000 and a total cost of about $63,000,000. *Ottawa River Engineering Board*: established to conduct joint hydrologic studies by the Federal Government, Ontario and Quebec of the storage and regulation possibilities in the Ottawa River Basin from the viewpoint of all interests affected, including uses for power, logging, navigation, municipal use, etc. *Study of Flood Flows*: established in 1964 between Nova Scotia and the Federal Government for a one-year program to study the size, location and frequency of flood flows in Nova Scotia watercourses.† *Hydrometric and Sediment Survey*: beginning in the 1930's this program, varying between provinces, provides for sedimentation and hydrometric studies in most provinces. *Grand Rapids Habitat Study*: involves examination of the Moose Lake area of Manitoba on the effect of the Grand Rapids dam on wildlife habitat, particularly that of muskrat and migratory birds. *Fur Conservation Agreements*: established between the Federal Government‡ and Ontario, Manitoba and Saskatchewan for the construction of water control works to improve management of fur bearing animals, chiefly muskrat, in marshland areas. *Wildlife Inventory Program*: joint studies are carried out informally, e.g., the waterfowl inventory conducted by the Federal Government, the United States Fish and Wildlife Service, the Prairie Provinces and the Provinces of British Columbia, Ontario and Newfoundland, and the caribou inventory by the Federal Government and the governments of Saskatchewan, Manitoba, Quebec and Newfoundland. *Trans-Canada Highway Campgrounds and Picnic Areas Program*: established in 1958 between the Federal Government§ and all provinces except Ontario and Quebec to provide improved tourist facilities, with the Federal Government sharing costs equally to a maximum of $2,000,000; $919,000 had been spent by 1963.

The Canada Department of Agriculture.—This Department is concerned with physical and economic research relative to the agricultural industry, grading and inspection, disease and pest control, soil and water conservation, marketing, farm credit and other related activities. Federal-provincial natural resources agreements administered by the Department, additional to certain PFRA and MMRA agreements, are as follows. *Soils Survey*: a cost-sharing program conducted co-operatively since 1935 with most of the provinces to classify soils according to their physical characteristics, to assess their usefulness for agriculture, and to publish the information in the form of maps and reports. A number of universities are actively involved in the program (see p. 435). *Lime Assistance Program*: an annual agreement applicable to British Columbia, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, beginning in 1943, to reduce acidity of agricultural soils by application of limestone or other alkali material. Federal contributions have amounted to about $16,770,000 since inception. *Land Clearing and Bogland Reclamation*: a joint federal-Newfoundland program to develop

* The Department of Northern Affairs and National Resources participates in the East Slope and Pembina River programs; the Departments of Transport and Forestry also participate in the East Slope program.
† The federal Department of Transport is also participating in this study.
‡ The Indian Affairs Branch of the Department of Citizenship and Immigration is also involved in these agreements and works.
§ The Department of Labour Winter Works Program is also involved in this program.

Newfoundland's extensive boglands and arable forest lands for crop and pasture use and for gardens. Since it began in 1953, the federal contribution has been $1,100,000 matched by the province. This program is being carried forward under ARDA.

The Department also participates in the East Slope (Alberta) Watershed Research program, the Greater Winnipeg Floodway program, and the International Pembina River Engineering Board.*

The Department of Mines and Technical Surveys, the Atomic Energy Commission, the National Research Council and the Fisheries Research Board.—These departments and agencies, in co-operation with the Ontario Government, the federal Department of Fisheries, the University of Toronto, the United States National Science Foundation, and private sources, support the Great Lakes Institute in its comprehensive program of research on the Great Lakes fisheries problems and other relevant problems. The Institute, together with the international Great Lakes Fisheries Commission (relative to lamprey control), co-operates in work under an agreement made in 1960 between the Federal and Ontario Governments to fulfil the recommendations of the federal-provincial Great Lakes Fisheries Co-ordination Committee. The Federal Government conducts general fisheries research and lamprey research and control on Lake Superior, and economic and technological studies on all the Great Lakes. Ontario conducts general fisheries research on lakes Huron, Erie and Ontario, collects data and does hydrographic work. A number of other federal, provincial and non-governmental agencies support the Institute in various ways. Co-ordination is achieved through the federal-provincial Committee for Ontario Fisheries.

The Department of Fisheries.—This Department is responsible for administration of the Fisheries Act which, by agreement with Alberta, Saskatchewan, Manitoba, Ontario and Quebec, is applied by provincial administrations of these provinces. The Department of Fisheries is the federal body which, with the research and co-ordination assistance of the Great Lakes Fisheries Institute, fulfils the federal commitments under the federal-Ontario agreement of 1960.

The Department of Transport and the Department of National Health and Welfare.—These departments extend assistance in various forms to provincial and municipal governments for the study and abatement of air pollution. They have, in co-operation with municipal and provincial organizations, established an air sampling network to collect data on pollutants in urban centres and correlate it with meteorological data.

The Department of Citizenship and Immigration.—In general, the federal-provincial agreements in which this Department participates concern wildlife as a factor in Indian income opportunities. The agreements include: the Sipanok Fur Area agreement, which is mainly concerned with muskrat production; the Fur Conservation Agreements with Ontario, Manitoba and Saskatchewan† under which several million dollars have been spent in joint conservation programs; the federal-Ontario resources management program for the Bruce Peninsula; a federal-Ontario agreement whereby the Ontario Government operates a fur farm on Akimiski Island of James Bay on behalf of the Northwest Territories Council and the Indian Affairs Branch; the Beckwith Island grouse study in Georgian Bay; and various projects for industrial development of resources (particularly fish) in the interest of Indian communities.

The Department of Forestry.—This Department is concerned primarily with promoting effective management of Canada's forest resources and improving wood utilization, and to these ends conducts comprehensive programs of research and undertakes, promotes and recommends measures to encourage application of desirable methods. In

* The Department of Fisheries is also a member of the Fraser River Board.
† The Department of Northern Affairs and National Resources is also a party to this agreement.

addition to the federal-provincial resource agreements under ARDA, the Department of Forestry is responsible for federal administration of joint programs as follows. *Composite Forestry Agreements:* beginning in 1951 and in 1960 provided for in the Department of Forestry Act, the agreements cover federal assistance in five areas of forestry—inventories, reforestation, fire protection, access roads and trails, and forest stand improvement. The annual allotment provided by the Federal Government is $7,910,000, allocated between provinces according to a formula based on productive forest area. *Forest Stand Improvement Program*: established under federal-Nova Scotia agreement in 1961 for the improvement of Cape Breton Island forest stands and to provide employment for coal miners affected by mine closures. *Eastern Rockies Forest Conservation Area*: a 25-year federal-Alberta agreement beginning in 1947 and revised in 1951 and 1957 provided for conservation of 9,000 sq. miles of forest on the headwaters of the Bow, Crowsnest and Clearwater Rivers, to ensure maximum water flow in the Saskatchewan rivers. The Federal Government provided the capital costs of $6,200,000, and the province maintains the projects. *Fire Protection Arrangements*: include federal-Alberta agreements for fire detection and suppression in the Rocky Mountains Forest Reserve and similarly on the boundary areas of Waterton Lakes, Banff, Jasper and Wood Buffalo National Parks. *Forest Research Agreements*: include federal-Ontario agreements for forest research, under an advisory committee composed of five federal and five provincial members, to develop experiments and test procedures; operation of the Forest Insect Laboratory at Sault Ste. Marie and the Forest Pathology Laboratory at Maple, Ont. *Budworm Spraying Program*: established in 1953 as a means of controlling spruce budworm infestation by a spraying program conducted by Forest Protection Ltd., a federal-provincial-industry organization composed of four pulp and paper companies, the Government of New Brunswick and the Federal Government. More than 20,000,000 acres have been sprayed at a total cost of more than $15,000,000, of which the Federal Government has contributed $5,000,000.

CHAPTER XI.—AGRICULTURE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

AGRICULTURE IN THE CANADIAN ECONOMY, 1964*

In the past quarter-century, the relative importance of agriculture as a primary industry in the Canadian economy has declined, although it has not declined in absolute terms. The gross domestic product (GDP) is probably the most useful statistic for measuring the contribution of the various industries to the economy. In the period 1935-39, the GDP at factor cost, that is, the value of all goods and services produced in Canada from domestic materials, averaged $4,534,000,000, of which agriculture contributed an average of $488,000,000 or 11 p.c. By 1962, the total GDP had reached $35,931,000,000 but the proportion contributed by agriculture, although over four times greater in value than in 1935-39, amounted to only 5.5 p.c. of the total. The annual rate of growth in agriculture has been much less than that for other industries, averaging about 1 p.c. since 1935-39 compared with a rate of growth of 4.4 p.c. in the goods-producing industries, of 4.5 p.c. in the service industries and of 4.7 p.c. in the commercial industries. The highest growth rate in the past quarter-century has been in the electric power and gas utilities industries—over 8 p.c. annually.

As a primary industry, then, agriculture contributes 5.5 p.c. to the total GDP but its importance to the national economy does not end there. Agriculture is a large consumer of industrial products such as fertilizers and machinery; farmers are large borrowers of capital; the movement of agricultural products to the factories and export markets provides a great volume of business for transportation companies; agricultural processing industries provide employment for many industrial workers; and agricultural exports contribute much to Canada's balance of payments in international trade.

*Prepared in the Economics Division, Canada Department of Agriculture, Ottawa.

Farm Land and Farm Labour.—The area of occupied farms in Canada in 1961 was 172,600,000 acres, representing 7.6 p.c. of the total land area of the country including the Yukon and Northwest Territories. Excluding the Yukon and Northwest Territories and Newfoundland, where the amount of arable land is minimal, the occupied farm land amounts to 13.8 p.c. of total land area. By comparison, the total occupied productive forest land amounts to about 194,000,000 acres, exclusive of farm woodlots.

Among the provinces, Prince Edward Island has the greatest proportion of its land area in farms—two thirds of the total—and Saskatchewan follows with 46 p.c. in farms. Conversely, farm land constitutes a very small proportion of the total land area in Newfoundland and amounts to less than 5 p.c. in both British Columbia and Quebec. The average size of the 481,000 farms in Canada in 1961 was 359 acres, about one fifth larger than the average size in 1956. As may be expected, the farms in the grain-growing prairie region were the largest, averaging over 600 acres, and those in the mixed farming region of Central Canada (Ontario and Quebec) were the smallest, averaging 151 acres.

More than 2,100,000 people were living on farms in 1961, representing about 12 p.c. of the total population and 38 p.c. of the rural population; in 1931, almost one third of Canada's population lived on farms. Today, the number of persons living on farms averages just over four per farm, ranging provincially from 3.3 persons in Saskatchewan to 6.3 in Newfoundland, 6.1 in Quebec and 5.4 in New Brunswick.

The farm labour force in 1961 averaged about 674,000 persons, 11 p.c. of the total *employed* labour force. By 1963, this average had declined to 641,000 persons or 10 p.c. of the total. On the other hand, although the total farm labour force is constantly declining, the numbers of hired farm workers have remained relatively stable, averaging 100,000 in 1961 compared with 101,000 in 1963. It is interesting to note that the greatest decline in the farm labour force since 1946 has been in the family help group; the number of family workers, other than farm operators, has decreased 61 p.c. as compared with a decrease of 41 p.c. in the number of farm operators. The decrease in hired labour has been 31 p.c. in the same comparison. However, agriculture still provides employment for more than three times as many workers as all other primary industries combined. As an industrial group, it ranks fourth in importance as an employer, after manufacturing, service (excluding government) and trade.

The decreased employment in agriculture reflects the very greatly increased efficiency of farm labour. In the 1935-39 period, 11 persons were supplied with foodstuffs and fibre by the production of one farm worker; by 1946 the ratio had risen to 13 persons and by 1963 to 33. Thus, output per farm worker, in terms of the number of persons supported, is now three times that of the prewar level. In fact, the main characteristic of Canada's postwar agricultural "revolution" has been the ever-decreasing number of farm workers required to supply foodstuffs to the ever-increasing number of consumers, a natural result of the increased use of mechanical power and such other aids to production as chemical fertilizers and weed and insect controls. In addition, improved breeding and feeding of livestock, improved crop varieties and better farm practices have greatly increased over-all efficiency in the use of agricultural resources since prewar. The average annual milk production per cow, now at 6,500 lb. or more, is up by over 60 p.c. The average rate of lay of all poultry flocks is up from 140 eggs per layer to almost 200. In 1941, 6 lb. of feed were needed to produce a pound of gain in poultry meat production but a conversion rate of 2.5 lb. or better is common today. Grain corn yields are up over 50 p.c.; the average yield per acre in Ontario in 1932-41 was 41 lb. but in the past ten years the average has been 63 bu. an acre.

Farm Financing.—The capital investment in farming is large, amounting to an estimated $12,400,000,000 or $19,000 per worker; 64 p.c. of this is in real estate, 19 p.c. in machinery and equipment and 17 p.c. in livestock. New capital formation in agriculture exceeds $700,000,000 annually, 9 p.c. of the total for all industries.

Investment capital finds an important outlet in agriculture, both for short-term lending and for longer-term capital projects. Interest payments on farm indebtedness

are estimated to amount to more than $70,000,000 annually. The major sources of long-term credit extended to farmers are federal and provincial government agencies and individuals. Loans approved by the federal Farm Credit Corporation in the year ended Mar. 31, 1964 exceeded $108,000,000. Loans of intermediate-term length may be obtained by farmers from a number of sources but are mainly received through the chartered banks under the Farm Improvement Loans Act; lendings under that Act reached a total of $136,000,000 in 1963, about three quarters of which went into the purchase of equipment. Short-term credit, mainly for production expenses, constitutes the largest volume of farm borrowings and is the most expensive. The chartered banks, farm machinery dealers, feed and fertilizer firms, credit unions and oil companies are all important sources of short-term farm credit.

Commercial Farming and Specialization.—While the individually owned and operated farm is still the predominant form of farming in Canada and is likely to remain so for most farm enterprises, there has been a notable trend toward specialization and commercial development, particularly in the more densely populated areas, and farms generally have progressed a long way from the subsistence organization of pioneer days or even the stage of development reached in the immediate prewar days.

There are various yardsticks for measuring specialization and commercialization in farming, all of them showing in one way or another that farmers have substituted capital for labour and also have increased the size of their business. Changes taking place over the decade 1951-61 were recorded by the census, and perhaps the most significant indication of the trend was in the decreasing proportion of farms found by the census to be in the "mixed farming" classification, which included those farms with no predominant enterprise such as dairying or wheat growing. Such farms constituted 18 p.c. of all commercial farms (farms with sales of $1,200 or more) in 1951 but only 12 p.c. in 1961.

The increase in the average capital investment per farm, even after allowing for rising prices and appreciating land values, is another measure of the commercial development of agriculture. In 1951, two thirds of the nation's farms had a total capital investment in real estate, machinery and livestock of less than $10,000 but by 1961 only one fifth of all farms were in this category. In 1951, about 34,000 farms, or 5 p.c. of the total, had a capital investment of $25,000 or over; almost 40 p.c. were in this size group in 1961.

In 1951, 62 p.c. of all farms produced $1,200 or more worth of farm produce annually; in 1961, the proportion was 74 p.c. The decrease in numbers of farms during the decade was greatest in the group of census farms producing less than $1,200 worth of products. The decrease in numbers of all farms was 16 p.c. but the decrease in the numbers of those producing $1,200 or more of farm produce was 9 p.c.*

A commercial farm is often thought of as being one with a large acreage but this is not necessarily so. A commercial farm may be of any size and there were relatively small changes from 1951 to 1961 in the size-distribution of farms with sales of $1,200 or more. In 1951, 1.3 p.c. of all these farms were nine acres or less in size compared with 1.6 p.c. in 1961; in both years, most were in the 70-to-239-acre size group—in 1951, 45 p.c. and in 1961, 39 p.c. The farms containing more than 400 acres increased from 1 to 2 p.c. of the total in the decade. The larger Canadian farms produce the greater proportion of the total output. In 1961, farms with sales of $5,000 or more constituted 29 p.c. of all farms and produced 71 p.c. of all sales; in 1951, the corresponding proportions were 14 p.c. and 47 p.c., respectively. In the latest census year there were 50,000 farms averaging 810 acres in size and these farms, which made up 10 p.c. of the total number, accounted for 45 p.c. of all sales.

That farms have become more specialized is indicated by the fact that in 1961 there were generally fewer enterprises on each farm and that the enterprise was larger than a decade earlier. The proportion of all farms reporting cattle was about the same in 1961 as in 1951 but the average number of cattle on those farms increased from 17 head to 32

*Comparison made using the 1951 Census definition of a farm (see p. 496).

head. Fewer farmers kept milk cows in 1961 than in 1951, the proportions being 64 p.c. and 73 p.c., respectively. Decreases also occurred in the number of farmers keeping hogs and hens and chickens, the former dropping from 58 p.c. to 46 p.c. and the latter from 69 p.c. to 55 p.c. Similar changes occurred in various crop enterprises. In 1951, almost 60 p.c. of all farms grew potatoes and the average size of enterprise was eight tenths of an acre; in 1961, the proportion had decreased to 45 p.c. and the average size had increased to one and four tenths acres. Average sugar beet acreages rose from 17 acres in 1956 to 23 acres in 1961 and tobacco acreages per farm were up by about one acre over the same five-year period.

Regional and Provincial Contributions of Agriculture.—Agricultural production, being dependent on such factors as soil, climate and access to markets, naturally differs from region to region across the great expanse of Canada. In general, the country may be divided into four main geographical areas—the Maritime Provinces (excluding Newfoundland), Central Canada, the Prairie Provinces, and British Columbia—and, although local differences in agricultural production exist within these areas, one or two major types predominate.

The regional differences in Canadian farm production are indicated by the distribution of cash income from farm product sales. In 1963, Western Canada (the Prairie Provinces and British Columbia) accounted for 73 p.c. of the total value of crops sold. Wheat, including Canadian Wheat Board payments, accounted for 53 p.c. of the total value of all crops sold; 97 p.c. of the wheat output is grown in the Prairie Provinces. The prairies also lead in the production of feed grains, rye, flaxseed and rapeseed. All of Canada's commercial production of soybeans is grown in Ontario. Potato production is concentrated in Eastern Canada where over 86 p.c. of the total income from sales is realized, 44 p.c. of it in the Maritimes. Climatic factors are the main determinants of areas suitable for fruit and vegetable production with the result that southern Ontario and British Columbia produce three quarters of the total value.

Agriculture is third in importance of all the commodity-producing industries.* However, its relative importance differs somewhat in each province. Agriculture is the largest contributor to the net value of total output only in Saskatchewan, where it contributes about 30 p.c. to the province's economy, followed closely by construction. Agriculture ranks second in Prince Edward Island, after construction, producing about 28 p.c. of the total net value. Farming is in the same relative position as for the nation in Quebec, Ontario, Manitoba and Alberta. In the first three of these provinces, manufacturing is the leading commodity-producing industry and construction leads in Alberta. In Nova Scotia, agriculture ranks fifth in importance and is in sixth position in British Columbia; in both provinces, manufacturing is the leading industry.

The net value of agricultural production for Canada in the years 1960-61 averaged $1,859,000,000 (in current dollars), over three times the average value produced in 1935-39. Over the same period, the increased ratios by province were: Prince Edward Island, 2.6; Nova Scotia, 1.6; New Brunswick, 2.1; Quebec, 3.0; Ontario, 3.3; Manitoba, 2.8; Saskatchewan, 3.9; Alberta, 3.4; and British Columbia, 3.6. Price rises contributed largely to these increases but the physical volume of agricultural output was greater or only slightly less in 1960-61 in all provinces. For Canada as a whole, output in 1960-61 was 1.5 times greater than in the immediate prewar period. It should be recalled when considering this comparison that drought sharply reduced output in the Prairie Provinces in 1961 as it did in several years of the earlier period.

"Agri-business".—Agriculture in its primary production stage provides employment for 641,000 persons, but many more derive their livelihoods from the processing, transportation and marketing of farm products. Approximately 314,000 persons are employed in the manufacturing industries using products of farm origin, both domestic and imported,

*Include agriculture, forestry, fisheries, trapping, mining, electric power, manufacturing and construction. Based on 1961 estimates of net value of production.

and these people make up 24 p.c. of all employees in manufacturing. Manufacturing establishments using products of farm origin constitute 27 p.c. of all plants and include firms engaged in the manufacture of bakery products, the preserving of fruits and vegetables, the manufacture of dairy products, flour milling, feed preparation, meat packing and tobacco manufacturing; 24 p.c. of the manufacturing plants use products of Canadian farm origin only.

The farming community is a large consumer of industrial products, the production of which provides employment for an ever-widening group of workers. The farm machinery and repair parts industry annually does $330,000,000 worth of business at wholesale prices, employs 11,000 people in 69 factories, and pays average annual wages and salaries of $4,800. Farmers are large users of fertilizers and agricultural limestone, supporting an industry doing more than $105,000,000 worth of business annually, and the quantity sold is rising each year. There are 42 fertilizer plants in Canada producing mixed fertilizers and employing 1,200 workers earning an average wage of $4,700. Farmers buy large quantities of gasoline and diesel fuels for the 1,000,000 or more motor vehicles and tractors on farms. In 1961, there were 358,000 automobiles on farms, or 1.1 per farm reporting; 68 p.c. of the farmers had cars and more than half of them had trucks. Farmers' cars represent over 8 p.c. of total Canadian automobile registrations and farm trucks are equal in number to more than one quarter of all commercial cars and trucks. Motor fuels are used, as well, in other items of farm equipment such as self-propelled combines and swathers. Electrical equipment is also important on Canadian farms, over 85 p.c. of which have electric power. Average consumption per "farm service" customer is over 4,300 kwh. a year.

Transportation.—The movement of farm products to domestic and export markets is an important part of the business of common and private carriers in Canada. One fifth of the gross revenue of the railways, trucks and inland water carriers in 1962 was from this source. The proportion was highest for trucks (for hire and private intercity), about 27 p.c.* compared with approximately 19 p.c. for inland water carriers (wheat only)† and 13 p.c. for the railways. The total gross revenue of all three carriers from freight traffic in 1962 was approximately $2,000,000,000 and the revenue from agricultural products was over $373,000,000.

Of the total volume of traffic tonnage on the St. Lawrence Seaway in 1962, including cargoes to and from United States and Canadian ports, products of mineral origin comprised 45 p.c. followed by agricultural products with 35 p.c. Wheat alone made up 15 p.c. of the volume of all traffic.

The transportation companies are important employers of labour in this country and, as was shown, about one fifth of their business is the result of agricultural production. Railway employees in 1962 numbered 137,000 and their average weekly wages and salaries amounted to $89.41. Truck transportation workers numbered 35,000, earning an average weekly wage of $83.13. Employment provided by the inland water carriers represents 32,000 jobs (including services incidental to water transportation), paying an average of $85.23 a week in wages and salaries.

Marketing.—The marketing of farm products in Canada is performed by a variety of agencies and private companies. The agencies include government boards, producer boards and co-operative marketing associations. Canada was among the first countries to develop bulk handling of grain. Today, this country has one of the world's most modern and efficient country and terminal elevator systems. The prairie country elevators, to which the farmer makes delivery, have an average capacity of 70,000 bu. each. At mid-1962 there were 5,226 licensed country elevators with a capacity of 367,000,000 bu. Terminal elevators, located at Fort William/Port Arthur, Vancouver and Churchill, numbered 46 with an average capacity of 3,400,000 bu. The 25 mill elevators had storage for 13,000,000 bu. and the 30 eastern elevators averaged 3,600,000 bu. storage capacity.

*Includes some United States farm products not separable.
†Excludes shipments destined for overseas countries and carried in ships of foreign registry.

Total licensed grain storage capacity in Canada therefore amounted to 644,000,000 bu. Grain elevators provided over 10,000 wage-earning jobs with average wages of $76 a week.

The Canadian Wheat Board has been operating since 1935 under the Canadian Wheat Board Act and relevant regulations. The Board is the sole selling agency in domestic and export markets for those crops named as grains under the Act and grown in the designated areas of Western Canada. These crops include spring and winter wheat, Durum wheat, oats, barley, rye, flaxseed and rapeseed. Before the opening of each crop year, the Board announces initial prices for each of these crops and then, as they are sold, returns are pooled by grade, out of which interim and final payments are made to each producer.

Producer marketing boards, authorized under provincial legislation, are active in the marketing of most other agricultural products. In 1962, the number of such boards was 80, compared with 31 in 1956. Some marketing boards limit their functions to negotiation of price and other terms of sale and are most effective for canning crops and other products that are normally sold on a contract basis. Other marketing boards have the power to direct the sale of produce as to time, place, quantity and quality, to set prices and to impose service charges. Still other boards function largely to negotiate terms of sale but designate an agency to handle a portion of the product sold.

The main commercial effort of Canadian farmers on a co-operative basis is in the marketing of their products. Sales of farm products through co-operatives averaged $975,000,000 in the two-year period 1961-62. This amount was equal to one third of all farm produce sold through commercial channels. The largest number of co-operative marketing associations serve dairy farmers. These numbered over 360 in 1962 and the number of associations handling livestock and livestock products was over 330. In volume of sales, the three wheat pools are foremost. They own and control country elevators throughout the western provinces and also terminal facilities at the Lakehead and Vancouver.

In 1963, commercial refrigerated space available for the storage of perishable food products in Canada amounted to 148,000,000 cu. feet in 3,114 warehouses. Of this space, about 62,000,000 cu. feet was in 263 warehouses constructed under the Cold Storage Act. The average wages and salaries of workers in the storage warehousing industry in 1962 was about $3 a week more than in the grain elevator trades.

The final link in the food chain from producer to consumer is the retail chain store or the independent grocery. Modern retail stores feature self-service but they are still employers of a large number of workers—in 1962, they employed 77,000 persons and their total wage and salary bill was over $4,000,000. While labour productivity at the retail level has increased notably in recent years with the development of self-service, the trend toward greater variety of high quality, conveniently packaged and often pre-cooked foods has probably resulted in higher marketing costs. It is estimated that the farmers' share of the consumer dollar in 1962 averaged 43 cents compared with 58 cents in 1950. However, with the rise in *real* income,* the quantities of the various food items that the consumer can buy with an hour's wages was higher in 1962 than a decade earlier. In 1962, an hour's wages in the manufacturing industries would buy 7.7 loaves of bread compared with 6.3 in 1950; or 8.0 qt. of milk compared with 5.6; 3.1 lb. of butter instead of 1.5; and 2.3 lb. of beef instead of 1.9.

Food Costs.—Because of improved efficiency, both in farm production and in the processing and marketing of farm products, the consumer now enjoys a wide range of quality foods at moderate cost. Prices paid by the consumer for food have risen proportionately less since prewar than have the prices of the goods and services farmers buy; food prices are now about 153 p.c. higher than in 1935-39 while commodities and services used by farmers have risen 191 p.c. Prices received by farmers are up by 164 p.c. but

*Income adjusted for the rise in consumer prices.

the wholesale prices of farm products have risen less than general wholesale prices. The general wholesale index is up by 140 p.c. since prewar compared with a rise of 136 p.c. in the wholesale prices of farm products.

Consumer expenditures on food are a slightly smaller proportion of their total expenditures on all consumer goods and services than they were before World War II—23 p.c. compared with 25 p.c. in 1935-39. Rising consumer income coupled with a smaller proportionate rise in food costs have left a greater proportion of consumer income for expenditures other than food.

Food Exports.—Canada is one of the major food exporting countries of the world. Cereals, cereal products, seeds, purebred livestock, livestock products, fruits and vegetables make up the bulk of the exports of agricultural products which are valued at over $1,000,000,000 annually, almost one fifth of Canada's total export trade. Wheat displaced newsprint in 1963 as the leading export item for the first time since 1952 and the record export sales of wheat and wheat flour provided a strong impetus to the economy. Purchases of new automobiles and equipment by farmers showed a sharp upswing.

Farm and Non-farm Incomes.—Realized net income from farming in 1963 totalled $1,410,000,000, not a record but equal to $3,056 per farm and the second highest average ever reached; in 1962 the average was $3,170. In addition, farm family workers derived income from non-farm sources. Real income per farm family worker, that is, income in terms of constant dollars, was 24 p.c. higher in the three-year period 1961-63 than in 1951-55. By contrast, real wages of factory production workers rose 25 p.c. over the same period of time. The rate of expansion of output in the postwar period in manufacturing was 3.9 p.c. annually compared with slightly more than 1 p.c. for agriculture. The higher rate of industrial over agricultural growth provided the economic incentive for the larger rise in real incomes in manufacturing.

Agricultural Research.—Biological and physical research in agriculture is undertaken extensively by the federal Department of Agriculture, by the universities and, on a more modest basis, by various provincial departments of agriculture, research councils, foundations and industries. At least 80 p.c. of all agricultural research is either done or provided with support by the federal Department of Agriculture. Without this program of research, Canadian agriculture could not have developed to its present level of efficiency.

A new development in 1962 was the founding of the Agricultural Economics Research Council of Canada to provide new knowledge and ideas in the interests of sound economic development. Its single objective is to strengthen the industry by the development of a long-range independent research program in the social sciences applicable to agriculture. Two studies to be undertaken by the Council are (1) an analysis of the objectives of government agricultural policy and (2) a study of the feed freight assistance program. The Council is financed by grants from the federal and provincial governments, from farm organizations and co-operatives, and from business and industry associated with agriculture.

Section 1.—Federal Government in Relation to Agriculture*

The federal Department of Agriculture dates from Confederation. It was established in 1867 as an outgrowth of a Bureau of Agriculture set up in 1852 by an Act of the Legislature of the Province of Canada. The Department derives its authority from the British North America Act, 1867, which states in part that "in each province, the legislature may make laws in relation to agriculture in the province" and that "the Parliament of Canada may from time to time make laws in relation to agriculture in all or any of the provinces;

*Prepared (May 1964) under the direction of S. C. Barry, Deputy Minister of Agriculture, Ottawa.

and any law of the legislature of a province relative to agriculture, shall have effect in and for the province as long and as far as it is not repugnant to any Act of the Parliament of Canada".

A Department of Agriculture with a Minister of Agriculture at its head was accordingly established as part of the Government of Canada. Departments of Agriculture headed by provincial Ministers of Agriculture were also set up by the provincial governments, except in the Province of Newfoundland where agricultural affairs are dealt with by the Agricultural Division of the Department of Mines, Agriculture and Resources. The agricultural affairs of the Yukon and Northwest Territories are administered for the Federal Government by the Territorial Division, Northern Administration Branch, Department of Northern Affairs and National Resources.

Subsection 1.—Services of the Department of Agriculture

The activities of the Canada Department of Agriculture fall into three broad groups: research, promotional and regulatory services, and assistance programs. Research work is aimed at the solution of practical farm problems through the application of fundamental scientific research to all aspects of soil management and crop and animal production. Promotional and regulatory services are directed toward the prevention or eradication of crop and livestock pests and the registration of chemicals and other materials used to achieve that end and toward the inspection and grading of agricultural products and the establishment of sound policies for crop and livestock improvement. Assistance programs cover some of the sphere of soil and water conservation, price stability, provision of credit, rural rehabilitation and development, and crop insurance and income security in the event of crop failure.

The Department has three main Branches—Research, Health of Animals, and Production and Marketing—and its organization includes a number of smaller units—the Agricultural Stabilization Board (see p. 453), the Agricultural Products Board, the Prairie Farm Rehabilitation Administration (p. 430), Crop Insurance (p. 453), the Economics Division, the Information Division and Departmental Administration. Agencies closely allied with the Department and responsible to the Minister of Agriculture are the Farm Credit Corporation (p. 450) and the Board of Grain Commissioners (see Part II of Chapter XXI).

Research Branch.—The Research Branch is the principal research agency of the Department. It conducts a broad program of scientific investigation covering both basic studies and practical attacks on agricultural problems. There are seven Research Institutes at Ottawa; two Research Institutes, ten Regional Research Stations, four Research Laboratories, 27 Experimental Farms and 20 Substations are located throughout the ten provinces and the Yukon and Northwest Territories. The professional staff of the Research Branch numbers 864, of whom 460 have doctorate or post-doctorate degrees.

The Research Branch serves all principal agricultural areas in Canada and co-ordinates its efforts with those of the National Research Council, universities and kindred agencies. One staff group is charged with the planning and co-ordination of the program and another with the administration required to carry it out. Four assistant directors general, representing regional and organizational divisions, assist the programming of the work. Three research services—statistics, engineering, and analytical chemistry, located with the administrative and executive group at Ottawa—provide research groups across the country with specialized leadership and service and undertake critical researches or other creative work as required.

The Research Institutes are organized on a scientific rather than a problem basis and are engaged primarily on basic research of wide application to agriculture. They also carry out related national work such as the identification of plants, insects and pathogens. There are seven Institutes at Ottawa and one each at London and Belleville in Ontario.

The *Animal Research Institute* covers the fields of genetics and breeding, nutrition, physiology, biochemistry and management, and tackles problems in the production of milk, beef, lamb, pork, poultry, eggs, wool and fur. Studies are carried out at the *Plant Research Institute* in taxonomy, physiology, biochemistry, pathology, agrometeorology, weeds, and fruit and vegetable processing and storage. Cytological and genetic studies on cereal, forage, tobacco and horticultural plants are made by the *Genetics and Plant Breeding Research Institute* with special reference to problems encountered in the breeding programs and the assessment of quality characteristics. The *Soils Research Institute* studies genesis and classification, fertility, mineralogy and the organic, physiochemical and physical aspects of soils. This Institute gives leadership to the federal-provincial soil survey program through classification studies and by developing and standardizing analytical methods. It also provides a national soil-mapping service. A major section of the *Entomology Research Institute* deals with taxonomy, other assignments being in the fields of genetics, physiology, nematology and apiculture. The Institute assembles and maintains the national collection of insects. The *Microbiology Research Institute* is concerned mainly with metabolism, nutrition and genetics of bacteria of agricultural significance. The *Food Research Institute* conducts basic research on the characteristics of plant and animal products affecting food quality. The development of new principles of food processing and studies related to dairy technology are of major interest.

The *Research Institute* at London examines chemicals used or intended to be used for insect, disease or weed control and investigates the reason for and the nature of the biological activity of the chemical. The *Research Institute* at Belleville is concerned with efforts to control destructive insect pests and noxious weeds with parasitic and predaceous insects, and with insect disease organisms. It is also the principal importing centre for beneficial insects and for some disease organisms from foreign countries.

The Regional Research Stations and Laboratories cope with primary problems in various regions in all provinces. Other units have undertaken projects assisting in the exploitation of peat bogs, reclamation of marshland for pasture, prevention of soil erosion, dryland agriculture, the growing of special crops such as tobacco, and livestock breeding.

Health of Animals Branch.—This Branch administers the Animal Contagious Diseases Act, the Meat Inspection Act and the Humane Slaughter of Food Animals Act, and operates laboratories for the study of animal diseases. Contagious diseases of animals are controlled through preventive measures of inspection and quarantine of imported livestock and restricted commodities such as meat, farm products and other possible sources of infection; through conducting disease eradication programs, notably of bovine tuberculosis, brucellosis and Johne's disease; through the control and eradication of serious animal diseases when outbreaks occur; and through inspection and certification as to health of livestock for export. The Branch conducts ante-mortem and post-mortem examination of animals slaughtered at packing plants that market their meat products outside of the province in which they operate and also ensures that, in these plants, the animals are slaughtered in a humane manner. Animal pathology laboratories across the country, in addition to their research function, manufacture diagnostic reagents and biological products and provide analytical and diagnostic services for diseases of domestic and wild animals and for determination of the soundness of meat food products.

Production and Marketing Branch.—The Production and Marketing Branch conducts the promotional and regulatory functions of the Department. Six Divisions administer legislation and policies in the production and marketing of livestock, poultry, fruits and vegetables, dairy products and plant products, and policies in connection with the control of disease in plants. Three Sections are concerned with markets information, consumer interests and with cold storage facilities and general services.

The *Livestock Division* administers legislation dealing with the grading of meat, wool and fur, with the registration of livestock pedigrees, with performance testing of cattle

and hogs and with the supervision of racetrack betting. Other activities include the promotion of livestock improvement and the compilation of market statistics. The *Poultry Division* carries out the policies of the national poultry breeding program, including Record of Performance for poultry and hatchery inspection, and administers the regulations for the grading of poultry products. The *Fruit and Vegetable Division* administers legislation having to do with the grading of fruits and vegetables in both fresh and processed form, maple products and honey. The Division is responsible for the licensing of interprovincial and international brokers who deal in fresh fruits and vegetables. The *Dairy Products Division* is responsible for the administration of legislation covering grades and standards for dairy products, including butter, cheese, concentrated milk products and ice cream. The *Plant Products Division* administers Acts and regulations respecting seeds, feedstuffs, fertilizers and pest-control products, conducts field inspections and maintains regional testing laboratories. The *Plant Protection Division* is responsible, under the Destructive Insect and Pest Act, for safeguarding against the introduction of serious plant insects or diseases into Canada or their spread in Canada, for certifying freedom from disease and pests in plant exports, and for seed potato certification.

The *Markets Information Section* compiles and distributes market information respecting livestock, meats and wool, dairy products, eggs and poultry, and fruits and vegetables. The *Consumer Section* helps to promote proper use of Canadian agricultural food products through experimental work, carried on by its home economists, on the cooking of foods and the preserving of perishables. The *General Services and Cold Storage Section* administers the payment of subsidies for the construction of public cold storage facilities. Cargo inspectors at the main Canadian ports check the handling of goods moving to export. Other inspectors in the principal marketing areas make spot checks on retail outlets to see that food products meet the prescribed standards of quality and grade.

Other Departmental Services.—The *Economics Division* collects, analyses and interprets economic information required to form and administer departmental policies and programs and also conducts surveys and research designed to improve agricultural production, marketing and farm living conditions. The Division acts as an economic and statistical research agency for the Agricultural Stabilization Board, the Prairie Farm Rehabilitation Administration and other bodies, assisting in any economic undertakings with which the Department is concerned.

The *Information Division* gathers and publishes information arising from research work and the development of regulatory programs of the Department. Publication is through the printed word, press and radio releases, motion pictures, television and exhibits.

The general business management of the Department is the responsibility of the *Departmental Administration*, the duties of which also embrace Emergency Measures Planning and the Departmental Library; the main emphasis of the Library's collection is, of course, on agriculture but extends also to the life sciences.

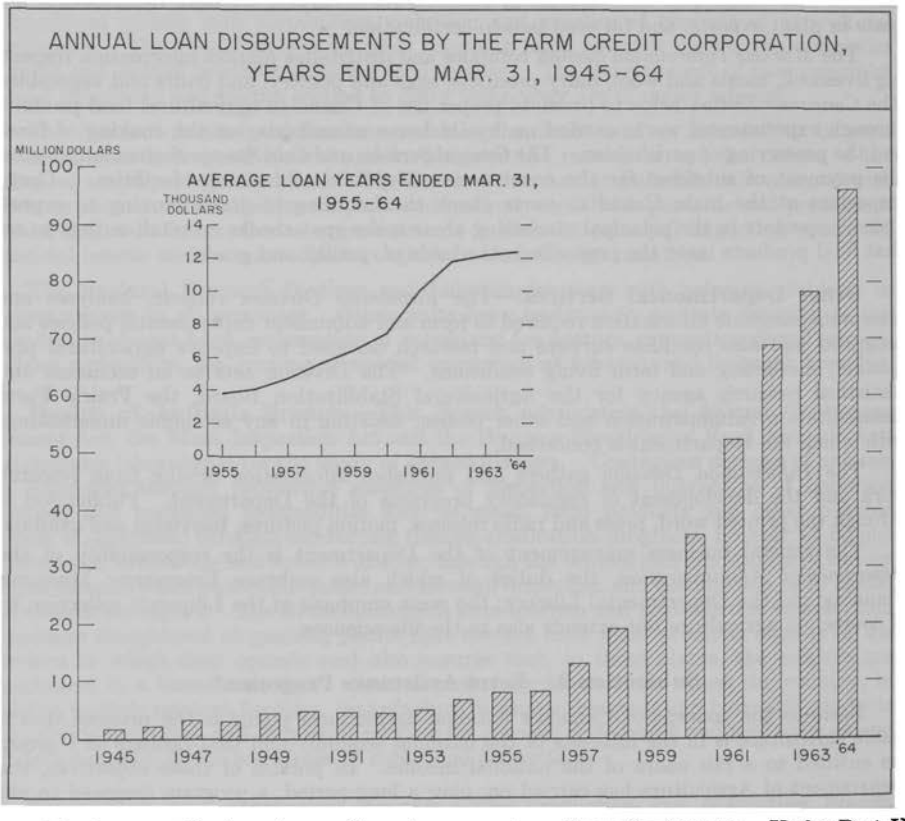
Subsection 2.—Farm Assistance Programs*

Basic to the concept of Canada's national agricultural policy is the premise that a stable agriculture is in the interests of the national economy and that farmers as a group are entitled to a fair share of the national income. In pursuit of these objectives, the Department of Agriculture has carried on, over a long period, a program designed to aid agriculture through the application of scientific research and the encouragement of improved methods of production and marketing. Over the years, as conditions have warranted, programs have been initiated to deal with special situations such as the Prairie Farm Rehabilitation Act (see p. 430) to deal with the results of the drought in the 1930's; the Prairie Farm Assistance Act (p. 454) to mitigate the effects of crop failure; and the Maritime Marshland Rehabilitation Act (p. 432) to save valuable soil in the Maritime Provinces.

* Since the preparation of this Subsection, additional farm assistance legislation has been passed by Parliament in the form of the Farm Machinery Syndicate Credit Act (SC 1964, c. 29), which, as its name implies, provides for the extension of credit to syndicates for the purpose of purchasing machinery for use primarily by their members.

Although much has been accomplished by these measures, changes during the past two decades have dictated the need for a new approach to some agricultural problems. Large-scale mechanization, increasing farm size coupled with declining farm numbers, and marketing problems have led to the enactment of a number of legislative measures covering such matters as credit for farmers, price stability, crop insurance, resource development and policies to assist regional groups to catch up with the national level of progress. These measures are described individually below and in Chapter X on Land Use and Renewable Resource Development.

Farm Credit Act.—The Farm Credit Act (SC 1959, c. 43, proclaimed on Oct. 5, 1959) established the Farm Credit Corporation as successor to the Canadian Farm Loan Board established in 1929. The Corporation, which is a Crown agency, reports to Parliament through the Minister of Agriculture.



The Act provides two types of long-term mortgage loans for farmers. Under Part II of the Act the Corporation may lend up to 75 p.c. of the appraised value of the farm land and buildings taken as security, or $40,000, whichever is the lesser. Under Part III the Corporation may lend 75 p.c. of the appraised value of the farm land and buildings and of the livestock and equipment taken as security, or $55,000, whichever is the lesser. To qualify for a loan under Part III a farmer must be under 45 years of age and have had at least five years farming experience. Part III loans are further secured by mandatory insurance on the

life of the borrower, and his farming operations are subject to supervision by the Corporation until the loan is reduced to 75 p.c. of the appraised value of the farm land and buildings. Similar life insurance and supervision are available on an optional basis to borrowers under Part II.

The interest rate on the first $20,000 borrowed under Part II or the first $27,500 under Part III is set by statute at 5 p.c. On that part of the loan which exceeds these amounts the interest rate is set by the Corporation with the approval of the Governor in Council. This rate can vary according to the interest rate on money borrowed by the Corporation, the operating costs of the Corporation and the allowance made for reserves against capital losses. For the year ended Mar. 31, 1965, the interest rate on the amount of loan under Part II exceeding $20,000 and the amount under Part III exceeding $27,500 was set at 6⅜ p.c. All loans are repayable on an amortized basis within a period not exceeding 30 years.

The Corporation has 124 field offices administered by 169 credit advisers who are responsible for informing local farmers about the services available for pre-loan counselling on credit use, farm planning and farm management, for accepting applications and for making farm appraisals.

Funds for lending are borrowed at current interest rates from the Minister of Finance. The aggregate amount of such borrowings outstanding at any time may not exceed 25 times the capital of the Corporation, which has been fixed by the Act at $24,000,000.

In the year ended Mar. 31, 1964, the Farm Credit Corporation approved 8,689 loans for a total of $108,009,100 as compared with 7,438 loans for a total of $90,924,300 the preceding year; the total amount of principal outstanding on loans was $341,169,139 as compared with $270,277,265 the previous year.

1.—Loans Approved and Disbursed under the Canadian Farm Loan Act[1] and the Farm Credit Act, Years Ended Mar. 31, 1955-64

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year Ended Mar. 31—	Loans Approved		Loans Paid Out	Year Ended Mar. 31—	Loans Approved		Loans Paid Out
	No.	$	$		No.	$	$
1955	2,145	8,225,500	8,207,002	1960	5,339	40,031,250	35,840,882
1956	2,057	8,309,650	8,254,322	1961	5,597	60,704,050	52,305,265
1957	2,921	13,978,700	13,183,992	1962	5,885	68,574,850	68,886,875
1958	3,702	21,278,450	19,343,560	1963	7,438	90,924,300	78,428,094
1959	4,805	30,144,950	28,368,265	1964	8,689	108,009,100	96,315,635

[1] Repealed by the Farm Credit Act, proclaimed Oct. 5, 1959.

2.—Mortgage Loans Approved under the Canadian Farm Loan Act[1] and the Farm Credit Act, by Province, Years Ended Mar. 31, 1962-64

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Province	1962		1963		1964	
	No.	$	No.	$	No	$
Newfoundland	1	6,100	1	20,000	5	68,600
Prince Edward Island	113	733,200	122	929,300	155	1,245,700
Nova Scotia	41	499,900	60	692,200	74	821,800
New Brunswick	111	1,109,700	101	1,192,500	83	945,200
Quebec	109	1,786,100	804	11,434,700	1,221	14,710,400
Ontario	1,383	17,104,400	1,526	20,144,700	1,796	24,766,000
Manitoba	429	5,024,000	479	5,390,500	625	7,460,800
Saskatchewan	1,936	19,812,350	2,307	23,271,700	2,332	25,200,900
Alberta	1,518	18,447,600	1,722	22,834,200	2,043	27,157,600
British Columbia	244	4,051,500	316	5,014,500	355	5,632,100
Totals	**5,885**	**68,574,850**	**7,438**	**90,924,300**	**8,689**	**108,009,100**

[1] Repealed by the Farm Credit Act, proclaimed Oct. 5, 1959.

Farm Improvement Loans Act.—The Farm Improvement Loans Act (RSC 1952, c. 110), administered by the Department of Finance, is designed to provide credit by way of loans made by the chartered banks to assist in almost every conceivable purchase or project for the improvement or development of a farm and includes the purchase of agricultural implements, the purchase of livestock, the purchase and installation of agricultural equipment or a farm electrical system, the erection or construction of fencing or works for drainage on a farm, and the construction, repair or alteration of farm buildings including the family dwelling. Credit is provided on security related to the purchase or project and on terms suited to the individual borrower.

The legislation, originally operative for three years (1945-48), has been continuous by way of extensions usually for three-year periods. The latest extension was for the period July 1, 1962 to June 30, 1965. The maximum term of a loan and the interest rate remain at ten years and 5 p.c. simple interest, respectively. The borrower is required to provide from 10 p.c. to 40 p.c. of the cost of his purchase or project, depending on the loan category to which it belongs. The Federal Government guarantees each bank against loss sustained by it up to an amount equal to 10 p.c. of loans granted by it in a lending period. This guarantee does not apply to any loan made after the aggregate of all loans made by all banks in a given period reaches an amount fixed by statute. The current maximum stands at $400,000,000. By Dec. 31, 1963, 2,443 claims amounting to $1,711,367 had been paid under the guarantee since the inception of the Act, representing a net loss ratio of less than one-tenth of one per cent after recoveries have been taken into account.

By the end of 1963, $1,134,698,715 or 82.5 p.c. of the total loans made had been repaid. The position at that time was as follows:—

Period	*Loans Made*	*As at Dec. 31, 1963*	
		Repayments[1]	*Balance Outstanding*
	$	$	$
Mar. 1, 1945 to Feb. 28, 1948	33,605,576	33,605,576	—
Mar. 1, 1948 to Feb. 28, 1951	142,372,774	142,353,849	18,925
Mar. 1, 1951 to Mar. 31, 1953	190,449,006	190,332,752	116,254
Apr. 1, 1953 to Mar. 31, 1956	222,723,434	222,281,357	442,137
Apr. 1, 1956 to Mar. 31, 1959	239,064,072	236,627,356	2,436,716
Apr. 1, 1959 to June 30, 1962	346,911,334	273,414,076	73,497,258
July 1, 1962 to Dec. 31, 1963	200,847,106	36,083,749	164,763,297
TOTALS	1,375,973,302	1,134,698,715	241,274,587

[1] Includes principal amount of claims paid under government guarantee.

3.—Loans Made under the Farm Improvement Loans Act, by Purpose and Province, 1962 and 1963, with Cumulative Totals from 1945

Purpose	1962		1963		Cumulative Totals 1945-63	
	Loans	Amount	Loans	Amount	Loans	Amount
	No.	$	No.	$	No.	$
Purpose						
Purchase of agricultural implements	53,867	87,214,786	56,028	99,178,510	889,377	1,129,944,215
Construction, repair or alterations of, or making additions to any building or structure on a farm	6,759	15,133,547	8,130	18,807,582	74,230	124,547,872
Purchase of livestock	8,461	11,991,782	8,835	13,132,153	79,712	89,178,685
Other improvements	3,534	3,749,096	4,380	4,836,319	40,149	32,302,530
Totals	**72,621**	**118,089,211**	**77,373**	**135,954,564**	**1,083,468**	**1,375,973,302**

3.—Loans Made under the Farm Improvement Loans Act, by Purpose and Province, 1962 and 1963, with Cumulative Totals from 1945—concluded

Province	1962		1963		Cumulative Totals 1945-63	
	Loans	Amount	Loans	Amount	Loans	Amount
	No.	$	No.	$	No.	$
Province						
Newfoundland	30	59,768	37	77,699	556	805,123
Prince Edward Island	905	1,180,571	962	1,348,515	16,136	17,022,937
Nova Scotia	666	986,285	578	864,685	11,589	12,450,863
New Brunswick	508	790,287	510	848,502	9,809	11,990,153
Quebec	3,244	5,515,926	2,871	5,598,713	107,768	141,794,060
Ontario	13,508	23,436,214	14,582	26,472,190	175,495	235,795,733
Manitoba	9,639	15,036,525	10,037	16,877,079	129,706	157,586,570
Saskatchewan	20,368	31,828,477	23,519	41,639,177	306,832	388,705,162
Alberta	21,523	34,886,360	22,085	37,763,054	294,313	367,821,606
British Columbia	2,230	4,368,798	2,192	4,464,950	31,264	42,001,095

Agricultural Stabilization Act.—The Agricultural Stabilization Act (SC 1958, c. 22, proclaimed Mar. 3, 1958) established the Agricultural Stabilization Board and repealed the Agricultural Prices Support Act, 1944. The Board is empowered to stabilize the prices of agricultural products in order to assist the agricultural industry in realizing fair returns for labour and investment, and to maintain a fair relationship between prices received by farmers and the costs of goods and services that they buy.

The Act provides that, for each production year, the Board must support, at not less than 80 p.c. of the previous ten-year average market or base price, the prices of nine commodities (cattle, hogs and sheep; butter, cheese and eggs; and wheat, oats and barley produced outside the prairie areas as defined in the Canadian Wheat Board Act). Other commodities may be supported at such percentage of the base price as may be approved by the Governor in Council. Since the Act came into force, the following farm products, other than the nine named commodities, have been supported at one time or another: honey, potatoes, soybeans, sunflower seeds, sugar beets, tobacco, turkeys, apples, peaches, apricots, raspberries, asparagus, tomatoes, milk for manufacturing and skim milk powder. The Board may stabilize the price of any product by an offer-to-purchase, by a deficiency payment or by making such payment for the benefit of producers as may be authorized.

In stabilizing prices of certain commodities by means of deficiency payments, the price stabilization program has been assisting the agricultural industry to make production adjustments from a position of excessive supply to one of more normal relationship between supply and demand. The institution of limited deficiency payments by the Board assists in the adjustment of production in a relatively short time. During the period of adjustment, the Board guarantees a minimum average return to producers for a limited quantity of product.

During the six fiscal years that the Act was in operation prior to Mar. 31, 1964, the cost of stabilization programs averaged $57,000,000 a year. The Board has available a revolving fund of $250,000,000. Losses incurred are made up by Parliamentary appropriations and any surplus is paid back to the Consolidated Revenue Fund. An Advisory Committee named by the Minister of Agriculture and composed of farmers or representatives of farm organizations assists the Board in its operations.

Crop Insurance Act.—To assist in making the benefits of insurance protection on crops available in all provinces, the Crop Insurance Act was passed in 1959. This Act does not set up any specific insurance scheme but rather permits the Federal Government to assist the provinces to do so by making direct contributions toward the cost of providing crop insurance. The initiative for establishing schemes to meet their own regional requirements rests with the provinces. Schemes may be organized on the basis of specific crops

or areas within the provinces and agreements between the provinces and the Federal Government set out the terms of insurance coverage. By the end of May 1964, crop insurance legislation had been passed by Manitoba, Saskatchewan, Prince Edward Island, Nova Scotia and Alberta.

Contributions from the federal treasury are limited to 50 p.c. of the administrative costs incurred by a province and 20 p.c. of the amount of premiums paid in any one year. In addition, the Federal Government may make loans to any province equal to 75 p.c. of the amount by which indemnities required to be paid under policies of insurance exceed the aggregate of the premium receipts for that year, the reserve for the payment of indemnities, and $200,000. Farmers insured under the Act are not eligible for payments under the Prairie Farm Assistance Act, nor are they required to pay the 1-p.c. levy on grain sales as provided for under that Act.

In 1963 more than 7,400 farmers in Manitoba, Saskatchewan and Prince Edward Island took out crop insurance coverage of approximately $15,000,000.

Prairie Grain Advance Payments Act.—This Act, which came into force on Nov. 25, 1957, provides for an interest-free advance payment to producers for threshed grain (wheat, oats, and barley) in storage other than in an elevator and prior to delivery to the Canadian Wheat Board, exclusive of grain deliverable under a unit quota. Advance payments of 50 cents per bu. of wheat, 20 cents per bu. of oats and 35 cents per bu. of barley are made, subject to certain restrictions as to quota and acreage. Maximum advance payment per application is $3,000. At Apr. 30, 1964, the following advance payments had been made:—

Period	Applications	Total Advance	Average Advance
	No.	$	$
Aug. 1, 1957 — July 31, 1958	50,412	35,203,467	698
Aug. 1, 1958 — July 31, 1959	45,341	34,369,653	758
Aug. 1, 1959 — July 31, 1960	50,047	38,492,505	769
Aug. 1, 1960 — July 31, 1961	76,089	63,912,550	839
Aug. 1, 1961 — July 31, 1962	22,342	16,656,713	745
Aug. 1, 1962 — July 31, 1963	39,683	29,251,526	737
Aug. 1, 1963 — Apr. 30, 1964	63,427	62,132,949	980

Repayment is effected by deducting 50 p.c. of the initial payment for all grain delivered subsequent to the loan, other than for grain delivered under a unit quota. The amounts deducted are paid to the Board until the producer has discharged his advance. At Apr. 30, 1964, refunds had been made as follows:—

Period	Total Refunded	Total Advance Outstanding	Percentage Refunded
	$	$	
Aug. 1, 1957 — July 31, 1958	35,199,195	4,272	99.9
Aug. 1, 1958 — July 31, 1959	34,363,434	6,219	99.9
Aug. 1, 1959 — July 31, 1960	38,480,612	11,893	99.9
Aug. 1, 1960 — July 31, 1961	63,878,523	34,028	99.9
Aug. 1, 1961 — July 31, 1962	16,596,878	59,835	99.6
Aug. 1, 1962 — July 31, 1963	29,140,296	111,230	99.6
Aug. 1, 1963 — Apr. 30, 1964	55,731,062	6,401,887	89.6

Prairie Farm Assistance Act.—The Prairie Farm Assistance Act, passed in 1939, provides for direct money payments by the Federal Government on an acreage-and-yield basis to farmers in areas of low crop yield in the Prairie Provinces and in the Peace River area of British Columbia. Its purpose is to assist in dealing with a relief problem which the provinces and municipalities cannot do alone and to enable the farmers to put in a crop the following year. Payments for the 1963-64 crop year, as at July 31, 1964, totalled $9,673,396; total payments made under the Act since 1939 amounted to $340,092,230.

Payments are made from the Prairie Farm Emergency Fund to which farmers contribute 1 p.c. of the value of all sales of wheat, oats, barley, rye, flaxseed and rapeseed. The additional funds required are provided from the federal treasury. The total collected through the 1-p.c. levy in the 1963-64 crop year, as at July 31, 1964, was $10,736,292. The total amount collected since 1939 was $153,443,423.

Farmers operating land in the spring wheat area, and not covered by the federal-provincial insurance scheme, are eligible for awards. Crop failure and natural causes preventing seeding and summer fallowing are taken into account in making awards and these may not exceed $200 in respect of any one farmer's total cultivated acreage.

Section 2.—Provincial Governments in Relation to Agriculture*

Subsection 1.—Agricultural Services

Newfoundland.—Government agricultural services in Newfoundland are operated by the Agricultural Division of the Department of Mines, Agriculture and Resources. The Division is in charge of a Director who is assisted by a staff of 21 officers. For purposes of administration, the province is divided into nine districts. A fieldman with permanent headquarters is located in each district except Labrador, where the officer is resident for the summer only. Officers in charge of different phases of agricultural development visit each district on assignments from the St. John's office.

Departmental policies in support of the agricultural industry include: a bonus of $125 an acre on land cleared by privately owned equipment; the distribution of ground limestone at a subsidized rate; the payment of bonuses on purebred sires; and financial assistance to agricultural societies, marketing organizations and exhibition committees. An inspection service is provided for poultry products, vegetables and blueberries, production of the latter being encouraged by the burning of suitable berry areas and the improvement of roads and trails leading to them. Small fruit development is promoted through the distribution of quality foundation stock.

Every encouragement is given to the production of livestock. An experimental sheep flock is maintained. Poultry and beef production have increased with favourable marketing conditions and with departmental assistance and loans under the Provincial Farm Development Loan Act. A veterinary supervises the health of animals program and the joint federal-provincial project for the eradication of bovine tuberculosis.

The Agricultural Division co-operates with the Department of Education in furthering the 4-H Club movement in the province and accepts responsibility for all projects pertaining to agriculture.

Prince Edward Island.—The activities of the provincial Department of Agriculture are suggested by its staff which includes, in addition to the Minister and Deputy Minister, a Dairy Superintendent and Assistant, three Check Testers, three Dairy Herd Improvement Promoters, a Director of Veterinary Services and ten subsidized practising veterinarians, a Livestock Director, a Marketing Director, a Horticulturist, a Soil Analysis Assistant, a Poultry Fieldman, an Economist, an Agronomist, a Director of 4-H Clubs, three Agricultural Representatives, a Nursery Supervisor, and a Director, an Assistant Director and two Extension Workers of Women's Institutes.

Nova Scotia.—The Department of Agriculture and Marketing endeavours to "help the people to help themselves" through strengthening member interest in such organizations as the Nova Scotia Federation of Agriculture, the Nova Scotia Fruit Growers' Association, various agricultural co-operative organizations, credit unions, producer and marketing organizations. The Department is assisted by the Nova Scotia Advisory Committee on Agricultural Services which has been established to promote agricultural policies and projects of the federal and provincial Departments of Agriculture. The Committee meets

* Information supplied by the agricultural authorities of the various provinces.

quarterly to determine how the work of these Departments may be co-ordinated and directed through integrated agricultural policies and with minimum duplication of services.

New Brunswick.—Provincial government agricultural policy in New Brunswick is directed by the Department of Agriculture. The Department is headed by the Minister of Agriculture who is assisted by a Deputy Minister and the Directors of the following Branches: extension, livestock, dairy, veterinary, poultry, horticulture, field husbandry, potato and plant protection, agricultural engineering, home economics, credit union and co-operative, and agricultural education.

Quebec.—The agricultural policy of Quebec is formed around the premise that the family farm remains the ideal basis of the rural social structure. To serve the interests of agriculture, the provincial government, aided by various co-operative and professional associations, is working toward the improvement of agricultural production and marketing through the provision of farm credit, assistance to the farmer in organizing the collective commercialization of his products, the improvement of education and teaching facilities for farmers, and the encouragement of agricultural research. In addition, aid is provided in the form of subsidies to the settler and farmer in handicapped rural areas for the construction of buildings, the acquiring of stock, land clearing and development, and the transportation of produce to market. Under the federal-provincial ARDA program, plans are under consideration for the better utilization of farm lands and, generally, the rational development of rural areas.

These services are administered through the Department of Agriculture and Colonization which operates under authority of a Minister, two Deputy Ministers and an Advisory Board, and comprises seven Services, the several divisions and branches of which deal with specific problems. Each Service is headed by a Director General.

The *Production and Marketing Service* gives guidance to farmers in the best methods of producing and marketing dairy, animal, horticultural and forestry products and administers the co-operative movement. Co-operative associations for the purchasing of farm supplies and the marketing of farm products are particularly prevalent in the Province of Quebec.

The *Research, Education and Information Service* administers the Agricultural Research Council which was founded in 1947 to direct, co-ordinate and stimulate research work in agriculture; the results of such research are published in the annual review *Recherches Agronomiques*. This Service is also concerned with the dissemination of scientific information to farmers and the general public through the press, radio and publications; animal hygiene; veterinary education (the School of Veterinary Medicine at St. Hyacinthe); and agricultural education (Institutes of Agricultural Technology at St. Hyacinthe and Ste. Anne de la Pocatière and fifteen intermediate schools). Information intended to improve family life in general by the cultural enrichment of the farm woman is given through direct teaching, by means of the review *La Terre et le Foyer*, through local exhibitions and the Provincial Exhibition of Farm Women's Clubs.

The *Rural Planning Service*, through its four sections—economy, planning, development and utilization of land—is mainly concerned with the implementation of joint federal-provincial programs being conducted under the federal Agricultural and Rural Development Act (ARDA). The *Colonization Service* is occupied with the establishment of settlers, concessions of land and clearing of land. The *Farm Planning and Extension Service* is involved in the solving of problems of management and the promotion of agriculture at regional and county levels. Twenty-seven local offices co-ordinate the work of agronomists and specialists. Five-year agricultural contests are held in which the farmers of a parish or county take part, and an annual competition for the Agricultural Order of Merit brings into the limelight the most deserving farmers in each of the five regions into which the province is divided. The work of the *Rural Engineering Service* falls into three categories—colonization roads, mechanized work and drainage work. The *Administration Service* deals with personnel, records and the purchasing and maintenance of materials and tools.

Also under the jurisdiction of the Department are the Farm Credit Bureau, the Quebec Sugar Refining Corporation (St. Hilaire) and the Agricultural Marketing Board.

Ontario.—The Ontario Department of Agriculture provides financial assistance and administrative services through its Head Office, 14 branches and two Experimental Farms, and through research conducted under the direction of the Ontario Research Institute as well as that under way at the Ontario Agricultural College, the Ontario Veterinary College, Macdonald Institute, Western Ontario Agricultural School, Kemptville Agricultural School and the Horticultural Experiment Station.

The administration of the Department is under the supervision of a Deputy Minister with the assistance of two Assistant Deputy Ministers. The Ontario Agricultural College, the Ontario Veterinary College and Macdonald Institute (the Federated Colleges of Ontario) report to the Minister and Deputy Minister. The Research Institute is the responsibility of the Director of Research who, in turn, reports to the Deputy Minister. During 1962 an office was established to develop programs under the Agricultural Rehabilitation and Development Act of Canada.

The services of the Co-operatives Branch are designed to encourage and assist co-operatives to operate sound and successful businesses under the control of their members; it also administers the Co-operatives Loans Act. The Dairy Branch provides an inspection, instruction and supervision service to all dairy factories and promotes the production of clean milk on farms. The Milk Industry Board of Ontario, functioning under the authority of the Milk Industry Act, regulates and supervises the marketing of milk and cream. During 1963, a new approach to marketing and merchandising agricultural food products was initiated by the formation of the Ontario Producers, Processors, and Consumers Food Council. All segments co-ordinated their efforts toward the solving of current problems and the recommending of long-range policies. The Food Council operates as a separate branch and is also responsible for the market development program of the Department in an effort to increase markets at home and abroad. A Marketing Development Specialist is located in the Department of Economics and Development to co-ordinate development programs concerning agricultural food products.

Through a staff of Agricultural Representatives, one of whom is located in each county and district, the Extension Branch carries on an educational and extension service, and gives leadership to 4-H Club work and to the Ontario Junior Farmers' Association. It also provides assistance to farmers and settlers in northern Ontario in connection with land clearing and breaking and improvement of farms and livestock. The Home Economics Service, which is part of the Extension Branch, gives leadership to organized activities of rural women. The Live Stock Branch promotes livestock improvement policies with particular attention to the health of animals, gives support to purebred livestock associations and licenses artificial insemination centres, community sales, wool warehousemen and egg grading stations. The Farm Economics and Statistics Branch carries on research in farm business including cost analysis, marketing and land use; in co-operation with the Dominion Bureau of Statistics it gathers and publishes statistics of agricultural production. The Agricultural and Horticultural Societies Branch provides assistance to agricultural and horticultural fairs and exhibitions, ploughing matches and other competitions and administers the Community Centres Act. Demonstration Farms in northern Ontario, one at New Liskeard and another at Sault Ste. Marie, are operated for the demonstration of methods adaptable to the area concerned, present emphasis being on beef cattle production. The Field Crops Branch assists in the development of good cultural practices, promotes the use of improved strains of seed and works for the improvement of pastures; it also administers the Weed Control Act.

The Research Institute co-ordinates all research activities of the province's agricultural schools and colleges in addition to developing a thorough research program in the interests of agriculture and industry associated with agriculture.

Manitoba.—The Department of Agriculture and Conservation serves Manitoba through the following branches and services.

The Extension Service deals with agricultural engineering, entomology and bee-keeping, radio, TV and information, 4-H Clubs and women's work, and has specialists devoting attention to these subjects. Meetings, field days, and short courses are held. Thirty-seven agricultural representatives and six assistants are located in 35 offices in the province, each serving from one to five municipalities; 14 home economists serve designated areas.

The Live Stock Branch administers the Animal Husbandry Act, develops and administers policies that encourage the improvement and production of livestock and poultry, and works in close co-operation with the Veterinary Laboratory Service and the federal Health of Animals Division in the control of livestock diseases.

The Dairy Branch administers the Dairy Act, supervises the grading of cream, inspects creameries and cheese factories, gives instruction in cheese and butter making and issues licences to makers of dairy products and to cream graders. Extension activities include addressing meetings and preparing articles and leaflets on dairy farm problems.

The Soils and Crops Branch encourages the development, production and improvement of cereal, forage, special crops and horticulture and promotes proper land use through soil conservation programs. The Branch develops and administers policies that encourage good field crop husbandry, soil conservation and weed control.

The Economics and Publications Branch deals with agricultural economics, supervises the farm business clubs and publishes and distributes annually approximately 150,000 bulletins, circulars, posters, leaflets, etc. The Publications section publishes agricultural statistics and maintains an agriculture reference library.

The Co-operative Services Branch registers and supervises co-operatives and credit unions and administers the Acts governing them. It also collects and compiles statistics on co-operative activity throughout the province.

The Veterinary Laboratory operates a diagnostic laboratory for animal diseases, the services of which are available to veterinarians and livestock owners.

The Water Control and Conservation Branch administers, through the Water Rights and the Water Power Acts, the water resources of the province and all works in connection with the control and utilization of those resources. The Departmental Act and associated statutes provide for the construction of works to control and use water, and for technical and financial assistance to local governments for the construction, maintenance and operation of such works. The Floodway Division is responsible for co-ordinating all matters in respect to design and construction of the proposed Red River Floodway.

Saskatchewan.—The Saskatchewan Department of Agriculture is organized in the following branches and services.

The Agricultural Representative Branch has a technical staff of 55, which serves all branches of the Department as well as the other agencies operating within the Co-operative Agricultural Extension Program. Agricultural representatives are active in all federal, provincial and university farm services; they work through Agricultural Conservation and Improvement Committees in each rural municipality and local improvement district to supply the farmer with scientific and practical information and to develop district improvement programs. The Department pays one half the cost of local group development projects. In farm labour matters, co-operation is maintained with the federal Department of Labour and the National Employment Service.

Animal Industry Branch specialists provide technical information to livestock producers and administer the record of performance program for beef cattle. The Dairy Division of the Branch administers dairy herd improvement programs, assists producers with management and production problems, inspects and licenses dairy manufacturing

and frozen-food locker plants, and administers dairy, locker plant and margarine legislation; the Livestock Division encourages the use of suitable animals for breeding purposes by the establishment of purebred sire areas and by assistance in the purchase and distribution of bulls, boars and rams, and registers brands, licenses livestock dealers and agents and promotes programs on insect control, feeding and management; the Poultry Division maintains poultry testing and banding services, licenses produce dealers and buyers, hatcheries and hatchery agents, and otherwise promotes flock improvement; the Veterinary Division assists students in veterinary science under a scholarship plan, administers the Veterinary Service District Act and the calfhood vaccination program, provides a laboratory service for the livestock and poultry industries and co-operates with Federal Government officials and local veterinarians in disease prevention and control.

The Conservation and Development Branch provides engineering services for irrigation development, usually in co-operation with the Federal Government, and for drainage programs and water utilization and control projects. Land reclamation and development, and construction of provincial community pastures also come within its jurisdiction. The Branch administers the ground and surface water of the province and provides for regulated use of water for all purposes.

The Lands Branch administers Crown and Land Utilization Board lands, except forest reserves and parks in settled areas; classifies it according to the use for which it is best suited; disposes of such lands under long-term leases; secures land control for land utilization projects; supervises new settlement projects; pays for clearing and breaking by farmers on provincial leases; and operates provincial community pastures.

The Plant Industry Branch conducts grassland improvement programs and programs for crop improvement and protection, and gives advice on soil conservation, horticultural problems, and weed and pest control. The Seed Plant Division carries on custom cleaning of forage seeds and registered cereals. The Apiary Division advises on beekeeping and honey production and conducts continuous inspection.

The Agricultural Machinery Administration carries out detailed tests on agricultural machines being sold in Saskatchewan to evaluate their structural and functional performance and inspects and licenses farm implement vendors. Other services to the public are provided through an agricultural machinery extension program.

Farmers are assisted by the Family Farm Improvement Branch which gives technical advice at the farm on the construction of farm buildings and on farmstead planning, mechanization and materials handling. The Branch conducts research for farm water and sewage works.

The Economics and Statistics Branch undertakes research and investigations required to formulate and evaluate policies and programs that will ensure a high level of growth and efficiency in Saskatchewan's agriculture; it collects, analyses and distributes economic information and principles to assist people interested in or engaged in agricultural pursuits. Data on crop conditions, production, marketings and income are available from the Statistics Division.

Farm information is dispensed daily over private radio stations, over TV stations and to the press by the Information Division.

Alberta.—The Alberta Department of Agriculture is organized in the following branches and services.

The Field Crops Branch administers programs and policies relating to crops and soils. A Supervisor is in charge of each division, namely, Crop Improvement, Crop Protection and Pest Control, Weeds and Soils, Horticulture, Apiculture, and Special Projects. A crop diagnostic service is offered through the Crop Clinic at Edmonton. The Horticultural Station at Brooks and the Tree Nursery at Oliver offer services in horticulture and provide trees for farm planting.

The Livestock Branch administers policies to aid in general livestock improvement and sire distribution. This includes setting standards for and approving public sales of

sires, record of performance programs for beef cattle, sheep and swine, extension and control of artificial insemination. The Branch also administers supervision of Feeder Associations; brand registration; brand inspection; licensing of butchers, livestock dealers and stockyards; pound districts and sale of horned cattle.

The Dairy Branch administers the Dairymen's Act, the Frozen Food Act and the Margarine Act. The testing, grading and purchasing of raw produce by all dairy plants are under regulation, as are standards of construction, manufacture, processing, sanitation, and temperature control for dairy and frozen-food plants. A regular cow-testing service to provide the basis for breeding, feeding and culling dairy cattle is available to dairy producers and the Branch laboratory conducts chemical and bacteriological analyses needed for industrial directives.

The Poultry Branch carries on programs for the improvement of poultry husbandry and supervises flock approval for the control of pullorum disease. The Branch issues hatchery, wholesale, first receiver and trucker licences for the handling of poultry products.

The Veterinary Services Branch provides diagnoses of livestock and poultry diseases through its laboratory; conducts investigations of disease conditions; lectures in veterinary science at the University of Alberta, and many meetings; and promotes government policies aimed at reducing losses throughout the province such as brucellosis control, stockyard inspection, swine health program, mastitis, etc.

The Agricultural Extension Service operates 45 offices and employs the services of 59 district agriculturists and 21 district home economists. The district agriculturists and district home economists supply information and provide guidance to farm families with respect to agriculture and homemaking; they also promote progressive agricultural or homemaking policies and programs. 4-H Clubs are administered by this Branch. The Branch is divided in the following main divisions: District Agriculturists; District Home Economists; 4-H Clubs; Agricultural Engineering; Radio and Information; and Publications and Visual Aids.

The Fur Farms Branch administers the licensing and exporting of live animals and pelts, and assists fur farmers in care, management and stock improvement; the Radio and Information Branch conducts five broadcasts a week over ten radio stations and issues weekly bulletins to press and radio; the Water Resources Branch deals with water rights, drainage, irrigation, and water power development; the Lands and Forests Utilization Committee (composed of representatives from the Department of Lands and Forests, Power Commission, Department of Municipal Affairs, University of Alberta and Department of Agriculture) deals with the proper use of submarginal agricultural land; and the Farm Economics Branch studies various economic farm problems and advises farmers on management and marketing.

Credit is made available to farmers for the purchase of lands under the Farm Purchase Credit Act, and for home improvements under the Farm Home Improvement Act. Agricultural and Vocational Colleges are operated at Olds, Fairview and Vermilion.

British Columbia.—The Department of Agriculture has four main branches. The Administrative Branch is responsible for the general direction of agricultural policies, the administration of legislation affecting agriculture and the compilation of reports and publications. This Branch also maintains direct supervision of the Field Crops, Soil Survey, Plant Pathology, Entomology, Apiary, Markets and Statistics, Farmers' Institutes and Women's Institutes Branches.

The Livestock Branch engages in the promotion and supervision of the livestock industry and provides veterinary services affecting disease control regulations; its work also includes supervision of stock brands, inspection of dairy and fur farm premises, and inspection of licensed abattoirs too small to qualify for federal inspection services. In addition, the Branch supervises the operations of the Dairy Branch in the inspection of commercial dairy premises. Officials are stationed at 11 centres throughout the province.

The Horticulture Branch supervises fruit, vegetable and seed production, and provides advice on plant diseases and insect pest control. The Branch maintains field offices at nine points in the southerly section of the province.

The Agricultural Development and Extension Branch offers general information services to farmers through 17 offices which cover all major farming districts. In addition, this Branch provides agricultural engineering service, supervision of the government land-clearing program and farm labour services, and promotes junior club projects. The Poultry Branch offers extension services to the poultry industry.

Subsection 2.—Agricultural Colleges and Schools

All provinces provide facilities or assistance for training in agricultural sciences, which may be at university or secondary school level or be given in special short-term or longer-term courses. A number of universities in the provinces of Central and Western Canada offer degree courses in agricultural, household and veterinary sciences and also provide opportunities for postgraduate study and research in the agricultural field. Most courses at the secondary level give practical training in modern farming methods and community leadership. The facilities available in each province are described in the 1963-64 Year Book, pp. 430-432.

Section 3.—Statistics of Agriculture*

The collection, compilation and publication of statistics relating to agriculture is a responsibility of the Dominion Bureau of Statistics. Valuable information is obtained through the Censuses of Canada and through partial-coverage surveys. Results of the 1961 Census are summarized in Section 4 of this Chapter and are available in greater detail in census publications issued by the Bureau.† A list of such publications is available on request.

The Bureau also collects and publishes primary and secondary statistics of agriculture on an annual and monthly basis. The primary statistics relate mainly to the reporting of crop conditions, crop and livestock estimates, wages of farm labour and prices received by farmers for their products. The secondary statistics relate to farm income and expenditure, per capita food consumption, marketing of grain and livestock, dairying, milling and sugar industries and cold storage holdings. In the collection of annual and monthly statistics, the Canada Department of Agriculture and various provincial departments, as well as such agencies as the Board of Grain Commissioners and the Canadian Wheat Board, co-operate with the Bureau. Many thousands of farmers throughout Canada send in reports voluntarily and dealers and processors also provide much valuable data. The figures contained in this Section do not include estimates for Newfoundland. Agriculture plays a relatively minor part in Newfoundland's economy, commercial production of most agricultural products being quite small. In the following Subsections, details are given for 1963; figures are subject to revision.

Economic Activity in 1963 Related to Agriculture.—During 1963, the gross national product experienced continuous growth and reached a level of $43,000,000,000, an increase of 6.5 p.c. over the previous year's estimate of $40,300,000,000. With over-all prices for the year increasing by less than 2 p.c., more than two thirds of the gross national product increase represented a gain in volume of output. The year ended on a particularly strong note with a 3-p.c. increase in the final quarter, one of the sharpest gains since the beginning of the current expansion in early 1961. Although all components of final demand shared in the year's growth, the most prominent developments were a notable 11-p.c. rise in the level of merchandise exports and a contraction in Canada's deficit on current account transactions with other countries. The rise in exports was dominated by

* Revised in the Agriculture Division, Dominion Bureau of Statistics.
† Available from the Dominion Bureau of Statistics or the Queen's Printer, Ottawa.

exceptionally large shipments of wheat to Russia in the final quarter of the year, although increased foreign demand was widespread over many commodities.

Increases in demand were paralleled by a 7-p.c. rise, to $32,600,000,000, in national income, in which both profits and labour income registered similar relative gains. A rise in total net income from farming operations also contributed to the increase in national income. The gain recorded for agriculture was attributable in part to higher cash receipts and income in kind but mostly to a significant build-up in farm inventories of grains in Western Canada as a result of larger crops, especially wheat, in 1963. Although farm operating expenses and depreciation charges continued to advance, the increase was insufficient to offset completely the gain in gross income.

Subsection 1.—Cash Income from Farming Operations, 1963

Estimates of cash income from farming operations include data concerning cash income from the sale of farm products, Canadian Wheat Board participation payments on previous years' grain crops, net cash advances on farm-stored grains in Western Canada, deficiency payments made by the Agricultural Stabilization Board, and supplementary payments. Farm cash income from the sale of farm products includes the returns from all sales of agricultural products except those associated with direct inter-farm transfers. The prices used to value all products sold are prices to farmers at the farm level; they include any subsidies, bonuses and premiums that can be attributed to specific products, but do not include storage, transportation, processing and handling charges which are not actually received by farmers.

Cash receipts for 1963, excluding supplementary payments, were estimated at $3,219,100,000 for Canada (excluding Newfoundland). This amount was 2.1 p.c. above the previous record of $3,154,200,000 established in 1962. Contributing most to the increase were higher receipts from the sale of wheat, coarse grains, tobacco, and poultry and dairy products; less important contributions were made by gains in returns from the sale of potatoes and fruits and increased net cash advances on farm-stored grains in Western Canada. The more important decreases in returns were recorded for cattle, calves, hogs, flaxseed and Canadian Wheat Board payments on previous years' western grain crops. Farmers received, during 1963, $14,800,000 in the form of supplementary payments paid out entirely under the provisions of the Prairie Farm Assistance Act. This contrasted with supplementary payments during 1962 of $70,300,000 which included payments under the Prairie Farm Assistance Act and also payments made under the Western Grain Producers' Acreage Payment Plan. Total cash receipts for the year, including supplementary payments, amounted to $3,233,900,000, a record high fractionally above the 1962 estimate of $3,224,600,000.

Field Crops.—During 1963 farmers realized an estimated $1,316,300,000 from the sale of field crops, cash advances on farm-stored grain in Western Canada, and Canadian Wheat Board payments. The increase of nearly 7 p.c. over the $1,233,200,000 realized in 1962 resulted mainly from substantially higher income from the sale of wheat, coarse grains and tobacco. Income from field crops accounted for 40.9 p.c. of the farm cash income for 1963, excluding supplementary payments.

Income realized by farmers from wheat, at time of delivery, amounted to $599,300,000 compared with $527,100,000 in 1962. This gain of $72,000,000 was the largest recorded in 1963 for any single item included in farm cash income and was attributable entirely to larger marketings. Marketings of oats and barley in 1963 exceeded those of 1962 by about 40 p.c., and accounted for the significant increase in the returns from these grains—from $85,800,000 to $114,100,000. The second highest increase recorded for a field crop item in 1963 was that for tobacco; total receipts to producers were $114,200,000, compared with $96,500,000 in 1962, most of the gain accruing to Ontario. This situation was largely a result of marketing problems that developed in the fall of 1962 and necessitated the marketing, in the early months of 1963, of that part of the 1962 crop which normally would have been sold before the end of that year.

These gains were offset to some extent by smaller participation payments made by the Canadian Wheat Board on previous years' grain crops. Western Canadian farmers, at the time of delivery, are given initial payments and certificates stating the quantities and grades delivered and these certificates entitle the farmers to share in any surpluses accumulated by the Board through subsequent sales of these grains for domestic consumption and export. The share of the surplus accruing to farmers represents the Canadian Wheat Board participation payments. In 1963, these payments amounted to $124,000,000 compared with $181,100,000 in 1962.

Income from the sale of flaxseed was also lower than in 1962. Smaller marketings and lower prices brought income from this commodity down by about $11,000,000 from the $47,600,000 realized in the previous year.

Livestock and Animal Products.—Cash returns to farmers from the sale of livestock and animal products were estimated to be $1,867,300,000 in 1963, down slightly from the record high of $1,884,800,000 reached in 1962; returns from the sale of poultry and dairy products were up in 1963 but income from cattle and calves, at $639,000,000, was down 6 p.c. from the all-time high of $680,000,000 realized in the previous year—attributable to both lower prices and smaller marketings. Lower prices also brought returns from hogs down from $330,300,000 in 1962 to $321,000,000 in 1963.

Poultry meat production reached a new peak in 1963 and cash income from this source amounted to $168,900,000 compared with $153,300,000 a year earlier. Although egg production was below the 1962 level, prices rose sufficiently to provide receipts of $148,400,000, nearly $7,000,000 above the previous year.

4.—Cash Income from the Sale of Farm Products, 1961-63

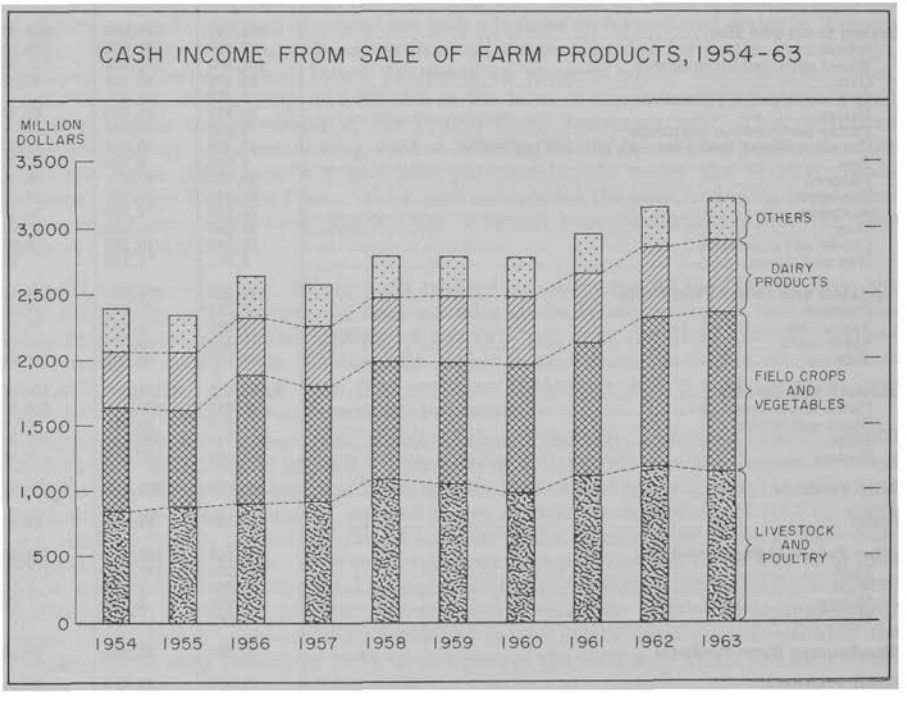
Item	1961[r]	1962[r]	1963
	$'000	$'000	$'000
Grains, Seeds and Hay	**794,765**	**916,939**	**959,377**
Wheat	487,320	527,059	599,281
Wheat participation payments	122,330	152,523	123,968
Oats	23,900	33,496	45,584
Oats participation payments	8,928	4,301	—
Barley	63,813	52,326	68,550
Barley participation payments	2,022	24,244	—
Canadian Wheat Board net cash advance payments	−34,538	5,916	11,203
Rye	4,946	8,809	7,803
Flaxseed	49,770	47,621	36,366
Rapeseed	17,047	10,127	11,715
Soybeans	12,649	14,906	13,463
Corn	21,866	24,331	27,910
Clover and grass seed	11,541	10,136	13,073
Hay and clover	3,171	1,144	461
Vegetables and Other Field Crops	**227,380**	**226,825**	**260,576**
Potatoes	38,101	37,025	41,969
Vegetables	74,002	79,585	78,220
Sugar beets	12,525	13,706	26,138
Tobacco	102,752	96,509	114,249
Livestock and Poultry	**1,102,423**	**1,174,355**	**1,138,602**
Cattle and calves	628,842	680,055	638,992
Sheep and lambs	11,678	10,681	9,741
Hogs	317,745	330,301	321,007
Poultry	144,158	153,318	168,862
Dairy Products	**533,978**	**538,752**	**547,834**
Fruits	**53,722**	**57,960**	**61,645**
Other Principal Farm Products	**157,634**	**157,131**	**166,189**
Eggs	141,970	141,601	148,381
Wool	3,003	2,812	2,594
Honey	5,605	5,312	7,487
Maple products	7,056	7,406	7,727
Miscellaneous Farm Products	**35,954**	**35,431**	**35,593**
Forest Products	**27,841**	**26,580**	**26,475**

4.—Cash Income from the Sale of Farm Products, 1961-63—concluded

Item	1961 r	1962 r	1963
	$'000	$'000	$'000
Fur Farming	**18,117**	**18,000**	**18,500**
Deficiency Payments—			
Eggs	15	577	59
Sugar beets	—	733	1,251
Potatoes	33	957	1
Totals, Cash Income from Farm Products	**2,951,862**	**3,154,240**	**3,219,102**
Supplementary Payments	35,766	70,313	14,769
Totals, Cash Income	**2,987,628**	**3,224,553**	**3,233,871**

5.—Cash Income from the Sale of Farm Products, by Province, 1961-63

Province	1961 r	1962 r	1963
	$'000	$'000	$'000
Prince Edward Island	23,913	25,010	25,922
Nova Scotia	45,498	46,123	45,751
New Brunswick	42,311	43,122	43,686
Quebec	437,309	462,966	475,663
Ontario	890,880	935,951	990,363
Manitoba	242,678	251,750	268,175
Saskatchewan	600,964	683,139	699,016
Alberta	531,510	554,491	520,954
British Columbia	136,799	151,688	149,572
Totals	**2,951,862**	**3,154,240**	**3,219,102**



Net Income of Farm Operators from Farming Operations.—Two different estimates of net income from farming operations are prepared by the Agriculture Division. One is called *realized net income* and is obtained by adding together cash income from farming operations, supplementary payments and the value of income in kind, and deducting farm operating expenses and depreciation charges. This estimate of farm net income represents the amount of income from farming that operators have left for family living or investment after provision has been made for operating expenses and depreciation charges. The second estimate is referred to as *total net income* and is obtained by adjusting realized net income to take into account changes occurring in inventories of livestock and stocks of grains on farms between the beginning and the end of the year. The latter estimate is the one used to calculate the contribution of agriculture to national income.*

For the year 1963, it was estimated that *realized net income* of farmers from farming operations amounted to $1,410,200,000. This estimate was 5.4 p.c. below the 1962 level of $1,490,700,000 but 3.7 p.c. above the average of $1,360,500,000 for the five-year period 1958-62. Although farm cash income reached a record high in 1963 and income in kind advanced, farm operating expenses and depreciation charges rose by nearly 5 p.c. and supplementary payments dropped from $70,300,000 in 1962 to $14,800,000.

Total net income, which takes into account changes in farm inventories of grains and livestock, amounted to $1,717,000,000 in 1963, slightly more than 2 p.c. above the 1962 level of $1,678,800,000 and nearly 30 p.c. above the average of $1,326,200,000 for the five-year period 1958-62. Gains in farm cash income and income in kind contributed to the increase, but most of it was attributable to a significant build-up in farm inventories of grains in Western Canada as a result of larger crops, especially wheat. Although that part of farm net income represented by inventories is not readily available for spending, it forms the basis of cash advances on farm-stored grains in Western Canada and is part of total production for which estimated total expenses were incurred during the year.

Farm cash income, the most important component of farm net income, and supplementary payments are discussed on p. 462. Income in kind, which includes the value of agricultural production consumed in homes on farms where produced and the imputed rental value of farm dwellings, was estimated at $356,500,000 for 1963, as against $345,800,000 for 1962; the increase resulted mainly from a rise in the value of poultry products, fruits and vegetables consumed and an estimated higher rental value for farm homes. The value of dairy products consumed was down slightly as was that of meat and forest products.

The value of inventory change is obtained by calculating the change in the quantity of grain and the number of livestock on farms between the beginning and the end of the year and valuing the difference at annual average prices. The value of inventory change at the end of 1963 was estimated at $306,800,000 as compared with $188,000,000 at the end of 1962. The 1963 estimate reflects an increase in the farm number of cattle, calves, hogs and chickens, together with a substantial rise in the quantity of farm-stored grains, particularly wheat, resulting from the large production of that year.

Operating expenses and depreciation charges include farm business costs incurred by farmers regardless of whether they are paid for in cash or accumulated as new debt. As far as possible they exclude outlays for goods and services obtained directly from other farmers. All subsidy payments are taken into account so that the estimates represent only the net amounts paid by farmers. During 1963, these expenses and depreciation charges totalled $2,180,200,000, nearly 5 p.c. above the previous record high of $2,079,600,000 established a year earlier. Almost without exception, higher outlays were made by farmers for each of the items of goods and services used in the farm business. The greatest increase in expenditure in 1963, both on a percentage basis and in absolute terms, was for fertilizer; the increase from $90,400,000 in 1962 to $105,900,000 resulted from a combination of higher prices, purchases of larger quantities and the use of fertilizers with higher

* Information on the methods and concepts used to determine the contribution of agriculture to national income is available in DBS publication *Handbook of Agricultural Statistics*, Part II.

plant-food content. An increase of about 12 p.c. in the gross rent payable on tenant-operated properties reflected the larger crops harvested in Western Canada and the consequent rise in share-rent payments in that area. Repairs to farm machinery in 1963 were also estimated to be about 12 p.c. above the 1962 level, largely because of a substantial increase in farmers' purchases of repair parts.

6.—Net Income of Farm Operators from Farming Operations, 1960-63

(Exclusive of Newfoundland)

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act, payments under the Western Grain Producers' Acreage Payment Regulations and, in 1960, payments under the federal-provincial unthreshed grain assistance policy.

Item	1960	1961r	1962r	1963
	$'000	$'000	$'000	$'000
1. Cash income from farming operations	2,776,723	2,951,862	3,154,240	3,219,102
2. Income in kind	351,168	339,793	345,778	356,543
3. Supplementary payments	77,204	35,766	70,313	14,769
4. Realized gross income (Items 1+2+3)	3,205,095	3,327,421	3,570,331	3,590,414
5. Operating and depreciation charges	1,916,358	1,979,757	2,079,598	2,180,243
6. Realized net income (Items 4—5)	1,288,737	1,347,664	1,490,733	1,410,171
7. Value of inventory changes	51,627	−272,992	188,039	306,813
8. Total gross income (Items 4+7)	3,256,722	3,054,429	3,758,370	3,897,227
Totals, Net Income (Items 8—5)	**1,340,364**	**1,074,672**	**1,678,772**	**1,716,984**

7.—Net Income of Farm Operators from Farming Operations, by Province, 1960-63

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act, payments under the Western Grain Producers' Acreage Payment Regulations and, in 1960, payments under the federal-provincial unthreshed grain assistance policy.

Province	1960	1961r	1962r	1963
	$'000	$'000	$'000	$'000
Newfoundland	—	—	—	—
Prince Edward Island	13,355	6,808	6,975	7,256
Nova Scotia	15,041	14,819	12,655	11,492
New Brunswick	23,224	11,910	11,862	11,039
Quebec	185,686	190,985	200,278	189,052
Ontario	331,792	353,946	379,531	372,796
Manitoba	115,933	62,204	174,446	120,927
Saskatchewan	372,981	132,935	506,038	605,131
Alberta	229,200	240,064	316,665	333,841
British Columbia	53,152	61,001	70,322	65,450
Totals	**1,340,364**	**1,074,672**	**1,678,772**	**1,716,984**

Subsection 2.—Volume of Agricultural Production

The index of physical volume of agricultural production for Canada was estimated at 164.1 for 1963 (1949 = 100), 7.8 p.c. above the previous record high estimate of 152.2 established in 1962. For the most part, this gain was attributed to the increased output of grain, particularly wheat, in Saskatchewan and Alberta. Also contributing to the higher total production in 1963 were small increases in the output of cattle, hogs, poultry, dairy products and fruits. Reduced production was recorded for potatoes, vegetables, calves and eggs.

On a provincial basis, the most important increase in farm production occurred in Saskatchewan where total output was up by one third over the 1962 estimate, largely as a

result of the bumper wheat harvest in 1963. For much the same reason, the index of production in Alberta rose by just over 14 p.c. The only other province for which an increase was recorded was Nova Scotia where the index moved up fractionally because of increased output of such important items as poultry products, hogs and fruits. For the remaining provinces, production was down in 1963. A decline of approximately 14 p.c. occurred in Manitoba where unfavourable weather conditions reduced field crop yields quite significantly but reductions in the other provinces were relatively small.

The index has been designated as an index of unduplicated gross farm production and, in its construction, provision has been made to avoid double counting of farm output. Within a province, such double counting occurs when feed grains, credited to field crop production, are fed to livestock, and appear later as livestock and livestock products. Interprovincially, this duplication occurs when feed grains produced in one province are fed in another, and when feeder cattle raised in one section of the country are shipped to another for finishing.

8.—Index Numbers of Physical Volume of Agricultural Production, by Province, 1950-63
(1949=100. Exclusive of Newfoundland)

NOTE.—For a description of the revised index, methods and coverage, see DBS publication *Index of Farm Production 1962* (Catalogue No. 21-203).

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
1950	91.9	102.1	96.0	108.0	98.7	111.0	128.8	115.9	92.0	110.0
1951	77.2	97.1	82.1	110.6	101.6	112.7	154.6	148.7	92.9	121.6
1952	102.3	108.5	91.3	116.2	112.5	124.0	200.6	168.8	104.0	140.8
1953	102.0	104.2	92.1	113.3	105.1	110.0	174.5	160.4	108.2	130.1
1954	98.5	109.6	85.1	110.9	102.9	91.0	90.8	122.0	108.2	103.2
1955	100.3	114.4	97.4	124.6	108.3	103.6	164.0	146.7	106.5	127.7
1956	101.2	115.5	103.2	127.2	113.9	132.2	184.1	165.3	113.7	140.3
1957	107.9	113.9	98.1	128.0	118.9	106.8	119.7	133.3	118.9	120.8
1958	106.2	110.8	94.5	133.8	132.4	127.1	117.8	150.0	123.2	129.9
1959	97.7	116.7	91.8	134.3	125.3	122.8	124.9	153.7	128.8	129.8
1960	98.5	117.0	96.8	134.5	128.7	126.2	162.3	150.4	131.8	138.7
1961[r]	99.0	123.2	99.4	144.9	137.6	88.2	79.5	149.5	144.4	122.0
1962[r]	100.5	126.0	96.8	155.1	143.4	151.2	167.2	160.4	153.1	152.2
1963	97.4	127.7	95.4	154.8	139.4	130.6	222.4	183.6	150.3	164.1

Subsection 3.—Field Crops

The year 1963 was the best in history for field crop production in Canada in terms of total output, and new production records were established for production of all wheat, mustard seed, sunflower seed, tame hay and corn for grain as well as for average yields per acre of oats for grain, mixed grains and sugar beets. The index of field crop production reached 176.3 (1949=100), well above the 1962 level of 154.9 and exceeding the previous record of 172.0 established in 1952. The field crop outturn was exceptionally large in Saskatchewan where the index reached 250.3 compared with the previous record of 236.2 set in 1952.

During the 1963 growing season, moisture supplies were generally adequate and temperatures were about normal over large sections of the Prairie Provinces. However, drought conditions continued to affect parts of southeastern Alberta until early June, and dry weather during the summer months sharply reduced output in the Peace River area of Alberta and British Columbia. Many crops in southern Manitoba did not overcome the effects of late seeding, caused by excessive moisture and flooding, and suffered damage

from widespread leaf rust infection and hot weather before maturity. Outbreaks of grasshoppers and cutworms were also widespread, but the application of effective control measures reduced the losses from this source. In Eastern Canada temperatures tended to be below normal during the spring months and extremely variable in the late season and rainfall was deficient in many areas of Ontario and in parts of Quebec and New Brunswick. These conditions reduced yields of most spring-sown crops, especially corn, soybeans, oats and mixed grains. Prince Edward Island and Nova Scotia, however, experienced good growing weather. Harvesting conditions in most of Canada were satisfactory.

Canada's 1963 wheat crop amounted to a record 723,400,000 bu., surpassing the previous peak of 702,000,000 bu. harvested in 1952 and exceeding the 1962 outturn of 565,600,000 bu. by 28 p.c. The acreage seeded to all classes of wheat at 27,600,000 was surpassed only in 1940 when 28,700,000 acres were sown, while the average yield per acre at 26.2 bu. was exceeded only by the 1952 crop which averaged 26.8 bu. per acre. The quality of the 1963 crop was generally excellent and the average protein content of hard red spring wheat was 14.3 p.c., the third highest level on record.

Production of grains used principally for livestock feeding purposes (oats, barley, mixed grains, corn and buckwheat) totalled 15,300,000 tons compared with 14,700,000 tons in 1962 and contrasted sharply with the 9,600,000 tons produced in 1961, when drought cut back production in the Prairie Provinces. On a national basis, feed grain supplies in 1963 were generous in relation to livestock numbers, even though many areas in Eastern Canada experienced reduced average yields. Average yields in the prairie region were well above normal. Canadian supplies of tame hay and fodder corn were also large, the former crop establishing a new production record.

Reflecting the generally satisfactory growing conditions in the Prairie Provinces as well as acreage increases, production of flaxseed, rapeseed, sunflower seed and mustard seed all registered sharp increases over the previous season. In contrast, soybean production in Ontario declined markedly as a result of unfavourable weather. The potato crop was large, with average yields per acre only moderately below the record established in 1962. Sugar beet outturns of 13.5 tons per acre compared with 13.1 tons in 1962 and production of this crop was only slightly smaller than the record set in 1958.

Early estimates indicate that the total gross farm value of 1963 field crops will exceed the 1962 value and the 1955-59 average value by a wide margin. Average farm prices for major cereal crops, after remaining relatively stable during the 1955-59 period, rose moderately during 1960-61 as large carryover stocks which had accumulated during the mid-1950's were drawn down. The severe drought which struck the Prairie Provinces in 1961 raised the possibility of shortages and prices responded accordingly. The average farm price for all classes of wheat during the 1961-62 crop year reached $1.72 per bu., which was the highest level since the record $2.37 per bu. attained during the 1919-20 crop year. Although average farm prices for wheat declined to $1.66 during the 1962-63 crop year, production was double that of the preceding year and gross farm value of the crop was nearly twice as large.

Wheat continues to be the major Canadian field crop in terms of gross farm value and is the major cash crop. The gross farm value of all crops in 1962 amounted to $2,118,804,000 and wheat contributed $941,436,000 or 44 p.c. to this total. In Saskatchewan alone the 1962 wheat crop was valued at $591,180,000, making up more than a quarter of the gross farm value of all Canadian field crops. With the exception of rapeseed, sunflower seed and dry peas, the gross farm value of each crop was larger in 1962 than in the preceding year although, when compared with the 1955-59 average, barley, dry peas, buckwheat, flaxseed, mustard seed, potatoes and field roots all registered decreases.

9.—Acreages, Yields and Prices of Principal Field Crops 1961-63, with Average for 1955-59

(Exclusive of Newfoundland)

Crop and Year	Area	Yield per Acre	Production	Average Price	Total Value[1]	Crop and Year	Area	Yield per Acre	Production	Average Price	Total Value[1]
	'000 acres	bu.	'000 bu.	$ per bu.	$'000		'000 acres	bu.	'000 bu.	$ per bu.	$'000
Wheat—						**Mixed Grains—**					
Av. 1955-59.	22,730	20.5	465,618	1.31	608,018	Av. 1955-59.	1,513	42.6	64,427	0.81	52,374
1961.....	25,316	11.2	283,394	1.72	486,324	1961.....	1,566	39.2	61,310	0.89	54,775
1962r.....	26,817	21.1	565,554	1.66	941,436	1962r.....	1,522	47.4	72,186	0.88	63,343
1963.....	27,566	26.2	723,442	[2]	[2]	1963.....	1,411	48.2	67,987	[2]	[2]
Oats—						**Flaxseed—**					
Av. 1955-59.	9,716	38.6	374,764	0.64	238,658	Av. 1955-59.	2,593	8.7	22,544	2.68	60,441
1961.....	8,543	33.2	283,965	0.75	212,795	1961.....	2,075	6.9	14,318	3.33	47,612
1962r.....	10,591	46.6	493,610	0.67	329,528	1962r.....	1,445	11.1	16,042	3.06	49,084
1963.....	9,488	47.8	453,102	[2]	[2]	1963.....	1,685	12.6	21,176	[2]	[2]
								cwt.	'000 cwt.	$ per cwt.	
Barley—						**Potatoes—**					
Av. 1955-59.	8,971	26.5	237,926	0.79	187,661	Av. 1955-59.	305	132.2	40,297	1.92	77,504
1961.....	5,529	20.4	112,640	1.05	118,810	1961.....	306	144.3	44,108	1.40	61,933
1962r.....	5,287	31.4	165,888	0.94	156,036	1962r.....	288	162.0	46,671	1.57	73,118
1963.....	6,160	35.8	220,664	[2]	[2]	1963.....	285	159.0	45,376	[2]	[2]
								ton	'000 tons	$ per ton	
Rye—						**Tame Hay—**					
Av. 1955-59.	577	16.2	9,362	0.92	8,568	Av. 1955-59.	11,291	1.72	19,412	15.30	296,922
1961.....	561	11.6	6,519	1.07	6,983	1961.....	12,229	1.70	20,812	15.63	325,327
1962r.....	624	19.3	12,044	1.06	12,819	1962r.....	12,370	1.82	22,536	15.95	359,354
1963.....	652	19.7	12,848	[2]	[2]	1963.....	12,352	1.86	23,014	[2]	[2]

[1] Gross value of farm production; does not represent cash income from sales. [2] Not available at time of going to press; will be published in one of the regularly scheduled crop reports and in the *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003).

10.—Acreages, Production and Values of Principal Field Crops, by Province, 1962 and 1963, with Average for 1955-59

(Exclusive of Newfoundland)

Field Crop and Province	Area			Total Production			Gross Farm Value[1]	
	Average 1955-59	1962r	1963	Average 1955-59	1962r	1963	Average 1955-59	1962
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	$'000	$'000
Wheat	**22,730**	**26,817**	**27,566**	**465,618**	**565,554**	**723,442**	**608,018**	**941,436**
Prince Edward Island	4	5	5	99	145	153	164	242
Nova Scotia	1	1	1	31	38	20	50	62
New Brunswick	2	3	2	62	72	58	104	122
Quebec	15	10	8	350	267	216	565	449
Ontario—								
Winter	560	450	442	19,182	15,795	17,748	26,511	26,852
Spring	18	18	17	397	437	437	547	721
Manitoba	2,325	3,042	3,153	54,000	80,000	61,000	73,128	136,000
Saskatchewan	14,494	17,388	17,910	274,000	354,000	493,000	358,466	591,180
Alberta	5,253	5,807	5,933	116,200	112,000	149,000	146,824	181,440
British Columbia	58	94	94	1,298	2,800	1,800	1,660	4,368
Oats	**9,716**	**10,591**	**9,488**	**374,764**	**493,610**	**453,102**	**238,658**	**329,528**
Prince Edward Island	92	97	86	4,014	5,100	3,900	2,983	3,978
Nova Scotia	42	37	32	1,891	1,450	1,400	1,756	1,276
New Brunswick	122	102	87	5,031	4,700	3,500	3,925	3,807
Quebec	1,271	1,267	1,189	44,582	55,114	45,539	38,017	47,949
Ontario	1,644	1,848	1,756	78,756	100,346	91,663	57,774	78,270
Manitoba	1,557	1,794	1,620	57,200	89,000	62,000	32,544	52,510
Saskatchewan	2,537	2,712	2,216	86,600	110,000	118,000	47,724	64,900
Alberta	2,362	2,646	2,424	92,400	123,000	124,000	51,352	73,800
British Columbia	89	88	78	4,240	4,900	3,100	2,583	3,038

[1] Values for 1963 not available at time of going to press; see footnote[2], Table 9.

10.—Acreages, Production and Values of Principal Field Crops, by Province, 1962 and 1963, with Average for 1955-59—continued

Field Crop and Province	Area			Total Production			Gross Farm Value[1]	
	Average 1955-59	1962[r]	1963	Average 1955-59	1962[r]	1963	Average 1955-59	1962
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	$'000	$'000
Barley	**8,971**	**5,287**	**6,160**	**237,926**	**165,888**	**220,664**	**187,661**	**156,036**
Prince Edward Island	1	6	18	43	258	750	44	261
Nova Scotia	2	1	2	53	47	61	59	55
New Brunswick	5	3	4	144	126	123	153	145
Quebec	30	19	14	916	718	464	1,026	833
Ontario	102	80	89	3,874	3,639	3,966	3,921	4,003
Manitoba	1,639	629	584	38,400	21,000	16,000	32,198	20,160
Saskatchewan	3,485	1,629	1,930	87,400	48,000	78,000	68,312	44,160
Alberta	3,642	2,839	3,408	105,200	89,000	119,000	80,526	83,660
British Columbia	65	80	112	1,896	3,100	2,300	1,422	2,759
Fall Rye	**430**	**527**	**553**	**7,380**	**10,784**	**11,018**	**6,802**	**11,484**
Quebec	7	4	3	147	82	70	173	93
Ontario	76	63	64	1,708	1,512	1,551	1,783	1,678
Manitoba	69	116	104	1,270	2,940	2,350	1,148	3,087
Saskatchewan	191	215	206	2,670	4,200	4,300	2,372	4,494
Alberta	85	128	174	1,540	2,000	2,700	1,292	2,080
British Columbia	2	2	2	45	50	47	35	52
Spring Rye	**147**	**97**	**99**	**1,982**	**1,260**	**1,830**	**1,766**	**1,335**
Manitoba	8	3	3	112	60	50	102	63
Saskatchewan	114	64	69	1,520	800	1,300	1,365	856
Alberta	25	30	26	350	400	480	299	416
All Rye	**577**	**624**	**652**	**9,362**	**12,044**	**12,848**	**8,568**	**12,819**
Quebec	7	4	3	147	82	70	173	93
Ontario	76	63	64	1,708	1,512	1,551	1,783	1,678
Manitoba	77	119	107	1,382	3,000	2,400	1,250	3,150
Saskatchewan	305	279	275	4,190	5,000	5,600	3,737	5,350
Alberta	110	158	200	1,890	2,400	3,180	1,591	2,496
British Columbia	2	2	2	45	50	47	35	52
Peas	**77**	**50**	**49**	**1,264**	**827**	**957**	**2,721**	**1,898**
Quebec	3	2	2	55	35	47	217	139
Ontario	6	2	2	105	51	52	260	133
Manitoba	51	32	37	747	500	700	1,281	1,100
Saskatchewan	3	3	3	46	46	65	107	92
Alberta	8	8	3	179	134	61	499	306
British Columbia	6	3	2	133	61	32	357	128
Beans	**68**	**65**	**67**	**1,167**	**1,423**	**1,456**	**4,420**	**5,980**
Quebec	1	1	1	23	17	13	100	75
Ontario	66	64	66	1,143	1,406	1,443	4,320	5,905
Soybeans	**248**	**221**	**228**	**6,256**	**6,608**	**5,002**	**12,379**	**16,388**
Ontario	245	221	228	6,220	6,608	5,002	12,307	16,388
Buckwheat	**114**	**45**	**50**	**2,248**	**1,122**	**1,186**	**2,510**	**1,405**
New Brunswick	5	4	3	144	117	94	164	137
Quebec	39	14	16	926	361	389	1,149	433
Ontario	35	18	17	774	434	403	839	499
Manitoba	35	10	15	404	210	300	359	336
Mixed Grains	**1,513**	**1,522**	**1,411**	**64,427**	**72,186**	**67,987**	**52,374**	**63,343**
Prince Edward Island	58	51	48	2,580	2,600	2,350	2,262	2,236
Nova Scotia	10	8	8	415	304	308	423	313
New Brunswick	6	7	8	249	315	333	230	309
Quebec	176	96	89	6,281	4,205	3,479	6,790	4,583
Ontario	902	740	720	43,427	41,662	40,077	35,003	36,246
Manitoba	87	124	126	2,631	5,000	3,900	1,802	4,100
Saskatchewan	62	125	100	1,599	4,400	4,400	1,067	3,476
Alberta	209	367	309	7,057	13,500	13,000	4,647	11,880
British Columbia	4	4	4	187	200	140	149	200
Flaxseed	**2,593**	**1,445**	**1,685**	**22,544**	**16,042**	**21,176**	**60,441**	**49,084**
Quebec	—	25	32	—	357	454	—	1,146
Ontario	18	21	23	238	362	411	643	1,122
Manitoba	662	667	820	5,040	7,800	9,300	13,604	23,400
Saskatchewan	1,411	389	506	11,560	4,100	7,300	30,788	12,669
Alberta	493	340	303	5,620	3,400	3,700	15,184	10,676
British Columbia	8	2	1	86	23	11	223	71

[1] Values for 1963 not available at time of going to press; see footnote[2], Table 9.

10.—Acreages, Production and Values of Principal Field Crops, by Province, 1962 and 1963, with Average for 1955-59—concluded

Field Crop and Province	Area			Total Production			Gross Farm Value[1]	
	Average 1955-59	1962r	1963	Average 1955-59	1962r	1963	Average 1955-59	1962
	'000 acres	'000 acres	'000 acres	'000 lb.	'000 lb.	'000 lb.	$'000	$'000
Sunflower Seed	**36**	**23**	**38**	**20,058**	**17,360**	**36,038**	**849**	**920**
Manitoba	32	20	33	16,103	15,360	31,350	719	845
Saskatchewan	—	—	4	—	—	3,150	—	—
Alberta	—	2	2	—	2,000	1,538	—	75
Rapeseed	**389**	**371**	**478**	**275,378**	**293,000**	**418,000**	**8,774**	**11,972**
Manitoba	19	32	45	13,498	29,000	38,000	458	1,015
Saskatchewan	328	167	210	231,066	131,000	202,000	7,349	5,371
Alberta	42	172	223	30,814	133,000	178,000	967	5,586
Mustard Seed	**95**	**103**	**155**	**74,701**	**57,700**	**138,440**	**2,822**	**2,252**
Manitoba	[2]	10	20	209	7,200	15,500	10	324
Saskatchewan	—	49	63	—	27,000	61,740	—	918
Alberta	95	44	72	74,493	23,500	61,200	2,812	1,010
				'000 bu.	'000 bu.	'000 bu.		
Shelled Corn	**514**	**439**	**552**	**30,718**	**33,399**	**36,184**	**35,554**	**42,734**
Ontario	507	436	548	30,539	33,267	36,004	35,353	42,582
Manitoba	7	3	4	178	132	180	201	152
				'000 cwt.	'000 cwt.	'000 cwt.		
Potatoes	**305**	**288**	**285**	**40,297**	**46,671**	**45,376**	**77,504**	**73,118**
Prince Edward Island	44	41	42	7,534	7,462	8,300	11,750	10,671
Nova Scotia	10	7	7	1,433	932	1,000	2,860	1,864
New Brunswick	46	50	53	8,662	10,690	10,600	12,988	13,362
Quebec	93	72	68	9,813	9,609	8,364	20,441	14,606
Ontario	54	50	51	7,112	9,581	9,792	15,497	18,204
Manitoba	16	23	21	1,274	2,622	2,000	2,504	2,989
Saskatchewan	14	13	13	881	975	1,100	2,283	1,462
Alberta	18	22	22	1,683	2,800	2,500	3,738	5,040
British Columbia	10	11	9	1,905	2,000	1,720	5,443	4,920
				'000 tons	'000 tons	'000 tons		
Field Roots	**36**	**26**	**26**	**391**	**282**	**275**	**8,419**	**6,259**
Prince Edward Island	6	3	3	80	37	38	1,358	740
Nova Scotia	3	2	2	51	29	28	1,284	551
New Brunswick	3	2	2	32	18	22	804	342
Quebec	9	7	6	68	49	47	1,805	931
Ontario	15	12	13	160	149	140	3,168	3,695
Tame Hay	**11,291**	**12,370**	**12,352**	**19,412**	**22,536**	**23,014**	**296,922**	**359,354**
Prince Edward Island	201	180	180	356	298	320	4,597	3,874
Nova Scotia	296	228	230	613	465	500	10,549	7,905
New Brunswick	374	282	283	696	545	560	9,849	8,175
Quebec	3,464	3,344	3,430	5,962	6,320	6,380	92,154	97,960
Ontario	3,278	3,249	3,164	6,233	6,368	6,918	90,040	100,805
Manitoba	713	1,045	1,039	1,239	2,090	1,900	14,741	29,260
Saskatchewan	785	1,020	1,061	1,016	1,550	1,800	14,812	24,025
Alberta	1,829	2,626	2,564	2,521	4,000	3,800	41,202	68,000
British Columbia	351	396	401	777	900	836	18,978	19,350
Fodder Corn	**375**	**353**	**396**	**3,637**	**4,231**	**4,465**	**17,527**	**23,274**
Quebec	68	51	52	626	627	615	3,997	4,076
Ontario	282	258	297	2,854	3,279	3,460	12,409	16,952
Manitoba	21	38	41	108	260	326	708	1,820
Saskatchewan	2	2	2	5	6	10	65	72
British Columbia	3	4	4	44	59	54	349	354
Sugar Beets	**87**	**85**	**95**	**1,098**	**1,106**	**1,285**	**15,521**	**21,004**
Quebec	6	10	11	68	147	113	953	2,133
Ontario	24	13	17	329	229	245	3,998	3,572
Manitoba	21	22	28	208	197	347	2,918	3,976
Alberta	37	40	40	493	533	580	7,652	11,323

[1] Values for 1963 not available at time of going to press; see footnote [2], Table 9.

[2] Fewer than 500 acres.

11.—Acreages and Production of Grain in the Prairie Provinces, 1957-63

Grain	1957	1958	1959	1960	1961	1962[r]	1963
	ACREAGES						
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres
Wheat	20,881	21,480	23,970	23,900	24,629	26,237	26,996
Oats	5,633	5,810	5,626	6,344	5,122	7,152	6,260
Barley	9,209	9,104	7,700	6,680	5,361	5,097	5,922
Rye	455	431	458	490	493	556	583
Flaxseed	3,462	2,526	2,026	2,481	2,051	1,396	1,629
	PRODUCTION						
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
Wheat	371,000	372,000	430,000	498,000	260,000	546,000	703,000
Oats	171,000	186,000	191,000	244,000	129,000	322,000	304,000
Barley	209,000	231,000	209,000	187,000	106,000	158,000	213,000
Rye	6,300	5,600	6,760	8,560	4,836	10,400	11,180
Flaxseed	18,900	22,000	16,900	22,000	13,900	15,300	20,300

Stocks of Grain in Canada.—Table 12 shows the stocks of Canadian grain on hand in Canada and in the United States on July 31 for the years 1960-63, with averages for the five-year periods 1950-54 and 1955-59. Stocks in Canada are separated into those in commercial positions and those on farms. Stocks on farms and in country elevators in the Prairie Provinces are given separately.

12.—Carryover of Canadian Grain as at July 31, 1960-63, with Averages for 1950-54 and 1955-59

NOTE.—Figures for individual years before 1960 will be found in the corresponding table of previous editions of the Year Book.

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	bu.	bu.	bu.	bu.	bu.	bu.
Wheat—						
Av. 1950-54	304,088,145	303,087,359	227,189,959	75,897,400	73,600,000	113,508,787
Av. 1955-59[r]	617,264,667	616,947,244	401,923,244	215,024,000	211,600,000	235,770,759
1960	599,588,136	599,588,136	455,888,136	143,700,000	142,000,000	260,945,004
1961	607,840,667	607,840,667	437,390,667	170,450,000	168,000,000	244,893,302
1962	391,058,273	391,058,273	331,888,273	59,170,000	56,000,000	160,966,460
1963	487,247,241	487,247,241	422,547,241	64,700,000	63,000,000	231,420,969
Oats—						
Av. 1950-54	103,723,676	102,717,439	34,956,239	67,761,200	55,500,000	20,442,787
Av. 1955-59[r]	140,236,549	140,051,508	43,511,508	96,540,000	78,800,000	28,289,269
1960	100,827,492	100,827,492	20,827,492	80,000,000	56,000,000	15,278,425
1961	115,153,740	115,153,740	21,453,740	93,700,000	75,000,000	11,192,401
1962	79,066,164	79,066,164	22,166,164	56,900,000	36,000,000	14,029,060
1963	150,278,486	150,278,486	57,878,486	92,400,000	68,000,000	40,401,480
Barley—						
Av. 1950-54	82,186,470	82,028,552	44,888,752	37,139,800	36,200,000	24,153,330
Av. 1955-59[r]	118,906,634	118,783,588	60,532,588	58,251,000	56,000,000	37,528,726
1960	128,469,650	128,469,650	58,469,650	70,000,000	68,000,000	42,758,000
1961	112,557,260	112,262,633	52,162,633[r]	60,100,000	58,000,000	29,376,809
1962	57,824,054	57,824,054	31,544,054	26,280,000	24,000,000	17,615,208
1963	89,245,306	89,245,306	60,295,306	28,950,000	27,000,000	41,360,678
Rye—						
Av. 1950-54	11,656,052	11,000,586	6,136,186	4,864,400	4,786,000	2,031,544
Av. 1955-59[r]	13,467,828	13,237,663	5,078,663	8,159,000	7,820,000	2,327,160
1960	6,753,391	6,581,640	2,781,640	3,800,000	3,600,000	1,864,827
1961	7,417,007	7,417,007	4,817,007	2,600,000	2,400,000	1,931,297
1962	3,788,786	3,717,786	2,527,786[r]	1,190,000	1,150,000	733,490
1963	4,159,399	4,159,399	3,609,399	550,000	530,000	1,605,693

12.—Carryover of Canadian Grain as at July 31, 1960-63, with Averages for 1950-54 and 1955-59—concluded

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	bu.	bu.	bu.	bu.	bu.	bu.
Flaxseed—						
Av. 1950-54	3,273,720	3,273,720	2,285,920	987,800	965,000	417,047
Av. 1955-59	5,068,048	5,068,048	3,752,448	1,315,600	1,296,000	913,866
1960	4,824,392	4,824,392	4,064,392	760,000	750,000	1,191,891
1961	7,579,801	7,579,801	6,169,801	1,410,000	1,400,000	1,254,024
1962	5,268,927	5,268,927	3,948,927	1,320,000	1,300,000	1,266,994
1963	3,988,169	3,988,169	3,178,169	810,000	800,000	1,444,034

Subsection 4.—Livestock and Poultry

Livestock.—Features of the livestock industry in 1963 were: sharply reduced exports of live cattle to the United States; lower prices than in 1962 for cattle and hogs; sharply reduced output of hogs in the Prairie Provinces almost compensated for by increases in Eastern Canada; and a record volume of pork imports which amounted to almost 90,000,000 lb. More cattle and calves were kept on feed in Canada and a higher proportion of cattle graded choice and good at markets. The number of cattle on farms continued to rise for the fifth successive year and there was a moderate recovery in hog numbers following a decline in 1962.

The total number of cattle and calves on farms at June 1, 1963 was estimated at 12,305,000 head, up almost 2 p.c. from 12,075,000 at June 1, 1962. The number of cows and heifers kept for milk production declined by slightly over 1 p.c. but the number of beef cows was up 4.6 p.c. and beef heifers, steers and calves increased 6.1, 2.3 and 2.2 p.c., respectively, over 1962. The number of sheep and lambs on farms declined almost 9 p.c. in Eastern Canada and 4.5 p.c. in the western provinces from a year earlier, to total 1,340,000 at June 1, 1963. The number of horses continued to decline; it was estimated to be 447,800 at June 1, 1963, down 6.2 p.c. from the previous year, and was only about 13.5 p.c. of the average of 3,330,000 head in the decade 1921-30 when the transition to mechanization was still in its early stages.

Tables 13 and 14 give numbers and values of livestock on farms in 1962 and 1963 compared with the figures for 1954.

13.—Livestock on Farms, by Province, as at June 1, 1954, 1962 and 1963

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	1954	1962	1963	Province and Item	1954	1962	1963
	No.	No.	No.		No.	No.	No.
Prince Edward Island—				**New Brunswick—**			
Horses	17,500	7,000	6,200	Horses	23,900	8,200	7,300
Milk cows[1]	43,000	38,500	37,000	Milk cows[1]	88,000	64,000	59,000
Other cattle	71,000	82,500	84,000	Other cattle	93,000	92,000	95,000
Sheep	35,600	22,000	18,000	Sheep	63,000	50,000	41,000
Swine	65,000	49,000	56,000	Swine	60,000	45,000	46,000
Nova Scotia—				**Quebec—**			
Horses	21,000	8,000	7,300	Horses	188,000	91,000	84,000
Milk cows[1]	82,500	62,000	59,500	Milk cows[1]	1,000,000	1,032,000	1,048,000
Other cattle	102,500	101,000	98,500	Other cattle	900,000	924,000	932,000
Sheep	96,000	58,000	51,000	Sheep	352,000	171,000	152,000
Swine	39,000	52,000	56,000	Swine	905,000	970,000	1,047,000

[1] Cows and heifers, two years old or over, kept for milk purposes.

13.—Livestock on Farms, by Province, as at June 1, 1954, 1962 and 1963—concluded

Province and Item	1954	1962	1963	Province and Item	1954	1962	1963
	No.	No.	No.		No.	No.	No.
Ontario—				**Alberta—**			
Horses	172,000	85,000	84,000	Horses	181,000	109,000	103,000
Milk cows[1]	1,020,000	970,000	950,000	Milk cows[1]	286,000	280,000	277,000
Other cattle	1,870,000	2,298,000	2,295,000	Other cattle	1,808,000	2,583,000	2,658,000
Sheep	402,000	339,000	321,000	Sheep	387,000	445,000	424,000
Swine	1,315,000	1,855,000	1,995,000	Swine	1,195,000	1,200,000	1,165,000
Manitoba—				**British Columbia—**			
Horses	87,000	46,000	42,500	Horses	30,000	25,000	24,500
Milk cows[1]	220,000	188,000	182,000	Milk cows[1]	89,000	92,000	91,000
Other cattle	572,000	794,000	883,000	Other cattle	297,000	394,000	409,000
Sheep	76,000	76,000	73,000	Sheep	79,000	98,000	96,000
Swine	320,000	331,000	385,000	Swine	46,000	42,000	37,000
Saskatchewan—				**Totals—**			
Horses	197,000	98,000	89,000	**Horses**	**917,400**	**477,200**	**447,800**
Milk cows[1]	292,000	229,000	211,000	**Milk cows[1]**	**3,120,500**	**2,955,500**	**2,914,500**
Other cattle	1,336,000	1,851,000	1,936,000	**Other cattle**	**7,049,500**	**9,119,500**	**9,390,500**
Sheep	145,000	174,000	164,000	**Sheep**	**1,635,600**	**1,433,000**	**1,340,000**
Swine	495,000	429,000	423,000	**Swine**	**4,440,000**	**4,973,000**	**5,210,000**

[1] Cows and heifers, two years old or over, kept for milk purposes.

14.—Average Value per Head of Farm Livestock, by Province, 1954, 1962 and 1963

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	1954	1962	1963	Province and Item	1954	1962	1963
	$	$	$		$	$	$
Prince Edward Island—				**Manitoba—**			
Horses	80	122	127	Horses	54	115	116
All cattle	87	115	117	All cattle	102	145	143
Milk cows[1]	133	174	178	Milk cows[1]	136	208	204
Other cattle	59	87	90	Other cattle	88	130	130
Sheep	17	14	14	Sheep	16	14	14
Swine	39	28	28	Swine	33	26	27
Nova Scotia—				**Saskatchewan—**			
Horses	118	151	160	Horses	46	99	101
All cattle	91	123	124	All cattle	101	139	144
Milk cows[1]	130	171	171	Milk cows[1]	140	205	209
Other cattle	60	94	95	Other cattle	92	131	137
Sheep	15	15	15	Sheep	15	14	15
Swine	34	27	26	Swine	31	27	27
New Brunswick—				**Alberta—**			
Horses	108	174	182	Horses	50	105	109
All cattle	85	113	114	All cattle	105	138	144
Milk cows[1]	125	158	158	Milk cows[1]	156	210	216
Other cattle	47	82	87	Other cattle	97	130	136
Sheep	15	14	15	Sheep	17	14	15
Swine	34	27	27	Swine	34	26	29
Quebec—				**British Columbia—**			
Horses	139	209	207	Horses	74	125	131
All cattle	93	134	135	All cattle	107	137	143
Milk cows[1]	128	182	183	Milk cows[1]	160	200	207
Other cattle	54	80	81	Other cattle	92	123	128
Sheep	16	14	14	Sheep	22	18	18
Swine	35	28	29	Swine	38	23	30
Ontario—				**Totals—**			
Horses	89	165	171	**Horses**	**79**	**139**	**141**
All cattle	118	157	154	**All cattle**	**105**	**142**	**144**
Milk cows[1]	162	229	220	**Milk cows[1]**	**144**	**203**	**201**
Other cattle	94	127	127	**Other cattle**	**87**	**123**	**126**
Sheep	21	19	19	**Sheep**	**18**	**16**	**16**
Swine	41	31	30	**Swine**	**36**	**28**	**29**

[1] Cows and heifers, two years old or over, kept for milk purposes.

The federal Department of Agriculture inspects all livestock in plants designated as inspected establishments under the Meat and Canned Foods Act. A record is kept of these inspections and figures from 1954 are given in Table **15**. Local wholesale butcherings and slaughterings carried out by retail butchers and by farmers for their own use are not included. Actually, the slaughtering and meat packing industry is concentrated in a comparatively small number of large establishments to facilitate greater efficiency and utilization of products; thus the figures of Table **15** are fairly inclusive. The slaughtering and meat packing industry is dealt with in its proper relation to all other manufacturing enterprises in Chapter XVI of this volume. On a gross value basis, it normally ranks among the four largest manufacturing industries in Canada but it owes its importance to the value of raw products obtained from the farmer and the rancher rather than to the value added by the manufacturing process.

Almost 5 p.c. more cattle were slaughtered in inspected establishments in 1963 than in 1962. Slaughterings of calves, however, were down 5.5 p.c., more calves being kept on feed to be marketed later as beef cattle. Inspected slaughterings of sheep and lambs and of hogs also declined by 6.2 p.c. and 2.0 p.c., respectively.

Price movements in 1963 are indicated by the annual average calculation of prices on the Toronto, Montreal, Winnipeg and Edmonton markets as shown in Table **42**, p. 492.

15.—Livestock Slaughtered at Inspected Establishments 1954-63, and by Month 1962 and 1963

(Exclusive of Newfoundland)

Year and Month	Cattle	Calves	Sheep	Hogs
	No.	No.	No.	No.
1954	1,635,008	820,506	562,555	4,679,214
1955	1,702,108	828,658	591,566	5,543,787
1956	1,874,362	891,615	599,974	5,548,289
1957	1,986,251	887,102	581,903	4,971,477
1958	1,889,280	784,767	548,976	5,963,928
1959	1,744,185	676,571	569,746	8,020,766
1960	1,941,703	712,100	562,678	6,182,315
1961	2,041,473	690,286	633,347	5,849,875
1962	2,028,159	710,229	567,463	6,031,933
1963	2,126,716	671,390	532,015	5,909,506
1962				
January	151,214	36,545	36,833	529,363
February	147,141	26,418	30,182	512,192
March	185,635	69,913	25,788	667,077
April	144,348	80,207	18,648	513,185
May	152,865	78,866	16,268	468,103
June	194,306	73,589	23,687	534,859
July	158,143	49,253	28,555	383,079
August	163,159	50,272	50,515	394,947
September	205,132	69,390	100,919	531,455
October	167,559	60,660	92,711	477,399
November	180,423	59,208	91,446	494,260
December	178,234	45,908	51,811	526,014
1963				
January	158,214	33,904	30,660	436,924
February	158,755	34,648	29,492	455,097
March	192,909	63,452	29,622	595,387
April	152,842	73,520	21,758	470,552
May	163,864	79,600	18,587	444,961
June	200,962	75,520	28,282	531,601
July	156,895	49,381	31,234	399,225
August	162,877	46,844	47,783	409,781
September	220,897	64,942	91,675	567,409
October	171,567	50,918	77,169	508,789
November	192,776	52,223	73,676	514,740
December	194,158	46,438	52,077	575,029

Poultry.—Poultry on farms and their values in 1962 and 1963 compared with 1954 are given in Table **16**; production and consumption of poultry meat are included in Table **17.**

16.—Numbers and Values of Poultry on Farms, by Province, as at June 1, 1954, 1962 and 1963

Province and Year	Hens and Chickens		Turkeys		Geese		Ducks		All Poultry	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	'000	$'000	'000	$'000	'000	$'000	'000	$'000	'000	$'000
Newfoundland	..	..	..	..	..	..	..	..		..
Prince Edward Is. 1954	840	949	15	42	10	24	5	7	870	1,022
1962	440	436	10	52	6	22	2	4	458	514
1963	435	466	10	54	5	19	2	3	452	542
Nova Scotia 1954	1,890	2,778	37	114	4	10	3	4	1,934	2,906
1962	2,015	2,361	38	189	1	4	1	2	2,055	2,556
1963	2,250	2,622	45	229	1	4	1	2	2,297	2,857
New Brunswick 1954	1,185	1,600	57	173	4	11	2	3	1,248	1,787
1962	1,070	1,276	25	144	1	4	1	3	1,097	1,427
1963	1,050	1,296	18	98	1	5	1	1	1,070	1,400
Quebec 1954	11,624	14,762	590	1,682	15	43	56	90	12,285	16,577
1962	12,680	12,603	625	2,719	8	28	54	104	13,367	15,454
1963	13,255	12,912	600	2,838	9	33	64	123	13,928	15,906
Ontario 1954	27,400	29,044	925	2,525	118	243	130	150	28,572	31,962
1962	23,485	22,594	2,800	12,544	68	240	150	279	26,503	35,657
1963	23,740	22,510	2,900	13,659	68	260	130	252	26,838	36,681
Manitoba 1954	6,715	5,372	510	1,071	60	127	43	42	7,328	6,612
1962	5,465	4,068	970	3,356	70	182	25	38	6,530	7,644
1963	5,700	4,555	970	3,570	85	246	20	34	6,775	8,405
Saskatchewan 1954	7,642	5,961	600	1,236	42	104	62	76	8,346	7,377
1962	5,850	3,988	860	2,993	40	118	45	77	6,795	7,176
1963	6,130	4,281	810	2,924	40	128	50	95	7,030	7,428
Alberta 1954	8,350	7,181	635	1,460	72	158	127	146	9,184	8,945
1962	8,370	6,010	820	3,223	80	241	80	137	9,350	9,611
1963	8,200	6,082	765	3,144	90	274	85	150	9,140	9,650
British Columbia 1954	3,795	5,085	320	1,021	17	50	23	34	4,155	6,190
1962	5,540	6,102	500	2,775	9	35	25	49	6,074	8,961
1963	5,770	6,371	455	2,680	10	42	24	50	6,259	9,143
Totals 1954	**69,441**	**72,732**	**3,689**	**9,324**	**342**	**770**	**451**	**552**	**73,923**	**83,378**
1962	**64,915**	**59,438**	**6,648**	**27,995**	**283**	**874**	**383**	**693**	**72,229**	**89,000**
1963	**66,530**	**61,095**	**6,573**	**29,195**	**309**	**1,010**	**376**	**710**	**73,788**	**92,010**

17.—Production and Domestic Disappearance of Poultry Meat, 1955, 1962 and 1963

(Eviscerated weight)

Year and Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
1955[1]				
Fowl and chickens	292,328	308,923	296,149	18.9
Turkeys	67,574	86,982	77,778	5.0
Geese	2,749	2,860	2,742	0.2
Ducks	2,907	3,864	3,689	0.2
Totals, 1955	**365,558**	**402,639**	**380,358**	**24.3**

[1] First year available.

17.—Production and Domestic Disappearance of Poultry Meat, 1955, 1962 and 1963—concluded

Year and Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
1962				
Fowl and chickens	411,513	437,638	425,899	22.9
Turkeys	147,155	169,833	143,137	7.7
Geese	2,931	3,038	2,730	0.1
Ducks	4,379	6,065	5,760	0.3
Totals, 1962	**565,978**	**616,574**	**577,526**	**31.0**
1963				
Fowl and chickens	453,437	469,899	449,639	23.8
Turkeys	146,317	173,686	157,433	8.3
Geese	3,030	3,339	2,885	0.2
Ducks	4,197	6,217	5,637	0.3
Totals, 1963	**606,981**	**653,141**	**615,594**	**32.6**

Subsection 5.—Dairying

Milk production in 1963 established a new record at 18,388,000,000 lb., a slight increase over 1962. Of the total milk produced, 62.1 p.c. was used for factory-made dairy products, 27.3 p.c. was sold in fluid form and 10.6 p.c. was used for all purposes on farms.

18.—Production and Utilization of Milk, by Province, 1961-63

NOTE.—Because of intercensal adjustments, the figures in this table for 1961 and 1962 have been revised since the publication of the 1963-64 Year Book; revisions go back to 1957.

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms[1]	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland	..	..	..	..	..	..
Prince Edward Island 1961	1,872	169,956	22,561	20,577	12,747	227,713
1962	1,451	173,145	22,448	19,340	13,792	230,176
1963	1,381	162,536	22,245	19,620	10,661	216,443
Nova Scotia 1961	7,979	130,279	200,528	28,297	17,512	384,595
1962	7,535	122,808	197,933	27,880	22,130	378,286
1963	6,037	100,566	196,933	25,700	16,334	345,570
New Brunswick 1961	11,372	201,618	152,892	26,541	16,017	408,440
1962	9,454	186,583	153,980	26,620	14,765	391,402
1963	6,856	170,390	152,747	26,030	10,935	366,958
Quebec 1961	20,007	4,259,834	1,431,591	237,407	239,942	6,188,781
1962	15,467	4,298,257	1,415,814	233,800	261,970	6,225,308
1963	13,361	4,292,424	1,425,466	238,000	256,380	6,225,631
Ontario 1961	15,701	3,863,284	1,927,132	194,064	271,166	6,271,347
1962	16,169	3,946,007	1,962,985	191,200	289,300	6,405,661
1963	12,261	4,050,229	1,986,041	197,500	295,400	6,541,431
Manitoba 1961	26,817	635,324	244,703	96,822	58,816	1,062,482
1962	21,341	639,392	243,457	95,630	66,440	1,066,260
1963	16,146	622,348	246,042	96,610	68,190	1,049,336
Saskatchewan 1961	64,748	691,477	185,798	169,035	84,357	1,195,415
1962	53,188	650,715	182,372	164,000	84,540	1,134,815
1963	41,395	639,134	187,928	161,200	82,160	1,111,817

[1] Used in farm butter only.

18.—Production and Utilization of Milk, by Province, 1961-63—concluded

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms[1]	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Alberta.....1961	49,327	1,074,583	337,502	158,493	102,643	1,722,548
1962	43,805	1,037,022	342,180	152,200	96,410	1,671,617
1963	40,716	1,053,775	347,229	154,400	93,560	1,689,680
British Columbia.....1961	6,295	359,930	449,647	25,489	34,133	875,494
1962	5,218	356,295	451,112	25,390	34,430	872,445
1963	4,493	320,702	457,244	24,780	33,950	841,169
Totals.....1961	**204,118**	**11,386,285**	**4,952,354**	**956,725**	**837,333**	**18,336,815**
1962	**173,628**	**11,410,224**	**4,972,281**	**936,060**	**883,777**	**18,375,970**
1963	**142,646**	**11,412,104**	**5,021,875**	**943,840**	**867,570**	**18,388,035**

[1] Used in farm butter only.

19.—Farm Values of Milk Production, by Province, 1961-63

NOTE.—Because of intercensal adjustments, the figures in this table for 1961 and 1962 have been revised since the publication of the 1963-64 Year Book; revisions go back to 1957.

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms[1]	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms[2]	
	$'000	$'000	$'000	$'000	$'000	$'000
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....1961	50	4,098	884	578	849	6,459
1962	34	4,175	899	540	885	6,533
1963	32	3,995	898	555	756	6,236
Nova Scotia.....1961	205	3,183	9,537	846	856	14,627
1962	184	2,976	9,321	831	971	14,283
1963	144	2,385	9,284	779	814	13,406
New Brunswick.....1961	306	4,706	6,983	780	1,095	13,870
1962	242	4,378	7,045	788	1,013	13,466
1963	173	4,033	6,996	778	848	12,828
Quebec.....1961	539	105,830	60,334	7,051	16,758	190,512
1962	383	107,494	59,214	7,014	17,825	191,930
1963	314	108,634	59,791	7,188	14,512	190,439
Ontario.....1961	429	92,513	85,785	5,453	13,199	197,379
1962	415	96,645	87,204	5,373	14,082	203,719
1963	299	103,570	89,062	5,925	15,186	214,042
Manitoba.....1961	711	14,131	9,941	2,488	3,681	30,952
1962	538	14,186	9,898	2,458	3,882	30,962
1963	393	13,924	10,050	2,502	3,863	30,732
Saskatchewan.....1961	1,660	15,530	7,892	4,429	4,822	34,333
1962	1,296	14,499	7,959	4,280	4,683	32,717
1963	991	14,278	8,141	4,288	4,885	32,583
Alberta.....1961	1,265	24,998	14,376	4,216	6,242	51,097
1962	1,086	24,445	14,529	4,064	5,917	50,041
1963	974	24,841	14,824	4,169	6,148	50,956
British Columbia.....1961	153	9,823	24,995	783	1,171	36,925
1962	123	9,098	25,220	767	1,179	36,387
1963	102	8,511	25,183	773	1,389	35,958
Totals.....1961	**5,318**	**274,812**	**220,727**	**26,624**	**48,673**	**576,154**
1962	**4,301**	**277,896**	**221,289**	**26,115**	**50,437**	**580,038**
1963	**3,422**	**284,171**	**224,229**	**26,957**	**48,401**	**587,180**

[1] Used in farm butter only.

[2] Includes values of skim milk and buttermilk retained on farms.

Total butter production in 1963 amounted to 362,193,000 lb., of which 351,720,000 lb. was creamery butter. The latter production was about 10,000,000 lb. lower than in 1962 but the carryover from the previous year (135,450,000 lb. plus 102,600,000 lb. butter equivalent of butter oil), minus exports of 19,359,000 lb., brought the total available for consumption amounted to 18.56 lb. in 1963 compared with 17.27 lb. in 1962, leaving the largest carryover on record at the end of the year; it amounted to 136,748,000 lb. of creamery butter plus 82,662,000 lb. equivalent in oil.

Factory cheese production in 1963 was estimated to be 152,631,000 lb., 16.5 p.c. higher than in 1962. Peak cheese production occurred in 1942 when the output was 207,431,000 lb. and peak exports in 1945 when they amounted to 135,409,000 lb. Exports of cheese, mostly cheddar, in 1963 were 25,823,000 lb. compared with 27,252,000 lb. in 1962.

20.—Production of Butter and Cheese, by Province, 1961-63

Province and Year		Butter				Cheese
		Creamery	Dairy[1]	Whey	Total	Factory[2]
		'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland		..	..	..	..	—
Prince Edward Island	1961	5,808	80	16	5,904	876
	1962r	5,927	62	24	6,013	891
	1963	5,386	59	24	5,469	1,092
Nova Scotia	1961	3,926	341	—	4,267	—
	1962r	3,780	322	—	4,102	—
	1963	3,092	258	—	3,350	—
New Brunswick	1961	7,571	486	—	8,057	562
	1962r	7,038	404	—	7,442	520
	1963	6,451	293	—	6,744	537
Quebec	1961	139,330	855	985	141,170	50,297
	1962r	144,527	661	1,329	146,517	50,181
	1963	138,420	571	1,748	140,739	64,390
Ontario	1961	95,036	671	2,861	98,568	75,835
	1962r	101,438	691	2,594	104,723	75,800
	1963	103,088	524	2,600	106,212	82,660
Manitoba	1961	25,278	1,146	—	26,424	551
	1962r	25,605	912	—	26,517	631
	1963	24,905	690	—	25,595	817
Saskatchewan	1961	28,387	2,767	—	31,154	30
	1962r	27,256	2,273	—	29,529	—
	1963	26,872	1,769	—	28,641	—
Alberta	1961	40,917	2,108	7	43,032	1,831
	1962r	38,934	1,872	5	40,811	1,758
	1963	38,467	1,740	5	40,212	1,904
British Columbia	1961	5,880	269	—	6,149	1,168
	1962r	7,215	223	—	7,438	979
	1963	5,039	192	—	5,231	989
Totals	**1961**	**352,133**	**8,723**	**3,869**	**364,725**	**131,408[3]**
	1962r	**361,720**	**7,420**	**3,952**	**373,092**	**130,998[3]**
	1963	**351,720**	**6,096**	**4,377**	**362,193**	**152,631[3]**

[1] Because of intercensal adjustments, the figures for 1961 and 1962 have been revised since the publication of the 1963-64 Year Book; revisions go back to 1957. [2] Factory-made cheese includes cheddar and other cheese made from whole milk and cream. [3] Amounts for "other cheese" are included in Quebec, Ontario and Alberta figures but, as fewer than three firms reported in the other provinces, data cannot be included except in the Canada total.

The output of concentrated whole milk, normally only slightly in excess of domestic requirements, was 6.2 p.c. above requirements in 1963. Exports dropped off 12.5 p.c. from the 1962 total and per capita consumption was down 1.2 p.c. Skim milk powder production at 176,066,000 lb. was 16,226,000 lb. below production in 1962. Exports rose from 35,689,000 lb. in 1962 to about 55,556,000 lb. in 1963 and domestic disappearance at 153,037,000 lb. in 1963 was 15.1 p.c. above 1962 and almost equal to the record high established in 1961.

21.—Production of Concentrated Milk Products, 1959-63
(Exclusive of Newfoundland)

Product	1959	1960	1961	1962[r]	1963
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Concentrated Whole Milk Products	**362,984**	**404,325**	**393,805**	**363,566**	**382,525**
Condensed milk	14,553	14,420	14,814	16,313	17,475
Evaporated milk	302,697	316,950	321,994	287,270	302,547
Whole milk powder	20,872	45,829	25,622	23,310	21,907
Partly skimmed evaporated milk	21,163	20,178	22,474	24,360	27,497
Other whole milk products[1]	3,699	6,948	8,901	12,313	13,099
Concentrated Milk By-products	**220,260**	**209,898**	**269,244**	**259,470**	**260,016**
Condensed skim milk	3,814	2,602	1,918	1,816	1,346
Evaporated skim milk	7,662	2,769	6,210	5,335	7,073
Skim milk powder	176,437	171,969	213,029	192,292	176,066
Powdered buttermilk	7,740	8,179	9,833	10,323	10,149
Whey powder	16,599	11,037	19,730	18,221	30,315
Casein	4,924	8,000	14,024	22,197	21,439
Other milk by-products[2]	3,084	5,342	4,500	9,286	13,628
Totals	**583,244**	**614,223**	**663,049**	**623,036**	**642,541**

[1] Includes malted milk, cream powder, formula milks, whole milk powder of less than 26-p.c. fat, evaporated milk of 2-p.c. fat, concentrated liquid milk and sterilized cream manufactured by fewer than three firms.
[2] Includes sugar of milk (lactose), condensed buttermilk, concentrated liquid skim milk and special formula skim milk products manufactured by fewer than three firms.

22.—Production of Ice Cream Mix, by Province, 1961-63

Province	1961	1962[r]	1963	Province	1961	1962[r]	1963
	'000 gal.	'000 gal.	'000 gal.		'000 gal.	'000 gal.	'000 gal.
Newfoundland	..	..	..	Manitoba	1,156	1,212	1,389
Prince Edward Island	124	133	153	Saskatchewan	1,189	1,168	1,313
Nova Scotia	883	910	937	Alberta	2,016	2,054	2,217
New Brunswick	548	555	617	British Columbia	2,361	2,398	2,576
Quebec	5,266	5,557	5,673				
Ontario	7,878	8,102	8,601	**Totals**	**21,421**	**22,089**	**23,476**

The estimated consumption of fluid milk and cream, on a milk basis, amounted to 4,624,583,000 pt. in 1963, which was 44,475,000 pt. higher than the 1962 estimate. Daily average consumption per capita remained the same at 0.69 pt. The estimated consumption of milk and cream is given by province in Table **23** and the domestic disappearance of all dairy products in Table **24.**

23.—Estimated Consumption of Milk and Cream (expressed as Milk), by Province, 1961-63

NOTE.—Because of intercensal adjustments, the figures in this table for 1961 and 1962 have been revised since the publication of the 1963-64 Year Book; revisions go back to 1957.

Province and Year	Estimated Consumption	Daily per Capita Consumption	Province and Year	Estimated Consumption	Daily per Capita Consumption
	'000 pt.	pt.		'000 pt.	pt.
Newfoundland	..	..	Manitoba 1961	264,748	0.79
Prince Edward Island 1961	33,440	0.87	1962	262,858	0.77
1962	32,394	0.83	1963	265,621	0.77
1963	32,453	0.83	Saskatchewan 1961	275,064	0.81
Nova Scotia 1961	177,384	0.66	1962	268,506	0.79
1962	175,048	0.64	1963	270,642	0.77
1963	172,583	0.63	Alberta 1961	284,492	0.79
New Brunswick 1961	139,095	0.64	1962	383,240	0.77
1962	140,000	0.63	1963	388,860	0.76
1963	138,587	0.62	British Columbia 1961	368,323	0.62
Quebec 1961	1,293,796	0.67	1962	369,381	0.61
1962	1,278,770	0.65	1963	373,662	0.60
1963	1,289,508	0.65			
Ontario 1961	1,644,338	0.72	**Totals 1961**	**4,580,680**	**0.71**
1962	1,669,911	0.72	**1962**	**4,580,108**	**0.69**
1963	1,692,667	0.72	**1963**	**4,624,583**	**0.69**

24.—Domestic Disappearance of Dairy Products, 1961-63

Product	1961r		1962r		1963	
	Total	Per Capita[1]	Total	Per Capita[1]	Total	Per Capita[1]
	'000 lb.	lb.	'000 lb.	lb.	'000 lb.	lb.
Milk and Cream	**5,909,079**	**332.34**	**5,908,341**	**326.43**	**5,965,715**	**323.96**
Milk	4,992,252	280.78	4,977,906	275.02	5,041,914	273.79
Cream as milk	916,827	51.56	930,435	51.41	923,801	50.17
Cream as product	185,844	10.45	192,881	10.66	193,398	10.50
Butter	**300,755**	**16.49**	**332,255**	**17.89**	**361,192**	**19.11**
Creamery	288,309	15.81	320,752	17.27	350,749	18.56
Dairy	8,723	0.48	7,420	0.40	6,096	0.32
Whey	3,723	0.20	4,083	0.22	4,347	0.23
Cheese	**136,123**	**7.47**	**149,470**	**8.05**	**154,422**	**8.17**
Cheddar	52,624	2.89	61,003	3.29	59,232	3.13
Process	57,467	3.15	61,109	3.29	64,291	3.40
Other	26,032	1.43	27,358	1.47	30,899	1.64
Concentrated Whole Milk Products[2]	**349,883**	**19.18**	**358,460**	**19.30**	**360,095**	**19.06**
Evaporated	300,715	16.49	302,007	16.26	296,079	15.67
Condensed	14,735	0.81	16,082	0.87	17,935	0.95
Powdered	3,278	0.18	2,820	0.15	5,167	0.27
Concentrated Milk By-products[3]	**200,605**	**11.00**	**188,328**	**10.14**	**223,328**	**11.82**
Evaporated	6,227	0.34	5,333	0.29	7,063	0.37
Condensed	1,979	0.11	1,834	0.10	1,357	0.07
Powdered	153,277	8.40	132,977	7.16	153,037	8.10
All Dairy Products in Terms of Milk—						
Butter	**6,950,549**	**381.10**	**7,679,225**	**413.53**	**8,350,173**	**441.90**
Cheese	**1,324,051**	**72.60**	**1,461,542**	**78.70**	**1,505,974**	**79.70**
Concentrated	**802,922**	**44.02**	**817,349**	**44.01**	**834,771**	**44.18**
Grand Totals[4]	**15,636,618**	**865.70**	**16,402,504**	**891.54**	**17,155,929**	**916.16**

[1] Includes Newfoundland for all manufactured dairy products. [2] Includes, in addition to the items listed, malted milk, cream powder, partly skimmed evaporated milk, whole milk powder of less than 26-p.c. fat, formula milks, evaporated milk of 2-p.c. fat, and concentrated liquid milk. [3] Includes milk by-product items not listed, i.e., condensed buttermilk, powdered buttermilk, sugar of milk, casein, powdered whey, special formula skim milk products, lactalbumin and concentrated liquid skim milk. Since the quantities used for human consumption and livestock feeding cannot be separated, per capita figures include both. [4] Includes ice cream mix in terms of milk.

Subsection 6.—Fruits and Vegetables

Fruits.—Commercial fruit growing in Canada is confined almost exclusively to rather limited areas in the Provinces of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. Nova Scotia production is centred mainly in the Annapolis Valley and New Brunswick production in the St. John River Valley and Westmorland County. The fruit growing districts of Quebec are the Montreal area, the North Shore area, the Eastern Townships and the Quebec City district. Ontario fruit is grown in all the counties adjacent to the St. Lawrence River and the Great Lakes as far west as Georgian Bay, the Niagara district being the most productive. In British Columbia the four well-defined fruit areas are the Okanagan Valley, the Fraser Valley, the Kootenay and Arrow Lakes district and Vancouver Island. The climate elsewhere in Canada is not generally suitable for commercial tree-fruit culture. In most producing areas, particularly in the Annapolis Valley of Nova Scotia, the Niagara Peninsula of Ontario and the Okanagan Valley of British Columbia, fruit growing is either the principal or one of the most important forms of agriculture and is very important to the economy of those areas. Apples and small fruits are produced commercially in the provinces named but tender tree fruits and commercial vineyards are limited largely to Ontario and British Columbia.

Strawberries are grown commercially in all provinces for which tree-fruit statistics are prepared, as well as in Prince Edward Island. However, this crop is produced over a somewhat wider area than are tree fruits. In Nova Scotia, for example, considerable quantities of strawberries are grown in Colchester County and farther north, as well as in the apple producing areas of the Annapolis Valley. In British Columbia most of the strawberries are grown in the Fraser Valley.

Raspberries are grown commercially in Nova Scotia, New Brunswick and Quebec but the bulk of the crop is produced in Ontario and British Columbia. The Fraser Valley of British Columbia is the most important producing area.

Wild blueberries are harvested on a commercial scale in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Quebec. This crop is indigenous to certain areas in these provinces and a large percentage of the crop is frozen and exported. There is also some production of cultivated blueberries, particularly in British Columbia.

A marketing system has been developed for distributing fresh fruit from the specialized production areas to all parts of the country and a large proportion of the deciduous fruit consumed in Canada is grown domestically. Considerable quantities of apples, strawberries and blueberries are exported.

Canning and processing industries have developed in the fruit growing districts and, although the importance of the processing market varies with different fruits, it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops.

Tables **25** and **26** show the estimated commercial production of fruit, by kind, for the years 1961-63 and by province for 1956-63.

25.—Estimated Commercial Production and Farm Value of Fruit, 1961-63

NOTE.—Figures for 1962 have been revised since the publication of the 1963-64 Year Book.

Kind of Fruit and Year	Quantity	Weight	Farm Value	Kind of Fruit and Year	Quantity	Weight	Farm Value
	'000 bu.	'000 lb.	$'000		'000 bu.	'000 lb.	$'000
Apples—				Apricots—			
1961	16,521	743,445	23,077	1961	265	13,250	626
1962	20,049	902,205	28,008	1962	310	15,500	646
1963	23,016	1,035,720	31,028	1963	99	4,950	327

25.—Estimated Commercial Production and Farm Value of Fruit, 1961-63—concluded

Kind of Fruit and Year	Quantity	Weight	Farm Value	Kind of Fruit and Year	Quantity	Weight	Farm Value
	'000 bu.	'000 lb.	$'000		'000 qt.	'000 lb.	$'000
Cherries (sour)—				Raspberries—			
1961	526	26,300	2,307	1961	9,469	13,103	2,534
1962	212	10,600	1,005	1962	10,393	14,732	2,967
1963	346	17,300	1,716	1963	11,908	16,886	3,915
Cherries (sweet)—				Strawberries—			
1961	306	15,300	2,403	1961	23,022	30,112	5,291
1962	422	21,100	2,946	1962	24,692	32,872	5,969
1963	406	20,300	3,143	1963	23,955	30,735	5,849
Peaches—				Loganberries—	'000 lb.		
1961	3,075	153,750	6,674	1961	1,203	1,203	167
1962	2,256	112,800	5,784	1962	1,022	1,022	132
1963	2,373	118,650	6,933	1963	1,461	1,461	231
Pears—				Grapes—			
1961	1,477	73,850	3,101	1961	85,237	85,237	4,325
1962	1,720	86,000	3,471	1962	92,435	92,435	4,739
1963	1,688	84,400	3,999	1963	106,780	106,780	5,739
Plums and Prunes—				Blueberries—			
1961	578	28,900	1,257	1961	18,063	18,063	1,823
1962	487	24,350	1,011	1962	18,226	18,226	1,821
1963	700	35,000	1,434	1963	23,955	23,955	2,795

26.—Value of Commercial Fruit Produced, by Province, 1961-63 with Average for 1956-60

(Farm value for unpacked fruit)

Province	Average 1956-60	1961	1962	1963
	$'000	$'000	$'000	$'000
Newfoundland	113	235	88	105
Prince Edward Island	300	396	329	346
Nova Scotia	2,462	4,131	3,638	4,003
New Brunswick	1,165	1,398	1,240	1,419
Quebec	6,269	5,769	9,709	11,009
Ontario	20,188	24,088	22,752	27,195
British Columbia	14,147	17,568	21,186	23,168
Totals	**44,644**	**53,585**	**58,942**	**67,245**

Vegetables.—Estimates of acreage and production of commercial vegetables in Canada are prepared for all provinces except Newfoundland, Prince Edward Island and Saskatchewan. The Province of Ontario is the largest producer, followed by Quebec and British Columbia. A wide variety of crops is grown in these three provinces and a somewhat smaller range in the Maritimes and in the Prairie Provinces.

Canning, freezing and processing of vegetables are carried on in the important producing areas. The estimates in the following tables cover output of commercial growers for processing and for sale on the fresh market but do not include acreages or production of vegetables grown for home use on farms or elsewhere.

27.—Estimated Commercial Acreage of Vegetables, by Province, 1961-63 with Average for 1956-60

Province	Av. 1956-60	1961[r]	1962	1963
	acres	acres	acres	acres
Nova Scotia[1]	3,772	2,850	3,250	4,540
New Brunswick[1]	2,510	5,920	7,140	7,620
Quebec	59,468	64,890	70,340[r]	75,440
Ontario	107,276	105,850	104,100[r]	103,070
Manitoba[2]	3,686	3,550	3,480[r]	3,780
Alberta[2]	13,160	16,060	16,400	15,530
British Columbia	16,008	16,850	16,570	14,250
Totals	**205,880**	**215,970**	**221,280**	**224,230**

[1] Prior to 1960, acreages of peas in Prince Edward Island and New Brunswick are included with Nova Scotia; in 1960, 1961, 1962 and 1963, Prince Edward Island and Nova Scotia acreages of peas are included with New Brunswick. [2] Acreages of beans, corn and peas in Manitoba are included with Alberta.

28.—Estimated Commercial Acreage and Production of Vegetables, 1961-63 with Average for 1956-60

Vegetable	Av. 1956-60		1961[r]		1962		1963	
	Area	Production	Area	Production	Area	Production	Area	Production
	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.
Asparagus	3,810	7,447	2,750	6,992	3,950	7,191	4,180	6,540
Beans[1]	11,164	46,798	15,350	53,958	17,710	62,676	23,010	79,373
Beets	3,430	51,728	2,690	49,022	2,880	57,214	2,780	51,601
Cabbage	6,960	127,714	6,700	128,379	6,430	115,102	7,130	147,908
Carrots	10,932	222,321	11,770	274,512	12,810	341,384	13,710	344,824
Cauliflower	2,582	26,355	2,720	27,260	2,860	33,899	3,110	36,640
Celery	1,764	43,608	1,290	45,805	1,170	42,661	1,200	44,918
Corn	50,542	297,936	58,410	360,503	55,950	414,514	50,550	324,556
Lettuce	5,668	63,050	4,790	53,766	4,910	65,394	4,790	54,071
Onions	6,632	128,264	7,950	154,249	8,810	25,900	9,850	256,854
Peas[2]	46,642	105,825	48,850	91,774	52,280	128,561	52,190	115,732
Spinach	1,130	12,448	1,120	11,570	1,100	10,934	1,120	11,033
Tomatoes	46,652	728,942	32,480	787,710	33,200	864,662	31,070	695,393

[1] Estimates apply only to that portion of the crop grown for processing in Quebec, Ontario, Manitoba and Alberta in 1958; in Ontario, Manitoba and Alberta in 1959-63. [2] Estimates apply only to that portion of the crop grown for processing in all provinces for which estimates are made except British Columbia.

Subsection 7.—Other Principal Farm Products

Tobacco.—The chief tobacco growing area of Canada is located in southern Ontario in the counties adjacent to Lake Erie; most of the cigarette tobacco comes from this district. In Ontario as a whole, 116,571 acres of flue-cured or Bright Virginia type tobacco were harvested in 1962. This is the most important type grown in Canada, although dark air-cured and fire-cured tobacco as well as cigar tobacco are grown on a limited scale. Quebec is the second most important producing province; in 1962, 5,319 acres of flue-cured tobacco, 3,055 acres of cigar tobacco and 527 acres of pipe tobacco were harvested in that province. Recently, small acreages have been successfully grown in Prince Edward Island, Nova Scotia and Manitoba.

A study of Department of National Revenue reports on tax-paid withdrawals of tobacco products reveals changes in the smoking habits of Canadians during the past three decades. In 1922, the first year for which comparable figures are available, Canadian annual per capita consumption of cigarettes was 229; by 1959 the annual per capita consumption (calculated on the basis of total population) had increased to 1,939. The figure for 1961 was 2,012 and that for 1962 was 2,083.

29.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Province, 1958-62

Year	Quebec			Ontario			Other Provinces		
	Harvested Area	Production	Value	Harvested Area	Production	Value	Harvested Area	Production	Value
	acres	'000 lb.	$	acres	'000 lb.	$	acres	'000 lb.	$
1958	9,517	8,901	3,255,000	124,557	188,364	86,333,000	52	37	15,000
1959	10,275	11,736	4,722,000	117,801	158,120	85,660,000	57	48	21,000
1960	11,598	13,914	5,399,000	124,321	200,201	109,272,000	43	52	28,000
1961	11,081	11,900	4,156,000	126,718	197,664	101,059,000	118	157	80,000
1962	8,901	12,388	4,582,000	121,740	190,265	91,165,000	306	374	157,000

30.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Main Type, 1958-62

Type of Tobacco and Year	Harvested Area	Average Yield per Acre	Total Production	Average Farm Price per lb.	Gross Farm Value
	acres	lb.	lb.	cts.	$
Flue-cured 1958	122,914	1,475	181,290,000	46.5	84,380,000
1959	116,773	1,305	152,385,000	55.4	84,410,000
1960	129,092	1,592	205,514,000	54.6	112,118,000
1961	127,844	1,529	195,441,000	51.6	100,870,000
1962	122,196	1,535	187,621,000	48.3	90,576,000
Burley 1958	7,299	1,642	11,984,000	34.8	4,168,000
1959	6,192	1,748	10,822,000	36.2	3,931,000
1960	10	1,200	12,000	41.7	5,000
1961	3,681	1,770	6,516,000	37.2	2,426,000
1962	4,569	1,952	8,918,000	40.4	3,604,000
Cigar leaf 1958	3,085	1,009	3,122,000	24.5	765,000
1959	4,000	1,306	5,223,000	29.9	1,565,000
1960	5,100	1,303	6,647,000	28.2	1,871,000
1961	4,418	1,264	5,584,000	25.0	1,397,000
1962	3,055	1,716	5,242,000	25.0	1,311,000
Totals[1] **1958**	**134,126**	**1,471**	**197,302,000**	**45.4**	**89,603,000**
1959	**128,133**	**1,326**	**169,904,000**	**53.2**	**90,403,000**
1960	**135,962**	**1,575**	**214,167,000**	**53.6**	**114,699,000**
1961	**137,917**	**1,521**	**209,721,000**	**50.2**	**105,295,000**
1962	**130,947**	**1,550**	**203,027,000**	**47.2**	**95,904,000**

[1] Includes other types not specified.

Eggs.—Egg production in 1963 at 417,900,000 doz. was 3.7 p.c. lower than the estimated output of 434,200,000 doz. in 1962, and 6.8 p.c. lower than the record production of 448,200,000 doz. in 1959. There were 3.9 p.c. fewer layers than in 1962 but the rate

of lay per 100 layers increased to 19,943 from 19,921. The farm selling price of eggs averaged 37.5 cents per doz. compared with 34.3 cents in 1962, resulting in an increase in the total value of eggs produced.

The three Maritime Provinces produced 7.8 p.c. of the total production in 1963, Quebec, 15.8 p.c., Ontario, 40.7 p.c., the Prairie Provinces, 24.8 p.c., and British Columbia, 10.9 p.c.

31.—Production, Utilization and Value of Farm Eggs, by Province, 1962 and 1963

Province	1962				1963			
	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid[1]	Total Value (Sold and Used)[r]	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid[1]	Total Value (Sold and Used)
	'000	No.	'000 doz.	$'000	'000	No.	'000 doz.	$'000
Prince Edward Island	270	17,931	2,975	1,333	269	18,768	4,158	1,511
Nova Scotia	1,052	20,379	17,718	7,229	1,122	20,810	19,305	7,801
New Brunswick	570	19,522	9,154	3,979	578	19,498	9,294	4,388
Quebec	4,362	19,678	70,844	27,319	4,079	19,631	66,182	28,522
Ontario	10,604	20,808	182,384	64,767	9,897	20,789	170,032	67,428
Manitoba	2,355	18,992	36,998	10,469	2,357	19,296	37,560	12,125
Saskatchewan	2,086	17,711	30,351	8,747	1,987	17,880	29,142	8,821
Alberta	2,566	18,669	39,370	12,951	2,419	18,595	36,938	12,100
British Columbia	2,540	20,667	43,406	15,907	2,680	20,432	45,309	17,693
Totals	**26,405**	**19,921**	**434,200**	**152,801**	**25,388**	**19,943**	**417,920**	**160,389**

[1] Total laid less loss.

Wool.—Canada's wool requirements are met largely by imports which amounted to 59,805,000 lb. (greasy basis) in 1963 compared with 54,308,000 lb. in 1962. Exports amounted to 4,661,000 lb. in 1963 and 3,972,000 lb. in 1962. The apparent domestic consumption of wool shown in Table **32** is determined on the basis of production, exports and imports but does not take into consideration changes in stocks for which the data are not available. Differences in wool utilization from year to year are therefore probably less marked than is indicated by these figures.

32.—Production and Apparent Consumption of Wool, 1959-63

Item		1959	1960	1961	1962	1963
Shorn Wool—						
Yield per fleece	lb.	7.6	7.7	7.8	8.0	7.9
Total yield shorn	'000 lb.	6,256	6,370	6,169	5,808	5,259
Price per pound[1]	cts.	45.9	47.9	50.2	49.8[r]	50.8
Total value of shorn wool	$'000	2,869	3,052	3,094	2,890[r]	2,670
Total pulled wool	'000 lb.	1,487	1,387	1,287	1,361	1,553
Total wool production	"	7,743	7,757	7,456	7,169	6,812
Apparent consumption	"	54,223	53,581	56,819	57,505	61,956

[1] Includes Agricultural Stabilization Act payments of 21 cents per lb. in 1959, 23 cents per lb. in 1960, 22 cents per lb. in 1961, 18 cents per lb. in 1962 and 14.3 cents per lb. in 1963 on qualifying graded wool.

Honey.—Honey statistics have been compiled on an all-Canada basis since 1924. Production in 1963 was 42,100,000 lb., second in amount to the 45,100,000-lb. crop of 1948 but considerably larger than the 1962 crop of only 30,700,000 lb. The 1963 increase was attributable mainly to a higher average yield per colony and, to a lesser extent, a larger number of colonies operated.

Honey is produced commercially in all provinces except Newfoundland and yields tend to vary considerably from year to year. Ontario usually has been the largest producer but in 1963 Alberta's output, estimated at 11,600,000 lb., surpassed Ontario's 11,000,000 lb.; Manitoba was third, followed by Saskatchewan and Quebec. Honey bees are kept in some of the fruit growing districts of the country for purposes of pollination and are also used for the pollination of certain seed crops.

To facilitate storage, shipment and uniformity of quality, large quantities of Canadian honey are pasteurized. Beekeepers' marketing co-operatives are active in several provinces. In 1963, 4,350,000 lb. of honey valued at $982,000 were exported from Canada, mainly to Britain.

33.—Honey and Beeswax Production 1961-63, with Average for 1956-60

Item		Av. 1956-60	1961	1962[r]	1963
Honey—					
Total production	'000 lb.	29,517	35,030	30,713	42,142
Average production per colony	lb.	90	104	90	117
Total value	$'000	5,165	5,351	5,128	7,819
Beeswax—					
Production	'000 lb.	437	520	454	623
Value	$'000	211	235	209	282
Total Value, Honey and Beeswax	$'000	**5,376**	**5,586**	**5,337**	**8,101**
Beekeepers	No.	13,870	11,663	10,370	10,660
Bee colonies	"	329,288	336,910	340,470	360,060

34.—Honey Production, by Province, 1961-63, with Average for 1956-60

Province	Av. 1956-60	1961	1962[r]	1963
	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Prince Edward Island	68	67	29	64
Nova Scotia	164	249	148	213
New Brunswick	87	85	62	125
Quebec	3,062	2,971	3,140	4,125
Ontario	8,704	9,360	11,718	11,000
Manitoba	5,562	6,670	4,630	7,285
Saskatchewan	3,912	3,973	2,864	6,100
Alberta	6,286	9,580	6,867	11,600
British Columbia	1,672	2,075	1,255	1,630
Totals	**29,517**	**35,030**	**30,713**	**42,142**

Sugar Beets and Beet Sugar.—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and beet sugar factories are located in these provinces. In Quebec, commercial production is centred in the St. Hilaire area of the Eastern Townships; in Ontario, production is confined largely to the southwestern section of the province. Alberta produces the largest crop and in that province sugar beets are grown under irrigation.

35.—Acreage, Yield and Value of Sugar Beets and Quantity and Value of Beet Sugar Shipments, 1958-63

Year	Sugar Beets					Beet Sugar (All Types)	
	Harvested Area	Yield per Acre	Total Yield	Average Price per Ton	Total Value	Shipments	Value
	acres	tons	tons	$	$'000	'000 lb.	$'000
1958	97,800	13.55	1,324,870	14.47	19,177	200,296	27,213
1959	90,453	13.70	1,239,518	12.78	15,842	307,280	23,155
1960	86,128	12.76	1,098,673	14.36	15,778	298,111	21,185
1961	84,927	13.02	1,105,708	13.13	14,515	283,675	21,535
1962r	84,677	13.06	1,105,704	19.00	21,004	284,236p	20,791p
1963	95,223	13.49	1,285,028	..	..	..	..

Maple Sugar and Maple Syrup.—Maple syrup is produced in the Provinces of Nova Scotia, New Brunswick, Quebec and Ontario. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous both in Canada and in the United States as the centre of the maple products industry. Virtually all of the maple products exported are sent to the United States with the larger proportion moving as sugar, although substantial quantities of syrup are also shipped. Much of the syrup sold in Canada is marketed in one-gallon cans direct to the consumer from the producer but a considerable amount of both sugar and syrup is sold each year to processing firms.

36.—Estimated Production of Maple Sugar and Maple Syrup, by Province, 1961-63, with Averages for 1956-60

Province and Year	Maple Sugar			Maple Syrup			Total Value, Sugar and Syrup
	Quantity	Average Price per lb.	Value	Quantity	Average Price per gal.	Value	
	lb.	cts.	$	gal.	$	$	$
Nova Scotia—							
Av. 1956-60	14,000	64.0	9,000	4,000	6.25	25,000	34,000
1961	14,000	63.0	9,000	4,000	5.41	22,000	31,000
1962	7,000	63.0	4,000	3,000	5.46	16,000	20,000
1963	11,000	66.0	7,000	4,000	5.56	20,000	27,000
New Brunswick—							
Av. 1956-60	62,000	61.0	38,000	12,000	5.17	62,000	100,000
1961	42,000	59.0	25,000	13,000	5.33	69,000	94,000
1962	32,000	59.0	19,000	6,000	5.56	33,000	52,000
1963	32,000	67.0	21,000	8,000	5.33	42,000	63,000
Quebec—							
Av. 1956-60	480,000	44.0	209,000	2,205,000	3.49	7,704,000	7,913,000
1961	751,000	47.0	353,000	2,227,000	3.74	8,329,000	8,682,000
1962	695,000	49.0	341,000	2,426,000	3.69	8,952,000	9,293,000
1963	669,000	54.0	360,000	2,488,000	3.94	9,802,000	10,162,000
Ontario—							
Av. 1956-60	15,000	60.0	9,000	273,000	4.86	1,327,000	1,336,000
1961	24,000	71.0	17,000	319,000	5.04	1,608,000	1,625,000
1962	16,000	65.0	10,000	311,000	5.08	1,579,000	1,589,000
1963	8,000	71.0	6,000	219,000	5.21	1,141,000	1,147,000
Totals—							
Av. 1956-60	**571,000**	**46.0**	**265,000**	**2,494,000**	**3.66**	**9,118,000**	**9,383,000**
1961	**831,000**	**49.0**	**404,000**	**2,563,000**	**3.91**	**10,028,000**	**10,432,000**
1962	**750,000**	**50.0**	**374,000**	**2,746,000**	**3.85**	**10,580,000**	**10,954,000**
1963	**720,000**	**55.0**	**394,000**	**2,719,000**	**4.05**	**11,005,000**	**11,399,000**

Nursery Stock.—Statistics concerning the nursery industry in Canada for recent years are presented in Tables 37 and 38. All nurseries were asked to report quantities sold of stock propagated during these years; stock purchased from other nurseries in Canada was excluded to prevent duplication. A total of 251 nurseries reported shipments in 1962. Wholesale value of nursery stock shipments of fruit trees, etc., amounted to $553,725 in 1962 compared with $549,288 in 1961, and of ornamental species to $4,165,396 in 1962 compared with $3,927,979 in the previous year.

37.—Nursery Stock Shipments (Domestic), by Type, 1958-62

Classification	1958	1959	1960	1961	1962
	No.	No.	No.	No.	No.
Fruit Trees, etc.—					
Apple species	420,588	436,845	300,729	378,093	315,528
Tender tree-fruit species	275,542	314,265	256,185	264,197	235,468
Small fruit species	4,419,675	4,446,224	5,370,022	5,502,671	4,753,971
Other species	501,285	371,547	219,527	338,375	239,040
Ornamental Species—					
Rose bushes	460,879	592,113	2,001,121	1,440,440	3,799,399
Other ornamental shrubs and deciduous trees	3,548,277	4,113,190	4,908,373	4,343,288	4,595,962
Evergreen trees	1,329,200	1,631,726	1,292,029	1,759,369	1,377,015
Ornamental climbers	43,306	25,081	44,418	213,629	58,387
Bulbs and tubers	3,783,225	10,315,900	..	..	..
Herbaceous perennials	785,748	956,483	..	..	..
Hybrid teas on standards (roses)	..	..	6,167	29,009	6,124

38.—Acreage of Nursery Stock, by Province, 1960-62

Province	1960		1961		1962	
	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species
	acres	acres	acres	acres	acres	acres
Quebec[1]	67	168	42	340	34	265
Ontario	480	2,530	514	3,299	364	2,583
Prairie Provinces	104	529	93	550	95	508
British Columbia	70	155	89	161	109	218
Totals	**721**	**3,382**	**738**	**4,350**	**602**	**3,574**

[1] Includes the Maritime Provinces for which insufficient information was reported.

Greenhouse Operations.—Annual surveys have been made of greenhouse operations for 1955 and subsequent years. Data are reported by firms and individuals returning questionnaires, with the exception of that for cucumbers and tomatoes grown in Essex County of Ontario (the most important producing area), which is based on information obtained from the local co-operative marketing agency. Only greenhouses used for the production of items for sale are included in the survey.

39.—Greenhouse Operations, by Province, 1962, with Totals for 1958-62

Province	Firms Reporting	Area			Value of Sales (Wholesale)			
		Under Glass	Under Cloth	Open Field	Cut Flowers and Potted Plants	Vegetables	Plants—Rooted Cuttings, etc., for Growing On	Total Sales
	No.	sq. ft.	sq. ft.	acres	$	$	$	$
Newfoundland	2	16,145	—	—	[1]		[1]	[1]
Prince Edward Island	4	6,380	—	5.1	38,950	450	6,425	45,825
Nova Scotia	44	565,030	1,400	51.8	672,401	183,759	49,151	905,311
New Brunswick	21	133,137	6,710	20.2	220,535	—	21,423	241,958
Quebec	114	1,107,898	27,874	90.7	1,559,694	45,209	251,307	1,856,210
Ontario	530	13,364,018	335,778	550.4	10,116,357	4,122,486	1,673,867	15,912,710
Manitoba	30	183,824	15,800	14.8	229,696	290	120,503	350,489
Saskatchewan	14	229,400	7,200	27.9	192,654	23,038	76,237	291,929
Alberta	44	1,609,021	9,288	40.0	1,522,976	162,025	281,440	1,966,441
British Columbia	173	2,519,276	4,920	106.0	1,837,845	522,358	287,194	2,647,397
Totals, 1962	**976**	**19,734,129**	**408,970**	**906.9**	**16,391,108**	**5,059,615**	**2,767,547**	**24,218,270**
1961	**1,074**	**18,474,888**	**435,912**	**3,160.0**	**15,668,154**	**4,389,100**	**2,341,156**	**22,398,410**
1960	**1,045**	**15,672,066**	**453,718**	**2,244.6**	**14,899,047**	**4,015,284**	**2,502,170**	**21,416,501**
1959	**1,191**	**15,778,177**	**590,372**	**1,928.4**	**16,948,269**	**3,421,308**	**2,191,411**	**22,560,988**
1958	**1,125**	**15,525,691**	**473,541**	**2,035.7**	**13,896,582**	**3,175,285**	**2,054,690**	**19,126,562**

[1] Included with Prince Edward Island.

Subsection 8.—Prices of Agricultural Products

The monthly index of farm prices of agricultural products was designed to measure changes occurring in the average prices farmers receive at the farm from the sale of farm products. In comparing current index numbers with those before August 1963, certain points should be considered. Western grain prices used in the construction of the index before Aug. 1, 1963 are final prices for all grains. For the remaining months of 1963, the western grain prices used in the index are initial prices. Subsequent participation payments made on the 1963 crops will be added to the prices currently used and the index revised upward accordingly.

40.—Average Index Numbers of Farm Prices of Agricultural Products, by Province, 1959-63, and Monthly Indexes for 1962 and 1963

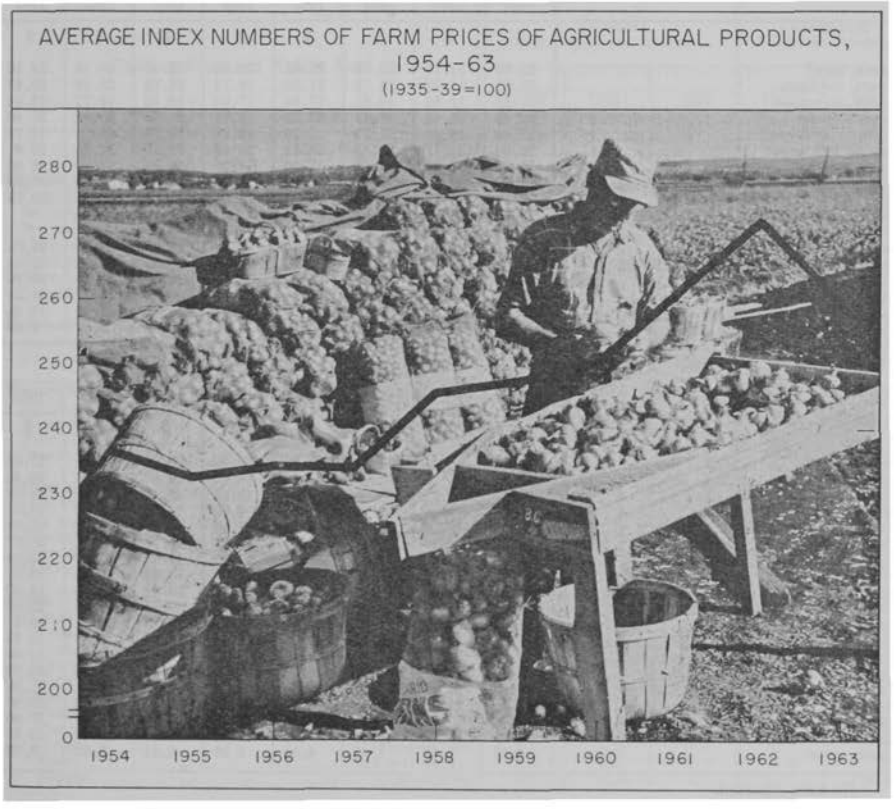
(1935-39 = 100)

NOTE.—A description of this index, its coverage and the methods used will be found in DBS *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003) for October-December 1946. Monthly prices of grain and of livestock are carried in the current issues of the same publication.

Year and Month	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
Averages—										
1959	**234.4**	**227.3**	**239.5**	**272.7**	**264.2**	**240.6**	**218.6**	**239.6**	**265.5**	**247.4**
1960	**265.0**	**238.0**	**264.7**	**273.6**	**264.3**	**241.2**	**224.6**	**239.0**	**271.4**	**250.0**
1961	**197.7**	**225.4**	**220.4**	**274.4**	**265.2**	**262.0**	**251.3**	**265.9**	**276.1**	**261.2**
1962	**196.2**	**231.1**	**215.2**	**274.7**	**273.6**	**278.4**	**265.3**	**283.4**	**284.5**	**271.8**
1963	**212.1**	**235.8**	**223.7**	**274.2**	**271.4**	**253.4**	**238.4**	**260.6**	**279.2**	**259.2**
1962										
January	176.5	226.0	201.9	275.2	265.1	275.6	263.8	276.5	282.0	266.8
February	172.0	224.8	201.8	274.6	262.4	276.5	264.0	276.0	279.7	265.8
March	176.1	221.9	205.5	271.5	262.2	277.1	263.8	277.1	280.9	265.7
April	168.3	224.9	199.0	267.6	263.3	277.1	264.6	279.8	282.0	266.2
May	189.4	224.8	201.8	267.3	264.6	278.6	266.3	282.9	283.0	267.9
June	195.0	226.4	218.4	272.5	271.9	282.2	268.0	287.2	287.1	272.8

40.—Average Index Numbers of Farm Prices of Agricultural Products, by Province, 1959-63, and Monthly Indexes for 1962 and 1963—concluded

Year and Month	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
1962—concluded										
July	211.6	236.0	236.1	277.0	278.5	284.9	271.5	290.9	290.4	277.8
August	264.0	243.5	259.5	280.5	285.6	283.0	271.0	292.6	292.8	281.7
September	197.1	237.1	217.9	274.6	283.7	280.4	265.9	289.9	286.0	276.6
October	208.8	235.6	222.1	277.0	283.1	277.1	261.8	282.2	286.8	274.4
November	194.0	235.5	206.7	278.4	282.5	274.4	261.8	283.0	284.1	273.7
December	201.1	237.0	211.1	280.0	280.3	274.0	260.8	282.1	279.0	272.8
1963										
January	202.4	238.3	222.9	278.1	277.0	269.6	258.2	276.8	278.2	269.8
February	229.2	242.8	235.2	279.7	273.5	269.5	255.6	274.6	276.0	268.6
March	228.3	239.0	236.5	278.0	268.5	266.5	254.4	271.2	277.2	265.7
April	211.5	233.4	217.8	266.3	265.0	265.0	252.4	270.4	280.8	262.0
May	218.2	233.1	216.4	267.4	265.7	266.0	253.5	272.7	278.3	263 3
June	248.3	241.6	228.5	273.5	272.8	269.6	256.1	277.9	283.1	268.7
July	231.7	244.3	249.3	276.8	276.4	270.8	257.8	281.3	286.7	271.7
August	217.9	238.3	231.1	275.8	272.9	239.3	216.7	245.3	285.0	251.6
September	204.0	234.0	217.1	275.6	275.5	237.3	217.9	247.1	278.1	251.9
October	175.6	223.4	208.0	272.5	270.5	232.5	215.3	239.5	276.5	247.2
November	185.3	225.7	209.4	270.8	269.8	228.1	212.3	236.0	275.9	244.9
December	192.8	226.3	212.5	274.4	269.0	227.1	211.1	233.4	274.9	244.4



41.—Average Cash Prices per Bushel of Major Canadian Grains, Crop Years Ended July 31, 1954-63

(Basis, in store Fort William-Port Arthur)

Year Ended July 31—	Averages in Cents and Eighths per Bushel				
	Wheat,[1,2] No. 1 N.	Oats,[1] No. 2 C.W.	Barley,[1] No. 3 C.W. —6 Row	Rye,[3] No. 2 C.W.	Flaxseed,[3] No. 1 C.W.
	cts.	cts.	cts.	cts.	cts.
1954	186/2	73/2	109/7	99/1	283/6
1955	173	90/4	122/4	112/2	309/1
1956	174	83/5	114/3	110/1	360/1
1957	168/1	80/6	116	119/7	298/4
1958	162/3	76/3	111	106	303
1959	166/2	77/6	109/7	108	302
1960	165/7	82/4	108/1	109/7	334/2
1961	167/4	81/2	107/5	105	311/4
1962	189/7	96/1	143/7	136/6	368/2
1963	196/1	81/6	130/6	137/2	335

[1] Canadian Wheat Board daily fixed prices. [2] International Wheat Agreement and domestic sales.
[3] Winnipeg Grain Exchange daily closing cash quotations.

42.—Yearly Average Prices per 100 lb. of Canadian Livestock at Principal Markets, 1960-63

Item	Toronto				Montreal			
	1960	1961	1962	1963	1960	1961	1962	1963
	$	$	$	$	$	$	$	$
Steers, good	22.65	22.75	25.75	23.65	22.95	22.80	26.15	24.10
Steers, medium	20.51	21.07	23.75	21.59	18.74	21.63	23.84	22.42
Steers, common	17.21	17.59	19.61	17.84	17.94	18.72	19.72	18.94
Heifers, good	20.45	21.49	22.11	22.32	19.73	21.02	20.98	20.40
Heifers, medium	18.46	19.83	21.31	20.26	18.63	19.28	19.23	18.79
Calves, fed, good	22.69	23.17	24.45	23.14	20.92	21.10	21.36	22.81
Cows, good	15.85	16.25	17.85	17.40	16.70	16.55	17.80	18.05
Cows, medium	14.80	15.05	16.20	15.98	15.42	15.40	16.39	16.05
Bulls, good	17.65	19.12	19.60	19.45	19.16	19.14	19.75	20.05
Feeder steers, good	22.90	22.70	24.90	25.30	[1]	[1]	[1]	[1]
Feeder steers, common	19.14	18.47	21.94	20.98	[1]	[1]	[1]	[1]
Calves, veal, good and choice	31.80	30.80	31.85	30.70	27.80	28.05	29.50	28.05
Calves, veal, common and medium	24.77	22.93	24.19	23.93	22.50	22.29	23.00	22.44
Hogs, Grade B, dressed	23.75	27.30	28.60	26.80	24.55	27.65	28.15	26.40
Lambs, good	21.85	20.80	22.00	23.30	20.10	20.25	20.25	21.25
Lambs, common	17.01	16.35	18.21	19.11	15.94	17.74	17.24	18.45
Sheep, good	9.12	9.02	9.44	9.10	8.95	9.66	8.82	9.50

Item	Winnipeg				Edmonton			
	1960	1961	1962	1963	1960	1961	1962	1963
	$	$	$	$	$	$	$	$
Steers, good	21.70	21.40	24.85	23.00	20.46	20.70	23.70	21.85
Steers, medium	19.85	20.24	22.88	21.40	18.85	19.62	22.11	20.48
Steers, common	16.66	18.11	18.58	18.81	16.73	17.43	19.36	18.32
Heifers, good	20.22	19.85	22.75	21.64	18.56	18.80	21.94	20.21
Heifers, medium	18.16	18.26	20.77	19.49	17.10	17.69	19.80	18.84
Calves, fed, good	20.57	20.04	23.28	21.87	18.96	19.23	21.62	20.67
Cows, good	15.50	15.50	17.20	17.10	14.40	14.65	15.65	15.85
Cows, medium	14.32	14.52	15.88	15.92	13.21	13.49	14.39	14.51
Bulls, good	16.69	17.46	18.12	17.70	15.10	16.44	17.10	16.50
Feeder steers, good	21.00	21.45	24.40	23.20	20.16	20.75	23.45	22.65
Feeder steers, common	18.07	19.05	21.62	19.90	17.37	17.85	20.01	19.47
Stock cows and heifers, good	17.55	17.78	20.17	19.63	15.45	15.94	18.49	18.54
Stock cows and heifers, common	15.24	14.67	16.25	16.13	13.30	13.52	14.65	14.66
Calves, veal, good and choice	30.45	30.35	33.35	32.45	23.94	25.35	27.15	26.90
Calves, veal, common and medium	24.05	24.23	26.69	25.36	19.84	20.53	22.27	21.30
Hogs, Grade B, dressed	21.65	24.85	25.65	24.80	20.63	23.80	25.40	25.40
Lambs, good	17.70	17.00	17.95	18.95	17.33	16.55	17.00	17.80
Lambs, common	15.77	15.03	15.44	16.65	15.51	15.28	15.48	15.88
Sheep, good	4.63	3.78	4.49	4.65	8.96	9.44	7.52	5.70

[1] No sales reported.

Subsection 9.—Food Consumption

Food consumption figures represent available supplies, including production and imports, adjusted for change of stocks, exports, marketing losses and industrial uses. All calculations are made at the retail stage of distribution, except for meats for which the figures are worked out at the wholesale stage. The amount of food actually eaten would be somewhat lower than indicated because of losses and waste occurring after the products reach the hands of the consumer. It should also be pointed out that there are minor inaccuracies in certain of the figures since statistics of storage stocks in the hands of retailers and consumers are not available.

All basic foods are classified under 13 main commodity groups. The total for each group is computed using a common denominator for the group, for example: milk solids (dry weight) in the dairy products group; fat content for fats and oils; and fresh equivalent for fruits. All foods are included in their basic form, that is, as flour, fat, sugar, etc., rather than in more highly manufactured forms.

The series in Table 43 represents the official estimates of yearly supplies of food moving into consumption, expressed in pounds per capita, for the years 1957-61 as an average for comparison with the years 1961 and 1962.

43.—Per Capita Supplies of Food Moving into Consumption 1961 and 1962, with Average for 1957-61

Kinds of Food and Weight Base		Pounds per Capita per Annum			Percentages of 1957-61 Average	
		Average 1957-61	1961 r	1962	1961 r	1962
Cereals	**Retail wt.**	**154.8**	**151.3**	**149.2**	**97.8**	**96.4**
Flour (including rye flour)[1]	"	137.4	134.1	132.6	97.6	96.5
Oatmeal and rolled oats	"	5.0	5.0	4.8	100.0	96.0
Pot and pearl barley	"	0.2	0.2	0.2	100.0	100.0
Corn meal and flour	"	1.4	1.8	1.7	128.6	121.4
Buckwheat flour	"	0.09	0.04	0.04	44.4	44.4
Rice	"	4.1	3.5	3.4	85.4	82.9
Breakfast food	"	6.7	6.7	6.5	100.0	97.0
Potatoes	**Retail wt.**	**141.8**	**145.0**	**143.5**	**102.3**	**101.2**
Potatoes, white	"	141.3	144.6	143.1	102.3	101.3
Potatoes, sweet	"	0.5	0.4	0.4	80.0	80.0
Sugars and Syrups	**Sugar content**	**104.4**	**104.7**	**108.7**	**100.3**	**104.1**
Sugar	Refined wt.	96.8	97.7	100.6	100.9	103.9
Maple sugar	Retail wt.	0.7	1.2	1.3	171.4	185.7
Honey[2]	"	—	1.7	1.7	—	—
Other	"	10.6	7.1	8.8	83.0	99.1
Pulses and Nuts	**Retail wt.**	**10.2**	**10.1**	**8.7**	**99.0**	**85.3**
Dry beans[3]	"	3.1	2.8	1.9	90.3	61.3
Dry peas	"	1.4	1.3	0.8	92.9	57.1
Peanuts	Shelled wt.	3.0	3.2	3.5	106.7	116.7
Tree nuts	"	1.2	1.2	1.1	100.0	91.7
Cocoa	Green beans	3.0	3.3	3.0	110.0	100.0
Fruit	**Fresh equiv.**	**238.2**	**226.3**	**229.4**	**95.0**	**96.3**
Tomatoes and Citrus Fruit—						
Tomatoes, fresh	Retail wt.	17.2	17.8	17.8	103.5	103.5
Tomato products[4]	Net wt. canned	16.9	17.5	18.8	103.6	111.2
Citrus fruit, fresh	Retail wt.	32.1	30.0	28.8	93.5	89.7
Citrus fruit juice	Net wt. canned	15.7	15.6	15.8	99.4	100.6
Other Fruit—						
Fresh	Retail wt.	66.2	64.6	65.1	97.6	98.3
Canned	Net wt. canned	15.9	17.5	16.6	110.0	104.4
Dried	Processed wt.	5.5	4.6	4.6	83.6	83.6
Juice	Net wt. canned	5.4	5.2	6.0	96.3	111.1
Frozen	Retail wt.	2.1	2.4	2.7	114.3	128.6

For footnotes, see end of table, p. 494.

43.—Per Capita Supplies of Food Moving into Consumption 1961 and 1962, with Average for 1957-61—concluded

Kinds of Food and Weight Base		Pounds per Capita per Annum			Percentages of 1957-61 Average	
		Average 1957-61	1961[r]	1962	1961[r]	1962
Vegetables	**Fresh equiv.**	**108.3**	**114.0**	**115.0**	**105.3**	**106.2**
Fresh—						
Cabbage and greens	Retail wt.	19.6	18.7	18.6	95.4	94.9
Carrots	"	14.7	14.6	17.7	99.3	120.4
Legumes	"	2.2	1.9	2.1	86.4	95.5
Other	"	39.2	40.6	36.4	103.6	92.9
Canned	Net wt. canned	18.0	17.1	19.0	95.0	105.6
Frozen	Retail wt.	2.7	3.6	2.7	133.3	100.0
Oils and Fats	**Fat content**	**43.6**	**43.3**	**45.3**	**99.3**	**103.9**
Margarine	Retail wt.	8.9	10.1	10.1	113.5	113.5
Lard	"	8.1	8.4	8.0	103.7	98.8
Shortening	"	9.3	9.1	9.7	97.8	104.3
Salad and cooking oil	"	3.6	4.2	4.9	116.7	136.1
Butter	"	18.2	16.5	17.9	90.7	98.4
Eggs	**Fresh equiv.**	**36.4**	**33.9**	**33.8**	**93.1**	**92.9**
Meat	**Carcass wt.**	**141.7**	**138.8**	**137.9**	**98.0**	**97.3**
Pork	"	52.3	49.9	49.8	95.4	95.2
Beef	"	68.6	69.7	69.3	101.6	101.0
Veal	"	7.9	6.8	6.5	86.1	82.3
Mutton and lamb	"	3.0	3.6	3.9	120.0	130.0
Offal	Edible wt.	4.9	4.5	4.2	91.8	85.7
Canned meat	Net wt. canned	5.6	5.4	5.3	96.4	94.6
Poultry and Fish	**Edible wt.**	**34.1**	**35.5**	**35.4**	**104.1**	**103.8**
Hens and chickens[5]	Eviscerated wt.	21.3	23.0	22.9	108.0	107.5
Other poultry	"	7.3	8.1	8.1	111.0	111.0
Fish and shellfish, fresh and frozen	Edible wt.	7.5	7.6	7.6	101.3	101.3
Fish, cured (smoked, salted, pickled)	"	1.8	1.7	1.7	94.4	94.4
Fish and shellfish, canned	Net wt. canned	3.8	3.1	3.1	81.6	81.6
Milk and Cheese	**Milk solids**	**61.9**	**60.7**	**58.5**	**98.1**	**94.5**
Cheddar cheese[6]	Retail wt.	5.8	6.0	6.6	103.4	113.8
Other cheese	"	1.3	1.4	1.5	107.7	115.4
Cottage cheese	"	1.2	1.3	1.4	108.3	116.7
Evaporated whole milk	"	17.4	16.5	16.3	94.8	93.7
Condensed whole milk	"	0.8	0.8	0.9	100.0	112.5
Whole milk powder	"	0.2	0.2	0.2	100.0	100.0
Condensed skim milk	"	0.2	0.1	0.1	50.0	50.0
Skim milk powder	"	6.8	8.4	7.2	123.5	105.9
Evaporated skim milk	"	0.4	0.3	0.3	75.0	75.0
Milk in ice cream	"	37.2	35.6	28.9	95.7	77.7
Powdered buttermilk	"	0.5	0.5	0.6	100.0	120.0
Fluid whole milk[7]	"	357.3	332.3	326.4	93.0	91.4
Beverages	**Primary distribution wt.**	**11.4**	**11.4**	**12.0**	**100.0**	**105.3**
Tea	" "	2.6	2.4	2.3	92.3	88.5
Coffee	Green beans	8.9	9.0	9.7	101.1	109.0

[1] Fluctuations in apparent per capita flour consumption are caused partly by lack of complete data on flour inventories in all positions. [2] Honey included with "other" prior to 1960. [3] Includes soybean flour. [4] Tomatoes canned, tomato juice, tomato pulp, paste and purée. [5] Exclusive of Newfoundland. [6] Includes process cheese. [7] Includes cream expressed as milk.

Disappearance of Meats and Lard.—Production of meats from slaughter in Canada, total supply, distribution and per capita disappearance of meats and lard are shown in Table 44. All estimates are on a carcass-weight basis except canned meats, which are in terms of product.

44.—Supply, Distribution and Disappearance of Meats and Lard, 1957-63

Item		1957	1958	1959	1960	1961[r]	1962[r]	1963
Beef—								
Animals slaughtered in Canada	'000	2,514.3	2,437.6	2,261.3	2,471.3	2,510.9	2,503.6	2,653.6
Estimated dressed weight	'000 lb.	1,244,584	1,220,239	1,153,037	1,266,280	1,302,641	1,297,114	1,408,784
On hand, Jan. 1	"	33,251	29,689	31,417	27,958	29,208	33,350	33,719
Imports for consumption	"	21,974	26,458	36,182	31,054	30,990	37,555	37,617
Total Supply	"	1,299,809	1,276,386	1,220,636	1,325,292	1,362,839	1,368,019	1,480,120
Exports	"	55,312	63,925	29,959	25,942	37,536	27,656	25,564
Used for canning	"	18,177	19,374	16,651	20,103	20,657	19,086	18,251
On hand, Dec. 31	"	29,689	31,417	27,958	29,208	33,350	33,719	41,821
Domestic Disappearance	'000 lb.	1,196,631	1,161,670	1,146,068	1,250,039	1,271,296	1,287,558	1,394,484
Per Capita Disappearance	lb.	72.0	68.0	65.6	70.0	69.7	69.3	73.8
Veal—								
Animals slaughtered in Canada	'000	1,358.3	1,191.1	1,093.5	1,081.7	1,048.8	990.1	1,053.6
Estimated dressed weight	'000 lb.	148,058	125,544	120,505	125,155	123,754	121,486	127,901
On hand, Jan. 1	"	5,701	5,214	4,608	3,925	4,970	3,652	3,867
Imports for consumption	"	[1]	[1]	[1]	[1]	[1]	[1]	[1]
Total Supply	"	153,759	130,758	125,113	129,080	128,724	125,138	131,768
Exports	"	[1]	[1]	[1]	[1]	[1]	[1]	[1]
Used for canning	"	957	1,240	977	959	1,321	1,198	1,419
On hand, Dec. 31	"	5,214	4,608	3,925	4,970	3,652	3,867	5,174
Domestic Disappearance	'000 lb.	147,588	124,910	120,211	123,151	123,751	120,073	125,175
Per Capita Disappearance	lb.	8.9	7.3	6.9	6.9	6.8	6.5	6.6
Mutton and Lamb—								
Animals slaughtered in Canada	'000	762.8	716.2	925.7	737.4	816.0	764.6	714.2
Estimated dressed weight	'000 lb.	33,180	31,297	31,784	31,561	35,086	32,648	31,209
On hand, Jan. 1	"	4,865	4,693	9,490	6,080	7,816	9,932	5,293
Imports for consumption	"	11,015	21,547	20,071	23,532	33,433	37,587	47,856
Total Supply	"	49,060	57,537	61,345	61,173	76,335	80,167	84,358
Exports	"	472	1,377	749	109	173	556	679
Used for canning	"	558	1,022	3,087	810	1,185	1,232	1,108
On hand, Dec. 31	"	4,693	9,490	6,080	7,816	9,932	5,293	5,631
Domestic Disappearance	'000 lb.	43,337	45,648	51,429	52,438	65,045	73,086	76,940
Per Capita Disappearance	lb.	2.6	2.7	2.9	2.9	3.6	3.9	4.1
Pork—								
Animals slaughtered in Canada	'000	6,295.4	7,466.2	9,661.8	7,804.4	7,522.1	7,648.2	7,601.0
Estimated dressed weight[2]	'000 lb.	818,403	973,599	1,237,682	988,035	966,595	978,211	978,252
On hand, Jan. 1	"	20,571	23,821	45,310	56,549	21,139	24,648	18,357
Imports for consumption	"	1,512	1,744	1,416	17,706	41,859	35,602	89,465
Total Supply	"	840,486	999,164	1,284,408	1,062,290	1,029,593	1,038,461	1,086,074
Exports	"	38,183	63,493	70,042	67,691	52,394	47,922	47,420
Used for canning	"	40,313	47,316	167,145	33,602	42,255	46,764	54,663
On hand, Dec. 31	"	23,821	45,310	56,549	21,139	24,648	18,357	25,299
Domestic Disappearance	'000 lb.	738,169	843,045	990,672	939,858	910,296	925,418	958,692
Per Capita Disappearance	lb.	44.4	49.4	56.7	52.6	49.9	49.8	50.7
Canned Meats—								
Estimated production	'000 lb.	69,540	75,909	175,738	66,681	84,928	88,893	92,263
On hand, Jan. 1	"	18,764	18,844	13,833	127,274	48,473	42,775	29,478
Imports for consumption	"	21,274	21,212	19,585	12,487	18,105	12,405	16,407
Total Supply	"	109,578	115,965	209,156	206,442	151,506	144,073	138,148

For footnotes, see end of table, p. 496.

44.—Supply, Distribution and Disappearance of Meats and Lard, 1957-63—concluded

Item		1957	1958	1959	1960	1961[r]	1962[r]	1963
Canned Meats—concluded								
Exports	'000 lb.	5,241	6,314	6,843	24,357	9,623	16,487	21,991
On hand, Dec. 31	"	18,844	13,833	127,274	48,473	42,775	29,478	17,560
Domestic Disappearance	'000 lb.	85,493	95,818	75,039	133,612	99,108	98,108	98,597
Per Capita Disappearance	lb.	5.1	5.6	4.3	7.5	5.4	5.3	5.2
Offal—								
Estimated production	'000 lb.	90,498	93,864	100,788	95,849	95,389	95,501	98,500
On hand, Jan. 1	"	5,146	5,867	4,946	5,251	5,042	5,906	5,001
Imports for consumption	"	3,150	758	2,311	5,063	3,426	3,997	4,743
Total Supply	"	98,794	100,489	108,045	106,163	103,857	105,404	108,244
Exports	"	5,587	11,590	15,397	14,434	14,146	20,410	23,911
Used for canning	"	1,598	2,039	1,628	1,673	2,059	1,818	2,057
On hand, Dec. 31	"	5,867	4,946	5,251	5,042	5,906	5,001	6,136
Domestic Disappearance	'000 lb.	85,742	81,914	85,769	85,014	81,746	78,175	76,140
Per Capita Disappearance	lb.	5.2	4.8	4.9	4.8	4.5	4.2	4.0
Lard—[3]								
Estimated production	'000 lb.	111,992	140,599	181,680	142,193	130,191	123,515	125,405
On hand, Jan. 1	"	4,866	6,823	8,608	7,663	5,949	6,921	6,263
Imports for consumption	"	28,015	5,224	2,736	20,903	25,145	24,784	17,073
Total Supply	"	144,873	152,646	193,024	170,759	161,285	155,220	148,741
Exports	"	8	475	9,217	1,667	912	32	23
On hand, Dec. 31	"	6,823	8,608	7,663	5,949	6,921	6,263	5,848
Domestic Disappearance	'000 lb.	138,042	143,563	176,144	163,143	153,452	148,925	142,870
Per Capita Disappearance	lb.	8.3	8.4	10.1	9.1	8.4	8.0	7.6

[1] Quantity small; included with beef. [2] Trimmed of larding fat and excluding offal. [3] Includes commercial lard production and estimated lard equivalent of renderable pork fat available from all uninspected slaughter.

Section 4.—Agricultural Statistics of the Census*

This Section presents a limited amount of information from the 1961 Census of Agriculture. Details are contained in Vol. V of the 1961 *Census of Canada* and in a number of special and advance census reports. A list of these publications and their prices is available from the DBS on request.

Number of Farms.—There were 16 p.c. fewer farms in Canada in 1961 than in 1956, the year of the immediately preceding census. The number dropped from 575,015 in the earlier year to 480,903 in the later. However, part of this decrease was attributable to a change in the census definition of a farm. In the 1956 (and 1951) Census, a farm was defined as a holding on which agricultural operations were carried out and which was (*a*) three acres or more in size, or (*b*) from one to three acres in size and with agricultural production during the previous year valued at $250 or more. In the 1961 Census, a farm was defined as a holding of one acre or more with the sales of agricultural products during the previous year valued at $50 or more. On the basis of the 1956 definition, the decrease in the number of farms was from 575,015 to 521,634 in 1961, or about 9 p.c.

* Reference is made to the 1963-64 Year Book for summary figures relating to the economic classification of farms (pp. 478-480) and tenure and age of farm operators (pp. 481-482).

45.—Number of Farms, by Province, Censuses of 1956 and 1961

Province or Territory	1956 (1956 Definition)[1]	1961 (1961 Definition)[1]	P.C. Change 1956-61	1961 (1956 Definition)[1]	P.C. Change 1956-61
	No.	No.		No.	
Newfoundland	2,387	1,752	−26.6	3,358	+40.7
Prince Edward Island	9,432	7,335	−22.2	8,025	−14.9
Nova Scotia	21,075	12,518	−40.6	18,264	−13.3
New Brunswick	22,116	11,786	−46.7	18,331	−17.1
Quebec	122,617	95,777	−21.9	108,865	−11.2
Ontario	140,602	121,333	−13.7	127,492	− 9.3
Manitoba	49,201	43,306	−12.0	44,264	−10.0
Saskatchewan	103,391	93,924	− 9.2	94,402	− 8.7
Alberta	79,424	73,212	− 7.8	74,661	− 6.0
British Columbia	24,748	19,934	−19.5	23,946	− 3.2
Yukon and Northwest Territories	22	26	+18.2	26	+18.2
Canada	**575,015**	**480,903**	**−16.4**	**521,634**	**− 9.3**

[1] See text immediately preceding table.

Farm Areas.—The total area of farms as defined in the 1961 Census was 172,551,051 acres, only slightly less than the 173,923,691 acres recorded in 1956. Improved farm land for the country as a whole was up 3 p.c. from 100,326,243 acres to 103,403,426 acres and unimproved farm land, which includes woodland and rough pasture, was down about 6 p.c. from 73,597,448 acres to 69,147,625 acres. Decreases in total farm area in the six eastern provinces and in British Columbia offset by almost 1,400,000 acres the increases in total farm area in the Prairie Provinces and the Territories. As Table 46 shows, only Manitoba, Alberta and British Columbia reported more farm land under crops in 1961 than in 1956 but the total increase in these provinces was somewhat less than the total decrease in the other provinces. On the other hand, the total increase in improved pasture in the four western provinces was somewhat greater than the total decrease in the eastern provinces and there was a substantial increase in the acreage under summer fallow for Canada as a whole.

46.—Use of Farm Land, by Province, Censuses of 1956 and 1961

Item	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land	**24,234**	**20,455**	**645,492**	**579,558**	**629,874**	**497,521**	**951,291**	**734,107**
Under crops[1]	15,968	12,919	419,099	391,112	416,235	329,114	617,279	482,548
Pasture (improved)	5,739	4,097	201,225	167,913	161,424	127,468	252,686	200,047
Summer fallow	92	145	2,463	2,522	2,649	2,654	13,560	5,648
Other	2,435	3,294	22,705	18,001	49,566	38,285	67,766	45,864
Unimproved Land	**47,580**	**34,106**	**419,971**	**380,599**	**2,145,768**	**1,732,874**	**2,030,158**	**1,465,568**
Woodland	26,919	19,802	334,226	296,758	1,566,071	1,362,869	1,703,702	1,230,861
Other	20,661	14,304	85,745	83,840	579,697	370,005	326,456	234,707
Totals, Farm Area	**71,814**	**54,561**	**1,065,463**	**960,157**	**2,775,642**	**2,230,395**	**2,981,449**	**2,199,675**

[1] Includes field, vegetable, fruit and nursery crop land.

46.—Use of Farm Land, by Province, Censuses of 1956 and 1961—concluded

Item	Quebec		Ontario		Manitoba		Saskatchewan	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land	**8,629,835**	**7,864,176**	**12,572,157**	**12,032,924**	**11,453,783**	**11,963,994**	**40,506,000**	**43,117,813**
Under crops[1]	5,549,524	5,213,302	8,219,407	7,990,358	7,686,013	7,688,728	24,480,501	23,923,192
Pasture (improved)	2,642,764	2,312,950	3,470,688	3,295,609	594,902	719,819	1,128,001	1,394,280
Summer fallow	67,082	46,344	333,973	244,842	2,827,551	3,230,095	14,193,468	17,179,572
Other	370,465	291,580	548,089	502,115	345,317	325,352	704,030	620,769
Unimproved Land	**7,280,293**	**6,334,316**	**7,307,489**	**6,545,583**	**6,478,034**	**6,205,957**	**22,287,979**	**21,297,705**
Woodland	4,877,803	4,501,305	3,338,870	3,257,589	1,566,494	1,490,673	2,379,043	2,194,920
Other	2,402,490	1,833,011	3,968,619	3,287,994	4,911,540	4,715,284	19,908,936	19,102,785
Totals, Farm Area	**15,910,128**	**14,198,492**	**19,879,646**	**18,578,507**	**17,931,817**	**18,169,951**	**62,793,979**	**64,415,518**

Item	Alberta		British Columbia		Yukon and N.W.T.		Canada	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land	**23,746,113**	**25,288,527**	**1,166,752**	**1,303,263**	**712**	**1,088**	**100,326,243**	**103,403,426**
Under crops[1]	14,850,171	15,614,839	689,749	788,896	230	526	62,944,176	62,435,534
Pasture (improved)	1,279,894	1,670,391	320,251	354,830	245	492	10,057,819	10,247,896
Summer fallow	7,091,264	7,449,758	87,479	81,785	44	11	24,619,625	28,243,386
Other	524,784	553,539	69,273	77,752	193	59	2,704,623	2,476,610
Unimproved Land	**22,224,282**	**21,940,126**	**3,372,129**	**3,203,289**	**3,765**	**7,502**	**73,597,448**	**69,147,625**
Woodland	2,891,128	2,138,137	855,398	752,990	887	1,484	19,540,541	17,247,389
Other	19,333,154	19,801,989	2,516,731	2,450,299	2,878	6,018	54,056,907	51,900,236
Totals, Farm Area	**45,970,395**	**47,228,653**	**4,538,881**	**4,506,552**	**4,477**	**8,590**	**173,923,691**	**172,551,051**

[1] Includes field, vegetable, fruit and nursery crop land.

Size of Farms.—Farms are classified by size and by province in Table **47.** More than 56 p.c. of the farms of Canada contain less than 240 acres. Size, of course, varies greatly among the provinces; in Newfoundland almost 90 p.c. of the farms are under 70 acres; in the Maritime Provinces 80 p.c. are under 240 acres; in Quebec and Ontario 67 p.c. are between 70 and 240 acres; in the Prairie Provinces 43 p.c. contain from 70 to 399 acres and 54 p.c. 400 or more acres; and in British Columbia 88 p.c. are between 3 and 400 acres in size.

47.—Farms classified by Size and by Province, Census 1961

Size of Farm	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	No.	No.	No.	No.	No.	No.
Under 3 acres	225	51	190	114	498	1,738
3 — 9 acres	640	91	462	188	1,120	4,434
10 — 69 "	677	1,414	2,440	1,556	12,722	19,181
70 — 239 "	184	5,106	6,567	7,088	68,825	76,112
240 — 399 "	19	558	1,781	1,852	9,993	14,248
400 — 559 "	4	86	634	625	1,940	3,699
560 — 759 "	1	17	260	214	477	1,209
760 — 1,119 "	1	9	112	99	135	500
1,120 — 1,599 "	—	2	48	32	44	152
1,600 acres or over	1	1	24	18	23	60
Totals, Census Farms	**1,752**	**7,335**	**12,518**	**11,786**	**95,777**	**121,333**

47.—Farms classified by Size and by Province, Census 1961—concluded

Size of Farm	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Under 3 acres	209	128	238	1,229	—	4,620
3 — 9 acres	553	262	683	3,678	3	12,114
10 — 69 "	1,909	829	1,813	7,903	5	50,449
70 — 239 "	10,460	10,860	15,408	3,541	8	204,159
240 — 399 "	12,562	20,977	19,385	1,249	2	82,626
400 — 559 "	7,628	17,665	11,763	720	—	44,764
560 — 759 "	5,065	15,676	8,421	518	2	31,860
760 — 1,119 "	3,284	15,499	7,498	499	6	27,642
1,120 — 1,599 "	1,133	7,445	3,969	266	—	13,091
1,600 acres or over	503	4,583	4,034	331	—	9,578
Totals, Census Farms	**43,306**	**93,924**	**73,212**	**19,934**	**26**	**480,903**

Persons Employed in Agriculture.—The number of persons employed in agriculture declined in each of the ten provinces during the 1951-61 period. Table 48 shows that the agricultural labour force totalled 648,966 persons for all Canada in 1961, down 20.8 p.c. from the 1951 figure. The 1961 total represented 10.0 p.c. of the total labour force; the proportion in 1951 was 15.5 p.c. The number of farmers and farm workers in relation to the total labour force was highest in the Provinces of Saskatchewan and Prince Edward Island; the proportion was lowest in Newfoundland and British Columbia.

48.—Number of Persons, 15 Years of Age or Over, Employed in Agriculture, by Province, Censuses of 1951 and 1961

Province or Territory	Farmers and Farm Workers[1]			
	1951		1961	
	Number	P.C. of Total Labour Force	Number	P.C. of Total Labour Force
Newfoundland	3,657	3.4	1,694	1.5
Prince Edward Island	12,869	37.8	9,188	26.9
Nova Scotia	23,352	10.6	12,433	5.3
New Brunswick	26,488	15.7	12,727	7.1
Quebec	191,004	13 0	132,576	7.5
Ontario	200,937	10.7	172,171	7.2
Manitoba	72,713	24.5	59,924	17.5
Saskatchewan	145,410	48.5	119,580	36.7
Alberta	114,564	32.4	104,162	21.3
British Columbia	28,352	6.4	24,455	4.2
Yukon and Northwest Territories	32	0.3	56	0.4
Canada	**819,378**	**15.5**	**648,966**	**10.0**

[1] Persons employed on farms and those employed in related agricultural activities such as landscape gardening, groundskeeping, operation of chicken hatcheries, etc.

Farm Machinery and Electrification.—The numbers of most types of machinery on farms increased considerably between 1951 and 1961 as shown in Table 49. However, technological changes were reflected in a reduction in the numbers of such items as threshing machines and grain binders since these types of harvesting equipment are rapidly being replaced by combines.

49.—Farm Machinery, by Province, Censuses of 1951 and 1961

Item and Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	No.	No.	No.	No.	No.	No.
Automobiles.....1951	185	4,147	6,970	7,999	41,602	114,870
1961	323	4,713	6,618	6,872	55,385	110,773
Motor trucks.....1951	507	1,679	5,687	4,786	19,167	41,486
1961	715	3,253	5,965	4,657	26,597	62,812
Tractors.....1951	126	2,776	4,307	5,221	31,971	105,204
1961	462	5,713	7,074	8,102	70,697	150,046
Grain combines.....1951	—	18	16	211	420	10,031
1961	2	644	154	770	3,046	22,387
Threshing machines.....1951	5	2,973	826	2,450	30,360	15,946
1961	4	1,656	482	915	15,340	16,843
Grain binders.....1951	4	5,956	2,101	4,149	43,467	85,135
1961	1	3,222	1,363	1,827	33,647	43,802

Item and Year	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Automobiles.....1951	32,060	62,963	46,314	12,557	—	329,667
1961	34,619	72,152	52,167	14,222	7	357,951
Motor trucks.....1951	21,163	52,626	39,723	9,291	7	196,122
1961	31,806	82,669	71,508	12,004	26	302,012
Tractors.....1951	50,984	106,664	79,282	13,148	3	399,686
1961	61,463	126,613	102,624	16,974	21	549,789
Grain combines.....1951	15,268	42,997	20,852	687	—	90,500
1961	23,662	65,084	38,530	1,331	1	155,611
Threshing machines.....1951	9,425	19,221	14,768	717	—	96,691
1961	5,613	11,623	13,006	572	3	66,057
Grain binders.....1951	31,410	70,584	57,930	2,638	—	303,374
1961	12,725	29,998	32,476	1,509	5	160,575

The proportion of farms reporting electric power increased in all provinces during the same period, although the fact that there were fewer farms resulted in a decrease in the number reporting electric power in certain provinces. The most important increases occurred in Prince Edward Island where the proportion of farms reporting electric power was 22 p.c. in 1951, 40 p.c. in 1956 and 78 p.c. in 1961; in Newfoundland where the increase was from 38 p.c. in 1951 to 44 p.c. in 1956 and 66 p.c. in 1961; in Saskatchewan where the increase was from 16 p.c. in 1951 to 42 p.c. in 1956 and 66 p.c. in 1961; and in Alberta where it was from 25 p.c. to 52 p.c. and 72 p.c. for the same years.

50.—Farm Electrification, by Province, Censuses of 1951, 1956 and 1961

Province or Territory	1951		1956		1961	
	Farms Reporting Electric Power	P.C. of All Farms	Farms Reporting Electric Power	P.C. of All Farms	Farms Reporting Electric Power	P.C. of All Farms
	No.		No.		No.	
Newfoundland	1,383	38.1	1,059	44.4	1,152	65.8
Prince Edward Island	2,226	22.0	3,748	39.7	5,728	78.1
Nova Scotia	16,733	71.2	18,677	88.6	11,953	95.5
New Brunswick	15,938	60.3	19,328	87.4	11,371	96.5
Quebec	90,209	67.2	108,015	88.1	93,197	97.3
Ontario	110,595	73.8	125,310	89.1	115,453	95.2
Manitoba	25,208	48.1	41,464	84.3	39,081	90.2
Saskatchewan	18,213	16.3	43,778	42.3	61,626	65.6
Alberta	20,709	24.6	40,937	51.5	52,936	72.3
British Columbia	18,168	68.8	20,279	81.9	17,370	87.1
Yukon and Northwest Territories	1	25.0	9	40.9	15	57.7
Canada	**319,383**	**51.3**	**422,604**	**73.5**	**409,882**	**85.2**

Farm Capital.—While the value of farm land and buildings in Canada increased by more than one half between 1951 and 1961 and the value of farm machinery and equipment increased by about one third, there was a slight decrease in the value of livestock and poultry on farms. Table **51** gives the value of farm capital by province for 1951 and 1961.

51.—Farm Capital, by Province, Censuses of 1951 and 1961

Province or Territory and Year	Value of Land and Buildings	Value of Machinery and Equipment	Value of Livestock and Poultry	Total Capital Value
	$	$	$	$
Newfoundland 1951	14,658,139	1,416,655	3,581,985	19,656,779
1961	19,006,200	2,944,500	1,986,700	23,937,400
Prince Edward Island 1951	47,843,719	16,261,195	23,048,291	87,153,205
1961	52,500,800	26,856,300	16,939,400	96,296,500
Nova Scotia 1951	94,485,972	25,223,734	32,755,239	152,464,945
1961	89,262,800	30,252,100	26,073,900	145,588,800
New Brunswick 1951	98,716,709	26,971,141	32,090,709	157,778,559
1961	90,114,800	31,682,200	23,566,000	145,363,000
Quebec 1951	846,972,820	211,937,327	340,452,974	1,399,363,121
1961	1,014,681,500	301,257,000	308,941,100	1,624,879,600
Ontario 1951	1,419,363,802	445,277,532	683,328,284	2,547,969,618
1961	2,572,302,700	579,281,700	590,011,600	3,741,596,000
Manitoba 1951	528,872,527	231,801,397	156,112,868	916,786,792
1961	719,612,000	272,018,900	162,456,700	1,154,087,600
Saskatchewan 1951	1,182,905,467	525,644,660	283,223,123	1,991,773,250
1961	1,856,523,300	686,325,700	321,010,300	2,864,359,300
Alberta 1951	1,015,289,268	390,003,340	384,323,689	1,789,616,297
1961	1,715,367,200	550,875,500	451,254,100	2,717,496,800
British Columbia 1951	278,068,232	58,760,356	71,437,080	408,265,668
1961	493,030,800	86,487,700	77,647,800	657,166,300
Yukon and N.W.T. 1951	30,500	14,925	2,713	48,138
1961	239,200	149,900	61,300	450,400
Canada 1951	**5,527,207,155**	**1,933,312,262**	**2,010,356,955**	**9,470,876,372**
1961	**8,622,641,300**	**2,568,631,500**	**1,979,948,900**	**13,171,221,700**

Section 5.—International Crop Statistics

Tables **52** and **53** are based on estimates published in March and April 1964 by the Foreign Agricultural Service, United States Department of Agriculture, and give the acreages and production of wheat and the production of oats and barley for the harvests of 1962 and 1963 with average for the years 1955-59, in the leading countries of the world.

52.—Estimated Acreages and Production of Wheat Harvested in 1962 and 1963 in Specified Countries, with Average for 1955-59

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1955-59[r]	1962[r]	1963	Average 1955-59[r]	1962[r]	1963
	'000	'000	'000	'000 bu.	'000 bu.	'000 bu.
North America[1]	**74,160**	**72,260**	**74,920**	**1,606,000**	**1,712,000**	**1,927,000**
Canada	22,730	26,817	27,566	465,618	565,554	723,442
Mexico	2,214	1,818	2,006	44,615	52,650	65,600
United States	49,128	43,541	45,256	1,095,357	1,093,667	1,137,641

For footnote, see end of table, p. 502.

52.—Estimated Acreages and Production of Wheat Harvested in 1962 and 1963 in Specified Countries, with Average for 1955-59—concluded

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1955-59 r	1962 r	1963	Average 1955-59 r	1962 r	1963
	'000	'000	'000	'000 bu.	'000 bu.	'000 bu.
Europe[1]	**71,870**	**72,100**	**68,110**	**1,855,000**	**2,220,000**	**1,960,000**
Europe, West[1]	46,560	47,110	43,240	1,313,000	1,610,000	1,340,000
Austria	634	668	679	20,802	25,950	25,340
Belgium	498	522	489	26,672	30,660	27,630
Britain	2,098	2,256	1,926	101,720	135,560	109,160
Denmark	179	381	321	10,521	23,660	18,110
Finland	314	706	—	7,514	15,490	15,200
France	10,432	11,294	9,294	358,210	509,040	351,660
Germany, West	3,045	3,245	3,380	138,676	168,000	178,000
Greece	2,704	2,697	2,311	57,762	65,020	51,000
Ireland	361	319	233	15,279	16,130	10,200
Italy	12,145	11,257	10,859	329,880	349,830	298,600
Netherlands	250	331	312	14,294	22,160	19,490
Norway	35	24	17	1,134	750	650
Portugal	2,009	1,801	1,606	24,286	23,700	18,540
Spain	10,728	10,507	10,218	165,400	176,800	178,200
Sweden	831	776	619	28,030	32,030	24,000
Switzerland	243	266	265	10,860	14,990	12,860
Europe, East[1]	25,310	24,990	24,870	542,000	610,000	620,000
Bulgaria	3,466	3,074	3,212	68,100	60,200	58,800
Czechoslovakia	1,818	1,693	1,700	54,500	60,400	63,900
Germany, East	1,026	1,045	1,090	42,160	45,400	40,400
Hungary	3,112	2,706	2,412	68,500	72,000	56,000
Poland	3,581	3,442	3,810	83,900	99,200	112,800
Romania	7,302	7,519	7,100	118,600	148,900	140,000
Yugoslavia	4,750	5,263	5,288	102,000	120,000	145,000
U.S.S.R. (Europe and Asia)[2]	159,000	166,500	163,100	1,910,000	2,000,000	1,500,000
Asia[1]	**141,960**	**144,860**	**144,850**	**1,890,000**	**1,995,000**	**1,975,000**
China	—	—	—	900,000	—	—
India	30,393	33,410	33,255	329,926	442,350	410,000
Iran	—	—	—	95,950	99,210	106,550
Iraq	2,540	3,931	—	27,118	39,890	17,000
Israel	137	119	130	2,418	1,850	2,000
Japan	1,551	1,585	1,442	50,482	59,890	26,290
Jordan	638	704	—	5,458	4,110	2,000
Korea, Republic of	317	328	—	4,469	5,300	—
Lebanon	162	146	138	1,682	1,840	1,650
Pakistan	11,496	12,310	12,592	133,192	149,410	154,860
Syria	2,540	3,314	3,311	25,942	42,880	29,400
Turkey	16,990	16,000	17,500	228,000	250,000	290,000
Africa[1]	**17,610**	**16,880**	**18,530**	**195,000**	**210,000**	**235,000**
Algeria	4,658	4,522	—	46,364	45,000	53,300
Egypt	1,561	1,510	1,634	53,778	58,540	62,980
Morocco	3,888	3,677	4,084	35,723	45,830	43,930
Tunisia	2,908	2,100	2,790	17,798	14,500	21,000
Republic of South Africa	2,906	3,136	3,387	27,554	25,730	30,880
South America[1]	**18,680**	**14,440**	**16,100**	**323,000**	**280,000**	**330,000**
Argentina	11,598	8,800	—	225,676	190,000	260,000
Brazil	2,386	—	—	24,460	10,000	—
Chile	2,030	2,082	2,109	40,597	46,600	40,420
Colombia	412	371	279	5,288	5,950	3,300
Peru	365	390	368	5,166	5,770	5,510
Uruguay	1,604	990	873	18,950	16,610	9,200
Oceania	**9,732**	**16,680**	**16,540**	**173,134**	**316,150**	**340,000**
Australia	9,629	16,469	16,340	168,220	306,910	331,000
New Zealand	103	210	200	4,814	9,240	9,000
World Totals[1]	**493,010**	**503,720**	**502,150**	**7,955,000**	**8,735,000**	**8,270,000**

[1] Estimated totals, which in the case of production are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown. [2] Tentative unofficial production estimates.

53.—Estimated Production of Oats and Barley Harvested in 1962 and 1963 in Specified Countries, with Average for 1955-59

Continent and Country	Oats			Barley		
	Average 1955-59[r]	1962[r]	1963	Average 1955-59[r]	1962[r]	1963
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
North America[1]	**1,660,000**	**1,518,000**	**1,440,000**	**671,000**	**610,000**	**630,000**
Canada	374,764	493,610	453,102	237,926	165,888	220,664
Mexico	5,308	4,340	5,030	8,500	7,950	9,200
United States	1,278,145	1,020,371	980,910	424,448	436,448	399,921
Europe[1]	**1,310,000**	**1,215,000**	**1,210,000**	**1,050,000**	**1,475,000**	**1,580,000**
Europe, West[1]	935,000	840,000	840,000	800,000	1,167,000	1,290,000
Austria	23,740	22,890	23,540	17,110	25,580	28,370
Belgium	31,470	29,400	27,050	14,520	22,930	22,020
Britain	163,310	122,290	100,800	148,200	268,990	309,120
Denmark	51,210	41,960	46,300	110,090	151,520	156,160
Finland	48,160	42,500	57,500	15,010	12,400	23,000
France	224,270	178,430	193,610	197,890	270,670	334,400
Germany, West	156,630	160,700	159,830	111,700	172,000	163,500
Greece	11,000	10,660	9,350	10,950	11,570	11,100
Ireland	34,380	27,300	19,110	16,110	27,670	27,300
Italy	37,490	41,140	37,750	13,240	13,100	12,870
Luxembourg	2,890	2,550	3,580	—	—	—
Netherlands	32,140	32,000	29,240	12,970	19,780	17,770
Norway	9,320	7,350	7,770	13,480	15,740	21,270
Portugal	7,450	7,140	6,810	3,850	3,310	2,940
Spain	37,000	35,340	31,700	82,470	99,300	95,070
Sweden	58,750	74,860	82,050	26,760	44,550	57,600
Switzerland	3,850	3,390	2,690	3,430	5,720	4,730
Europe, East[1]	375,000	375,000	370,000	250,000	308,000	290,000
Bulgaria	11,340	11,500	11,500	18,770	22,500	20,670
Czechoslovakia	64,800	62,350	60,630	61,700	80,470	76,240
Germany, East	66,740	68,200	62,000	37,760	50,250	44,740
Hungary	14,080	7,920	7,300	37,280	52,540	39,960
Poland	168,640	188,770	194,550	53,630	60,400	67,840
Romania	22,960	11,500	9,000	16,940	19,240	16,080
Yugoslavia	24,090	21,010	23,770	21,890	21,820	24,020
U.S.S.R. (Europe and Asia)[2]	845,000	385,000	270,000	440,000	720,000	680,000
Asia[1]	**105,000**	**105,000**	**105,000**	**845,000**	**875,000**	**820,000**
China	65,000	—	—	311,000	—	—
Cyprus	—	—	—	3,046	4,000	4,100
India	—	—	—	124,600	144,760	114,000
Iran	—	—	—	42,530	43,600	46,000
Iraq	—	—	—	44,992	51,680	43,500
Israel	—	—	—	2,949	2,200	1,700
Japan	12,188	10,360	11,230	93,528	72,830	33,820
Korea, Republic of	—	—	—	36,260	44,500	—
Pakistan	—	—	—	6,620	6,200	6,670
Syria	456	—	—	16,064	34,500	32,150
Turkey	25,406	31,000	32,700	139,000	147,000	180,000
Africa[1]	**15,000**	**14,000**	**14,000**	**125,000**	**130,000**	**155,000**
Algeria	4,840	—	—	34,000	—	37,400
Egypt	—	—	—	6,090	6,700	5,970
Morocco	1,570	1,790	1,000	55,250	55,000	67,000
Tunisia	660	—	—	8,440	4,700	10,800
Republic of South Africa	6,040	7,500	8,300	1,150	1,850	1,600
South America[1]	**77,000**	**50,000**	**85,000**	**76,000**	**45,000**	**75,000**
Argentina	64,620	33,560	70,960	50,510	15,850	43,630
Chile	7,970	8,960	9,050	4,932	5,400	5,200
Colombia	—	—	—	3,293	4,960	5,400
Ecuador	—	—	—	3,928	3,800	3,200
Peru	—	—	—	8,551	10,200	10,600
Uruguay	2,798	3,900	2,600	1,457	1,600	1,200
Oceania	**66,060**	**87,930**	**92,280**	**48,370**	**45,450**	**53,350**
Australia	63,630	86,010	90,560	45,400	41,230	49,270
New Zealand	2,430	1,920	1,720	2,970	4,220	4,080
World Totals[1]	**4,080,000**	**3,375,000**	**3,215,000**	**3,255,000**	**3,900,000**	**3,995,000**

[1] Estimated totals, which are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown. [2] Tentative unofficial production estimates.

CHAPTER XII.—FORESTRY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Canada's extensive forests have been an invaluable asset to the country and its people since the earliest days of settlement. The productive portion of these forests has poured increasing wealth into the stream of national income, contributing to the economy of the country as the producer of raw materials for industry and as the source of livelihood for hundreds of thousands of persons. At the same time, the existence of widespread forest cover, productive or unproductive in the sense of human utilization, remains essential to the maintenance of the balance of nature—in protecting water-catchment areas and assuring supplies of water, in lowering the temperature, reducing the velocity of the wind and protecting the land against drought and erosion, and in providing shelter for birds and animals.

Perhaps in no other country is the national wealth so dependent upon its forest resources and the success of its forest industries as in Canada. The annual forest harvest of some 3,200,000,000 cu. feet supports a highly complex and diversified export and domestic industry directly employing more than 300,000 persons and paying out $1,300,000,000 annually in salaries and wages. The forests support 8,000 sawmills and 4,000 wood-using plants, many of them small units contributing appreciably to the income of local economies. The pulp and paper industry alone stands first among Canadian manufactures in terms of employment, wages paid, new investment and net value of output, and the sale of forest products abroad represents about one quarter of the value of Canada's export trade.

Section 1.—Forest Regions†

The forests of Canada cover a vast area in the north temperate climatic zone. Wide variations in physiographic, soil and climatic conditions cause marked differences in the character of the forests in different parts of the country; hence, eight fairly well defined

* Sections of this Chapter that deal with forestry and the federal forestry program were revised by the Department of Forestry, Ottawa. Provincial forestry programs were prepared by the forestry officials of the respective provincial governments. Sections dealing with forest and allied industries, except as otherwise noted, were revised in the Forestry Section, Industry Division, Dominion Bureau of Statistics.

† A more detailed discussion of forest regions is given in Bulletin 123, *Forest Regions of Canada*, published by the Department of Forestry. Accounts of variations in Canadian physiography and climate are included in a special article on The Climate of Canada, appearing in the 1959 Year Book, pp. 23-51.

forest regions may be recognized. These regions, with the relative proportion of the total area of all forest regions occupied by each, are as follows:—

Region	Percentage of Forest Area	Region	Percentage of Forest Area
Boreal	82.1	Acadian	2.0
Great Lakes–St. Lawrence	6.5	Columbia	0.8
Subalpine	3.7	Deciduous	0.4
Montane	2.3		
Coast	2.2	TOTAL	100.0

Boreal Forest Region.—This Region comprises the greater part of the forest area of Canada, forming a continuous belt from Newfoundland and the Labrador coast westward to the Rocky Mountains and northwestward to Alaska. The white and the black spruces are characteristic species; other prominent conifers are tamarack which ranges throughout, balsam fir and jack pine in the eastern and central portions, and alpine fir and lodgepole pine in the western and northwestern parts. Although the forests are primarily coniferous, there is a general admixture of broadleaved trees such as the white birches and poplars; these are important in the central and south-central portions, particularly in the zone of transition to the prairie. In turn, the proportion of spruce and tamarack rises northward and, with increasingly rigorous climatic conditions, the close forest gives way to the open lichen-woodland which finally merges into tundra. In the east there is, along the southern border of the Region, a considerable intermixture of species from the Great Lakes–St. Lawrence Forest such as the white and the red pines, yellow birch, sugar maple, black ash and eastern white cedar.

Great Lakes–St. Lawrence Forest Region.—Along the Great Lakes and the St. Lawrence River Valley lies a forest of a very mixed nature, characterized by the white and the red pines, eastern hemlock and yellow birch. With these are associated certain dominant broadleaved species common to the Deciduous Forest Region, such as sugar maple, red maple, red oak, basswood and white elm. Other species with wide range are the eastern white cedar and largetooth aspen and, to a lesser extent, beech, white oak, butternut and white ash. Boreal species, such as the white and the black spruces, balsam fir, jack pine, poplars, and white birch, are intermixed and, in certain central portions as well as in the east, red spruce is abundant.

Subalpine Forest Region.—This is a coniferous forest found on the mountain uplands in Western Canada. It extends northward to the major divide separating the drainage of the Skeena, Nass and Peace Rivers on the south and to that of the Stikine and Liard Rivers on the north. The characteristic species are Engelmann spruce, alpine fir and lodgepole pine. There is a close relationship with the Boreal Region, from which the black and the white spruces and aspen intrude. There is also some entry of blue Douglas fir from the Montane Forest and western hemlock, western red cedar and amabilis fir from the Coast Forest. Other species found are western larch, whitebark pine, limber pine and, on the coastal mountains, yellow cedar and mountain hemlock.

Montane Forest Region.—The Region occupies a large part of the interior uplands of British Columbia as well as a part of the Kootenay Valley and a small area on the east side of the Rocky Mountains. It is a northern extension of the typical forest of much of the western mountain system in the United States and comes in contact with the Coast, Columbia, and Subalpine Forests. Ponderosa pine is a characteristic species of the southern portions. Blue Douglas fir is found throughout but more particularly in the central and southern parts; lodgepole pine and aspen are generally present, the latter being particularly well represented in the north-central portions. Engelmann spruce and alpine fir from the Subalpine Region together with white birch are important constituents in the northern parts. The white spruce, though primarily boreal in affinity, is also present here. Extensive prairie communities of bunch-grasses and forbs are found in many of the river valleys.

Coast Forest Region.—This is part of the Pacific Coast forest of North America. Essentially coniferous, it consists principally of western red cedar and western hemlock, with abundant sitka spruce in the north and with the addition of Douglas fir in the south. Amabilis fir and yellow cedar occur widely and, together with mountain hemlock and alpine fir, are common toward the timber-line. Western white pine is found in the southern parts and western yew is scattered throughout. Broadleaved trees, such as black cottonwood, red alder and broadleaf maple, have a limited distribution. Arbutus and Garry oak occur in Canada only on the southeast coast of Vancouver Island and the adjacent islands and mainland. These are species whose centres of population lie southward in the United States.

Acadian Forest Region.—Over the greater part of the Maritime Provinces, exclusive of Newfoundland, there is a forest closely related to the Great Lakes–St. Lawrence Region and, to a lesser extent, to the Boreal Region. Red spruce is a characteristic though not exclusive species and associated with it are balsam fir, yellow birch and sugar maple, with some red pine, white pine and hemlock. Beech was formerly a more important forest constituent than at present, for the beech bark disease has drastically reduced its abundance in Nova Scotia, Prince Edward Island and southern New Brunswick. Other species of wide distribution are the black and the white spruces, red oak, white elm, black ash, red maple, white birch, wire birch and the poplars. Eastern white cedar, though present in New Brunswick, is extremely rare elsewhere and jack pine is apparently absent from the upper St. John Valley and the western half of Nova Scotia.

Columbia Forest Region.—A large part of the Kootenay River Valley, the upper valleys of the Thompson and Fraser Rivers and the Quesnel Lake area of British Columbia contain a coniferous forest closely resembling that of the Coast Region. Western red cedar and western hemlock are the characteristic species in this interior "wet belt". Associated trees are the blue Douglas fir which is of general distribution and, in the southern parts, western white pine, western larch, grand fir and western yew. Engelmann spruce from the Subalpine Region is important in the upper Fraser Valley and is found to some extent at the upper levels of the forest in the remainder of the Region. At lower elevations in the west and in parts of the Kootenay Valley the forest grades into the Montane Region and, in a few places, into prairie grasslands.

Deciduous Forest Region.—A small portion of the deciduous forest, widespread in the eastern United States, occurs in southwestern Ontario between Lakes Huron, Erie and Ontario. Here, with the broadleaved trees common to the Great Lakes–St. Lawrence Region, such as sugar maple, beech, white elm, basswood, red ash, white oak and butternut, are scattered a number of other broadleaved species which have their northern limits in this locality. Among these are the tulip-tree, cucumber-tree, papaw, red mulberry, Kentucky coffee-tree, redbud, black gum, blue ash, sassafras, mockernut and pignut hickories, and scarlet, black and pin oaks. In addition, black walnut, sycamore and swamp white oak are confined largely to this Region. Conifers are few and there is only a scattered distribution of white pine, tamarack, red juniper and hemlock.

Section 2.—Forest Resources

The forest area of Canada is estimated at 1,710,788 sq. miles, and about 57 p.c. of that area is capable of producing merchantable timber. The great areas of forest considered commercially non-productive are nevertheless of significant value to the country in the influence they exert on climate, moisture and soil. Table 1 shows the areas of productive and non-productive forest land in each province and territory. Forest land, classified by type of growth and by province, is given in Chapter X at p. 429.

1.—Productive and Non-productive Forest Land, by Province, 1963

Province or Territory	Productive Forest Land	Non-productive Forest Land	Total
	sq. miles	sq. miles	sq. miles
Newfoundland	33,862	53,930	87,792
Prince Edward Island	813	121	934
Nova Scotia	15,080	1,194	16,274
New Brunswick	23,887	442	24,329
Quebec	220,625	157,500	378,125
Ontario	164,568	97,174	261,742
Manitoba	58,189	64,632	122,821
Saskatchewan	50,239	67,499	117,738
Alberta	116,572	41,023	157,595
British Columbia	208,411	59,227	267,638
Totals, Provinces	892,246	542,742	1,434,988
Yukon Territory	42,100	39,100	81,200
Northwest Territories	33,600	161,000	194,600
Canada	**967,946**	**742,842**	**1,710,788**

There are more than 150 tree species in Canada, of which 31 are conifers, commonly called 'softwoods'. About two thirds of these softwoods and 10 p.c. of the large number of deciduous or 'hardwood' species are of commercial importance. Approximately 81 p.c. of the volume of merchantable timber is made up of softwood species. The dominant species existing in each forest region are given in Section 1. Detailed information is contained in Department of Forestry Bulletin No. 61, *Native Trees of Canada.**

With help from the Federal Government, inventories of the forest resources are made periodically by provincial forest authorities and, with their co-operation, the federal Department of Forestry compiles the National Forest Inventory. The latest estimates of the total stand of timber, by province and region, appear in Table 2. These estimates are subject to constant revision as more accurate and complete inventories are compiled.

The predominant part played by pulp and paper, lumber and other forest product industries in the development of Canada has resulted in a widespread tendency to evaluate the forest in terms of timber alone. However, a growing realization of the economic importance of the forest for its non-commercial values, such as recreation and wildlife and watershed protection, is bringing about increasing recognition of the true value of the forest and is thus developing a broader concept of forestry.

* The sixth edition, 1961, is obtainable from the Queen's Printer, Ottawa, price $2.

2.—Estimate of Standing Timber, by Type and Size and by Province and Region, 1963

Province or Territory and Region	Coniferous			Broadleaved			Totals		
	Large Material[1]	Small Material[2]	Total	Large Material[1]	Small Material[2]	Total	Large Material[1]	Small Material[2]	Total
	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.
Newfoundland	2,125	136,400	13,719	244	3,922	577	2,369	140,322	14,296
Labrador	*1,105*	*70,000*	*7,055*	*77*	*2,353*	*277*	*1,182*	*72,353*	*7,332*
Island	*1,020*	*66,400*	*6,664*	*167*	*1,569*	*300*	*1,187*	*67,969*	*6,964*
Prince Edward Island	20	1,829	175	7	800	75	27	2,629	250
Nova Scotia	2,149	50,824	6,469	1,529	20,988	3,313	3,678	71,812	9,782
New Brunswick	4,300	89,978	11,948	2,652	26,713	4,923	6,952	116,691	16,871
Totals, Atlantic Provinces	8,594	279,031	32,311	4,432	52,423	8,888	13,026	331,454	41,199

[1] Ten inches D.B.H. or over (suitable for saw timber).

[2] Four to nine inches (units of 85 cu. ft.).

2.—Estimate of Standing Timber, by Type and Size and by Province and Region, 1963—concl.

Province or Territory and Region	Coniferous			Broadleaved			Totals		
	Large Material[1]	Small Material[2]	Total	Large Material[1]	Small Material[2]	Total	Large Material[1]	Small Material[2]	Total
	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.
Quebec	59,702	290,220	84,371	17,472	73,985	23,761	77,174	364,205	108,132
Ontario	21,584	530,236	66,654	25,466	228,825	44,916	47,050	759,061	111,570
Totals, Central Provinces	81,286	820,456	151,025	42,938	302,810	68,677	124,224	1,123,266	219,702
Manitoba	1,863	92,498	9,725	1,065	24,188	3,121	2,928	116,686	12,846
Saskatchewan	1,742	128,686	12,681	3,174	84,909	10,391	4,916	213,595	23,072
Alberta	13,241	207,720	30,897	12,343	137,885	24,063	25,584	345,605	54,960
Totals, Prairie Provinces	16,846	428,904	53,303	16,582	246,982	37,575	33,428	675,886	90,878
British Columbia	292,020	766,021	357,132	14,337	64,119	19,787	306,357	830,140	376,919
Yukon Territory	926	76,000	7,386	180	18,700	1,770	1,106	94,700	9,156
Northwest Territories	600	112,000	10,120	424	41,000	3,909	1,024	153,000	14,029
Canada	**400,272**	**2,482,412**	**611,277**	**78,893**	**726,034**	**140,606**	**479,165**	**3,208,446**	**751,883**

[1] Ten inches D.B.H. or over (suitable for saw timber). [2] Four to nine inches (units of 85 cu. ft.).

Tenure of Forest Land.—Corporations and private individuals own 9 p.c. of the productive forest land of Canada and 91 p.c. is in the possession of the Crown in the right of the federal or the provincial governments. Rights to cut Crown timber under lease or licence have been granted on 23 p.c. of the productive forest land; the remainder comprises unalienated productive forest areas and federal lands such as Indian reserves, military reserves, etc.

Woodlots on the 480,903 farms (1961) across the country comprise about 3 p.c. of the total productive forest. These small wooded tracts, ranging in size from three or four acres to 200 or more acres, are among the most accessible forests in Canada. Also, the woodlots of Eastern Canada are, in general, highly productive because they lie in the southern part of the country and frequently occupy soils that are considerably higher in quality than those typical of the northern forests.

3.—Tenure of Occupied Productive Forest Land, by Province, 1963

(Net area in sq. miles)

Province or Territory	Provincial Crown Land			Federal Crown Land	Privately Owned Land			Total Occupied Productive Forest Land
	Leases and Licences	Permits and Sales	Total	Total	Farm Woodlots	Other	Total	
Newfoundland	25,976	—	25,976	—	31	1,715	1,746	27,722
Labrador	*19,219*	—	*19,219*	—	—	—	—	*19,219*
Island	*6,757*	—	*6,757*	—	*31*	*1,715*	*1,746*	*8,503*
Prince Edward Island	—	—	—	3	417	388	805	808
Nova Scotia	1,148	19	1,167	31	2,130	9,525	11,655	12,853
New Brunswick	10,403	—	10,403	413	1,923	10,459	12,382	23,198
Quebec	77,805	—	77,805	225	6,678	18,436	25,114	103,144
Ontario	83,903	—	83,919[1]	96	5,086	11,105	16,191	100,206
Manitoba	1,488	600	2,088	320	2,327	1,489	3,816	6,224
Saskatchewan	1,815	1,000	2,815	592	2,216	2,081	4,297	7,704
Alberta	7,659	—	7,659	1,631	3,317	—	3,317	12,607
British Columbia	3,834	2,344	6,178	920	1,147	9,141	10,288	17,386
Yukon Territory	—	—	—	25	2	—	2	27
Northwest Territories	—	—	—	2	—	—	—	2
Canada	**214,031**	**3,963**	**218,010[1]**	**4,258[2]**	**25,274**	**64,339**	**89,613**	**311,881**

[1] Includes 16 sq. miles of "other" provincial Crown land. [2] Of this total, 320 sq. miles are under lease or licence—293 sq. miles in Alberta, the 25 sq. miles in the Yukon Territory, and the 2 sq. miles in the Northwest Territories.

Section 3.—Forest Depletion

General information on forest depletion and increment as well as statistics on forest fires and fire losses are presented in this Section. The scientific control of the influences that account for wastage, such as forest fires, insect pests, etc., is dealt with in Section 5.

The average annual rate and cause of depletion of reserves of merchantable timber during the ten years 1952-61, together with annual data for 1961 and 1962, are given in Table 4. Of the total depletion of the forests in the ten-year period, 86 p.c. was utilized and 14 p.c. was destroyed by fire. (Information on the extent of damage caused by agencies other than fire, such as insects, disease and natural mortality, is not available.) The average annual utilization of 3,209,711,000 cu. feet comprised 49 p.c. logs and bolts, 40 p.c. pulpwood, 9 p.c. fuelwood, and 2 p.c. miscellaneous products. About 5 p.c. of the total utilization was exported in the form of logs and bolts and pulpwood.

The productive forests of Canada covering an area of 967,946 sq. miles constitute the reserve from which forest production will be obtained for many years to come. The supply of merchantable timber on this area is estimated at 751,883,000,000 cu. feet and the utilization in 1962 of 3,424,000,000 cu. feet therefore represented less than one half of one per cent of the supply. However, it should be noted that utilization does not occur evenly throughout the productive forest area but is concentrated on the relatively small area of occupied forest land (land under lease, licence or private ownership). Thus, overcutting may occur on many of these occupied areas, emphasizing the need for orderly management of all commercial forests if the forest industries are to maintain their important position in the Canadian economy.

The more efficient utilization of cut timber is an important factor related to forest depletion, for there is little doubt that in the past too high a percentage of the sawn log was discarded. However, changes of great significance have taken place recently in the uses of wood, permitting the utilization of sizes, qualities and species previously considered unmerchantable. The development and manufacture of rayon, cellophane and other products of the cellulose industry have extended the use of wood and the increasing production of plastic-wood products, fibre board and laminated wood has resulted in greater use of inferior grades of wood and species of trees and therefore in the more complete utilization of forest resources and the elimination of much waste.

4.—Forest Utilization and Depletion, 1961 and 1962 compared with Ten-Year Average 1952-61

Item	Usable Wood			Percentage of Total Depletion		
	Average 1952-61	1961	1962	Average 1952-61	1961	1962
	M cu. ft.	M cu. ft.	M cu. ft.			
Products Utilized—						
Logs and Bolts—						
Domestic use	1,567,877	1,667,239	1,848,145	41.9	28.0	52.1
Exported	8,241	17,752	11,855	0.2	0.3	0.3
Pulpwood—						
Domestic use	1,143,622	1,217,439	1,170,881	30.5	20.5	33.0
Exported	140,021	97,875	104,119	3.7	1.6	2.9
Fuelwood	287,038	239,508	232,000	7.7	4.0	6.6
Other products	62,912	63,476	56,907	1.7	1.1	1.6
Totals, Utilization	**3,209,711**	**3,303,289**	**3,423,907**	**85.7**	**55.5**	**96.5**
Wastage—						
By forest fires	535,048	2,650,341	125,532	14.3	44.5	3.5
Totals, Depletion	**3,744,759**	**5,953,630**	**3,549,439**	**100.0**	**100.0**	**100.0**

Forest Fire Statistics.—There were 6,285 forest fires reported in Canada during 1962 but, although the number was 6.6 p.c. higher than the annual average for the previous

ten years, fire losses were comparatively light. The total area burned was only about 30 p.c. of the ten-year average and damages were just slightly more than half of the estimated average over the same period. Only twice since 1952 have smaller volumes of saw timber been destroyed—in 1954 and 1957; losses of pulpwood-size timber in 1962 were less than half the average annual losses. More than half the total area burned and more than half of the monetary damages suffered in Canada in that year occurred in Quebec.

5.—Forest Fire Losses, 1961 and 1962, compared with Ten-Year Average 1952-61

Item		Average 1952-61	1961	1962
Totals, Fires	**No.**	**5,896**	**8,655**	**6,285**
Fires under 10 acres	"	4,727	6,881	5,450
Fires 10 acres or over	"	1,169	1,774	835
Area Burned	**acres**	**2,727,853**	**9,313,479**	**863,585**
Merchantable timber	"	573,932	2,858,924	298,625
Young growth	"	569,002	1,995,696	154,798
Cut-over lands	"	338,830	377,969	138,790
Non-forested lands	"	1,246,089	4,080,890	271,372
Average Size of Fire	**acres**	**463**	**1,076**	**137**
Merchantable Timber Burned—				
Large material (10 inches or over D.B.H.)	M cu. ft.	279,998	1,873,013	8,200
Small material (4 inches to 9 inches D.B.H.)	"	255,050	776,983	117,332
Estimated Values Destroyed[1]	**$**	**13,372,672**	**69,125,608**	**6,977,748**
Merchantable timber	$	9,235,038	54,407,012	3,235,355
Young growth	$	2,659,100	10,996,066	1,417,618
Cut-over lands	$	377,700	956,520	704,880
Other property burned	$	1,100,834	2,766,010	1,619,895
Actual Cost of Fire Fighting	**$**	**5,344,152**	**13,725,668**[r]	**4,264,494**
Totals, Damage and Fire Fighting Costs	**$**	**18,716,824**	**82,851,276**[r]	**11,242,242**
Area under protection	sq. miles	..	1,392,171	1,398,612

[1] Figures do not include such values as damage to soil, stream-flow, wildlife, recreation and tourist facilities.

6.—Forest Fire Losses, by Province or Area, 1961 and 1962, compared with Ten-Year Average 1952-61

Province or Federal Lands	Average 1952-61			1961			1962		
	Fires	Area Burned	Fire Fighting Cost and Damage	Fires	Area Burned	Fire Fighting Cost and Damage	Fires	Area Burned	Fire Fighting Cost and Damage
	No.	acres	$	No.	acres	$	No.	acres	$
Province—									
Newfoundland	206	122,604	943,193	304	1,047,914	8,281,471	148	15,587	129,071
Prince Edward Island	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
Nova Scotia	340	7,362	107,845	460	5,500	90,527	435	5,012	376,974
New Brunswick	260	8,667	143,528	320	14,735	406,974	355	47,082	790,683
Quebec	855	163,055	1,943,441	850	67,241	2,131,876[r]	1,249	493,033	6,048,886
Ontario	1,328	205,326	5,268,267	1,305	1,184,728	34,263,979	1,521	13,804	778,788
Manitoba	344	514,620	1,159,485	707	2,724,978	7,233,726	285	175,984	684,554
Saskatchewan	204	287,337	726,273	507	1,948,363	4,284,114	289	15,629	294,630
Alberta	330	239,102	2,844,263	811	193,545	5,632,721	278	4,506	852,348
British Columbia	1,844	463,646	4,768,995	3,102	1,227,159	17,809,674	1,536	45,617	1,022,145
Federal Lands—									
Yukon Territory	59	198,959	280,399	50	95,276	753,428	46	19,855	29,619
Northwest Territories	73	508,721	487,679	167	758,230	1,808,706	82	26,325	218,828
National Parks	35	7,880	40,964	63	45,560	152,790	48	847	14,756
Indian Lands	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Other Federal Lands (incl. military areas)	18	574	2,493	9	250	1,290	13	304	960

[1] Not reported. [2] Included in provincial figures.

In 1962 lightning accounted for 26 p.c. of all forest fires and 38 p.c. of the total area burned. Thus, almost three quarters of the year's fires and more than 60 p.c. of the area burned resulted from human error. Persons engaged in recreational activities were responsible for the greatest proportion of the fires—27 p.c. of the total number, which burned over 23 p.c. of the total damaged area.

7.—Forest Fires, by Cause, 1961 and 1962

Cause	1961		1962		Cause	1961		1962	
	No.	p.c.	No.	p.c.		No.	p.c.	No.	p.c.
Recreation	1,561	18	1,675	27	Incendiary	354	4	231	4
Settlement	1,047	12	604	10	Miscellaneous known	1,321	15	1,185	19
Woods operations	161	2	289	5	Lightning	2,901	34	1,622	26
Other industrial operations	330	4	95	1	Unknown	533	6	279	4
Railways	318	4	217	3					
Public projects	129	1	88	1	**Totals**	**8,655**	**100**	**6,285**	**100**

Section 4.—Forest and Allied Industries*

This Section is concerned with the many industries employed in the felling of timber in the forest and its transformation into the numerous utilitarian shapes and forms required in modern living. The basic industries provide the raw materials for sawmills, pulp and paper mills and for a wide range of secondary industries that convert the products of the basic industries into more highly manufactured goods such as veneers and plywoods, sash and doors, furniture, and a vast range of industries using wood in any form in their processes. These industries, especially the pulp and paper industry and the lumber industry, contribute substantially to the value of the export trade of Canada and thereby provide the exchange necessary to pay for a large share of the imports purchased from other countries, particularly the United States.

Technological changes and market shifts are causing Canada to lose some of the unique advantages it has enjoyed in the forest products field. The current situation is discussed in the following special article.

CANADIAN FOREST PRODUCTS AND CHANGING WORLD MARKETS†

Canada's great and widespread forest resources are harvested and processed economically and the products sold competitively at home and in foreign markets. Logging operations supply the raw material to pulp and paper, sawmilling and various related industries which convert logs and other wood into newsprint, chemical pulp, lumber, birch veneer, Douglas fir plywood, and numerous other commodities. Canada manufactures far more of these products than is required for the domestic market—the combination of foreign demand, forest size and quality, skills and efficiency of production, good transportation facilities and ideal location in relation to major consuming centres in the United States has made Canada the world's leading producer of newsprint, the second largest manufacturer of woodpulp and the fourth largest producer of lumber and plywood. The forest industries today account for about one eighth of Canada's manufacturing production and employ 5 p.c. of the labour force but of major importance is the fact that they provide about one quarter of the total exports; in 1963 exports of forest products were valued at $1,800,000,000 compared with $2,300,000,000 for mineral products and $1,400,000,000 for agricultural products.

North America, the major continental market for forest products, uses about 30 p.c. of the world's lumber and 50 p.c. of the woodpulp, newsprint, paperboard and other papers,

* Statistics of these industries are based on the revised Standard Industrial Classification and new establishment concept (see Chapter XVI on Manufactures).

† Prepared by J. T. B. Kingston, Economics Branch, Department of Trade and Commerce, Ottawa.

and Europe, the next largest market, utilizes 25 p.c. of the lumber and 30 p.c. of the pulp and paper. Outside of North America and Europe, the Union of Soviet Socialist Republics and Japan account for a large proportion of world production and consumption. World demand for forest products has risen in the postwar period but at varying rates; for instance, that for coniferous lumber has risen by 2½ p.c. a year since 1950, newsprint by 4¾ p.c. and paperboard and other papers by 5¼ p.c. In most regions of the world, prewar consumption levels were not reached again until part way through the 1950's, whereas consumption in North America was much less affected by the War. However, demand trends in the highly developed economies have had an influence on other regions. Traditionally, wood was a major fuel, was the basic construction material for buildings and ships and found wide use as pitprops in mines; now, in the more advanced countries, mineral fuels, especially oil and natural gas, have generally displaced wood as a fuel, metals have replaced wood in the construction of ships and certain types of buildings and metals and other minerals are offering keen competition in housing, mine supports and railway ties. Happily, a major and continuing use for wood developed in the paper industry late in the nineteenth century at a time when the rags and other materials previously used were becoming scarce and therefore prohibitive in cost.

Paper and Paperboard.—Utilization of paper and paperboard has been growing steadily since wood became the major raw material for pulping. Most of this development took place in North America and Europe, although paper was invented in China nearly two thousand years ago. Per capita consumption in North America of some 450 pounds a year is three to four times higher than that in Europe and Oceania and very much higher than the average consumption of five to ten pounds a year in Asia and Africa. In general, demand for paper and paperboard is closely related to national income.

Changes in demand for different grades of paper vary considerably. Recently, the large newsprint sector has been rising at a slower rate than most other grades. Consumption of newsprint is directly related to newspaper publishing where growth is dependent on circulation and weekly or daily issue, advertising linage, number and size of pages, etc. North American demand for newsprint, which increased by 2.7 p.c. each year between 1950 and 1956, advanced only 1.3 p.c. a year since then.

There has recently been a notable increase in the output of paperboard, foodboard and wrapping papers, the major material for which is woodpulp. This increase reflects the rapid growth in packaging in North America as a result of the expansion in self-service stores, especially supermarkets—a type of selling that is now spreading throughout Europe, Japan, Australia and New Zealand. However, the packaging sector is extremely competitive and new products using other materials are being introduced continually. The use of polyethylene film has become commonplace in recent years and unit costs have dropped sharply, cutting into the consumption of wrapping, sack and bag papers. At one time paperboard displaced lumber in the manufacture of various types of boxes and cases and now plastics are beginning to compete with paperboard. In the marketing of liquids, paper containers successfully challenged glass bottles and containers, particularly in the marketing of milk, and now both are competing with metals and plastics. Smaller quantities of woodpulp are used in the manufacture of rayon, acetates, cellophane and like materials. Of course rayon since its invention has been competing with such natural fibres as cotton, silk and wool in the textile field but now both groups are meeting increasing competition from non-cellulose synthetic fibres. No matter in what form the final product of wood is consumed, demand for Canadian timber will be high.

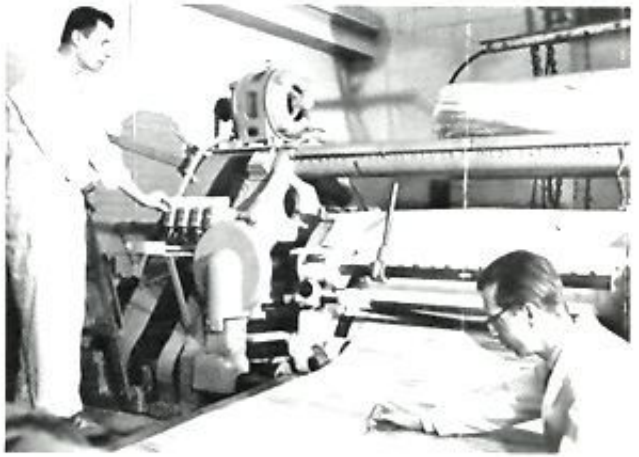
Lumber and Other Wood Products.—Over-all consumption of lumber in North America has not changed greatly in the past ten or fifteen years, although demand has risen somewhat from a low point reached in 1960-61. Thus, per capita lumber consumption has been declining at the same time as the economy and population have been expanding. Building construction takes a sizable portion of the lumber output but housing provides by far the largest market and housing demand depends principally on the rate of family formation, plus such factors as mobility of population, and the replacement and conversion

Many types of highly specialized equipment, suited to particular conditions, are effecting economies in forest operations — in time, labour and utilization.

A sprawler heel boom wields logs brought in by a portable metal spar.

A large integrated forest industrial complex on Canada's West Coast.

A double-cant gang saw in operation at an automated, high-production sawmill.

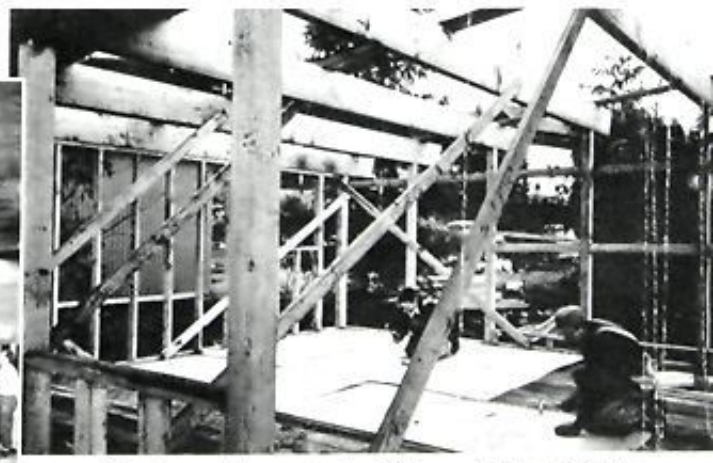


Huge lathes, with razor-sharp blades, peel veneer as thin as paper from the log.

Mechanical loaders quickly and neatly fill the trucks with pulpwood.

A full-tree harvester shears off, at ground level, trees up to 22" in diameter.

Fine paper being processed on a trailing-blade coater.



Lumber and plywood are basic to house-building in Canada.

CANADA'S MODERN

FOREST INDUSTRIES

Photos:

Abitibi Power and Paper Company
Canadian Forest Industries
Crown Zellerbach Canada Ltd.
Department of Forestry
George Hunter
Malak.

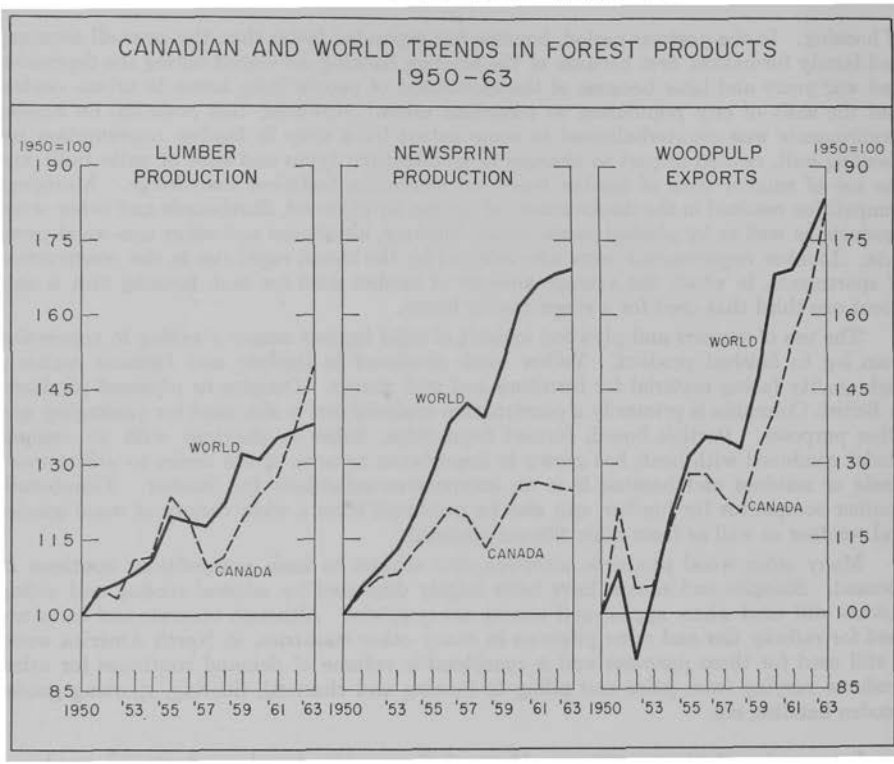
of housing. In the postwar period, housing has expanded faster than the over-all economy and family formation, first because of the housing backlog developed during the depression and war years and later because of the movement of people from farms to urban centres and the shift of city population to suburban areas. However, this potential for lumber requirements was counterbalanced to some extent by a drop in lumber consumption per dwelling unit, related in part to changes in architecture, types and sizes of units built and the use of smaller sizes of lumber based on increasing technical knowledge. Moreover, competition resulted in the displacement of lumber by plywood, fibreboards and other wood products as well as by plasterboards, stone, concrete, aluminum and other non-wood products. Lumber requirements were also affected by the recent rapid rise in the construction of apartments, in which the average amount of lumber used for each housing unit is only about one third that used for a single-family house.

The use of veneers and plywood instead of solid lumber means a saving in conversion from log to finished product. Yellow birch produced in Quebec and Ontario makes a high quality facing material for furniture and wall panels. Douglas fir plywood produced in British Columbia is primarily a construction material but is also used for packaging and other purposes. Particle board, formed from chips, flakes or shavings with an organic binder combined with heat, has grown in importance because of the desire to utilize wood waste or residues and because it is an inexpensive substitute for lumber. Fibreboard, another competitor for lumber, can also be produced from a wide variety of wood species and residues as well as from other fibrous material.

Many other wood products, although also subject to keen competition, continue in demand. Shingles and shakes have been largely displaced by mineral roofing and siding but are still used where appeal and beauty are requisite. Although concrete and metal are used for railway ties and mine pitprops in many other countries, in North America wood is still used for these purposes and a considerable volume of demand continues for other products varying from poles and piling to fencing and charcoal, flooring, sporting goods, wooden handles, etc.

International Competition.—Most of the world's forest products are produced within the consuming region and international trade is dominated by the movement of goods from Canada to the United States, and from Scandinavia and the Soviet Union to Britain and Western Europe. Although wood requirements are rising rapidly in Europe and Japan and it is anticipated that imports will increase from Canada, nevertheless 80 p.c. of Canada's exports still go to the United States, about 10 p.c. to Britain and only about 10 p.c. to other overseas countries.

While Canadian wood products are facing severe competition in many fields, output is increasing to meet rising demand associated with favourable economic growth at home and abroad since early 1961. Approximately 40 p.c. of Canadian lumber is consumed in the domestic market and over three quarters of the exports go to the United States. Lumber demand in the American market has been growing at an annual rate of approximately 2½ p.c. in recent years but Canadian exports to the United States have been rising about 9 p.c. a year. This situation reflects the rapid rise in American prices for saw timber resulting from competition from veneer and pulp mills for the relatively scarce larger-sized wood; Canada's share of the American market, which was 8½ p.c. in 1956, rose to 13½ p.c. in 1963. Canadian sawmills have an easier supply in saw timber although prices may soon rise if smaller-sized wood is required. In Europe, with costs rising because of the utilization of small-sized wood, imports are increasing to meet greater demand. Canadian exports to Britain were fairly high until 1955 but then declined as shipments from Finland and the Soviet Union began rising. However, Canada's lumber trade with Britain has improved since 1960. Canadian exports to the Common Market countries are not large but have been rising by nearly 50 p.c. a year since 1960. In Japan costs are also rising and Canadian lumber exports have jumped from almost nothing in 1960 to 300,000,000 bd. feet in 1963, but sales to such traditional markets as Australia and South Africa have been somewhat lower in recent years.



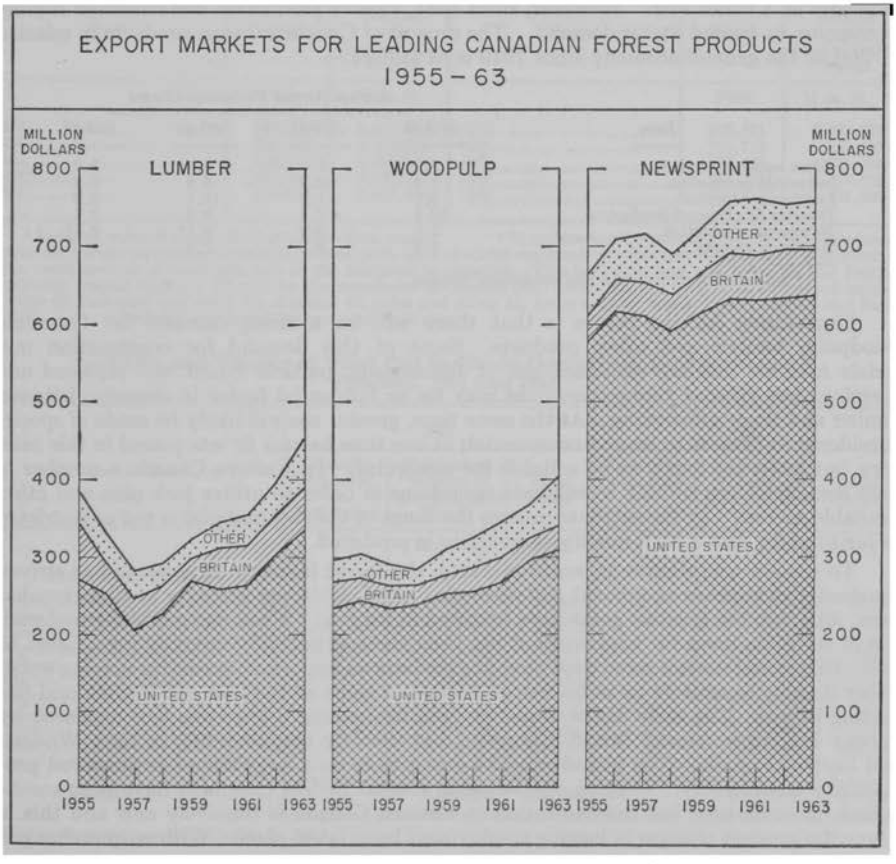
American demand for newsprint is rising slowly but new domestic mills in the south and west, where usage is growing faster, are meeting much of this market. Meanwhile, the main markets for Canadian newsprint in the American northeast and mid-west are growing slowly. However, shipments of newsprint to the United States, which account for four fifths of Canadian production, have remained practically unchanged since 1956. Canada produces over 42 p.c. of world newsprint and newsprint accounts for over 40 p.c. of Canada's exports of forest products. Thus, the weakness in newsprint in recent years helps to explain the decline of forest products to one quarter of total export value, and the relative increase in mineral products (including fuels) to one third of the total.

Demand for paper and paperboard has been rising steadily in most parts of the world. For Canada this has meant increased exports of chemical pulp to world markets as well as higher shipments of paper and board to the domestic markets. Three quarters of Canadian exports of pulp are to affiliated companies or to the free market in the United States. However, Canada's exports of chemical pulp account for only 10 p.c. of American demand as compared with 70 p.c. for newsprint. Although still amounting to less than 10 p.c. of the total of 3,100,000 tons, Canada's exports of chemical pulp to Britain have been rising slowly; at the same time, exports to Japan tripled to 166,000 tons in 1963 and those to the Common Market rose by one third to some 180,000 tons.

Canada's Forest Industries.—The development and location of Canada's forest industries is the result of various market factors and changing technology at home and abroad. In early times, large areas of forest were burned when they were considered an obstacle rather than an asset. Yet the forests provided the early settlers with wood for housing and income from the export of masts and square timber to France and later to Britain. Consequently, the forest industries began with the establishment of sawmills

along the St. Lawrence River and in Acadia. As demand for pine developed in the West Indies and the United States, mills were established along the Great Lakes and on the Ottawa River to supply the new markets. A small industry developed in British Columbia, but the Canadian transcontinental railways, the first of which was completed in 1885, provided the first real market outlet for the western industry. Also, the "cut and get out" tactics followed by lumber operators at that time hastened the western migration of the industry, both in Canada and in the United States. Increasing demand for lumber on the Canadian prairies, in the United States, Britain and other overseas markets, along with the opening of the Panama Canal to commerce in 1923, led to the development of huge sawmills on the Pacific Coast.

As competition for virgin timber increased in the United States, some Americans began looking to Canada for logs for their sawmills and, in trying to protect the Canadian industry, most provinces imposed regulations against the export of sawlogs and other roundwood. With the shortage of rags and straw, the American paper industry turned to the use of wood for pulping. Long-fibred spruce and, later, balsam fir and hemlock were considered ideal species for pulping and there were extensive areas of such wood in Canada. In 1911 and 1913, the United States tariff on newsprint and pulp was removed and this led to the development of large pulp and paper mills in Quebec and Ontario to supply the nearby markets in northeastern and mid-western United States. In the postwar period, the pulp



and paper industry has expanded rapidly, especially in British Columbia, to serve the large and growing California market and the markets of overseas countries. At present a new surge of construction is taking place in British Columbia as the giants in North American pulp and paper compete to obtain licences on the Continent's last forest areas available for licensing. Changes in technology have permitted the manufacture of newsprint from southern pines and this, along with the previously mentioned shift in regional consumption, has resulted in a declining share of Eastern Canadian newsprint in American consumption.

The large and progressive producers of forest products have integrated their operations in order to achieve optimum utilization of their forest holdings. Lumber, pulp and paper, and plywood operations are vertically integrated so that logs are put to their most profitable use. In such a situation, high-grade logs go as 'peelers' to the plywood mill and most of the better logs go to the sawmill. The poorer grades, smaller sizes and less-favoured species and the residues from the plywood mill and the lumber mill are used in the pulp or board mill. The cut from Canadian forests has risen but slowly as a result of increasing use of logging and manufacturing waste and the slow growth in newsprint. It has been estimated that the forest will produce an annual net cut of 12,000,000,000 cu. feet under intensive management. At present, the annual cut in Canada is just over 3,000,000,000 cu. feet and the growth in roundwood production is below the world average.

In general, production of lumber and newsprint has risen at a slower rate than the Canadian economy, but the output of Douglas fir plywood and market woodpulp has increased at a faster rate. However, since 1961, lumber production has increased rapidly in response to United States demand. The growth of Canadian forest products in relation to that of the general economy since 1949 is as follows:—

Item	*Average Annual Percentage Change*			
	1949-56	*1956-61*	*1961-63*	*1956-63*
Gross national product	5.5	2.1	5.3	3.0
Industrial production	6.4	2.2	6.6	3.4
Lumber production	3.9	1.2	11.7	3.2
Douglas fir plywood production	16.9	7.4	6.0	7.0
Newsprint production	3.1	0.9	0.7*	0.8*
Woodpulp exports	6.2	3.8	7.9	5.0

* Adjusted to exclude the 1963 publishers' strikes.

Expectation for the future is that there will be a rising demand for Canadian woodpulp, lumber and other products. Some of this demand for construction materials may be met by increased use of fibreboards, particle board and plywood and therefore tree sizes of timber resources may be an influential factor in choosing between lumber and these substitutes. At the same time, greater use will likely be made of species considered at present to be non-commercial; at one time balsam fir was placed in this category but has been found to be suitable for newsprint. In Eastern Canada a number of pulp companies are turning to sulphate operations in order to utilize jack pine and other available species. In the sulphate process the range of the raw material is not as restricted as for sulphite, and a high quality commodity is produced.

To remain competitive in world markets, the forest industry as a whole has striven constantly to improve equipment and methods. As a result, productivity in all sectors has risen, although the greatest gains have occurred in logging. Wood being a bulky material, one of the main areas for improvement has been transportation—especially from forest to mill. Rivers and coastal waterways have always been an important means for moving wood, either floating separately or in booms, or carried in ships or the new self-loading and unloading barges. The early use of horses or oxen for hauling timber was first displaced by railway logging in coastal British Columbia and then by truck hauling in both Western and Eastern Canada. The introduction of power saws on a large scale has improved productivity considerably. Logging operations in coastal British Columbia have been mechanized for some time but mechanization in Eastern Canada is relatively new and this is where the greatest changes in logging employment have taken place. With output changed

little in the past ten years, employment dropped some 30 p.c. in 1957-58 and declined sharply again in 1960-61. This decline roughly paralleled the abandonment of marginal farms in Eastern Canada where farmers used to do logging in winter, but, at the same time, the forest industries created employment and increased incomes elsewhere together with increasing the efficiency of their operations.

Subsection 1.—Woods Operations

In connection with operations in the woods, the forests provide not only the raw materials for the sawmills, pulp mills, veneer mills, charcoal, excelsior and other plants, but also the logs, pulpwood and bolts for export in the unmanufactured state, and fuel, poles, railway ties, posts and fence rails, mining timber, piling and other primary products that are finished in the woods ready for use or export. A number of minor forest products help swell the total, such as Christmas trees, cascara bark, balsam gum, resin, etc.

Estimates of woods operations attempt to give actual production figures for all items and are based partly on provincial forest service data for volume. Value, as currently estimated, excludes transportation costs up to and including 1960. In 1961, transportation costs are included to conform with the total activity concept.

8.—Value and Equivalent Volume of Wood Cut in Woods Operations, 1953-62

Year	Value[1]	Equivalent Volume of Merchantable Wood[2]	Year	Value[1]	Equivalent Volume of Merchantable Wood[2]
	$'000	M cu. ft.		$'000	M cu. ft.
1953	704,539	3,078,066	1958	638,611	2,854,670
1954	728,370	3,122,313	1959	715,716	3,186,387
1955	829,573	3,280,070	1960	806,488	3,431,465
1956	939,143	3,463,304	1961	846,035[3]	3,303,289
1957	823,054	3,172,166	1962	887,814[3]	3,431,802

[1] Includes value of forest products other than wood. [2] In estimating the annual drain on Canada's forest resources, certain converting factors have been used, each of which represents in cubic feet the quantity of merchantable wood used to produce one unit of the material in question. The factor for logs and bolts for the British Columbia coastal region is 175 and for the remainder of Canada 200. Other factors: pulpwood and round mining timber 85, fuelwood and wood for charcoal 80, poles and piling 15, hewn railway ties 5, fence posts 1.2 and fence rails 1. [3] Includes transportation costs; see text above.

9.—Value and Volume of Wood Cut in Woods Operations, by Province and Product, 1961 and 1962

Province or Territory	1961			1962		
	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood[1]	Total Value[2]	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood[1]	Total Value[2]
		M cu. ft.	$'000		M cu. ft.	$'000
Province or Territory						
Newfoundland	...	98,014	25,961	...	74,649	19,993
Prince Edward Island	...	10,157	1,637	...	5,514	896
Nova Scotia	...	96,747	19,777	...	81,907	18,014
New Brunswick	...	193,346	44,097	...	140,627	32,098
Quebec	...	914,096	239,529	...	876,043	222,462
Ontario	...	494,048	148,434	...	519,414	145,677
Manitoba	...	37,602	6,264	...	53,160	10,409
Saskatchewan	...	44,036	6,580	...	47,844	7,410
Alberta	...	118,390	22,362	...	131,706	25,210
British Columbia	...	1,295,038	331,174	...	1,496,832	405,008
Yukon and Northwest Territories	...	1,815	220	...	4,106	637
Canada	...	**3,303,289**	**846,035**	...	**3,431,802**	**887,814**

For footnotes, see end of table, p. 518.

9.—Value and Volume of Wood Cut in Woods Operations, by Province and Product, 1961 and 1962—concluded

Product	1961			1962		
	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood[1]	Total Value[2]	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood[1]	Total Value[2]
		M cu. ft.	$'000		M cu. ft.	$'000
Product						
Logs and bolts.....M ft. b.m.	8,800,339	1,684,991	404,016	9,934,202	1,894,740	476,513
Pulpwood..... cord	15,474,266	1,315,314	369,663	14,624,151	1,243,052	343,443
Fuelwood..... "	2,993,845	239,508	36,249	2,816,193	225,296	29,207
Poles and piling..... No.	1,654,709	24,820	17,145	1,725,813	25,887	18,153
Round mining timber..... cord	77,394	6,578	1,463	67,479	5,716	1,584
Fence posts..... No.	10,453,678	12,545	3,368	13,481,772	16,178	4,479
Hewn ties..... "	27,205	136	36	850	5	2
Fence rails..... "	769,345	770	255	894,063	894	312
Wood for charcoal..... cord	38,750	3,100	494	39,500	3,160	470
Miscellaneous roundwood..... cu. ft.	...	15,527	6,497	...	16,874	6,353
Other products[3].....	...	...	6,849	...	...	7,298
Totals.....	...	**3,303,289**	**846,035**	...	**3,431,802**	**887,814**

[1] See footnote [2], Table 8. [2] Includes value of forest products other than wood, and transportation costs; see text on p. 517. [3] Chiefly Christmas trees but also includes balsam gum, cascara bark, etc.

10.—Principal Statistics of Woods Operations, 1958-62

Year	Employees (man-years)	Salaries and Wages	Cost of Materials	Net value of Production	Gross Value of Production
	No.	$'000	$'000	$'000	$'000
1958.....	67,327	338,284	68,595	570,016	638,611
1959.....	82,551	347,406	57,004	658,712	715,716
1960.....	86,539	374,731	72,923	733,566	806,488
1961[1].....	94,681	422,374	137,576	708,459	846,035[2]
1962[1].....	85,280	398,575	140,900	746,914	887,814[2]

[1] Includes employees engaged in transportation costs; see text on p. 517. [2] Includes transportation costs; see text on p. 517.

Subsection 2.—Sawmills and Shingle Mills

The sawmill industry includes sawmills, tie, lath, stave, heading and hoop mills. Several other industries also produce lumber and, for this reason, the total lumber production in Canada (9,829,380 M ft. b.m. in 1962) is higher than the lumber production of the sawmill industry (8,505,977 M ft. b.m. in 1962). Lumber is by far the most important single product of the sawmills, in both quantity and value, and Table **11** gives the production and shipments of lumber in addition to the value of all sawmill products shipped in each province in 1962. The quantity and value of lumber shipments by species is shown in Table **12**. It may be noted that the quantities of lumber produced are much higher than the quantities shipped; this is mainly due to the fact that a considerable volume of lumber is custom sawn by mills (classified in the sawmill industry) for the account of planing mills (classified in the sash, door and planing mill industry), or for wholesalers and dealers who report the corresponding shipments.

The shingle mills are treated as a separate industry; 1962 shipments of shingles and shakes by establishments classified in this industry are given in Table **13**.

11.—Lumber Production and Shipments and Value of Shipments of All Sawmill Products, by Province, 1962

Province or Territory	Lumber			Value of Shipments of All Sawmill Products and By-products
	Production	Quantity Shipped	Value of Shipments	
	M ft. b.m.	M ft. b.m.	$'000	$'000
Newfoundland	20,388	18,070	1,262	1,458
Prince Edward Island	6,942	2,529	150	241
Nova Scotia	202,960	152,445	9,914	12,766
New Brunswick	289,652	251,585	17,516	22,389
Quebec	1,117,277	920,683	67,212	80,881
Ontario	622,302	608,749	50,876	59,456
Manitoba	22,064	15,940	836	1,216
Saskatchewan	48,566	9,086	424	1,838
Alberta	253,015	149,561	7,943	11,082
British Columbia	5,915,536	5,653,371	366,327	420,747
Yukon and Northwest Territories	7,275	4,715	235	313
Canada	**8,505,977**	**7,786,734**	**522,693**	**612,387**

12.—Quantity and Value of Lumber Shipments, by Species, 1962

Kind of Wood	Quantity	Value	Kind of Wood	Quantity	Value
	M ft. b.m.	$'000		M ft. b.m.	$'000
Spruce	2,410,316	146,296	Yellow birch	125,073	14,950
Douglas fir	1,958,532	130,388	Maple	118,112	11,909
Hemlock	1,382,378	89,366	Red pine	35,348	3,072
Cedar	551,793	42,625	Other	408,862	26,037
White pine	290,494	26,283			
Balsam fir	280,936	17,486			
Jack pine	224,890	14,281	**Totals**	**7,786,734**	**522,693**

13.—Shipments of Shingles and Shakes, by Province, 1962

Province	Quantity	Value
	'000 squares	$'000
Maritime Provinces	11	84
Quebec	22	146
British Columbia	1,748	17,916
Totals	**1,781**	**18,146**

Subsection 3.—Veneer and Plywood Industries

The production of hardwood veneer and plywood in Canada is confined largely to the eastern provinces. Changes in manufacturing methods applied to hardwood plywood resulted in its adaptation to many uses, particularly to interior wall finishes for homes and other buildings.

Softwood veneer and plywood are produced almost entirely in British Columbia. Douglas fir is most commonly utilized because of the availability of large diameter logs of this species from which large sheets of clear veneer can be obtained. The use of synthetic resin adhesives is responsible for this product, which has become almost indispensable to the construction industry—for wall panels, concrete forms, roofing, sheeting and house sub-floors; for construction of silos, cribs and caissons; for box-car linings, bus bodies,

trailers, and watercraft; for box panels and crate linings, case goods and core-stock for furniture; and for plywood-faced doors and many other items. The heating of glued veneers in moulds by high-frequency electric fields (dielectric heating) permits the manufacture of shaped plywood which is now widely used in the manufacture of furniture.

Veneers of Canadian manufacture are not confined to species native to Canada. A number of imported woods of special decorative value are veneered successfully and provide the furniture industry with a wide choice of materials. Exports of veneer and plywood produced in Canada have shown a steady increase in value, reaching a record $53,045,000 in 1963.

14.—Veneer and Plywood Shipments, by Type, 1960-62

Type	1960		1961		1962	
	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch
Veneer.....M sq. ft.	**641,331**	**450,780**	**641,590**	**456,549**	**845,453**	**592,087**
$	**19,117,025**	**5,031,856**	**18,469,432**	**5,213,141**	**22,901,197**	**5,078,395**
Softwood.....M sq. ft.	8,254	381,024	7,745	374,159	8,414	493,817
$	110,526	3,088,996	107,960	3,095,698	110,560	2,758,631
Hardwood.....M sq. ft.	614,835	64,587	633,845	82,390	837,039	98,270
$	18,336,070	1,705,876	18,361,472	2,117,443	22,790,637	2,319,764
Plywood (1/4 inch basis).M sq. ft.	**1,638,914**		**1,902,806**		**2,062,104**	
$	**98,485,813**		**105,615,894**		**123,663,256**	
Softwood.....M sq. ft.	1,381,575		1,628,386		1,739,663	
$	71,828,995		79,036,585		89,643,407	
Hardwood.....M sq. ft.	237,092		274,420		322,441	
$	22,117,225		26,579,309		34,019,849	

Subsection 4.—Other Wood Industries

Based on the revised Standard Industrial Classification, which was introduced in 1960, there are nine separate wood industries other than the sawmills, the shingle mills and the veneer and plywood mills. Most of these industries obtain from the sawmills the wood that they transform into planed or matched lumber, doors, windows, laminated structures, prefabricated buildings, boxes, barrels, caskets, etc. Veneer and plywood are also important raw materials used. However, the wood industries do not include every industry into which wood enters as a raw material. Wood is an important raw material in the manufacture of furniture, agricultural implements, musical instruments, etc., industries which, as proven by experience, are more correctly classified under other groups.

The sash, door and planing mills and the hardwood flooring industries are important in the "other wood industries" group. They are closely dependent upon the house-building activity which was again characterized by an atmosphere of stability in 1962. These industries therefore showed progress in that year as evidenced by the increased shipments of the different products as compared with the preceding year. The value of shipments of wooden doors amounted to $28,543,000 compared with $27,357,000 in 1961, the value of sash, windows and window units increased to $36,510,000 from $34,727,000 and that of window or door frames to $9,250,000 from $8,173,000. Shipments of hardwood flooring amounted to 65,430,000 ft. b.m. valued at $11,826,000 compared with 62,859,000 ft. b.m. and $11,224,000 in the preceding year, and shipments of parquet flooring or hardwood floor tiles were 7,209,000 sq. feet valued at $1,403,038 as against 5,597,000 sq. feet and $1,068,000 in 1961. Other important products of the wood-using industries include: planed and matched lumber reported at 1,257,300 M ft. b.m. in 1962 and valued at $88,710,000, laminated structures valued at $11,205,000, kitchen cabinets and units valued at $10,642,000 and prefabricated buildings at $15,900,000.

The above-mentioned products are mostly reported in the sash, door and planing mills group and in the hardwood flooring industries. In fact these industries account for 75 p.c. of the shipments of goods of own manufacture and of the revenues from custom work in all the "other wood industries".

An interesting development in the miscellaneous wood industries group in 1962 was the expansion in the facilities for the manufacture of the particle board. In that year, there were seven establishments reporting shipments of this product to a total of 47,457,000 sq. feet, $\frac{3}{8}$" thickness basis, valued at $5,745,000; because of the limited number of manufacturers in the immediately preceding years, statistics on this commodity cannot be released for those years.

Subsection 5.—The Pulp and Paper Industry

The manufacture of pulp and paper has been the leading industry in Canada for many years and the postwar development of the industry has more than kept pace with the vast industrial growth of the nation. Pulp and paper stands first among all industries in net value of shipments, in exports, in total wages paid and in capital invested. It is the largest consumer of electric energy and the largest industrial buyer of goods and services, including transportation, in the land. The industry has a newsprint output more than three times that of any other country and provides over 42 p.c. of the world's newsprint needs. Among Canada's exports, the value of newsprint is larger than that of any other single commodity, the United States absorbing 84 p.c. (1962).

There are three classes of mills in the industry; in 1962, 28 were making pulp only, 23 were making paper only and 74 were combined pulp and paper mills. The industry includes several forms of industrial activity—operations in the woods with pulpwood as a product, the manufacture of pulp and paper of all kinds, and the manufacture of paperboards. Some of the important pulp companies operate sawmills to utilize the larger timber on their limits to the best advantage, and some lumber manufacturers divert a portion of their spruce and balsam logs to pulp mills. Only a small percentage of the pulpwood cut in Canada is exported in raw or unmanufactured form.

Some plants that are included in the pulp and paper industry also convert paper into stationery and other processed paper products, but this conversion within the pulp and paper industry represents only a small part of Canada's production of converted papers and boards, the bulk of which is made in special converting mills classified in other industrial groups. Principal statistics of these industries are given in Chapter XVI on Manufactures.

15.—Production, Consumption, Exports and Imports of Pulpwood, 1957-62

Year	Production of Pulpwood in Canada[1]			Pulpwood Used in Canadian Mills[1]	Exports	Imports
	Quantity	Value	Average Value per Cord			
	'000 cords	$'000	$	'000 cords	'000 cords	'000 cords
1957	14,968	340,235	22.73	13,367	1,800	180
1958	12,759	275,154	21.57	12,624	1,286	147
1959	14,357	320,244	22.31	13,535	1,107	148
1960	13,997	311,579	22.26	14,116	1,152	228
1961	15,474	369,663	23.89	14,437	1,151	207
1962	14,624	343,443	23.50	14,883	1,225	150

[1] Given in terms of rough or unpeeled wood; not including wood residue.

Pulp Production.—The manufacture of pulp, the second stage in this industry, is carried on by mills producing pulp only and also by paper manufacturers operating pulp mills in conjunction with paper mills to provide their own raw material. Such mills usually manufacture a surplus of pulp for sale in Canada or for export. Spruce, supplemented by balsam fir in the east and by hemlock in the west, is the most suitable species for the production of all but the best types of paper.

The preliminary preparation of pulpwood is most commonly carried on at the pulp mill although there are a number of rossing mills operating on an independent basis, chiefly for the purpose of saving freight on material intended for export. Pulpwood is commonly measured by the cord (4′ by 4′ by 8′ of piled material). One cord of rough pulpwood contains approximately 85 cu. feet of solid wood, and one cord of peeled pulpwood 95 cu. feet.

The manufacture of the 12,132,507 tons of pulp produced in 1962 entailed the use of 14,882,947 cords of rough pulpwood valued at $368,960,268 and the equivalent of 2,427,442 rough cords of other wood (i.e., sawmill chips, slabs and edgings, sawdust, butts, cores, etc.) valued at $43,797,018.

16.—Mill Shipments of Woodpulp, Mechanical and Chemical, 1957-62

Year	Groundwood Pulp		Chemical Pulps		Total Pulp Shipments[1]	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	$'000	'000 tons	$'000	'000 tons	$'000
1957	295	20,380	2,434	313,896	2,752	334,962
1958	264	18,104	2,312	306,866	2,595	325,587
1959	281	18,902	2,638	340,854	2,938	360,294
1960	267	18,252	2,795	349,694	3,084	368,598
1961	260	17,665	3,048	374,221	3,335	392,078
1962	287	20,201	3,377	415,937	3,690	436,920

[1] Includes screenings and unspecified pulps.

17.—Pulp Production, by the Chief Producing Provinces, 1957-62

Year	Quebec	Ontario	British Columbia	Other Provinces[1]	Canada
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
1957	4,606	2,746	1,376	1,697	10,425
1958	4,223	2,736	1,454	1,724	10,137
1959	4,374	2,758	1,927	1,773	10,832
1960	4,469	2,967	2,124	1,901	11,461
1961	4,578	2,981	2,256	1,964	11,779
1962	4,611	3,052	2,411	2,059	12,133

[1]Prince Edward Island is the only province in which there is no production.

Pulp Exports.—The main market for Canadian pulp is the United States. For many years this market alone has absorbed between 75 p.c. and 90 p.c. of such exports.

18.—Exports of Pulp to Britain, United States and All Countries, 1954-63

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	$	tons	$	tons	$
1954	270,946	34,486,399	1,669,782	206,435,403	2,180,416	271,418,005
1955	280,575	34,814,098	1,868,804	233,796,779	2,366,133	297,304,069
1956	244,164	29,762,920	1,919,634	245,080,531	2,374,013	304,536,497
1957	225,482	28,662,202	1,847,364	235,258,142	2,282,656	292,406,102
1958	216,147	24,666,398	1,832,521	239,874,495	2,219,314	285,448,649
1959	217,386	24,726,915	1,966,480	254,049,124	2,450,027	311,252,798
1960	282,747	32,203,019	1,999,755	256,170,127	2,601,457	325,121,572
1961	278,846	31,022,948	2,176,585	268,949,199	2,868,844	346,660,713
1962	251,742	27,722,704	2,398,802	298,166,025	3,044,458	369,902,423
1963	279,834	31,620,935	2,505,669	309,915,338	3,339,492	405,292,428

World Pulp Statistics.—Figures of production, exports and imports of pulp for certain countries of the world are shown for 1961 and 1962 in Table **19**. It is estimated that these countries produce over three quarters of the world supply of pulp.

19.—Production, Exports and Imports of Pulp, by Leading Countries, 1961 and 1962

(SOURCE: FAO *Year Book of Forest Products Statistics*)

Country	1961			1962		
	Production	Exports	Imports	Production	Exports	Imports
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada[1]	**11,830**	**2,867**	**62**	**11,925**	**3,043**	**63**
United States	26,465	1,178	2,468	27,832	1,186	2,519
Finland	4,735	1,764	6	4,906	1,883	2
Norway	1,690	836	37	1,615	844	43
Sweden	5,706	3,010	5	5,719	3,131	3

[1] Production figures differ slightly from DBS figures given in Table **17** because of a different basis of calculation.

Paper Production.—During 1962 there were 97 establishments producing paper and paperboard in Canada. In addition to newsprint, Canadian mills have a highly developed production of fine paper, wrapping paper, tissues, paperboard and other cellulose products.

20.—Shipments of Basic Papers and Paperboard, by Type, 1957-62

Year	Newsprint Paper		Book and Writing Paper		Wrapping Paper	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	$'000	'000 tons	$'000	'000 tons	$'000
1957	6,317	724,613	330	85,793	264	57,415
1958	5,982	694,067	344	91,402	273	60,858
1959	6,371	732,849	372	99,316	310	66,258
1960	6,773	793,470	401	105,915	301	65,918
1961	6,674	803,732	417	112,283	309	66,731
1962	6,648	819,078	434	119,405	323	69,892

20.—Shipments of Basic Papers and Paperboard, by Type, 1957-62—concluded

Year	Paperboard		All Other Papers		Totals	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	$'000	'000 tons	$'000	'000 tons	$'000
1957	830	120,455	132	22,399	7,873	1,010,675
1958	882	128,033	141	20,227	7,622	994,587
1959	924	135,927	139	21,862	8,116	1,056,212
1960	973	141,321	133	21,247	8,581	1,127,871
1961	1,018	149,532	140	24,132	8,558	1,156,410
1962	1,092	156,995	164	25,128	8,661	1,190,498

Quebec produced almost 44 p.c. of the total basic paper and paperboard made in 1962, Ontario over 29 p.c., British Columbia about 13 p.c. and Newfoundland, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta the remainder.

21.—Shipments of Basic Papers and Paperboards, by Province, 1961 and 1962

Province	1961		1962	
	Quantity	Value	Quantity	Value
	'000 tons	$'000	'000 tons	$'000
Quebec	3,726	488,534	3,765	504,061
Ontario	2,454	357,714	2,516	376,444
British Columbia	1,117	150,778	1,161	157,097
Other provinces[1]	1,261	159,384	1,219	152,896
Totals	**8,558**	**1,156,410**	**8,661**	**1,190,498**

[1] Prince Edward Island is the only province in which there is no production.

Newsprint Exports.—Total exports of newsprint from Canada in the years 1954-63 are given in Table 22.

22.—Exports of Newsprint to Britain, United States and All Countries, 1954-63

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	$	tons	$	tons	$
1954	250,185	28,639,166	4,866,649	558,633,675	5,521,530	635,669,692
1955	286,343	33,013,480	5,027,767	578,322,418	5,763,167	665,876,987
1956	347,905	41,531,514	5,218,911	615,941,551	5,967,194	708,384,822
1957	371,870	44,009,073	5,058,229	610,290,208	5,900,625	715,489,761
1958	389,000	46,476,034	4,880,985	590,167,442	5,682,832	690,209,468
1959	393,942	51,585,851	5,091,770	614,706,362	5,910,173	722,271,166
1960	460,537	60,162,971	5,229,909	631,230,363	6,190,286	757,930,406
1961	456,962	59,293,740	5,228,156	629,791,521	6,253,717	761,312,790
1962	481,822	63,452,326	5,227,006	633,037,421	6,148,294	753,059,629
1963	458,814	60,212,940	5,251,125	636,086,302	6,211,946	759,989,558

World Newsprint Statistics.—Since 1913 Canada has led the world in the export of newsprint. Figures for the leading producing countries for the two latest years available are given in Table 23 and 1939 figures are included for comparative purposes. The six countries listed accounted for 73 p.c. of the estimated world production in 1962, Canada contributing over 42 p.c.

23.—Estimated World Newsprint Production and Exports, by Leading Countries, 1939, 1961 and 1962

(SOURCE: Newsprint Association of Canada)

Country	Production			Exports		
	1939	1961	1962	1939	1961	1962
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada[1]	**3,175**	**6,735**	**6,691**	**2,935**	**6,216**	**6,169**
United States	939	2,094	2,154	13	182	109
Britain	848	799	734	42	31	27
Finland	550	948	969	433	823	895
Sweden	306	684	694	199	478	452
Norway	222	265	259	188	205	201

[1] Figures differ slightly from DBS figures given in Tables 20 and 22 because of different bases of calculation.

Subsection 6.—Paper-Using Industries

Starting with 1960, the paper-using group is comprised of five industries* engaged primarily in manufacturing commodities of paper and paperboard. Establishments engaged in printing, publishing, bookbinding and the allied graphic arts also consume large quantities of these materials but are grouped separately (see Subsection 7).

Some paper-using establishments purchase paper as a raw material from the pulp and paper industry and merely subject it to some form of treatment to fit it for further manufacture in another industry; this occurs in the manufacture of coated, sensitized or corrugated paper. Other firms purchase paper and subject it to treatment to fit it for a definite final use such as in the manufacture of asphalt roofing or waxed wrapping paper. Another large group uses paper and paperboard as a raw material for conversion into paper bags, boxes, envelopes and other commodities.

The manufacture of containers and packages of various kinds has grown very rapidly since ways have been found of converting tough and cheap paper stocks into strongly made boxes which are replacing wooden crates and packing cases. Small attractive paper containers for use in the retail trade are now in common use and their manufacture constitutes an important branch of the paper-using industries. Starting with 1960, a number of establishments specializing in the production of plastic bags (cellulose, polyethylene, etc.) previously classed in other industries, are included with the paper bag manufacturers.

Composition roofing and sheathing, consisting of paper felt saturated with asphalt or tar and in some cases coated with a mineral surfacing, is being increasingly used as a substitute for metal roofing, wooden shingles and siding materials. Establishments classed as roofing manufacturers also produce a large proportion of the floor tiles manufactured in this country.

Important products manufactured by establishments classed in the miscellaneous paper converters industry are envelopes, waxed paper for packaging, clay coated and enamelled paper and board, aluminum foil laminated with paper or board, paper cups, facial tissues, sanitary napkins, paper towels and napkins, food trays, toilet tissue, etc. Principal statistics of the paper converting industries are given in Chapter XVI on Manufactures.

* Asphalt roofing manufacturers, folding box and set-up box manufacturers, corrugated box manufacturers, paper bag manufacturers, and miscellaneous paper converters.

Subsection 7.—Printing, Publishing and Allied Industries

The printing, publishing and allied industries group is made up of six closely related industries: printing and bookbinding, including commercial printers and bookbinders; lithographing, comprised of commercial printing plants using principally the offset printing process; engraving, stereotyping and electrotyping, including photo-engraving; trade composition or type setting for printers; printing and publishing, comprised of publishers who operate printing plants; and "publishers only", including establishments primarily engaged in publishing and which do no printing.

The revenue resulting from the manufacturing activities of all establishments classed in this group (excluding revenue from auxiliary activities such as trade, etc.) amounted to $925,443,000 in 1962, an increase of 4.6 p.c. over the 1961 total of $884,435,000. The revenue from commercial and specialty printing increased to $423,222,000 from $399,633,000 in the same comparison. The important individual revenue items to commercial printers in 1962 were printed advertising ($92,980,000), the printing of newspapers and periodicals for publishers ($44,737,000), continuous forms and individual gummed sets ($41,048,000), printed books and blank books ($27,491,000), greeting cards ($20,488,000), and tags, shipping and merchandise ($19,201,000).

The revenue from publishing (publishing and printing or publishing only) advanced to $438,672,000 from $425,331,000 in 1961. The advertising revenue to publishers of newspapers and periodicals of all kinds rose to $308,912,000 from $298,678,000 and the net revenue from sales or subscriptions to $103,430,000 from $100,059,000 in the same comparison. The revenue from book publishing was $25,810,000 in 1962, slightly less than in the preceding year.

Other revenues reported within this group of industries resulted mainly from specialized services such as plate-making, type-setting, etc., and showed little variation in total from the preceding year.

Section 5.—Forest Administration, Research and Conservation

Subsection 1.—Federal Forestry Program

Administration.—The Federal Government is responsible through several departments and agencies for the protection and administration of the forest resources of the Yukon and Northwest Territories and of other federal lands such as the National Parks, Indian reserves, military areas and forest experiment stations.

Under the Department of Forestry Act, which became effective on Oct. 1, 1960 and which repealed the Canada Forestry Act, the Minister of Forestry's duties, powers and functions extend to and include "all matters over which the Parliament of Canada has jurisdiction relating to the forest resources of Canada" The main functions of the Department of Forestry include: (1) provision for the conduct of research relating to the protection, management and utilization of the forest resources of Canada and the better utilization of forest products; (2) undertaking, promoting or recommending measures for the encouragement of public co-operation in the protection and wise use of the forest resources of Canada; (3) co-operating with provincial governments and others by means of agreements relating to forestry matters; (4) provision of forest surveys and advice relating to the protection and management of federally administered forest lands; and (5) assuming responsibility for forest protection and management on federal lands at the request of the department or agency concerned. The Minister may consult with and inaugurate conferences of provincial or municipal authorities, universities, representatives of industry or other interested persons. The Act provides for the establishment of laboratories and other necessary research facilities, and of forest experimental areas on federal lands and for regulations for the protection, care and management of such areas.

To carry out its responsibilities, the Department maintains an Administration Branch, three Research Branches and an Economics Division. The Administration Branch includes

those units of the Department not engaged in scientific research or economic studies. It is composed of five Divisions: Provincial Agreements, Forest Management, Information and Technical Services, Personnel Services and Administrative Services. The Provincial Agreements Division is concerned with the administration of federal-provincial cost-sharing agreements (see p. 530). The Forest Management Division conducts forest surveys on federal lands throughout Canada and provides advice and assistance regarding forest management to the administering agencies. It also provides for the management of forests including timber disposal in certain areas on behalf of other government departments, the most important of these being the military training area, Camp Gagetown, in New Brunswick. Co-operation is extended to the External Aid Office in administering technical assistance programs involving forest surveys in other countries. The Information and Technical Services Division includes both operating and servicing functions in that it provides a program of public information on forestry as well as library, editorial and technical services. A comprehensive public relations and information program, in course of development, will include the production and distribution of a number of lay publications designed to increase public awareness of the importance of Canada's forest resources and the need of conserving them; the distribution of scientific publications and the interpretation of the scientific work of the Department to the general public; the use of press, radio, and television facilities; the production of exhibits, displays and posters; and the maintenance of a photographic library dealing with forestry subjects. The Personnel Services and Administrative Services Divisions are servicing elements for the Department as a whole.

The functions of the three Research Branches and the Economics Division, as well as the Federal-Provincial Forestry Agreements program, are described in the following paragraphs.

Forest Research Branch.—The functions of this Branch are (1) to provide basic information on the characteristic occurrence, growth, development and behaviour of forest tree species throughout the wide range of forest types and environmental conditions of Canada and (2) to develop and test new or improved methods for use in forest management and forest fire control. The program is conducted through seven district offices across Canada and often in co-operation with other federal departments, provincial forest authorities, other research agencies, universities and industry.

Forest management research deals with silviculture, tree biology, forest land and forest mensuration. Many of the silvicultural studies involve (a) assessing the factors responsible for the success or failure of natural regeneration following various cutting methods and treatment of seed beds, (b) comparing different methods of seeding and planting, and (c) determining the effects of different methods of intermediate cutting on the development of residual trees and stands. Studies are made of successional changes in most of the important forest types. Application of silvicultural techniques as well as research in regulation of cut and in methods of protection are aimed at determining how forests may be maintained at the highest levels of production. The relationships between forest growth and site are being studied with a view to the assessment of long-term productivity. The requirements of light, temperature and moisture that will produce optimum conditions for growth and development are being determined for the seedlings of many important species of trees. The physiological processes of growth and reproduction are under investigation for a limited number of species. In tree breeding, superior strains are selected or developed and there is a continual improvement in propagation and breeding techniques. Research in forest land encompasses forest geography and land classification. Research in soils is directed toward determining the relation of tree growth and nutrition to chemical and physical properties of the soil.

Techniques used in mensuration are constantly under review and study; new methods are tested and developed. Research in forest inventory methods is of increasing importance because of the continuing programs of forest inventories being conducted in most provinces

and in the northern Territories. Data from air photographs are correlated with field observations to develop new techniques for estimating timber. The use of stand volume tables and various methods of field sampling are being investigated and compared. Research is continuing in methods for measuring tree images and tree shadows to determine heights, crown widths, canopy density and other data from photographs taken in different seasons of the year under various conditions. The use of large-scale photography of sample areas is also being investigated and studies are being made in the identification of species and sub-types.

Adequate protection of forests against fire is of vital importance in Canada. The Forest Research Branch works in full co-operation with provincial forest services in almost all phases of forest fire control. Major contributions of the Branch have been in the fields of fire danger measurement and fire control planning. Investigations are being made of forest fire behaviour, of the use of prescribed fire for hazard reduction and seed bed preparation, of better methods of reporting forest fires, and of fire damage appraisal and related factors in forest protection standards. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, of fire fighting equipment and techniques, and of the use of aircraft in forest fire control. Another important field of endeavour is the study of lightning and other fire causative agencies.

Forest Products Research Branch.—The work of this Branch is directed toward obtaining the necessary background information and data on the properties of Canadian woods, developing new and better uses for wood products, improving manufacturing processes, and effecting more complete utilization of wood substances available from the forest. Its activities, covering every aspect of forest products except that relating to paper, include the determination of the physical, mechanical and chemical properties of wood and their relation to adaptability in use; studies of the factors affecting the quality of wood and of manufactured wood products; determination of the factors that cause wood waste in logging and manufacturing; research and investigation into fire retardant treatments, the preservative treatment and painting of wood and the use of wood for the manufacture of cellulose, wallboards, alcohols, organic acids, and extractives; studies to determine possible new economic and more valuable uses for woods; and research aimed at determining methods and means for the practical and economical utilization of all wood substances available from the annual timber harvest.

The program is conducted at two laboratories—one at Ottawa and the other at Vancouver—with units consisting of timber engineering, containers, glues and gluing, veneer and plywood, timber physics, wood chemistry, wood preservation, paints and coatings, wood pathology, wood anatomy, logging, lumber manufacture and lumber seasoning. The results of Branch research are made available to the thousands of plants comprising Canada's timber manufacturing and wood-using industries. By means of numerous technical publications and through other channels, continuous effort is devoted to the widespread dissemination of research results.

Close liaison is maintained with the forest products industries and the users of timber to ensure that the work of the Branch is of optimum national benefit. Assistance is received from a National Advisory Committee comprising members representing lumber manufacturers and other wood-using groups. There is constant co-operation with various government units in the performance of many special research investigations concerned with the use of wood. Research into the use of wood in housing construction and as an engineered material continues as an important activity that is undertaken in co-operation with the National Research Council and the Central Mortgage and Housing Corporation.

Officers of the Industrial Liaison Service of the Branch visit sawmills and other woodworking plants in their respective regions to keep industry aware of research developments and technical advances which may assist in the solution of industrial problems. The field representatives also keep the laboratories informed of field problems on which research would be of value.

Branch personnel serve on many national technical committees such as those of the Canadian Standards Association, as well as on such international committees as those of the American Wood Preservers' Association, the American Society for Testing Materials, the International Union of Forest Research Organizations, and the Food and Agriculture Organization of the United Nations. Continuous collaboration is maintained with forest products laboratories in other countries for the dual purpose of exchanging information and avoiding unnecessary duplication of research.

Forest Entomology and Pathology Branch.—This Branch conducts research on forest insects and diseases and maintains regional laboratories and field stations in all principal forest regions of Canada. The forest insect and disease survey is a Canada-wide project conducted by the Branch in co-operation with the provincial forest services and forest industries, the primary objective of which is to maintain an annual census of forest insect and disease conditions, and to detect and predict the occurrence of outbreaks. Results of the survey are made immediately available to the owners and operators of forest lands for use in planning salvage programs and directing control operations or other measures to reduce damage. An important secondary objective of the survey is extension of knowledge of the insects and fungi affecting forest trees, including their life histories, ranges of distribution, and host-parasite relationships.

The research programs of the regional laboratories are designed to lead to comprehensive understanding of the biology and ecology of the more destructive forest insects and fungi, and the causes of fluctuations in abundance or severity of damage in time and place. Problems under intensive study include insect defoliators, leaf diseases, sucking insects, dwarf mistletoes, stem cankers, bark- and wood-boring beetles, trunk and root decays, tip- and root-boring insects, and diseases of tree seedlings in forest nurseries. A recent development is the initiation of investigations of virus diseases of forest trees. Laboratory research on development, physiology, nutrition and taxonomy complements the field ecological studies of insects and fungi in the forest environment. Problems of broad national importance in insect pathology, cytology and genetics, bioclimatology and chemical control are investigated by Branch sections, which are appropriately staffed and equipped for research in these special fields.

The Forest Entomology and Pathology Branch also carries out experiments in control, utilizing cultural techniques, chemicals and biological control agents including parasites, predators and insect pathogens. Technical advisory services are provided in evaluating possibilities of eradication or control, or other applications of research results. Recent examples include recommendations for reduction of seedling losses in forest tree nurseries through cultural techniques and chemical applications; the co-operative organization of cull surveys to improve forest inventories; consultation with local authorities on the Dutch elm disease problem in New Brunswick, Quebec and Ontario, designed to limit spread and damage through control of the disease vectors and sanitation procedures; and technical co-operation with provincial governments and industrial agencies in the organization of spraying operations against the spruce budworm in New Brunswick and Quebec, and the black-headed budworm, the saddle-backed looper and the ambrosia beetle in British Columbia.

Economics Division.—The functions of the Economics Division are to advise the Department regarding the economic implications of present and proposed policies; to keep the economic position of Canada's forest industries under review; to keep in touch with forestry and international developments in other countries; and to conduct economic studies relating to forestry in Canada. Co-operation with international organizations concerned with forestry and in which Canada maintains membership includes the preparation of quarterly and annual statistical reports to the Food and Agriculture Organization of the United Nations and to the Organization for Economic Co-operation and Development. A National Forest Inventory is compiled annually from information supplied

by provincial governments and published by the Dominion Bureau of Statistics in a series entitled *Canadian Forestry Statistics*. This information is also included in Canada's submission to FAO for use in compiling the World Forest Inventory every five years.

Federal-Provincial Forestry Agreements.—The passing of the Canada Forestry Act in 1949 was an event of great significance to federal-provincial relations in the field of forestry, as authority was given to the then Minister of Mines and Resources to "enter into agreements with any province for the protection, development or utilization of forest resources" Subsequently, this Act was repealed and replaced by the Department of Forestry Act, 1960. Since the beginning, agreements have been entered into with most provinces; these now provide for federal financial support for programs of forest inventories and reforestation, for the purchase of capital assets to be used in forest fire protection and for forest access and stand improvement projects.

Under the Department of Forestry Act, a consolidated forestry agreement was entered into with the provinces for a term of two years ending Mar. 31, 1964, covering in a 'single package' the federal aid formerly available under three separate agreements. This agreement gave the provinces considerably greater freedom to allocate federal aid among the specified fields of work. However, in order to obtain its full allotment, a province was required to claim at least 40 p.c. of the total for forest access projects. As the requirements for improved access vary between regions, the proviso that 40 p.c. of the allotment be claimed for forest access projects was deleted from a new consolidated agreement offered to the provinces for a one-year period beginning Apr. 1, 1964. Under this agreement, a total of $7,910,000 of federal funds is available, the allocation to the provinces being in proportion to their productive forest areas.

Federal assistance is based on payment of 50 p.c. of provincial costs, but reforestation is the one exception. The Federal Government pays $15 per thousand trees planted, $4 per acre seeded with ground preparation, $2 per acre seeded without ground preparation, and $2 per acre for seedbed preparation to promote natural regeneration. In addition, the Federal Government contributes 25 p.c. of the cost of establishing or expanding forest nurseries.

Costs of management-type surveys are included in the new agreement as sharable, and the reforestation of occupied or unoccupied Crown land qualifies for assistance provided it is carried out by the province.

Since 1951, more than $40,000,000 in federal funds have been contributed to the provinces under the main forestry agreements, plus $5,135,000 for aerial spraying against budworm infestations in New Brunswick and, on a smaller scale, in British Columbia, and $563,000 under a special stand improvement agreement with the Province of Nova Scotia, designed to provide woods experience for coal miners laid off in the Cape Breton area.

Work accomplished with federal assistance has included the completion of forest inventories by seven provinces. Most of the provinces have instituted programs concerned with management-type inventories and at the same time are maintaining their initial inventories in a reliable state. As a result of these inventories, new woods operations have sprung up, particularly in the British Columbia interior, and new pulp and paper mills have been built or are planned in other areas of Canada. The Federal Government has contributed under the agreements to the establishment of 16 new forest nurseries and the planting of 219,600,000 trees. Federal contributions of more than $9,300,000 have been used for the purchase of fire towers, radios, motor vehicles, bulldozers, muskeg tractors, power pumps, hand pumps, hose, aircraft, and the construction of buildings required for the prevention, detection and suppression of forest fires and for the charter of aircraft for patrol, transportation and water-dropping purposes. Several hundred access projects designed to improve protection and permit the management of undeveloped forest areas have been undertaken, with the Federal Government contributing more than $15,900,000.

Subsection 2.—Provincial Forestry Programs

All forest land in provincial territory, with the exception of the minor portions in National Parks, federal forest experiment stations, military areas and Indian reserves is administered by the respective provincial governments. The forestry program of each province is outlined below.

Newfoundland.—Geographically, the Province of Newfoundland has two separate regions—the Island and Labrador on the mainland. The productive forest land of the Island is estimated at 12,984 sq. miles and of Labrador at 20,878 sq. miles, a total of 33,862 sq. miles. Most of Labrador's forests are leased but are as yet virtually untouched. Only 578 sq. miles are classified as farm woodlots.

A large part of the forest land in the interior of the Island is leased, licensed or owned by paper companies, but a three-mile-wide belt along most of the coastline is retained as unoccupied Crown land for the purpose of providing firewood, construction material, fencing material, etc., for the local population. Within this coastal forest belt, every household has legal right to cut 2,000 cu. feet of wood a year for domestic use. This form of cutting is generally without intense control or restriction but a policy is being introduced whereby cutting in certain 'management areas' is controlled by Forest Officers. Approximately one half of the Crown forests are at present under management. Commercial timber-cutting on unoccupied Crown lands has been by permit since 1952; permits for amounts up to 120 cords per person are issued by the field staff but permits for larger quantities must be approved by the government. This type of permit is generally preceded by advertising of standing timber for sale by tender, the timber involved usually being over-mature or damaged by fire, insects or storms.

The Island is divided into three forest regions, each of which is subdivided into five districts. Each region is under the control of a Regional Forester and each district is headed by a District Ranger with a staff of Rangers and Assistant Rangers. Twenty-eight well-equipped forest fire depots and 21 lookout towers, connected by radio-telephone, are operated by the Newfoundland Forest Service; others are operated by the Newfoundland Forest Protection Association, the two paper companies, and the Canadian National Railways. The Forest Service operates four *Canso* aircraft equipped for water bombing, two helicopters for transporting men and equipment and two *Super Cub* aircraft for fire detection.

Forestry operations in Labrador are under the supervision of a Regional Forester located at Happy Valley (Goose Airport). The permanent staff of about 75 persons is augmented by a like number of seasonal employees during the fire season. Forest fire protection bases are established at Northwest River near Goose Airport and at the Carol Lake mining development area. The two paper companies maintain their own fire protection organizations.

Prince Edward Island.—Almost all of Prince Edward Island's woodland is privately owned, so that the Forestry Division of the Department of Industry and Natural Resources is concerned mainly with planting, woodlot management and fire protection. A small nursery, established jointly with the Federal Government, deals with the Island's needs by providing planting stock for the reforestation of waste lands, the cost of which is shared by the Federal Government, and fulfilling the requirements of private individuals at a reasonable cost.

In proportion to its size, Prince Edward Island exports a great deal of pulpwood. This export, combined with the fuelwood and lumber cut each year, led to the inauguration of a program designed to educate the owner in the proper care and management of his woodlot.

Fire protection does not usually constitute too great a problem. Wooded areas are scattered in patches throughout the province and, since a network of roads makes all woodlots accessible, equipment can be brought to the scene of a fire quickly and easily. Research is limited mainly to reforestation and woodlot management problems.

Nova Scotia.—The land area of Nova Scotia is 20,402 sq. miles. Of that area, 16,274 sq. miles are classed as forested, 93 p.c. of which is regarded as productive. For Canada as a whole, 91 p.c. of the forest land is held by the Crown in the right of the federal or provincial governments but in Nova Scotia only about 22 p.c. is so held.

The provincial Crown lands are administered by the Department of Lands and Forests through a staff of foresters and rangers. Similarly, trained personnel are associated with the forest industry in the administration of privately owned forest lands. The Department administers the Lands and Forests Act as it pertains to all lands and is responsible for forest fire suppression on all lands, regardless of tenure. Forest fire detection is facilitated by 30 observation towers and an aerial patrol service, all integrated with land vehicles and headquarters by radio and telephone communication systems. Well-equipped fire suppression crews and rangers are stationed throughout the province.

The forest industry is of prime importance to the economy of Nova Scotia. There are in operation some 500 sawmills of various types and sizes, one newsprint mill, two groundwood pulp mills and a chemical pulp mill. These mills, along with the pulpwood export trade and pitprop production, produced about 250,000,000 ft.b.m. of sawn materials and about 550,000 cords of round products in 1963. Recently, several large, more efficient stationary lumber mills have been established, equipped for the production of pulp chips from sawmill residue. Tremendous strides have been made in the utilization of slabs, edgings and trim for this purpose and about 60,000 cords equivalent of chips were produced.

An active reforestation program has been conducted for many years. Although not as ambitious an undertaking as in some parts of Canada, the program is being expanded in areas where there are less fortunate circumstances relative to natural regeneration. There are six forest nurseries in operation throughout the province. Forest management programs include the construction of access roads into Crown land timber areas and stand improvement under the federal-provincial agreement. Timber, pulpwood and Christmas trees are sold through public tender and cutting is done under the recommendation of the district foresters of the Department of Lands and Forests. Management cruises, regeneration studies and experimental cuttings are conducted on Crown lands.

Forest research is carried on by Federal Government agencies and the Nova Scotia Research Foundation (see p. 386). Investigations involve stand improvement, cutting methods, and insect and disease activities. Extension projects include an active fire prevention campaign, a motion picture program for schools, distribution of information on forest and wildlife conservation, promotion of the Christmas tree industry, and preparation of articles for general distribution, for newspapers and for magazines.

New Brunswick.—Of the total land area of New Brunswick (27,835 sq. miles), approximately 86 p.c. is classed as productive forest, of which the Crown, in right of the province, owns about one half. About 2 p.c. is owned by the Federal Government and the remainder is privately owned. The report of a provincial forest inventory, part of the national forest inventory, was published in 1958. The total volume of wood in merchantable sizes is estimated at 16,900,000,000 cu. feet; coniferous species make up 71 p.c. and deciduous species the remainder.

Protection from forest fires, the first requirement for forest conservation, is mainly the responsibility of the Department of Lands and Mines which also carries out duties in connection with game management and protection, colonization, provincial parks, and the administration of provincial Crown lands. A large-scale aerial spraying program to protect balsam fir and spruce from the spruce budworm has been carried on since 1952 by a Crown company sponsored by the federal and provincial governments and by representatives of the forest products industries. Forest Management licences issued by the province authorize operators to cut and remove forest products in accordance with forest management plans and cutting permits. Stumpage dues are paid to the province when products are cut by the licensees.

New Brunswick does not maintain a forest research organization but co-operates with the federal Department of Forestry in that field. The University of New Brunswick has also undertaken a small number of forest research projects in co-operation with the National Research Council, the provincial government and other interested organizations.

In the field of education, the University of New Brunswick offers undergraduate and graduate courses in forestry leading to B. Sc.F. and M. Sc.F. degrees. It is also responsible for the administration of the Maritime Forest Ranger School in conjunction with the governments of New Brunswick and Nova Scotia and with private industry. The forest extension services of the University assist both government and private agencies in the direction and planning of various forestry extension programs. The provincial Department of Agriculture also provides an expanding extension service to the owners of farm woodlots.

Quebec.—The forest lands of the Province of Quebec cover an area of 378,125 sq. miles extending from its southern borders to latitude 52° north, between the frontier of Labrador in the east and the Eastmain River Basin in the west. Of this total, 77,805 sq. miles are classed as occupied productive forest land, where tree-felling is done under lease and permit. The area owned privately covers 25,114 sq. miles and federal Crown forests, 225 sq. miles. Approximately 117,481 sq. miles of the productive forest lands of Quebec are unoccupied. About one third of the annual cut comes from privately owned lands.

The limits reserved for forest industries are administered by the Department of Lands and Forests and the technical work such as inventory, reforestation, supervision of cutting, control of culling, verification of plans for development, collection of stumpage dues, etc., is the responsibility of the Forest Service. These limits are either leased by auction after public notice has been given or assigned under a special law. The price of the licence is fixed by auction or by Order in Council subsequent to specific legislation. The government reserves the right to dispose of the water powers situated on the limits leased. A tree-felling permit, which is valid for one year, is renewable if the holder has complied with the conditions imposed; it may be transferred with the authorization of the Minister of Lands and Forests. The lessee of a limit must pay a ground rent in addition to the price of licence and must forward, three months before the cutting begins, a plan of operations. Wood cut must be measured by a licensed culler and at the end of the operations the limit holder must produce a sworn statement of quantities cut. The Forest Service endeavours to promote the use of silvicultural methods among the owners of farm woodlots and small forest areas.

Quebec's forest protective system comprises three organizations—the Protective Service, the protective associations and the non-affiliated lease holders or owners. The Protective Service is a government body established within the Department of Lands and Forests in 1924 to enforce legislation and regulations governing forest fire protection and to protect vacant Crown lands, township reserves and colonization territories. The protective associations, of which there are six, are syndicates of lease holders and of owners who have availed themselves of their right to form an association to satisfy the law which compels them to protect their limits or private forests of 2,000 acres or over. Members assume operating expenses in proportion to the area owned by each, but the Department assumes half the costs of fire fighting incurred by the associations. The third group is composed of lease holders and of owners who prefer to discharge their obligations personally as far as forest protection is concerned. They enjoy the same privileges and their obligations are the same as those imposed upon the associations.

To perpetuate the forestry program of the province, the Forestry Department has established a number of nurseries. The first, established at Berthierville in 1908, has three sections—one wooded with a variety of valuable species of mature age, one serving agricultural purposes, and one devoted to forestry experiments and the cultivation of trees for reforestation. The Grandes Piles and New Carlisle nurseries were organized more recently and there are also nurseries in the following counties: Abitibi-Est, Témiscamingue, Îles de la Madeleine, Rimouski, Roberval, Rivière-du-Loup, Témiscouata, Chicoutimi, Abitibi-Ouest, Portneuf and Matapédia. Their object is the preparation of plants for reforesting

nearby districts. 'Floating' nurseries, supervised by the engineers of the Forest Extension Bureau and intended especially for growing reforestation plants for private properties, are located at Sweetsburg, St. Pascal, Mont Joli, Baie St. Paul, Pont Rouge, Victoriaville, Scott and Sherbrooke. Plants are supplied free of charge on request. A dynamic reforestation program is now under way in the province, with an ultimate objective for the next ten years of 200,000,000 plants on Crown and private lands.

The Bureau of Silviculture and Botany, an integral part of the Forest Service, is a research organization. At present it is conducting silvicultural experiments in various areas of the province, in natural forests as well as in plantations, to find solutions to the many problems encountered in the work of improving the forest stand. This work is controlled by a network of permanent study points throughout the province. The Bureau has at its disposal a soil and plant tissue analysis laboratory and a forestry pedologist for the study of problems dealing with mineral foods for plantations, reforestation and silviculture.

Ontario.—The management of the forest resources of this province is based upon the Crown Timber Act and the management unit is used as the basic administrative area. For each management unit a plan is prepared according to the Manual of Management Plan Requirements and is submitted to the Minister of Lands and Forests for analysis and approval. All forest activities contemplated during the operating period—cutting, re-establishment and tending—are listed in detail in the operating plan, which is part of and carries out the intent of the management plan. Management plans are revised every 20 years on the up-to-date data of new aerial photographs and a forest re-inventory. The number of management units is subject to change at the time of plan revision, owing to the abandonment or acquisition of timber licences and to division or consolidation of management units. During 1963, 207 management units, classified by ownership and the rights to timber, were recognized: 80 Crown management units, 76 Company management units, 46 Agreement Forest units, and five Nursery Forest units. Of the 80 Crown management units, for which the plans are prepared by Department staff, eight are operating under revised plans, 14 are undergoing scheduled plan revision and 58 are operating under the initial plans. Of the 76 Company management units, for which the management plans are prepared by the licensees, 52 are operating under approved management plans, 20 are in the process of revision and four are operating under initial plans. Of the 46 agreement forest units, for which the plans are prepared by Department staff under agreements with the owners of the land, one is operating under an approved plan, 40 are in the process of plan preparation, and five are undergoing forest inventory. Management plans for the five nursery forests are being prepared by Department staff.

Forest research programs reported in previous Year Books were continued in silviculture, site, tree breeding, reforestation, mensuration and mechanics. A selection of conclusions drawn in 1963 might include the following: by 1963 it was indicated from the tree-breeding studies in red pine that this species is genetically uniform, and therefore an unpromising prospect for improving strains by the conventional means of plus tree selection and seed orcharding; during the year it was found that an application of 200 lb. of urea per acre stimulated new growth of a jack pine plantation near Angus; in 1963 the usefulness was established of a prescribed burning technique by which defective stems of maple below ½-inch diameter can be eliminated by one fall burning and larger diameters by repeated burnings; analysis in 1963 of data from a 1962 study of airborne heat-sensory equipment in forest fire detection revealed that over 70 p.c. of spot-size fires can be detected in dense coniferous forests.

During the 1963 fire season, 1,885 forest fires occurred in Ontario, burning a total of 56,133 acres. Fire occurrence was 45 p.c. above the average for the years 1951-61, inclusive, but area burned was 42 p.c. below the average for the same years. Lightning accounted for 17 p.c. of all fires reported. By the end of the fire season, 107 candidates had completed a four-week instructor-training course in fire suppression and, as instructors, carried out training programs in their various districts; special training courses for Indians were held

at Red Lake, Pickle Lake and Nipigon. In co-operation with DeHavilland Aircraft Company, a new 200-gal. water-dropping tank was designed and constructed for use on *Otter* aircraft. The new tank is suspended under the fuselage of the aircraft and is readily demountable; its development has resulted in a much improved drop pattern and in improved flying characteristics of the aircraft.

Manitoba.—Effective Jan. 1, 1964, the central administration of Manitoba's forests were reorganized to include two branches—Forest Management and Forest Protection. Each is in charge of a Director and is a branch of the Department of Mines and Natural Resources. The Province is divided into eight Regions, each under a Regional Supervisor who is responsible to the Directors of the Management and Protection Branches.

The Management Branch co-ordinates control measures for the propagation, improvement and management of the forests, the harvest of forest products, and forest inventory surveys. Two nursery stations are maintained to supply stock for reforestation of denuded Crown land and some natural seed areas have been established for nursery stock. Seedlings are supplied to farmers for shelterbelts and woodlots and to commercial Christmas tree producers. The program of forest stand improvement comprises thinning, clearing and chemical spraying to remove undesirable species and encourage growth of preferred trees. Forest inventories cover 3,000 to 4,000 sq. miles annually and on the basis of these inventories working plans with annual allowable cuts on a sustained yield basis have been brought into operation.

Timber cutting rights are awarded by Forest Management Licences, Timber Sales and, in certain cases (particularly for salvage operations) by Timber Permits. Forest Management Licences may be granted for periods of up to 20 years and are renewable. Timber Sales may be for varying periods from one year upward and Timber Permits for periods of up to one year. At present, one long-term Pulpwood Berth with an area of 2,745 sq. miles and 12 long-term Timber Berths, all granted prior to 1930, are in force.

The area of the province under forest fire protection is 120,000 sq. miles with zones of priority established in the less accessible areas. Fires are detected through a comprehensive network of lookout towers and supporting air and ground patrols, all tied together by radio and departmental or public telephones. Two Canso water-bombers and two helicopters are rented for the worst of the fire season to back up the aircraft of the Manitoba Government Air Service.

The province has no forestry research organization but co-operates with several federal services which maintain two research areas. The Department co-operates fully with federal authorities in investigating and controlling forest damage resulting from insects and diseases. Public education in the fields of fire prevention and forest conservation is carried out and use is made of all usual methods including radio, television, newspapers, signs, talks to school children and club members, film tours, etc.

Saskatchewan.—The forests of Saskatchewan are located mainly in the northern half of the province and cover 117,738 sq. miles, or 53 p.c. of the total land area. Provincial forests constitute approximately 92 p.c. of all forest land in the province and are managed and developed by the Forestry Branch of the Department of Natural Resources.

The Forestry Branch, consisting of six divisions—Administration, Fire Control, Forest Management, Forest Research, Inventory and Silviculture—is responsible for developing and evaluating forest policies and management programs based on the findings of inventory and research. The responsibility for carrying out such policies and programs is borne by the various regional administrative authorities. For purposes of resource administration, the province, with the exception of the most northern portion, is divided into four Regions, each under the supervision of a Regional Superintendent. The Regions are subdivided into Conservation Officer Districts which vary in size according to resource base and population to be served. In the most northern part of the province, because of various special programs with northern residents, resource administration is the responsibility of the Northern Affairs Branch of the same Department. Close liaison is maintained between the Forestry Branch and the various regional authorities.

A major responsibility of the Forestry Branch is the development of techniques in the prevention, detection and suppression of forest fires. A network of 70 lookout towers equipped with two-way radios is maintained throughout the province and is supplemented by three aircraft on regular patrol duty during the high-hazard periods. A group of smoke-jumpers, trained to parachute on remote fires, is in constant readiness during the fire season and takes immediate suppression action which it maintains until relieved by overland crews. Northern Saskatchewan's communication system, with more than 875 two-way radio sets in operation in towers, vehicles, aircraft and forest camps, plays a vital role in the detection and suppression of forest fires. These activities have been assisted recently by the use of helicopters and aircraft equipped for water dropping.

Alberta.—The 157,595 sq. miles of provincial forest in Alberta are administered by the Alberta Forest Service of the Department of Lands and Forests at Edmonton. The Service is composed of five branches under a Director of Forestry—Administration, Forest Protection, Forest Management, Forest Surveys and Planning and Forestry Training.

For ease of administration the forest area has been divided into nine Divisions, each responsible for the forest within its boundaries. These Divisions are composed of Ranger Districts in which all activities are supervised by the district forest officer responsible to his divisional superintendent. The divisional staffs include: forest superintendent, assistant forest superintendent, divisional forester, chief ranger, mechanical foreman, carpenter foreman, equipment operators, scalers, land-use officers, radio operators, clerks, stenographers, and seasonal help such as standby fire crews, lookout men, general labourers and construction crews. Some Divisions have minimum security crews that are employed in forest management, protection and construction projects.

The Administration Branch supervises all branches, maintains general control over revenue and expenditure, maintains the equipment inventory and deals with personnel.

The Forest Protection Branch has charge of all phases of protection including prevention, detection, suppression and use of forest and prairie fires. The Branch also plans, supervises and executes the construction and maintenance of the road and building programs and supervises the radio communication facilities.

The functions of the Forest Management Branch include the acceptance and approval of management and annual operating plans prepared for leased and licensed Crown lands, implementation of management plans prepared by the Department, supervision of proper land-use practices and the disposal of Crown timber. This extends to all phases including the processing of timber applications, selection of timber to be sold, the cruising of merchantable timber, inspections of cutting areas to ensure proper logging and utilization practices, scaling of forest products, collection of dues and fees and the reforestation programs for areas denuded by cutting and fire.

The Forest Surveys and Planning Branch maintains the provincial forest inventory and prepares and maintains detailed inventories by management units; prepares long- and short-term management and protection plans; provides timber application forest-type maps; conducts other work pertaining to photogrammetry and forest-cover maps; develops and supervises recreational area plans; provides regulation of geophysical activities in the forest area; and provides technical drafting and mapping services to the Forest Service and the general public.

The Forestry Training Branch prepares training material and conducts training programs for Departmental personnel and other persons concerned with activities of fire control, forest management, forest protection and conservation. The Branch also organizes and supervises the activities of the Junior Forest Warden Clubs.

Two divisions and part of a third division are included in the Rocky Mountains Forest Reserve. This area is administered by the Alberta Forest Service but decisions of the Director of Forestry are based on policies of wise watershed regulation formed by the

Eastern Rockies Forest Conservation Board. The Board comprises one federal and two provincial members. This reserve includes part of the headwaters of the main prairie provinces river system.

Research in general is carried out by the federal Department of Forestry, which maintains the Kananaskis Experiment Station.

British Columbia.—The productive forest land of British Columbia in 1958 was inventoried at 208,411 sq. miles and, in addition, there were 59,227 sq. miles of forest land classed as non-productive. Of the productive area, immature timber occurred on 95,739 sq. miles; 84,275 sq. miles carried matured timber with a total volume of 251,000,000,000 cu. feet; 28,397 sq. miles, including areas of recent burn, cut-over or windfall not yet re-stocked, were unclassified.

For administrative purposes, the province is divided into five Forest Districts with regional headquarters at Vancouver, Prince Rupert, Prince George, Kamloops and Nelson. Further decentralization of authority is effected by subdivision of the Forest Districts into Ranger Districts. There are approximately 25 Ranger Districts in each Forest District. Twelve directional, servicing or policy-forming divisions constitute the head office of the Forest Service at Victoria.

Efforts continue to bring British Columbia's forest resources under sustained-yield management and the forest industries are making progress toward more complete utilization of their raw materials. The problem is urgent despite the fact that, with a present annual cut of approximately 1,340,000,000 cu. feet, the total inventory would appear sufficient to support present needs in perpetuity. One of the more spectacular results of sustained-yield administration has been the swinging of a greater proportion of the annual forest harvest to the interior of the province. The over-cut coast (wet belt) forests now account for about 58 p.c. of the total forest cut each year and the interior cut for almost 42 p.c. For all practical purposes, the entire interior forest is publicly owned; the great majority of privately owned, leased or licensed forests are on the coast.

Several systems of timber disposal are in effect. The most publicized is the Tree Farm Licence, which constitutes a contract between the government and a company or individual whereby the latter agrees to manage, protect and harvest an area of forest land for the best possible return, in exchange for the right to the timber crop on the area. Tree Farm Licences are subject to re-examination for renewal every 21 years. Provincial Forests, Public Working Circles, and Sustained-Yield Units are the governmental equivalent of the Tree Farm Licence with the timber, when it is ready for cutting, being disposed of by public auction. Of major interest is the establishment of the first "pulp harvesting" area in the vicinity of Prince George. This plan is unique in North America, calling for the integration of a "saw-log" economy with a new pulp industry. Management, silviculture, roadbuilding and protection on such areas are the responsibility of the Forest Service. Other tenures of lesser importance are Tree Farms, Farm Woodlot Licences, and those Timber Sales issued outside 'regulated' areas.

Forest fire prevention techniques and organization for effective forest fire suppression are important aspects of planned, sustained-yield management of the forest resource, and these are constantly under review by the Forest Service. Although the Forest Service does not operate its own fleet of aircraft, extensive use is made of air tankers, patrol and reconnaissance aircraft, and helicopters under seasonal contracts. The predominantly rugged topography of the province and its extensive sparsely populated areas present problems in fire detection and accessibility to fires, and aircraft are playing an increasingly important part in the key initial discovery and attack period by supplementing the fixed lookout system and ground suppression organization. Close liaison with the federal Department of Forestry, which maintains laboratories in Vernon and Victoria, provides information about insect and fungal enemies of the forest.

Subsection 3.—The Pulp and Paper Research Institute of Canada*

The Pulp and Paper Research Institute of Canada is a centre of research and learning concerned with virtually every aspect of the production and use of pulp and paper products. It was established in 1913 as a branch of the Dominion Forest Products Laboratories and in 1927 was reorganized under the joint sponsorship of the Canadian Pulp and Paper Association, the Federal Government and McGill University. The Institute staff carries out fundamental research and some applied research in the fields of woodland operations and pulp and paper mill operations. In addition, in co-operation with McGill University, it trains postgraduate students who are working toward master's and doctorate degrees in physical chemistry, wood chemistry, or chemical and mechanical engineering, and whose theses subjects lie in fields of interest to the pulp and paper industry.

The Institute occupies a building on the McGill campus erected by the pulp and paper industry and a building at Pointe Claire on the western outskirts of Montreal constructed by the Government of Canada. The Institute's facilities include: organic and physical chemistry, physics, hydraulics and engineering laboratories; pilot plants for chemical pulping, pulp and chip refining and waste liquor pyrolysis; a greenhouse and other facilities for woodlands research; an extensive library; shops and special facilities for pulp and paper testing and for photographic and microscopic (both light and electron) studies of wood, pulp and paper. It has a staff of about 180.

The Institute's research activities comprise a basic program in pulp and paper research and in woodlands research, contract research, and technical services. The basic pulp and paper research program is supported by assessments from the Maintaining Membership (some 42 companies, representing more than 100 mills and about 95 p.c. of the total production of the Canadian industry) and by a grant from the Canadian Pulp and Paper Association. The woodlands research program is supported by assessments on all member companies of the Canadian Pulp and Paper Association east of the Rockies that use pulpwood and by a grant from the Association. Both programs comprise research of interest to the industry broadly, as distinct from that which is the concern of a single company only.

The projects in the basic programs range from studies of the growing seedling in the forest to the converted pulp and paper product, and fall into seven broad classifications: woodlands, mechanical pulping, chemical pulping, paper making, process control, product quality and waste utilization. The Institute is regarded as a centre for broad, long-range and uninterrupted studies of basic principles and for major engineering research and development projects which individual pulp and paper companies would find difficult to justify if the costs were not shared. Moreover, the Institute is a centre of highly specialized equipment and manpower which individual companies would not normally have.

In addition to its permanent staff, the Institute, in co-operation with McGill University, has some 40 graduate students working on fundamental projects in the background of pulp and paper technology, which also serve as their theses topics. The head of the Institute's Wood Chemistry Division, who is also Chairman of the Chemistry Department and the E. B. Eddy Professor of Industrial and Cellulose Chemistry at McGill, directs graduate student work on such subjects as the behaviour of the materials of which wood is made—cellulose, lignin and hemicelluloses. The head of the Institute's Physical Chemistry Division, also a Research Associate in the McGill Chemistry Department, directs graduate student work in the physical chemistry of fibres, e.g., the forces that cause cellulose fibres in a water suspension to mat together to form paper. An Associate Professor of Chemical Engineering at McGill, who is a consultant to the Institute, directs graduate students in such chemical studies as the rate of drying of droplets and fibres. In addition, other members of the Institute's staff who likewise hold concurrent honorary positions at McGill assist in this student training program.

* Prepared by B. W. Burgess, Secretary, Pulp and Paper Research Institute of Canada, Montreal, Que.

The Institute also undertakes contract research projects on a cost-reimbursement basis for individual companies or groups of companies in the pulp and paper or allied fields. The larger of these co-operative contracts have been concerned with problems of particular segments of the Canadian pulp and paper industry, such as the investigation into the causes of corrosion in alkaline pulping equipment and the study of the rapid deterioration of paper machine wires.

A further function of the Institute is to provide a broad range of technical information services to the industry and, to some extent, to other industries and the public. It maintains a specialized library for this purpose which stocks bibliographies, abstracts, translations and critical reviews for the use of the scientific staff and the industry.

CHAPTER XIII.—MINES AND MINERALS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

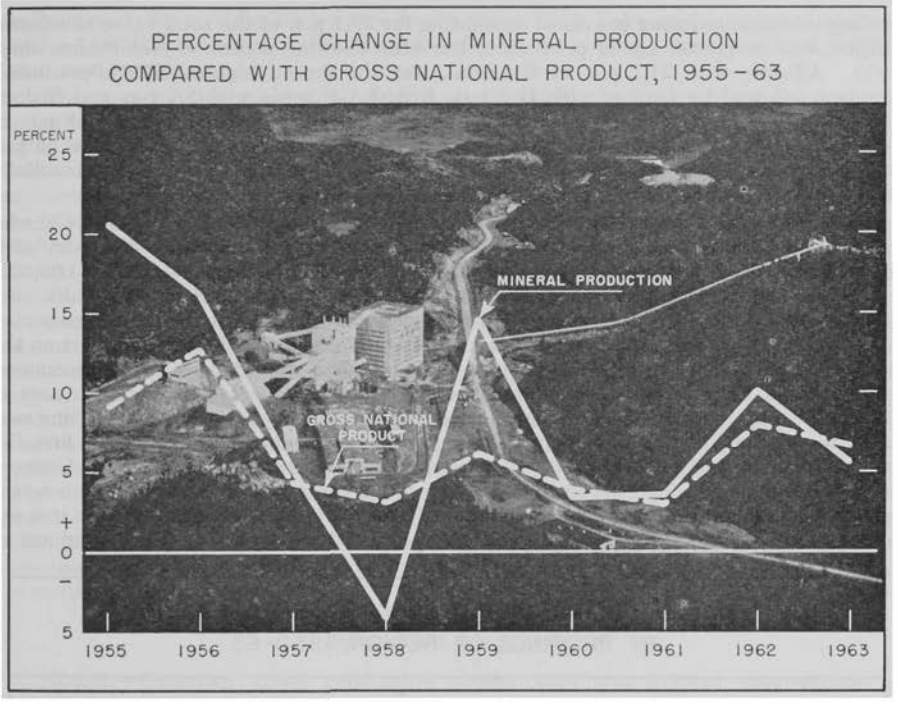
Section 1.—Canada's Mineral Industry, 1962-63*

Canada's mineral industry continued to grow and diversify in 1963 as production value reached an all-time high of $3,000,000,000. Each of the three sectors of the industry—metals, industrial minerals, and mineral fuels—contributed to the 5.3-p.c. over-all increase in output, with mineral fuels production registering the largest advance.

The growth of the industry may also be measured by the index of physical volume of mineral production which reached a new high at 294 (base 1949 = 100), up from 287 the previous year. The metals index was 194 compared with 198 in 1962; the industrial minerals index rose from 222 to 228; and the mineral fuels index advanced sharply from 481 to 514. The per capita value of mineral output rose in 1963 to an estimated $158.94 from the previous high of $153.53 in 1962; in 1950 it was $76.24. Since 1950, per capita mineral production has increased at an average annual rate of 5.9 p.c. compared with an average annual gain of 4.3 p.c. in per capita value of Canada's gross national product (GNP), as measured in terms of current dollars.

In addition to a new record for the value of mineral production in 1963, the mineral industry experienced a very successful year from several other points of view. Exploration activity and investment generally remained at high levels and accelerated in some directions. Development of properties for production and expansion of established facilities provided for further gains in output and greater diversification in the years ahead. The export of minerals in the form of ore and raw materials and in semi-processed forms continued to account for about one third of Canada's total merchandise exports, which in 1963 were worth $6,800,000,000. The Canadian mineral industry remained in the forefront among world producers in market development and in the adoption of mining, milling

*Prepared under the direction of Dr. W. E. van Steenburgh, Deputy Minister of Mines and Technical Surveys, Ottawa, in the following Divisions: Introduction and Subsections 1 and 3 by the Mineral Resources Division; Subsection 2 by the Mineral Processing Division, Mines Branch; and Subsection 4 by the Fuels and Mining Practice Division, Mines Branch.



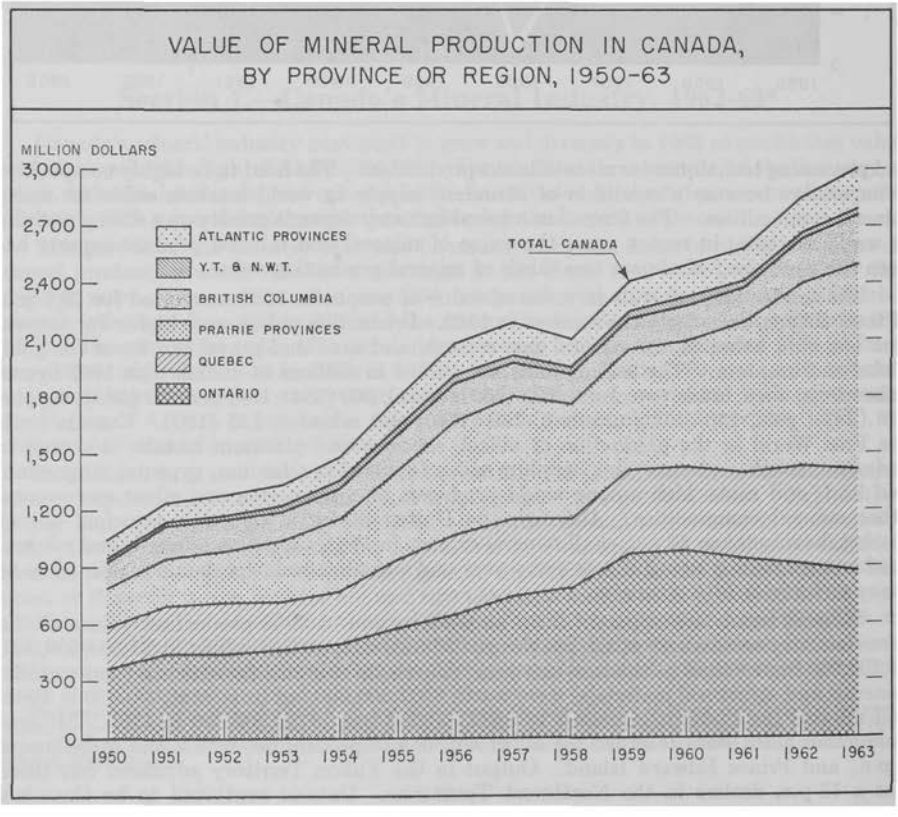
and processing techniques for more efficient production. The need to be highly competitive is imperative because a condition of abundant supply in world markets exists for many mineral commodities. The Canadian mineral industry depends greatly on a strong position in world markets; in recent years the value of mineral and mineral product exports has been the equivalent of almost two thirds of mineral production value.

The ten leading minerals in terms of value of output in 1963 accounted for 78.7 p.c. of total output, essentially the same as in 1962. Production values were higher for copper, iron ore, zinc, asbestos, oil, natural gas, cement, and sand and gravel but lower for gold, nickel and uranium. The leading minerals, valued in millions of dollars with 1962 figures in brackets, were: crude petroleum, 633 (552); nickel, 363 (384); iron ore, 292 (263); copper, 288 (283); gold, 150 (156); uranium, 149 (158); and asbestos, 135 (130). Canada leads the Free World in the production of nickel, asbestos and platinum metals; is second in cadmium, cobalt, uranium, zinc, sulphur and gold; third in titanium, gypsum, magnesium and lead; and ranks high among world producers of copper, iron ore, silver and several other mineral commodities. Although the United States is Canada's principal export market, having taken 60 p.c. of all mineral exports in 1963, Canadian minerals and mineral products are finding new markets every year and some mineral exports are marketed in as many as forty or fifty countries.

Mineral trends are apparent from an examination of 1963 production values of the three industry sectors and of the provinces. Metals output was valued at $1,504,500,000, $8,100,000 higher than in the previous year; shipments of industrial minerals (non-metallic minerals and structural materials) were worth $607,500,000, up from $566,000,000 in 1962; and mineral fuels output increased to $882,400,000 from $780,900,000 in 1962. Mineral production gains were recorded for all provinces except Ontario, which had a decline of 4 p.c., and Prince Edward Island. Output in the Yukon Territory advanced but there was a 13-p.c. decline in the Northwest Territories. Ontario continued to be Canada's

leading mineral-producing province, accounting for 29.1 p.c. of the total value of mineral output, but its percentage of production has been showing a year-to-year decline since 1959. Alberta, with 21.1 p.c. of the total, was the second highest mineral-producing province followed by Quebec with 17.9 p.c., British Columbia with 8.7 p.c. and Saskatchewan with 9.3 p.c. Thus, Ontario, Quebec and Alberta accounted for over 68 p.c. of the country's total output. Provincially, Alberta had the largest gain in mineral output in 1963 ($68,500,000) followed by British Columbia ($25,300,000) and Newfoundland ($19,900,000).

The following were representative of new mineral developments in Eastern Canada. In Newfoundland, one company commenced asbestos production in a 5,000-ton-a-day mill; in Labrador, one company started producing high-grade iron ore pellets at a 5,000,000-ton-a-year facility at Labrador City and another, with property near Wabush Lake, continued mine development, construction of railway and port facilities and started construction of a 5,000,000-ton-a-year pellet plant at Pointe Noire, Que., the shipping port on the St. Lawrence River. In Quebec, Eastern Canada's first zinc refinery began production at Valleyfield, near Montreal. Three copper-zinc mines in the Mattagami Lake area in the northwestern part of the province commenced production and shipped their zinc concentrates to the Valleyfield refinery. A large iron ore producer completed its first full calendar year of concentrate production from an 8,000,000-ton-a-year plant at Gagnon. In Ontario, mine development and plant construction continued on a 1,000,000-ton-a-year iron ore pellet operation southeast of Kirkland Lake. A tripling in capacity of an iron ore pellet plant to 750,000 long tons a year was completed at Copper Cliff. A producer of



medium-grade direct shipping iron ore in the Steep Rock Lake area announced plans to build a 1,000,000-ton-a-year pellet plant to pelletize the screened fines from its 2,500,000-ton-a-year operation.

The more notable mineral developments of 1963 in the four western provinces included the first year of major production of potash in Saskatchewan, with output amounting to an estimated 1,000,000 tons. Output of elemental sulphur in Alberta and British Columbia from the processing of natural gas increased greatly and there was a much-improved sulphur market in Canada, the United States and across the Pacific. The year-end production target of 800,000 bbl. a day of crude petroleum and natural gas liquids was reached. Steady gains were recorded in natural gas production and consumption. The mining industry maintained a high rate of activity in exploration and development of iron ore and base-metal properties, with several mines commencing production.

Canada can look forward with much assurance to continuing expansion of its mineral resource base and steady production growth; its prominent position as a world mineral producer will thereby be maintained and, perhaps, even enhanced. There are many projects under way, both large and small in the three sectors of the industry, which will result in higher output and greater production-diversification. There is, happily, no feeling of self-complacency over past achievements in the industry but rather one of expectancy concerning future major developments. The important base metals discovery made in early 1964 by Texas Gulf Sulphur Corporation in the Timmins area of Ontario gave a great impetus to mineral exploration. Much of the country's favourable mineral-bearing lands, particularly in the northern two thirds of the country, remain unexplored and there is no reason to believe that these areas will be any less productive in mineral wealth than the southern third.

Subsection 1.—Metals

Nickel.—Canadian nickel production during 1963 was 218,649 tons valued at $362,781,957, slightly less than in 1962. The industry operated at about 93 p.c. of its rated capacity. Canada is traditionally the world's leading supplier of nickel and accounts for about 80 p.c. of Free World production. The leading producers—The International Nickel Company of Canada, Limited and Falconbridge Nickel Mines, Limited—are the world's largest.

Near Sudbury, Ont., International Nickel operated six mines—the Creighton, Frood-Stobie, Garson, Levack and Murray underground mines and the Clarabelle open pit. Also near Sudbury, Falconbridge operated five mines—Falconbridge, East, Hardy, Onaping and Fecunis. As a result of a production cut, the East mine was closed and production was reduced at the other four mines. The company completed and opened a $1,000,000 addition to its research centre at Thornhill, Ont.

In Manitoba, the Lynn Lake mine of Sherritt Gordon Mines Limited operated at capacity though at slightly lower grade than in 1962. It had a good market for its nickel products sold in briquette and powder forms. The only major change at the Thompson mine of International Nickel was the decision to sink a service shaft at a location on the edge of Thompson Lake.

Several smaller nickel mining operations made good progress in 1963. The Gordon Lake mine of Metal Mines Limited in northwestern Ontario began production with a mill designed to treat 500 to 700 tons daily, although difficulties were experienced in reaching capacity because of poor ground conditions in the mine. A bulk nickel-copper concentrate is trucked to Lac du Bonnet, Man., and shipped to Copper Cliff, Ont., for smelting. The Marbridge Mines Limited mine in La Motte township, Que., was operating at close to its daily capacity of 400 tons. Bulk nickel-copper flotation concentrates, amounting to about 2,800 tons a month, are trucked to Falconbridge, Ont., for smelting. Lorraine Mining Company was shaft sinking to 1,000 feet on its property in the Belleterre area of Quebec. Indicated ore reserves to 800 feet are 550,000 tons of 2.1 p.c. combined nickel-copper. Giant Mascot Mines Limited, near Hope, B.C., treated about 1,200 tons of ore

daily for 23 days each month. Bulk nickel-copper concentrates are exported to Japan. After installation of new equipment, daily mill capacity in 1964 will be about 1,500 tons.

There were no price changes for nickel during the year. Prices remained at 84 cents a lb. for Canada and 79 cents for the United States, both f.o.b. Port Colborne, Ont. The United States price includes import duty of 1¼ cents a lb.

Copper.—Mine production of copper increased slightly over 1962 but there was a minor decline in the output of refined copper; total mine output was 458,735 tons valued at $287,704,456 in 1963. Increased production in British Columbia, Manitoba and New Brunswick offset reductions in Ontario, Quebec, Newfoundland and Saskatchewan. There was no production from the Yukon and Northwest Territories. Five mines started production in 1963 and 12 were under development. A sustained demand for copper has stimulated prospecting in all the copper-producing provinces and territories.

Six smelters for the reduction of copper and copper-nickel ores and concentrates are operated in Canada. In the Sudbury district of Ontario, International Nickel operates smelters at Copper Cliff and Coniston, and Falconbridge Nickel Mines produces copper-nickel matte at its Falconbridge smelter. Hudson Bay Mining and Smelting at Flin Flon, Man., smelts concentrates from its mines in Manitoba and Saskatchewan and copper concentrates from Sherritt Gordon's mine at Lynn Lake, Man. Ores and concentrates from most of the copper mines in Ontario, Quebec and Newfoundland are smelted at the Noranda smelter of Noranda Mines, Limited and the Murdochville smelter of Gaspe Copper Mines, Limited, both in Quebec. Copper refineries are operated by International Nickel at Copper Cliff, Ont., and by Canadian Copper Refiners Limited at Montreal East, Que. Production of refined copper in 1963 was 378,911 tons, 1 p.c. less than in 1962.

Production from the three copper-producing mines in Newfoundland totalled 14,058 tons valued at $8,856,369. At Baie Verte, Consolidated Rambler Mines Limited started construction of a 400-ton-a-day mill in preparation for production in 1964. New Brunswick's copper production totalled 8,150 tons valued at $5,134,500, more than double the 1962 output. Production was obtained from the Wedge mine of The Consolidated Mining and Smelting Company and from Heath Steele's mine both in the Newcastle–Bathurst district. Brunswick Mining and Smelting Corporation Limited near Bathurst was building a 4,500-ton-a-day concentrator in preparation for production in 1964.

The combined output of Quebec's 21 copper-producing mines was 145,019 tons valued at $91,362,122, slightly less than in 1962 because of the continuation of production curtailments at Noranda's Horne mine and Gaspe Copper's Needle Mountain mine, and a prolonged strike at the property of Solbec Copper Mines, Ltd. In the Mattagami Lake area, Mattagami Lake Mines Limited, New Hosco Mines Limited and Orchan Mines Limited started production from their mines in October. In the Noranda–Val d'Or–Normetal area, Lake Dufault Mines Limited completed an initial shaft-sinking program and began development of its massive copper-sulphide orebody. Construction of a 1,300-ton-a-day mill was started with production scheduled for 1964. North of Amos, Rio Algom Mines Limited and Joutel Copper Mines Limited continued underground exploration at their respective properties.

Production curtailments at the mines of International Nickel and Falconbridge in the Sudbury area reduced Ontario's copper output by about 5 p.c., to 180,058 tons valued at $112,137,657. Ontario's producing mines were: Geco and Willroy at Manitouwadge; North Coldstream at Kashabowie; Rio Algom's Pater at Spragge; Kam-Kotia and McIntyre at Timmins; International Nickel (six mines, three mills and two smelters) and Falconbridge (four mines, three mills and a smelter) in the Sudbury district. Kam-Kotia Porcupine Mines, Limited continued underground development of its new orebody and production from it will start in 1964. McIntyre-Porcupine Mines, Limited started production from its low-grade copper orebody in July. Concentrates were shipped to Copper Cliff for smelting by International Nickel. Prospecting parties have been active in northwestern Ontario between Sault Ste. Marie and Port Arthur since the discovery of copper mineralization in the Batchawana area.

In Manitoba–Saskatchewan, Hudson Bay Mining and Smelting Co., Limited, Sherritt Gordon Mines Limited and Stall Lake Mines Limited had a combined output of 47,165 tons of copper valued at $29,714,095, an increase of 5 p.c. over 1962. Hudson Bay operated a central mill and smelter on ores from the Schist Lake and Chisel Lake mines in Manitoba, the Coronation mine in Saskatchewan and the Flin Flon mine that straddles the Manitoba–Saskatchewan boundary. The company continued development and exploration of its Stall Lake and Osborne Lake mines near Snow Lake, Man.

Copper production in British Columbia at 63,964 tons, worth $40,297,518, set a new record, exceeding the 1962 value by about 19 p.c. The producing mines were: Cowichan Copper's Sunro at River Jordan and Coast Copper at Benson Lake on Vancouver Island; Britannia at Britannia Beach; Bethlehem in Highland Valley; Craigmont at Merritt; and Phoenix at Greenwood. Bethlehem Copper Corporation increased its mill capacity from 3,300 tons of ore a day to 4,000 tons a day. Western Mines Limited continued surface and underground exploration at its property at the south end of Buttle Lake on Vancouver Island. Granduc Mines Limited on the Unuk River and Granisle Copper Limited on an island in Babine Lake were conducting studies on the feasibility of bringing their properties into production. Exploration parties were active in all parts of British Columbia.

Iron Ore.—The Canadian iron ore industry in 1963 experienced its second consecutive record year; shipments were 30,134,598 short tons, up over 10 p.c. from 1962. The gain was largely the result of higher steel production rates in the United States. All producing provinces shared in the increase but some companies that shipped medium-grade ore encountered lower sales and prices. This was a reflection of a general trend in all consuming countries whereby steel companies are demanding ore of high grade and good physical characteristics. In their efforts to meet these demands, many Canadian ore producers are conducting research programs to develop economical beneficiation processes to improve their ores.

There are five main market areas for Canadian iron ore—the United States, Britain, Western Europe, Japan and Canada. The United States is the principal market and iron ore consumption there rose by 7,500,000 long tons in 1963. United States mines accounted for half of this increase and Canadian mines for most of the remainder. Canadian iron ore shipments to the United States increased mainly because of production capability increases of two large producers owned by United States steel companies; these companies produce high-grade concentrate or pellets particularly suitable for the United States market. On the other hand, non-captive sales of medium-grade ore to the United States continued to weaken. In Western Europe, steel production rates continued on a plateau after a decade of continuous, rapid growth. Canadian iron ore exports to Britain increased but this was because a large tonnage contracted for delivery in 1962 was postponed until 1963. Substantial shipments of high-grade concentrates and pellets from Labrador were made to Britain for the first time; exports to Britain and Western Europe in the past had always been of medium-grade ore. Canadian ore sales to Western Europe continued to decline because of competition from new sources of high-grade ore in Africa, Asia and South America. Activity in the Japanese steel industry picked up again in 1963, following a pause in 1962. Canadian shipments of iron ore to Japan, all from British Columbia, reflected the increase in steel production.

Despite Canada's rapidly expanding iron mining industry, nearly two thirds of the iron ore consumed in this country is imported from the United States. There are several reasons for this but mainly it is because Canadian consumers participated in the development of United States mines or established commercial ties with United States merchant companies prior to 1950, when little ore was mined in Canada. However, Canadian steel companies have recently participated in domestic mining ventures and an increasing proportion of consumption will be of domestic ore. Consumption of domestic ore increased by nearly 10 p.c. in 1963 but imports were about 12 p.c. higher. In 1965 a new producer

in Labrador will begin production of concentrates and pellets and nearly 2,000,000 long tons a year of captive ore will be taken by Canadian steel companies that have interests in the company.

Canadian iron ore producers continue to benefit from the stabilization of the external value of the Canadian dollar at a rate below that of the United States, since most sales contracts specify prices in United States dollars. This benefit is partly offset by increased costs of machinery and equipment imported for property development and production.

In 1963, fourteen companies were directly engaged in iron mining—one in Newfoundland, one with mines in Labrador and Quebec, two in Quebec, five in Ontario, and five in British Columbia. A sixth mine in Ontario shipped small tonnages from stockpile. In addition, four companies shipped iron ore produced as a byproduct of base-metal operations. Iron Ore Company of Canada, with direct-shipping ore deposits astride the Labrador–Quebec border at Schefferville (Que.) and concentrating-grade deposits near Labrador City (Nfld.), is the largest producer, accounting for nearly 40 p.c. of 1963 shipments. Wabana Mines of Dominion Steel and Coal Corporation, Limited, producing medium-grade concentrate from underground mines on Bell Island, Nfld., accounted for 4.3 p.c. of the year's shipments. Quebec Cartier Mining Company's shipments of high-grade concentrate from its operations at Gagnon, Que., made up 23.4 p.c. of 1963 shipments, making it Canada's second largest producer, and high-grade pellets from Hilton Mines, Ltd. near Shawville, Que., accounted for another 3.2 p.c. In Ontario, Algoma Ore Properties Division of The Algoma Steel Corporation, Limited operates mines and a sinter plant at Wawa and accounted for 6.3 p.c. of 1963 shipments. Marmoraton Mining Company, Ltd. produces high-grade pellets at its mine and plant near Marmora, and Lowphos Ore, Limited produces a similar product near Capreol. These two companies shipped 1.4 p.c. and 1.8 p.c., respectively, of Canada's total in 1963. In the Steep Rock Lake area, Caland Ore Company Limited and Steep Rock Iron Mines Limited produce medium-grade, direct-shipping ore and concentrate; they accounted for 7.4 p.c. and 3.5 p.c., respectively, of Canadian shipments. Five British Columbia producers ship magnetite concentrate to Japan and accounted for 6.6 p.c. of Canadian shipments. Byproduct iron ore was produced by the Consolidated Mining and Smelting at Kimberley, B.C., and by International Nickel and Falconbridge Nickel Mines in the Sudbury area. Noranda Mines shipped from stockpile at Cutler, Ont.

Several companies were preparing for iron ore production in 1963. In Labrador, Wabush Mines will produce up to 5,500,000 long tons of iron ore concentrate annually, beginning in 1965; up to 4,900,000 tons of this concentrate will be pelletized in a plant being built at Pointe Noire, Que. Jones & Laughlin Steel Corporation will begin production of high-grade pellets, up to 1,000,000 long tons a year, at a new mine plant near Kirkland Lake, Ont.; it is scheduled for completion in 1964. In British Columbia, Coast Copper Mines Limited will begin recovery in 1964 of 250 long tons of magnetite concentrate a day as a byproduct from copper ore at its mine on northern Vancouver Island.

Gold.—In 1963 the average Royal Canadian Mint price for gold rose to $37.74 an oz.t. in Canadian funds from $37.41 in 1962. Despite the higher price, gold production decreased to 3,979,003 oz.t. valued at $150,175,632 from 4,178,396 oz.t. valued at $156,313,794 the previous year. On May 2, 1962, the Canadian dollar was stabilized at 92½ cents in terms of the U.S. dollar but could fluctuate 1 p.c. either side of the fixed value. The range in value for the Canadian dollar was thus set at from $0.916 to $0.934 in relation to the U.S. dollar and the corresponding Mint price for gold between $37.46 and $38.22 per oz.t.

An Act to amend the Emergency Gold Mining Assistance Act was passed by the House of Commons on Dec. 9, 1963. This amendment extended the Act to the end of the calendar year 1967, without changing the present method of computing the amount of assistance payable. New provisions in the Act required, however, that new lode gold mines commencing production after June 1965 must provide direct support to existing gold

mining communities to qualify for cost assistance. Despite continuing cost assistance, many gold mines were having difficulty in continuing to operate. Increased depth of mining and lower grades of ore available for mining increased operating costs. Two small gold mines ceased operating in 1963 and several others were expected to close late in 1964 or early in 1965. No new gold mines opened in 1963 but a few small ones were expected to start producing in 1964-65.

A total of 50 lode gold mines operated during 1963 and of these 42 received cost assistance under the terms of the Emergency Gold Mining Assistance Act. Mines not eligible for cost assistance sold most of their gold on the open market. During the year, the proportion of gold coming from lode gold mines decreased to 82.6 p.c. from 83.4 p.c. and by-product gold recovered from base-metal ores increased to 16.0 p.c. from 15.3 p.c. Placer gold accounted for 1.4 p.c. compared with 1.3 p.c. in 1962.

Ontario was again the main producer, accounting for 58.5 p.c. of the 1963 gold output compared with 58.0 p.c. in 1962, but production was lower at an estimated 2,326,433 oz.t. compared with 2,421,249 oz.t. in 1962. Only the Kirkland Lake area and Port Arthur mining division showed increases. Twenty-nine lode gold mines operated in the province, the same as in 1962, but H. G. Young Mines Limited in the Red Lake mining division closed in March. Twelve mines operated in the Porcupine district, the chief producers being Hollinger Consolidated Gold Mines, Limited (Canada's second-largest gold producer), McIntyre-Porcupine Mines, Limited and Dome Mines Limited. In the Red Lake–Patricia mining divisions, seven mines operated, the chief producers being Campbell Red Lake Mines Limited, Madsen Red Lake Gold Mines Limited and Dickenson Mines Limited. In the Larder Lake area, Kerr Addison Mines Limited had a 22-p.c. drop in gold output but still remained Canada's largest gold producer. In the Kirkland Lake area, five mines operated, the main producers being Macassa Gold Mines Limited, Wright-Hargreaves Mines, Limited and Upper Canada Mines, Limited. In the Port Arthur mining division, three mines operated, with Consolidated Mosher Mines Limited being the largest producer. Renabie Mines Limited continued operations in the Sudbury mining division. Some 64,000 oz.t. of gold were recovered as a byproduct from base-metal ores in Ontario, mainly from the nickel-copper mines of the Sudbury district. No placer gold production was reported.

Quebec produced 23.4 p.c. of Canada's gold output compared with 23.8 p.c. in 1962. Thirteen lode gold mines operated, one fewer than in 1962, and production was estimated at 931,621 oz.t. compared with 993,560 oz.t. Eldrich Mines Limited ceased operating in December 1962. The largest lode gold producers were Lamaque Mining Company Limited and Sigma Mines (Quebec) Limited, both at Bourlamaque, and East Malartic Mines, Limited at Malartic. Several prospective gold producers were under development. Gold recovered as a byproduct from base-metal ores represented 44.6 p.c. of the provincial total compared with 41.6 p.c. in 1962. No placer gold was reported.

The Northwest Territories produced 9.5 p.c. of the gold recovered compared with 9.6 p.c. in 1962. All production came from lode mines in the Yellowknife district and totalled 378,520 oz.t. compared with 400,292 oz.t. in 1962. Four mines operated with Giant Yellowknife Mines Limited, Canada's third largest gold producer, being the main producer.

British Columbia produced 3.9 p.c. of Canada's output compared with 3.8 p.c. in 1962; recovery was 156,000 oz.t. compared with 159,492 oz.t. The only two large lode gold mines operating were Bralorne Pioneer Mines Limited and The Cariboo Gold Quartz Mining Company, Limited. Byproduct gold from base-metal ores accounted for 30.4 p.c. of the total in 1963 and placer recovery for 1.9 p.c.

Manitoba and Saskatchewan together accounted for 3 p.c. of the Canadian total. Most of the output came from the Flin Flon base-metal mining area and from the San Antonio gold mine. In the Yukon Territory, all gold recovered came from placer operations. The dredging and hydraulicking operations of The Yukon Consolidated Gold

Corporation Limited in the Dawson City area recovered about 75 p.c. of Canada's total placer gold production. The small gold output of the Atlantic Provinces came as a by-product of base-metal production.

Uranium.—Canada has been one of the world's leading producers of uranium since the metal became important as a fissionable material for military purposes and, more recently, in the development and production of atomic energy for electric power generation. One of the largest known deposits in the world is in Canada where present reserves represent about 37 p.c. of the total in the non-communist world. The production of uranium in Canada has been characterized by features which are unique in this country because the industry was started by the Canadian Government at a time of emergency and, unlike other minerals, the sale of uranium products is government controlled.

The rapid growth of the uranium mining industry since World War II was a remarkable achievement. In 1958, Canada was the world's leading producer of uranium and the value of U_3O_8 produced in both 1958 and 1959 exceeded the value of any other Canadian-produced metal. As an export commodity, uranium ranked fourth in value in 1959 following newsprint, wheat and lumber. Production from 25 mines in that year was 15,892 tons of U_3O_8 valued at $331,000,000. Since 1959, however, the decline in production, resulting from declining export markets, has been almost as rapid as the spectacular rise from 1953 to 1959. In 1963, 8,141 tons were produced and at the end of the year only seven mines were in operation; it is expected that the number will be reduced to two by the end of 1965.

The present surplus of uranium in the United States and Britain, the major consuming countries to which Canada has been shipping, makes it unlikely that demand will rise again before the 1970's. Practically all of Canada's uranium was sold under contract to the United States Atomic Energy Commission (USAEC) and the United Kingdom Atomic Energy Authority (UKAEA). The United States, Canada's largest customer, announced in 1959 that it would not exercise its option to purchase additional uranium from Canada. To prevent a collapse of the industry in 1962 and 1963, when the USAEC contracts would expire, the Government of Canada, through Eldorado Mining and Refining Limited (see p. 121), negotiated a delivery stretch-out for the uranium already under contract with the USAEC and the UKAEA. This plan also permitted the transfer of contracts between companies. By September 1968, when the stretch-out period ends, most companies will have fulfilled their original contracts and any additional ones they may have acquired through transfers from other companies.

In 1962, a contract was signed with the UKAEA for the delivery of 12,000 tons of U_3O_8 over a period extending until late 1971. This contract permitted each of the seven mining companies, which were still operating in 1962, to extend its operating life approximately 16.7 months past the completion date of its previous commitments. However, only one mine will be able to stretch out its production into 1971.

Procurement and marketing of most of the uranium produced in Canada is the responsibility of Eldorado Mining and Refining Limited. Canadian producers are permitted, however, to make small sales of surplus uranium (U_3O_8) to countries that do not hold agreements with Canada for co-operation in the peaceful uses of atomic energy. The maximum amount that any such country may receive in total from Canada is 2,500 lb. Producers may also sell larger amounts, under permit from the Federal Government, directly to countries that hold bilateral agreements with Canada, but sales of this nature have been small.

Ore reserves as of Jan. 1, 1964, were estimated at 225,000,000 tons containing 207,000 tons of recoverable uranium oxide (U_3O_8) and about 82,000 tons of thorium oxide (ThO_2). Reserves in the conglomeratic deposits in the Blind River–Elliot Lake district of Ontario constitute 93 p.c. of Canada's total. Reserves in pitchblende-bearing vein-type deposits in the Beaverlodge Lake area of northern Saskatchewan comprise 6 p.c. and the pegmatitic deposits in the Bancroft area of southeastern Ontario make up about 1 p.c. Scheduled deliveries of U_3O_8 to the USAEC and the UKAEA from 1964 to 1971, inclusive, total 16,851

tons. Thus, by the end of 1971 Canada's reserves will be approximately 190,000 tons of recoverable U_3O_8 if no further exploration is undertaken before then. Domestic requirements of uranium for nuclear power purposes will not appreciably affect Canada's ability to export uranium in the future.

Lead and Zinc.—Based on the lead content of ores and concentrates exported and the lead recovered domestically from ores and concentrates, Canada's estimated production of lead in 1963 was 205,899 tons, slightly less than in 1962. Small increases reported by a number of mines were offset by declines in shipments that resulted, in part, from prolonged strikes at the Solbec mine in the Eastern Townships of Quebec and the Reeves MacDonald mine in southeastern British Columbia. Canada's average annual lead prices during 1963 and 1962 were 11.04 and 9.93 cents a lb. Exports of lead ores and concentrates went to Belgium, the United States, West Germany and Britain, the United States, by far the largest importer, receiving 27,103 tons or 50 p.c. of the total. Lead metal exports totalling 97,144 tons went to 16 countries including Britain and the United States which, respectively, received 44,080 and 31,690 tons; the two together took 78 p.c. of total lead metal exports.

Like lead, estimated production of zinc in all forms, including that from zinc plant residues, at 457,517 tons was slightly lower than in 1962. Most of the decrease was accounted for by the reduced output of the Solbec mine in Quebec and the Reeves MacDonald mine in British Columbia. Output of refined zinc was 283,380 tons, slightly higher than in 1962. The average price for the year was 12.20 cents a lb.; in 1962 it was 11.50 cents. Exports of zinc ore concentrates, totalling 213,044 tons, went mainly to the United States (156,964 tons), Belgium (14,379 tons), Norway (13,035 tons) and Britain (10,616 tons). The remaining 18,050 tons went to four other countries. Of the 25 countries that imported zinc metal from Canada in 1963, Britain, the United States, India and the Netherlands accounted for 186,765 tons, or 94 p.c. of the 200,002 tons exported. By far the largest amounts went to Britain and the United States which imported 82,857 and 74,251 tons, respectively.

All of the Yukon Territory's production of lead and zinc was accounted for by United Keno Hill Mines Limited, which operates mines in the Mayo district some 200 miles north of Whitehorse.

British Columbia's production was mainly from the southeastern part of the province with most of the production being accounted for by The Consolidated Mining and Smelting Company of Canada Limited which operates the Sullivan mine at Kimberley, the H. B. mine at Salmo and the Bluebell mine at Riondel. Daily lead-zinc ore production from these three mines was, respectively, 10,000, 1,200 and 700 tons. Other large producers in this part of the province included Canadian Exploration, Limited at Salmo, Reeves MacDonald Mines Limited at Remac and Sheep Creek Mines Limited at Toby Creek. British Columbia's only producer of copper-zinc ore was the Anaconda Company (Canada) Ltd. which operates the Britannia mine some 20 miles north of Vancouver. There are a number of smaller lead-zinc producers in British Columbia and Consolidated Mining and Smelting treats concentrates from most of these properties, as well as some Yukon Territory and foreign concentrates, at its Trail smelter.

All of Saskatchewan's output of zinc came from the large base-metal mine at Flin Flon operated by Hudson Bay Mining and Smelting Co., Limited. This mine, which straddles the Saskatchewan–Manitoba boundary, was also the source of most of Manitoba's zinc and some of its lead. Other mines operated by Hudson Bay in the Flin Flon area and the Chisel Lake mine in the Snow Lake area of Manitoba accounted for a significant portion of Manitoba's output of lead and zinc. Stall Lake Mines Limited in the Snow Lake area began, in 1963, to mine copper-zinc metal ore at about 100 tons daily. This ore plus all the ore mined by Hudson Bay was concentrated in Hudson Bay's 6,000-ton mill at Flin Flon.

Ontario's two producers of lead and zinc were Geco Mines Limited and Willroy Mines Limited, both of which mine copper-zinc-lead ore at Manitouwadge, north of Lake Superior.

The companies' main products are copper and zinc concentrates; only small amounts of lead concentrate are produced. At Port Maitland on Lake Erie, zinc concentrates from Ontario and Quebec mines are roasted by Sherbrooke Metallurgical Company Limited.

Quebec's lead and zinc production was less than in 1962, due for the most part to the five-month strike at the copper-zinc-lead mine in the Eastern Townships operated by Solbec Copper Mines, Ltd. and to the October 1962 closure of the copper-zinc mine at Noranda operated by Waite Amulet Mines, Limited. Besides Solbec, there were three other producers of ores containing recoverable amounts of lead—The Coniagas Mines, Limited at Bachelor Lake and Manitou-Barvue Mines Limited at Val d'Or in northwestern Quebec, and New Calumet Mines Limited on Grand Calumet Island in the Ottawa River. These three companies produced substantial amounts of zinc; Manitou-Barvue was also a copper producer. Other sources of zinc were the copper-zinc ores mined in northwestern Quebec where two new companies came into production—Mattagami Lake Mines Limited and Orchan Mines Limited in the Mattagami Lake area. The electrolytic zinc reduction plant of Canadian Electrolytic Zinc Limited at Valleyfield near Montreal was placed in operation in October. Concentrates were obtained from several mines in Ontario and Quebec, including the two new producers in the Mattagami Lake area of Quebec. When operating at capacity, production will be at the rate of 200 tons of zinc metal daily.

In the Atlantic Provinces, three companies accounted for all the production. American Smelting and Refining Company, the operator of a zinc-lead-copper mine at Buchans, Nfld., was the largest producer. Magnet Cove Barium Corporation and Heath Steele Mines Limited operated mines at Walton, N.S., and in the Bathurst area of New Brunswick.

In 1963, exploration and development activity was widespread, being concentrated in the Bathurst area of New Brunswick, in northwestern Quebec, in the Snow Lake area of Manitoba, at Pine Point in the Northwest Territories and at Buttle Lake near the centre of Vancouver Island. In the Bathurst area, preparations were made by Brunswick Mining and Smelting Corporation Limited to begin mining one of its large base-metal orebodies early in 1964. An associated company, East Coast Smelting and Chemical Company Limited, began to erect a smelter near Bathurst in which some of the concentrates produced by Brunswick Mining and Smelting will be treated, beginning in 1966. In northwestern British Columbia near Stewart, Silbak Premier Mines Limited commenced preparations to erect a 75-ton mill which will be used to concentrate silver-lead-zinc ore from the old Premier mine property. At Pine Point on the south shore of Great Slave Lake in the Northwest Territories, Pine Point Mines Limited continued preparations to mine its large lead-zinc deposits, with production to commence in 1966.

Silver.—Although two new mines in the Cobalt area of Ontario were placed in production in 1963, Canada's output of silver, which totalled 30,739,429 oz.t., was only slightly greater than 1962 production. The opening of these two mines and increased output of byproduct silver from the copper-zinc mine of Geco Mines Limited brought Ontario's output up by 542,000 oz.t. Output in the Yukon Territory was about 367,000 oz.t. less than in 1962 because of the lower grade of ore mined by United Keno Hill Mines Limited. The large increase of $7,000,000 in the 1963 value of silver production was accounted for principally by a marked increase in price from $1.164 per oz.t. in 1962 to $1.385. Of the total 1963 output, 81 p.c. came from base-metal ores, 17 p.c. from silver-cobalt ores mined in northern Ontario and 2 p.c. from lode gold ores mined in British Columbia, Ontario and Quebec and placer-gold ores mined almost entirely in British Columbia and the Yukon Territory.

Canada's principal producer of refined silver—Consolidated Mining and Smelting Company—at its refinery at Trail, B.C., produced 6,847,606 oz.t., most of which was derived from lead and zinc concentrates originating in mines in southeastern British Columbia and in the Yukon Territory. The remainder of the Canadian output of refined silver was produced from blister copper by Canadian Copper Refiners Limited in Montreal East and by International Nickel at Copper Cliff, Ont.; from gold precipitates by Hollinger

Consolidated Gold Mines Limited at Timmins, Ont.; from gold bullion by the Royal Canadian Mint at Ottawa; and from arsenical-silver-cobalt concentrates by Cobalt Refinery Limited at Cobalt, Ont.

Canada's largest sources of silver are the Calumet, Elsa and Hector silver-lead-zinc mines in the Yukon Territory about 200 miles north of Whitehorse, operated by United Keno Hill Mines Limited, and the Sullivan lead-zinc-silver mine at Kimberley, B.C., operated by Consolidated Mining and Smelting. In its fiscal year, ended Sept. 30, 1963, United Keno produced concentrates containing 5,978,075 oz.t. and in 1962 the Consolidated Mining and Smelting Company produced concentrates at the Sullivan mine containing 4,070,666 oz.t. Other important producers of byproduct silver included Mastodon-Highland Bell Mines Limited at Beaverdell in southern British Columbia; Hudson Bay Mining and Smelting Co., Limited at Flin Flon, Man.; Geco Mines Limited and International Nickel at Manitouwadge and Sudbury, Ont.; and American Smelting and Refining Company in Newfoundland. In the old Cobalt and Gowganda areas of Ontario, where exploration was reactivated as a result of the increased price, a number of firms mined silver-cobalt ores from which 5,193,298 oz.t. of silver were recovered in 1963.

Platinum Metals.—Canadian production of the platinum metals in 1963 amounted to 344,736 oz.t. valued at $21,848,696. This reduction from the previous year resulted from decreased 1963 nickel production; platinum metals are recovered as a byproduct of nickel mining. World markets for platinum metals were fairly strong in 1963. The group consists of platinum, palladium, rhodium, ruthenium, iridium and osmium; all except osmium are produced in Canada.

During 1963, Canada, the Republic of South Africa and the Union of Soviet Socialist Republics continued to supply the bulk of the world's production of the platinum metals. Estimated world production in 1962 was 1,190,000 oz.t., of which Canadian production was 470,787 oz.t., that of South Africa an estimated 306,180 oz.t. and that of the U.S.S.R. an estimated 375,000 oz.t.

Platinum metals occur in Canadian nickel ores to the extent of about 0.025 oz. per ton of ore. In the treatment of these ores for nickel, the platinum metals follow nickel and are eventually removed as sludges from the electrolytic tanks in which nickel anodes have been formed. The sludge is purified and sent to precious metal refineries in Britain and the United States for recovery of the platinum metals. All of Canada's platinum metals production results from the treatment of nickel ores of the Sudbury district of Ontario and those of the Thompson mine in Manitoba.

Cobalt.—Cobalt is derived as a byproduct from smelting and refining of nickel-copper ores of Sudbury, Ont., and Lynn Lake, Man.; from nickel ores of Thompson, Man.; and from silver ores of Cobalt, Ont. International Nickel recovers cobalt from its refinery operations at Port Colborne, Ont., Thompson, Man., and Clydach, Wales, based on its Sudbury and Thompson ores. Falconbridge Nickel produces electrolytic cobalt in the refining of nickel-copper matte exported to its refinery at Kristiansand, Norway. Sherritt Gordon recovers cobalt as a byproduct at its nickel refinery at Fort Saskatchewan, Alta., from its Lynn Lake nickel-copper ores. Cobalt Refinery Limited at Cobalt, Ont., recovers black cobalt oxide, and mixed cobalt and nickel oxide from silver concentrates.

Columbium.—St. Lawrence Columbium and Metals Corporation, the only Canadian producer of columbium concentrates, in 1963 shipped pyrochlore concentrates containing 1,270,000 lb. of columbium pentoxide from its mine and plant at Oka, Que., about 20 miles west of Montreal. Geo-Met Reactors Limited, Ottawa, Ont., is the only Canadian producer of ferrocolumbium, which it sells in Canada and the United States.

Molybdenum.—Molybdenite Corporation of Canada Limited is the principal Canadian producer of molybdenite. Most of its production is converted to molybdic oxide at its mine-site plant at Lacorne, 23 miles north of Val d'Or, Que. In 1963, Gaspé

Copper Mines Limited began production of molybdenite as a byproduct at its Murdochville, Que., copper concentrator. Canadian shipments in 1963 of molybdenum contained in molybdenite and molybdic oxide amounted to 1,000,000 lb., valued at $1,534,000. Exploration and development work continued at several molybdenum deposits: five miles north of Cadillac, Que.; in the Matachewan area of Ontario; and at Endako, Alice Arm, and Boss Mountain, B.C. Noranda announced plans for a $5,000,000, 1,000-ton-a-day mining operation at Boss Mountain. Canadian Exploration plans a 10,000-ton-a-day operation at Alice Arm, to start production in 1965.

Titanium.—Ilmenite, an iron-titanium oxide, is mined in the Allard Lake and St. Urbain areas of Quebec. The Allard Lake ore, mined by Quebec Iron and Titanium Corporation, is smelted by the company in electric furnaces at Sorel, Que., to produce high-titania slag and pig iron. The slag is sold to producers of titanium-based pigments in Canada, the United States, Britain, Japan and other countries. Ilmenite mined at St. Urbain by Continental Titanium Corporation is used as heavy aggregate in weighting oil and gas transmission pipelines and in shielding nuclear reactors.

Selenium and Tellurium.—Selenium production in 1963 totalled 482,960 lb. valued at $2,240,101, a minor decrease from 1962; tellurium output at 74,942 lb. valued at $483,271 was about 28 p.c. higher than in 1962. These metals are recovered from the anode muds resulting from the electrolytic refining of copper at the plants of Canadian Copper Refiners Limited at Montreal East, Que., and International Nickel at Copper Cliff, Ont.

Magnesium.—An all-time Canadian production record of 8,700 tons was achieved in 1963 by the only Canadian producer, Dominion Magnesium Limited, also the only Canadian source of calcium and thorium. Dolomite of exceptional purity is quarried and reduced to metal by the ferrosilicon method at Haley, Ont. About 6,000 tons of magnesium were exported during the year.

Aluminum.—Canada is second, after the United States, in Free World aluminum production. At the end of 1963, annual capacity was 888,000 tons. Capacity for a further 20,000 tons was completed in March 1964 at the Kitimat, B.C., smelter of Aluminum Company of Canada Limited, and another 20,000 tons will be completed in 1965. This Company also has smelters at Arvida, Isle Maligne, Shawinigan and Beauharnois, all in Quebec. Canadian British Aluminium Company Limited operates a 90,000-ton smelter at Baie Comeau, Que. As all bauxite or alumina used by the aluminum smelters must be imported, mainly from the Caribbean area, metal production is classed in official statistical data with manufactures and not with smelter production of ores and metals of domestic origin. Production of primary aluminum in 1963 was 719,390 tons, of which 635,187 tons were exported. Domestic consumption was estimated at about 155,000 tons as measured at the semi-fabricated level.

Subsection 2.—Industrial Minerals

For the fifth successive year, Canada's industrial mineral production in 1963 rose to a new high. In that year the value of output exceeded $607,500,000 and amounted to 20 p.c. of the total mineral production. New records were established for asbestos, potash, sulphur, gypsum, cement and sodium sulphate.

Asbestos.—Canada is by far the Free World's leading asbestos producer but is challenged by the U.S.S.R. for first position in world production. Despite competition from the U.S.S.R., Africa and the United States, all of which countries have expanded or are expanding production, Canada has maintained a steady increase in its asbestos exports and is at present supplying about 40 p.c. of the world output. In 1963, 1,206,425 tons of asbestos fibre valued at $139,447,444 were exported from Canada.

Chrysotile, the most widely used variety of asbestos, occurs in Newfoundland, Quebec, Ontario, British Columbia and the Yukon Territory. The main centre of the industry is in Quebec, where 12 mines account for 90 p.c. of the country's production, but operating mines are also located in Newfoundland, Ontario and British Columbia. Newfoundland became a producing province in July 1963 when Advocate Mines Limited began production at Baie Verte on the Burlington Peninsula. This project, involving a capital expenditure of $25,000,000, will be of great economic benefit to the northeastern portion of the province. The 5,000-ton-a-day mill is producing fibre particularly suited to asbestos-cement manufacture; it will be shipped mainly to the United States and Europe.

During the year, Canadian Johns-Manville announced plans to develop an asbestos occurrence in Reeves township, 40 miles southwest of Timmins, Ont. A development shaft is planned to open up two underground levels and provide bulk samples for pilot plant processing. This deposit, acquired by the company several years ago, is expected to provide a source of fibre to supplement the output of the Munro mine, east of Matheson in northern Ontario. In northern Quebec, Asbestos Corporation Limited continued its study of the Asbestos Hill project of the Murray Mining Corporation. This occurrence is 40 miles southeast of Deception Bay in Ungava and the fibre is reported to be of a type suited to the asbestos-cement industry.

Potash.—Potash has been newly added to the list of Canadian mineral products and although the industry is still in the early stages of development its product has unquestionably found a place in the markets of the world. The emphasis being placed on the need for fertilizers to improve agricultural productivity to feed a rapidly growing world population establishes the future of this industry.

The Canadian industry, concentrated in southern Saskatchewan, had its first full year of production in 1963 with the successful operation of the Esterhazy mine of International Minerals and Chemicals Corporation (Canada) Limited. The annual refinery capacity of this company was raised from 1,000,000 tons of product to 1,200,000 tons early in 1964 with the addition of processing machinery. A second shaft was started at Gerald, six miles southeast of the first shaft, and when this is completed in 1968 the mine capacity will be increased to about 4,000,000 tons of end products.

Several other significant developments are taking place in the field of potash recovery. In 1963, Kalium Chemicals Limited, after an extensive period of development and testwork, began the construction of a major facility for the recovery of potash by solution mining. This project, located near Belle Plaine 25 miles west of Regina, will tap the sylvite beds more than 5,000 feet below surface. The plant is expected to be 'on stream' in late 1964. The Potash Company of America Ltd. is completing a program of shaft rehabilitation and major equipment change at Patience Lake and plans to resume production in December 1964; the project will have an annual capacity of 600,000 tons of granular potash. Alwinsal Potash of Canada Limited in mid-1963 announced plans for the investment of $50,000,000 in a potash development in the Lanigan–Guernsey area of Saskatchewan. Shaft-sinking will start in 1964 and production is scheduled for 1968. Alwinsal brings to Western Canada extensive European experience in shaft mining of potash. Three European companies are major shareholders.

Sulphur.—The dramatic development of the western Canadian gas fields as an important source of world sulphur continued into 1963. Output of elemental sulphur was some 20 p.c. higher than in 1962 and the aggressive drive by the western producers to seek wider markets met with outstanding success. More than 1,100,000 tons of Western Canada sulphur were shipped to domestic and foreign markets—an increase of almost 70 p.c. over the previous year.

The recent development of a world-wide marketing outlook has been of particular value to the Canadian industry. In addition to large exports to the United States, substantial tonnages have been shipped to the U.S.S.R., India, the Republic of South Africa, Australia and Taiwan, and during 1963 elemental sulphur began moving to Japan; it is

interesting to note that for many years Canada shipped large quantities of pyrite to Japan for use in the manufacture of sulphuric acid. Sales of sulphur within Canada have also increased, serving to reduce the imports of Frasch sulphur from the United States.

With a capacity of 2,000,000 tons of elemental sulphur per annum, Canada ranks second to the United States among world elemental sulphur producers and is capable of supplying 10 p.c. of the current world market. Elemental sulphur is a byproduct of the preparation of natural gas for the market. It is produced at 15 plants in Alberta, one in Saskatchewan and one in British Columbia. Existing plants are adequate to serve current contracts for cleaned natural gas for markets in Canada and the United States but it is expected that by 1967 the demand for western Canadian natural gas will require the construction of additional plants and these will have a capacity of 500,000 tons of elemental sulphur per annum. Two new plants are planned for 1964.

Construction Materials.—An active construction industry brought the output of mineral products used in that industry to a record level in 1963. Such major projects as the Hydro Quebec power complex under construction north of Baie Comeau, which will eventually add over 7,000,000 hp. to the Quebec system, together with large road and other engineering projects and the building industry required record quantities of crushed and natural aggregate. It is estimated that the 1963 production of aggregate exceeded 200,000,000 tons. An interesting development during the year was the opening of an industrial aggregate plant in trachytic phonolite in Verchères County of Quebec, which produces aggregate for special concretes and granules for industrial application. This is an example of a small specialized stone operation adapted to the needs of a regional market.

Renewed interest is being shown in certain phases of the dimensional stone industry in Canada. In this industry, limestone, sandstone, granite and marble are all quarried and dressed for use in building construction and ornamental applications. Canadian marble quarrying, which has been virtually dormant, became active in 1963 with the development of deposits of white, grey and green serpentinized marble in Lanark and Renfrew counties of Ontario, just west of Ottawa, and of green serpentinized and blue marble near Tatlock, Ont. The latter is of unique character and can be quarried in large blocks. The Italian marble industry has shown interest in these marbles and blocks have been shipped to Italy to test the market there.

Recently, Canadian architects have been using ornamental stone for various effects, despite the growing availability of reconstituted stone and alternative building materials.

Gypsum.—Shipments of gypsum were more than 11 p.c. heavier in 1963 than in 1962 as a result of increased demand from the United States; much of the Canadian production goes to that country in crude form. A great part of the output of this mineral is mined in Nova Scotia, although smaller amounts are produced in Newfoundland, New Brunswick, Ontario, Manitoba and British Columbia. The only addition to productive capacity in 1963 was that of a new underground gypsum mine at Silver Plains, 36 miles south of Winnipeg, Man.

Salt.—Over the past two decades, the growing need for ice control for winter highway traffic has brought about a significant increase in the market for rock salt, so that about one half of the Canadian production, which fluctuates between 3,200,000 tons and 3,800,000 tons annually, is of rock salt mined in Nova Scotia and southern Ontario. Part of this production is exported to the United States. Since the market is primarily for particle sizes greater than eight-mesh, disposal of fines has become a problem.

Subsection 3.—Petroleum and Natural Gas

The oil and gas industry in Canada continued to experience general economic buoyancy during 1963 and developments during the early part of 1964 indicate another successful year with higher outputs of both products. Crude oil production averaged 709,000 bbl. daily during 1963; extraction of propane, butanes and pentanes from natural gas added

78,000 bbl. daily, to bring total output of liquid hydrocarbons to 787,000 bbl. daily. During the early part of 1964, total production of liquid hydrocarbons averaged over 835,000 bbl. daily and appeared to be moving toward the new target suggested by the Federal Government—an average of 850,000 bbl. daily in 1964. Natural gas output averaged over 3,055,000 Mcf. daily in 1963 and, although output in 1964 is not expected to increase as much as in 1963, deliveries are expected to be higher.

All western provinces except Manitoba shared in the increased production. Manitoba does not produce natural gas and the absence of new oil discoveries indicates a further downtrend in oil production. Oil-field activity in Saskatchewan was at a high level and directed largely to pressure maintenance schemes which have increased the province's recoverable reserves of oil about threefold. Production of oil in Saskatchewan was at a high level with demand exceeding productive capacity throughout most of the year. In Alberta, exploration was moderately successful, with several oil discoveries being made in the north-central part of the province. South of Lesser Slave Lake significant oil discoveries—indicative of a major oil producing area—were made early in 1964. Much farther north, at Zama Lake near the Northwest Territories border, several oil and gas discoveries were reported at about the same time.

Although Alberta oil production was at a record level of about 500,000 bbl. daily, output was equivalent to less than one half of the province's productive capacity. Natural gas output averaged 2,585,000 Mcf. daily, or 85 p.c. of Canadian output. Exploration in British Columbia slackened somewhat but development of fields near Fort St. John continued at a high level. Production remained at about 40,000 bbl. a day in 1963 and into early 1964. Gas output amounted to 323,000 Mcf. daily. In the Arctic islands the second and third exploratory wells were both abandoned after failing to find oil or gas. Comparatively little drilling was done on the Northwest Territories mainland.

The total footage drilled in Western Canada during oil and gas exploration and development was 14,132,000 feet, an increase of 8 p.c. over 1962. The increase was mainly in development drilling; exploratory drilling increased only slightly. One third of the footage drilled was of an exploratory nature while the remainder was development drilling of known oil and gas fields. Of the 2,888 new levels, 52 p.c. were oil wells, 13 p.c. were gas wells and the remainder were dry wells. Of all wells drilled in Western Canada, 59 p.c. were in Alberta and 33 p.c. were in Saskatchewan. A sharp decrease in drilling in British Columbia was counterbalanced by an increase in Saskatchewan. In Ontario, 202 wells were drilled, nearly the same as in 1962, although a greater proportion of dry holes resulted.

Geophysical activity in Western Canada, based on a month-by-month comparison of the number of crews working, was slightly less than in 1962. The decline in geophysical activity has been evident since 1953, except for a levelling-off in the 1961-62 period. The gravity survey remained a comparatively minor geophysical method. Seasonal fluctuations in seismic surveying were slightly less than in 1962. In terms of crew-months, seismic survey work in the western provinces was as follows: Alberta, 392; British Columbia, 107; Saskatchewan, 79; Manitoba, nil; and Yukon Territory and Northwest Territories, 53.

Alberta.—In 1963, the total footage drilled in the search for and development of petroleum and natural gas amounted to 9,807,000 feet, an increase of 7.7 p.c. over 1962. Despite the over-all increase, exploratory drilling decreased slightly. The increase was due to greater development of known fields, particularly the Swan Hills, Snipe Lake, Kaybob South, Sylvan Lake, Medicine River and Deer Mountain fields. A total of 1,704 wells were completed of which 869 were oil wells, 275 were gas wells and 560 were dry. The Goose River field north of the Kaybob field was probably the most important 1963 oil discovery. Drilling carried out in 1963 on a natural gas discovery made the previous year near Edson partly outlined the largest natural gas reservoir found in Alberta in the past several years.

The proposed projects of Cities Service Athabasca Inc. and Shell Canada Limited to produce oil from Athabasca bituminous sands were deferred by the Alberta Oil and Gas Conservation Board on the grounds that such large-volume production would disrupt the conventional oil industry. In February 1964, the Conservation Board approved the application of Great Canadian Oil Sands Limited, with the backing of Sun Oil Company, to have their 31,500 bbl.-a-day Athabasca oil sands production permit revised upward to 45,000 bbl. a day.

Alberta's reserves of recoverable crude oil will be increased by more than 1,000,000,000 bbl. by several secondary recovery or pressure maintenance projects begun in 1962 and 1963. Waterflood is the main recovery mechanism used and the largest projects are in the Swan Hills area.

British Columbia.—A high rate of drilling in 1961 and 1962 was the result of rapid development of existing oil fields to supply the new oil pipeline serving the Vancouver refinery area. By the beginning of 1963, however, a major proportion of Boundary Lake oil-field development was completed and drilling declined; only 898,700 feet of drilling was carried out, a 42-p.c. decrease from 1962. Development drilling comprised 64 p.c. of all drilling in 1962 compared with 42 p.c. in 1963, reflecting a swing back to the pre-1961 emphasis on exploratory drilling in this province. No significant oil discoveries were made in 1963 but important natural gas finds continued to be made in the Fort Nelson region, confirming this as one of Canada's major gas-reserve tracts although, as yet, no pipeline serves the area.

Saskatchewan.—The trend of declining drilling was sharply reversed in 1963, when both exploratory and development drilling increased substantially. A total of 3,220,400 feet was drilled, 40 p.c. more than in 1962. Of the 951 wells completed, 572 were oil wells, 41 were gas wells and 338 were dry. No major oil discoveries were made but two important secondary recovery projects are being developed which will add greatly to provincial oil reserves—the Midale field waterflood plan was instituted late in 1962 and a huge waterflood program was initiated in the Weyburn field in the latter half of 1963.

Manitoba.—An aggregate of 142,563 feet was drilled in 1963, more than double the 1962 total, some incentive being provided by an oil discovery, late in 1962, near Hartney. However, no important discoveries were made during the year and the number of commercial wells in operation in the province decreased from 852 to 839.

Yukon and Northwest Territories.—Six wells, totalling 62,643 feet, were completed in the Territories. An exploratory well drilled on Cornwallis Island in the Arctic islands was abandoned in December after failing to find any significant amounts of oil or gas. Similarly, the deep well on adjacent Bathurst Island, completed in February 1964, was dry. These two Arctic drilling projects had been preceded by an exploratory well on Melville Island in 1962 which was also abandoned.

Eastern Canada.—In Ontario, a greater footage was drilled in 1963 despite a reduction in the number of wells completed. The 202 wells (excluding service wells) totalled 392,753 feet, an average of 1,940 feet per well compared with 1,815 feet per well in 1962. This trend toward deeper wells is largely the result of discoveries made at depth in 1960 and 1962. A major 'oil play' developed in the neighbouring State of Ohio in 1963 following some important oil discoveries and this, too, is providing further incentive for deeper exploration in Ontario.

In Quebec, 13 exploratory wells were drilled. Two of these wells, drilled on a gravity anomaly 10 miles southwest of Trois Rivières, yielded significant quantities of natural gas but the wells have not yet been classed as commercial. Three exploratory dry wells were completed on Anticosti Island and three development wells were drilled at the Pointe du Lac shallow gas field near Trois Rivières.

In New Brunswick, a 3,500-foot dry well was completed four miles south of the Stoney Creek oil and gas field. Waterflood secondary recovery was started in the Stoney Creek field. Two oil companies acquired substantial off-shore acreage near Sable Island off the Nova Scotia coast and are planning seismic surveying for 1964.

Petroleum Refining and Marketing.—At the end of 1963 there were 41 operating refineries in Canada having an aggregate crude oil capacity of 1,016,600 bbl. daily, allowing for maintenance shutdowns. One new refinery with a crude oil capacity of 30,500 bbl. daily began operating at Oakville, Ont., in October. In March 1964, a new refinery, near Halifax, N.S., added 13,500 bbl. daily to crude oil capacity. Three small plants in Alberta shut down and together reduced capacity by 8,890 bbl. daily. The rate of growth of the petroleum refinery industry from 1943 to 1963 is shown in Table 1.

1.—Petroleum Refining Throughput Capacity, by Region, as at Dec. 31, 1943, 1953 and 1963

Region	1943		1953		1963	
	bbl./day	p.c.	bbl./day	p.c.	bbl./day	p.c.
Atlantic Provinces	34,250	14	18,300	3	103,800	10
Quebec	67,000	28	176,000	34	305,000	30
Ontario	76,250	31	135,000	26	311,470	31
Prairie Provinces and Northwest Territories	40,415	17	148,500	28	199,030	20
British Columbia	24,500	10	45,850	9	97,300	9
Canada	**242,415**	**100**	**523,650**	**100**	**1,016,600**	**100**

Use of Canadian crude at domestic refineries averaged 510,000 bbl. daily, an increase of 7 p.c. over 1962. Foreign oil received by plants in Canada averaged 402,000 bbl. daily, an increase of 8 p.c. over 1962. Domestic oil, therefore, accounted for 56 p.c. of all crude oil received, about the same percentage as in 1962. Canada exported an average of 248,000 bbl. of crude oil to United States refineries, about the same as in 1962. Refineries in the Puget Sound region of the State of Washington took an average of 126,000 bbl. daily and plants in the mid-west took 122,000 bbl. daily. Imported oil continued to come chiefly from Venezuela and Middle East countries. Table 2 shows the regional demand for domestic and foreign crudes.

2.—Domestic and Foreign Crude Oil Received at Canadian Refineries, by Region, 1955, 1960 and 1963

Region	1955		1960		1963	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day
Maritime Provinces and Quebec	—	210,423	—	337,494	—	399,672
Ontario	106,446	27,275	197,555	10,004	260,198	1,999
Prairie Provinces and Northwest Territories	133,961	—	145,499	—	177,479	—
British Columbia	47,431	—	65,917	—	72,778	—
Canada	**287,838**	**237,698**	**408,971**	**347,498**	**510,455**	**401,671**

Natural Gas Processing and Marketing.—Ontario displaced Alberta in 1963 as the leading province of utility gas sales. Ontario sales accounted for more than 37 p.c. of total domestic sales and Alberta accounted for 35 p.c. Nearly one third of the natural

gas produced was exported to the United States. A very large proportion of Canadian natural gas requires processing to remove contained constituents such as sulphur, propane, butane and natural gasoline. The extent to which the natural gas processing industry has developed is apparent from a comparison of gas plant statistics: in 1955 there were seven plants having a processing capacity of 452,000 Mcf. daily; by 1960 there were 55 plants having a raw gas capacity of 1,944,000 Mcf. daily; and at the end of 1963 there were 75 plants capable of treating 3,849,000 Mcf. daily to produce 2,993,000 Mcf. of pipeline gas.

Subsection 4.—Coal*

Production from Canadian coal mines in 1962 was only slightly lower than in 1961, giving some encouragement to the hard-pressed coal industry. Significant increases in the production of subbituminous and lignite coals were attained and productivity per man-day increased in practically all coal mining regions, leading to lower or relatively steady values for all coals.

As compared with 1953, annual production declined about 5,600,000 tons, consumption about 16,000,000 tons, and imports dropped from 22,900,000 tons to 12,400,000 tons. Exports, on the other hand, more than tripled in the decade but this bright spot is confined almost entirely to one segment of the industry, being attributable to higher exports of western bituminous coking coal, mainly to Japan. The weak competitive position of Canadian coals is caused by a number of factors, including high production costs because of low productivity in comparison with coal mines in the United States, and high costs of moving coal long distances, particularly bituminous coal from mines in Nova Scotia and New Brunswick to the industrial centres of Ontario and Quebec.

Mechanization of production, underground and surface coal preparation, particularly of slack and fine sizes, and efforts to control quality through coal sampling and analysis have all been increased to enable the industry to supply higher quality products at reduced costs. On the basis of costs per ton, significant improvement was noted in 1962. Increased productivity is expected from the projects undertaken in 1962 to improve methods of mining and conveying coal in underground mines.

Assistance to the coal industry was continued by the federal and provincial governments through research programs. The problem of fine coal production continued to receive attention with research directed toward improved methods of mining, beneficiation and combustion. Technical assistance has also been rendered in the field of quality control through sampling and analysis, and studies of the coking properties of coals in relation to their preparation for export markets and their use in prospective steel industries.

Financially, the Federal Government continued assistance to the coal industry through payments administered by the Dominion Coal Board with aid in the acquisition of new equipment and subventions on coal transportation. More than 30 p.c. of the production was moved with the aid of subvention payments; the total tonnage to which such assistance was applied, 3,100,000, decreased by more than 250,000 tons in 1962. The value of this assistance, which in 1961 amounted to $17,854,456, decreased in 1962 to $17,433,355. Financial assistance amounting to $2,400,000 was applied to the export of 634,855 tons of coal from Alberta and British Columbia. The Federal Government also made payments in 1962 totalling about $1,540,000 under the Atlantic Provinces Power Development Act, 1958, which indirectly aids the marketing of coal. In addition to the general coal subsidy, more than $1,000,000 was paid out by the Federal Government to delay the closure of certain mines. Mines in Nova Scotia and New Brunswick shipping coal to markets in direct competition with imported residual oil received additional financial assistance.

Production and Value.—Production of coal in Canada in 1962 decreased 1.1 p.c. to 10,285,000 tons, just under 54 p.c. of the record production of 19,139,000 tons in 1950. The average value for all coal was $6.72 per ton. This declining production was reflected

* This review covers the year 1962, the latest year for which final figures were available at the time of preparation; preliminary figures for 1963 are given in Tables 22-24, p. 587.

in the employment at the mines, where the number of man-days dropped from 2,291,933 in 1961 to 2,198,420 in 1962—more than 4 p.c. In Nova Scotia, the major coal-producing province and where the economy is most affected by declining coal markets, the decrease in coal-mine employment was 5.3 p.c. from 1,535,176 man-days in 1961 to 1,453,414 man-days in 1962. Employment in coal mines in New Brunswick decreased almost 10 p.c., in Alberta 1.6 p.c., in Saskatchewan 3.8 p.c. and in British Columbia 17.5 p.c.

The major part (63.5 p.c.) of the coal produced in 1962 was bituminous, valued at $9.02 a ton at the mine. Subbituminous accounted for 14.6 p.c. of production and lignite for 21.9 p.c. The average value of subbituminous coal was $3.80 a ton and the value of lignite $2.02 a ton. Production of bituminous coal decreased 4.3 p.c. from 1961 but subbituminous increased almost 10 p.c. and lignite 2.1 p.c.

The proportion of the output won by stripping methods was 40 p.c. The output per man-day of coal from Canada's strip mines was 17.1 tons in 1962 compared with 3.2 tons from underground mines. This represents an increase of 1.7 tons for strip mines and an increase of 0.1 tons for underground mines. The over-all output per man-day increased from 4.5 tons to 4.8 tons.

Consumption, Imports and Exports.—The consumption of coal in Canada amounted to about 21,900,000 tons in 1962, an increase of 1.2 p.c. over 1961. Of this total, 56.6 p.c. was imported, and of the imported coal 93.5 p.c. was bituminous, used mainly in Ontario and Quebec; imports were 2.7 p.c. higher than in 1961. The production of coke used about 5,500,000 tons of coal, of which about 88 p.c. was imported. Sales of coal by retail fuel dealers to the commercial and household heating markets decreased by almost 500,000 tons to 3,600,000 tons in 1962 but the use of coal by industrial consumers, including thermal-electric power plants, increased 10 p.c. to 10,800,000 tons. There were 901,560 tons of Canadian coal exported in 1962 compared with 939,360 tons in 1961, most of it going to the United States and Japan for blending in the manufacture of metallurgical coke. The exports included about 4,500 tons sent to the Island of St. Pierre from Nova Scotia.

The manufacture of briquettes decreased from 67,327 tons in 1961 to 54,059 tons in 1962.

Provincial Activities of the Industry.—Coal is produced in five provinces and a large share of the market for the industry is concentrated in Central Canada where there is no coal production. A small amount of coal is also mined in the Yukon Territory. A review of the provincial activities of the industry follows.

Nova Scotia.—Nova Scotia's 1962 coal production of 4,204,779 tons, which accounted for almost 41 p.c. of the total Canadian output, was 2.2 p.c. lower than in 1961. This province's coal is mainly high volatile bituminous coking coal mined in the Sydney, Cumberland and Pictou areas, although some non-coking bituminous coal is mined in the St. Rose, Inverness and Port Hood areas of Cape Breton Island. The over-all value at the mines increased to $9.92 a ton in 1962 compared with $9.70 a ton in 1961 and the output per man-day was about 2.8 tons.

All Nova Scotia's coal comes from underground mines, which are mostly mechanized. Coal-washing plants which prepare about 27 p.c. of the province's coal production are operated at two of the collieries. In 1962 over 63 p.c. of the production was shipped to other provinces, mainly Central Canada to be used for industrial purposes; the remainder was used locally for steam-raising, power generation, household and commercial heating and the manufacture of metallurgical coke. Subvention payments were made on the movement of 2,191,938 tons.

New Brunswick.—New Brunswick's production, of which 82 p.c. was strip-mined in 1962, is entirely high volatile bituminous coal mainly from the Minto area; a small amount comes from strip mines in the Chipman and Coal Creek areas. The production of 815,529

tons in 1962, about 8 p.c. of Canada's output, represented a decrease of 8.2 p.c. from 1961. Average output per man-day from strip mines was 5.5 tons and from underground mines 1.8 tons. In 1962 the coal had an average value at the mines of $8.28 a ton.

Modern coal-washing plants operated at two of the strip-mining operations mechanically clean almost half of the province's output. A large part of the production is used locally for heating, power generation and processing; about 11 p.c. is shipped to Central Canada and about 14 p.c. to the United States. Government subventions aided in the moving of 114,186 tons during 1962.

Saskatchewan.—Coal produced in Saskatchewan is entirely lignite, mined by stripping in the Bienfait and Estevan areas in the Souris Valley; this is the only active lignite coal-field in Canada. Production in 1962 was slightly higher than in the previous year, amounting to 2,256,306 tons, which represented about 22 p.c. of the Canadian production. The average output per man-day was 44.9 tons and the coal was valued at the mine at an average of $2.02 a ton. This is the cheapest source of coal in Canada. The Estevan area serves the provincially owned Boundary Dam thermal-electric generating station which used about 45 p.c. of the total lignite production. Almost 37 p.c. of the 1962 output was shipped to Manitoba and 3.5 p.c. to Ontario for industrial, commercial and household use; the remainder was used within the province for similar purposes. Subvention assistance was given on 82,511 tons.

In 1962, 24,461 tons of briquettes, manufactured from carbonized lignite and used entirely for commercial and household purposes, were produced; this was a decrease of nearly 24 p.c. from the 1961 output.

Alberta.—Several types of coal are available in Alberta, ranging from semi-anthracite mined in the Cascade area to subbituminous. Coking bituminous coals are present in the Inner Foothills Belt but, because of market conditions, they are at present mined mainly in the Cascade and Crowsnest areas and a large part of the production is exported to Japan for use in metallurgical industries. In several areas of the foothills, lower rank bituminous non-coking coals are available but production is confined to the Lethbridge and Coalspur areas. The other coal areas produce subbituminous coals which made up almost 72 p.c. of Alberta's output in 1962 and are used mainly for household and commercial heating and thermal power generation; increasing quantities are being used for the latter purpose. The four largest producing areas for subbituminous coals are Castor, Drumheller, Pembina and Sheerness and mines in these areas produced more than 78 p.c. of the Canadian subbituminous coal output which amounted to 1,497,171 tons in 1962, almost 10 p.c. higher than in the previous year. The output of bituminous coal decreased 11.4 p.c. to 590,139 tons.

Total coal production in Alberta increased 2.9 p.c. in 1962 to 2,087,310 tons, this being about 20 p.c. of the nation's coal output. Of the total, 51.5 p.c. was won by stripping, the average output per man-day being 16.5 tons compared with 4.8 tons for underground mines. The average value of bituminous coal was $7.26 a ton at the mine, and that of subbituminous coal $3.80 a ton.

Of the provincial production, 1.4 p.c. was shipped to Ontario, 7.4 p.c. (mainly subbituminous) to Manitoba, 16.6 p.c. to Saskatchewan and 13.6 p.c. to British Columbia. Subvention assistance from the Federal Government was applied on the movement of 692,394 tons of Alberta and British Columbia coal.

The output of briquettes, which are made from the semi-anthracite and low volatile bituminous coals of the Cascade area and the medium volatile coals of the Crowsnest area, decreased from 35,195 tons in 1961 to 28,631 tons in 1962.

British Columbia and Yukon Territory.—About 90 p.c. of British Columbia's 1962 coal output came from the Crowsnest area (East Kootenay district) and most of the remainder came from Vancouver Island, with a small output from mines in the northern mainland. The coals range from high volatile to low volatile bituminous coking coals and

over 88 p.c. comes from underground mines. Production decreased to 913,196 tons, about 9 p.c. of the country's output, and had an average value of $6.63 a ton at the mine. The average output per man-day was 38.8 tons for strip mines and 5.2 tons for underground mines.

Beneficiation facilities located at Union Bay (Vancouver Island) and Michel (East Kootenay) process nearly all of British Columbia's coal production. Of the 1962 total production, 16.5 p.c. was shipped to Manitoba, 2.1 p.c. to Ontario and small quantities to Alberta and Saskatchewan. Nearly 335,000 tons of medium volatile bituminous coking coal from the Crowsnest area were exported, some to the United States but most of it to Japan for blending in the manufacture of metallurgical coke.

In the Yukon Territory, 7,649 tons of coal were mined from a single underground mine with an average output per man-day of 2.5 tons. This coal was valued at $15.06 a ton and was all used locally.

Section 2.—Government Aid to the Mineral Industry

Subsection 1.—Federal Government Aid

Federal assistance to the mining industry takes the form of the provision of detailed geological, topographical, geodetic, geographical and marine data which are of basic importance to the discovery and development of the mineral resources of Canada; the provision, through metallurgical research, of technical information relating to the processing of ores, industrial minerals and fuels on a commercial scale; financial and technical assistance to the ailing coal industry; assistance to the gold mining industry under the Emergency Gold Mining Assistance Act, and certain tax incentives (see Chapter XXIII, Section 2 on Taxation in Canada).

The Department of Mines and Technical Surveys.*—The federal Department of Mines and Technical Surveys came into being in January 1950 in the reorganization of the former Department of Mines and Resources. The Department has six branches—Surveys and Mapping Branch, Geological Survey of Canada, Marine Sciences, Mines Branch, Dominion Observatories and Geographical Branch—and its functions include the administration of the Emergency Gold Mining Assistance Act, the Explosives Act and the Canada Lands Act.

The *Surveys and Mapping Branch* provides the base maps required for use in the development of Canada's natural resources, is responsible for legal surveys of federal lands and provides a national system of levelling and precision surveys for use as geodetic control by federal, provincial and private agencies. The functions and current operations of the Geodetic Survey, the Topographical Survey, and the Legal Surveys and Aeronautical Charts Division are covered in Chapter I, Section 3 on Federal Government Surveying and Mapping (pp. 17–24). The compilation and printing of maps and charts of all types for which data are secured by departmental surveying and research operations is conducted by the Map Compilation and Reproduction Division of this Branch.

The primary function of the *Geological Survey* is to obtain information on the geology of Canada that will be of assistance in the search for and development of mineral deposits. The results of its activities also provide a basis for the appraisal and conservation of Canada's mineral resources generally, as well as for soil surveys and for the solution of geological problems that frequently arise in construction projects. Geological mapping activities are covered on pp. 21–22.

The *Marine Sciences Branch* was established in April 1962, combining hydrographic surveys and research in oceanography, marine geology and the geophysical sciences of the seas. These functions have the threefold purpose of ascertaining the resource potential

*Revised, under the direction of the Deputy Minister, in the Editorial and Information Division, Department of Mines and Technical Surveys, Ottawa.

of the country's continental shelf, of assisting navigation with particular reference to Arctic waters, and of undertaking the extensive program of oceanographic research required for military and civilian purposes. The current activities of this Branch are covered on p. 21.

The *Mines Branch* undertakes investigations in its laboratories covering a wide range of technical projects of importance to the advance of fundamental research; to the processing of ores, industrial minerals and fuels on a commercial scale; and to the theory and practice of physical metallurgy. The Mineral Processing Division is concerned primarily with the development of economical methods of mineral dressing and with research toward the improvement of present processing techniques. It is equipped to conduct laboratory and pilot-plant studies involving a variety of procedures: crushing, grinding, gravity concentration, sink and float (heavy media) separation, magnetic and electrostatic concentration, amalgamation, cyanidation, flotation and roasting. The Extraction Metallurgy Division seeks the development of better hydrometallurgical and pyrometallurgical processes for the treatment of ores and the solution to specific technical problems in this field. A substantial part of its effort was devoted recently to ores of uranium, iron and other elements and to corrosion problems encountered in certain industrial and governmental projects. The Division accepts samples from operating mines or those under development. The Mineral Sciences Division applies the principles of chemistry and physics to fundamental and long-term problems in the field of mineral technology and related aspects of metallurgy. It deals with ores, mineral and metal products, inorganic crystalline materials and radioactive substances, and its work ranges from relatively simple routine determinations to complex research problems requiring the most modern techniques and equipment. The Fuels and Mining Practice Division studies the properties of fossil fuels in Canada to determine the most efficient means of utilizing fuel resources. Most of the work on coal is directed to investigations on the immediate problems of the industry and to engineering studies on the most efficient use of coal in combustion applications with particular reference to thermally generated electric power. Such investigations include work on the evaluation of cleaning performance and the beneficiation of coal fines that are difficult to market, the uses of coal in the metallurgical industries and the study of stress phenomena in mining. Research in petroleum is directed mainly to problems in the refining of heavy crudes and high-sulphur bitumens, and to the chemical evaluation of oils and bituminous substances for classification and genetic purposes. The Physical Metallurgy Division aids the metal industries through the development of new alloys, new manufacturing techniques and new applications, and in activities aimed toward improving present practices in metal fabrication. It also conducts fundamental research on the properties and behaviour of metals. The Division serves the Department of National Defence by extensive research and investigative work concerned broadly with the development of defence materials and prototype equipment and with the metallurgical problems of that Department. It is also operative in the nuclear metallurgy field.

The major activities of the *Dominion Observatory* in its two main units—the Dominion Observatory at Ottawa, Ont., and the Dominion Astrophysical Observatory at Victoria, B.C.—are in the field of astronomical and related research, and these activities are covered in a detailed presentation in Chapter I, pp. 48-51. The geophysical work of the Observatory, which has a definite relation to the locating of mineral deposits, is covered in the same Chapter, pp. 22-23.

Current surveying and mapping activities of the *Geographical Branch* of the Department are outlined on p. 24.

In addition to the above Branches, the Department contains a *Mineral Resources Division* which provides a mineral information service that is freely used by government departments, mining and allied industries and others interested in mining or its significance in the Canadian economy. A mineral resources index inventory is maintained of all known occurrences and of mines, both active and potential. The Division makes economic studies of different phases of the mining industry. It administers the Emergency Gold Mining Assistance Act, prepares reports on request to aid in the administration of such

matters as tax exemptions on new mining properties, and prepares reports and briefs on general legislation, taxation and tariff matters connected with the mineral industry. The Division is widely known for its publications, among the most valuable of which are the annual reviews of production, marketing and other matters concerning 64 minerals. It issues more detailed economic studies of metals and fuels of current interest and prepares annual lists of metallurgical works, metal and industrial mineral mines, milling plants, coal mines and petroleum refineries. Also published are special monographs on mining laws, taxation and subjects of particular interest to the mineral industry.

The Dominion Coal Board.*—The Board was established by the Dominion Coal Board Act (RSC 1952, c. 86) which was proclaimed on Oct. 21, 1947. By this Act the Board was constituted a department of government to advise on all matters relating to the production, importation, distribution and use of coal in Canada. The Board is also charged with the responsibility of administering, in accordance with regulations of the Governor in Council, any coal subventions or subsidies voted by Parliament.

The Board is empowered to undertake research and investigations with respect to:—

(1) the systems and methods of mining coal;
(2) the problems and techniques of marketing and distributing coal;
(3) the physical and chemical characteristics of coal produced in Canada with a view to developing new uses therefor;
(4) the position of coal in relation to other forms of fuel or energy available for use in Canada;
(5) the cost of production and distribution of coal and the accounting methods adopted or used by persons dealing in coal;
(6) the co-ordination of the activities of government departments relating to coal; and
(7) such other matters as the Minister may request or as the Board may deem necessary for carrying out any of the provisions or purposes of the Act.

In addition, the Dominion Coal Board Act provides authority in the event of a national fuel emergency to ensure that adequate supplies of fuel are made available to meet Canadian requirements.

The Act authorizes a Board membership of seven, including the chairman. The latter is the Chief Executive Officer, has the status of a Deputy Minister, spends full time on the Board's business, receives a salary and is in charge of a civil service staff. The other members, men of long experience and expert knowledge of aspects and regions of the Canadian coal industry, receive *per diem* payments and travelling expenses while attending Board meetings or while otherwise officially engaged on Board business.

In general, the Board and its staff constitute a central agency through which representations on coal matters are made to the Government from any sector of the industry or the public. Conducting a continuous study of developments and problems within the industry, exchanging information with provincial authorities concerned with coal and with national authorities and agencies in other countries and maintaining the most complete files of Canadian coal information in existence, the Board makes recommendations to the Government and reports to Parliament through the Minister of Mines and Technical Surveys. In view of the growing impact of oil and natural gas on the markets for Canadian coal, the Board and its staff have intensified the study of the relation of the competing sources of energy and of possible new outlets for the solid fuel.

Since its inception, the Board has worked toward the co-ordination of the activities, relating to coal, of various government departments, agencies and other bodies. Its own responsibilities in research on the mining and utilization of coal have been carried out mainly by delegation to the Fuels and Mining Practice Division, Mines Branch, Department of Mines and Technical Surveys. On occasion, the Board has recommended or commissioned specialized types of research by experts outside the government service—for example, the studies resulting in the Christie Reports which became influences leading to the enactment of the Atlantic Provinces Power Development Act (SC 1958, c. 25) and the

* Revised under the direction of C. L. O'Brian, Chairman of the Dominion Coal Board, Ottawa.

establishment of a power grid in the Maritimes. As a contribution to the co-ordination of coal research and to the dissemination to the industry of technical information resulting from research, the Board initiated the now annual Dominion-Provincial Conferences on Coal. The Dominion Bureau of Statistics collects most of the statistical information required by the Board.

Government purchases of fuel, which constitute an important outlet for coal, claim a part of the time of the Board's staff in an advisory capacity. Advice on fuel matters is also continuously available to all government departments and agencies. A senior official of the Coal Board is chairman of the Interdepartmental Fuel Committee, which advises on the supply, purchase and utilization of fuel for the Department of National Defence, and of the Dominion Fuel Committee, which is organized along similar lines as an advisory body to other government departments.

The subvention assistance on the movement of Canadian coals, which the Board administers, is authorized from year to year by votes of moneys by Parliament; payments are in accordance with Regulations established by Order in Council. This assistance, which has been provided in varying degrees for the past 30 years, was designed to further the marketing of Canadian coals by equalizing as far as possible the laid-down costs of Canadian coals with imported coals. During the year ended Mar. 31, 1963, a total of 3,192,100 tons of coal was shipped under subvention and $16,771,963 was paid in assistance; in 1963-64, the figures were 3,836,313 tons and $18,341,784, respectively. Costs and conditions of the coal industry being subject to variations, the Board must review from time to time the rates of subvention and the areas where the assistance is required.

Coal subventions of another type, based on the Btu content of coal used in thermal-electric power production, were authorized in January 1958 by the provisions of the Atlantic Provinces Power Development Act. The Dominion Coal Board was designated as the Government of Canada's administrative agency for subvention matters in agreements made with the provinces under this Act.

As agent to the Minister of Mines and Technical Surveys, the Board receives applications and administers loans under the Coal Production Assistance Act (RSC 1952, c. 173, as amended by SC 1958, c. 36; SC 1959, c. 39; SC 1960-61, c. 20; and SC 1962-63, c. 13). The Board also administers payments under the Canadian Coal Equity Act (RSC 1952, c. 34), which provides a subsidy on Canadian coal used in the manufacture of coke for metallurgical purposes. In the year ended Mar. 31, 1963, payments under this Act totalling $234,881 were made on 474,507 tons of coal and in the following year payments totalling $236,108 were made on 476,986 tons.

Emergency Gold Mining Assistance Act.—Under this Act, which came into force in 1948 (RSC 1952, c. 95), financial assistance is provided to marginal gold mines to counteract the effects of increasing costs of production and a fixed price for gold. By enabling gold mines to extend their productive life, the subventions help communities dependent on gold mining to adjust to diminishing economic support gradually.

Application of the Act was extended for four years to the end of 1967 on Dec. 12, 1963. The amending legislation provides a restriction on the payment of assistance to new lode gold mines commencing production after June 30, 1965. A lode gold mine brought into operation after that date will be eligible for assistance only if the mine provides direct support to an existing gold-mining community. A gold mine will be deemed to provide such support if the majority of the persons employed at the mine reside in one or more of a number of gold-mining communities which are specified in the Act.

The Act is administered by the Department of Mines and Technical Surveys with the aid of the Office of the Comptroller of the Treasury in accounting matters. Since the inception of the Act, the amount of assistance payable to the operators of a gold mine has been calculated by a formula consisting of two factors: the "rate of assistance" which is based on the cost per ounce of gold produced from the mine, and the "assistance ounces" which are a specified proportion of the total ounces of gold produced.

The amount of assistance payable to an operator is computed under the current formula by adding 25 p.c. to the product of the rate of assistance and the number of assistance ounces. The number of assistance ounces is two thirds of the total number of ounces produced in the assistance period. The rate-of-assistance factor is determined by taking two thirds of the amount by which the average cost of production per ounce exceeds $26.50. Thus, a gold mine that has an average cost of production less than $26.50 per ounce is not eligible for payment of assistance. The amount of assistance increases as the average cost of production increases from $26.50 to $45. A maximum rate of assistance of $12.33 per ounce precludes an increase in the amount of assistance as the average cost of production rises above $45 per ounce.

For purposes of the Act, the cost of production of gold from a mine is the cost properly attributable to the gold produced from the mine during the year and includes mining, milling, smelting, refining, transportation and administration costs and amounts for depreciation, pre-production expenses and expenditures on exploration and development as determined in accordance with the Regulations.

The amounts paid to operators of gold mines to Mar. 31, 1964, for the years 1948 to 1963, inclusive, totalled $185,895,965 on 46,418,762 oz.t. of gold produced and sold under the provisions of the Act. The assistance payable in respect of gold produced and sold under the Act in 1963 is estimated at $14,970,000.

Subsection 2.—Provincial Government Aid*

Newfoundland.—The Newfoundland Government, through its Mines Branch, provides several valuable services to those interested in prospecting and mining. It publishes, for sale at nominal cost, geological reports, geophysical maps and compilations of general data pertaining to specific areas and makes available, from unclassified files, various other information to interested parties. It identifies specimens sent in from Newfoundland and Labrador and assays by chemical means those that appear to have some mineral content. If good specimens from a known area warrant further investigation, a geologist from the Department of Mines, Agriculture and Resources is available to visit the locality and give advice. Prospector's or miner's permits are issued by the Department and claims are registered.

Nova Scotia.—Under the provisions of the Mines Act (RSNS 1954, c. 179), the Government of Nova Scotia may assist a mining company or operator in the sinking of shafts, slopes, deeps and winzes and the driving of adits, tunnels, crosscuts, raises and levels. This assistance may take the form of work performed under contract, the payment of bills for materials and labour, or the guarantee of bank loans. Any such work must be approved by the Department of Mines. The Government is also authorized to assist the mining industry to procure power on the most economical basis and may guarantee the Nova Scotia Power Commission against any loss of revenue incurred on account of capital investments made for that purpose. Mining machinery and equipment to be used in searching for or testing and mining minerals may be made available through the Government. Such equipment is under the direct supervision of the Chief Mining Engineer.

The Government of Nova Scotia is also empowered to make any regulations considered necessary for increasing the output of coal. Such regulations cover the appropriation, on payment, of unworked coal lands, the operation of coal mines, and loans or guarantees for loans. Close co-operation is maintained with the Federal Government in carrying out federal regulations made to secure increased production and economical distribution of coal from the mines of the province.

New Brunswick.—The Mines Branch of the Department of Lands and Mines has five divisions. The *Mineral Lands Division* administers the disposition of Crown mineral rights including the issuing of prospecting licences, recording of mining claims, issuing of mining licences and leases and other matters pertaining thereto. Detailed and index claim

* Compiled from material supplied by the respective provincial governments.

maps are prepared for distribution. The *Mine Inspection and Engineering Division* administers the safety regulations governing operations under the Mining Act. All mines are regularly inspected, laboratory facilities are maintained and all equipment used in mines must be approved by the Division. The *Geological Division* carries on general and detailed geological mapping and investigation. Maps and reports are prepared for distribution, mineral and rock specimens are examined for prospectors and preliminary examinations of mineral prospects are made when requested and circumstances warrant. The *Mine Assessment Division* is responsible for the collection of mining taxes and royalties and the preparation of statistics on mineral production. The *Bathurst Division* serves as recording office for northeastern New Brunswick. In addition, claim maps as well as topographical, geological and aero-magnetic maps are available for perusal and distribution. The staff is prepared to provide information concerning the Mining Act and the use of various types of maps.

Quebec.—The Mining Act (RSQ 1941, c. 196) authorizes the Department of Natural Resources of the Province of Quebec to build, maintain and improve roads needed for mining development. Such work is done by contract under the supervision of departmental engineers. The Act gives the Department considerable latitude in this respect. Certain major roads have been built to new mining districts and completely paid for; on the other hand, if a particular property requires a branch road from an established highway the owner may be required to contribute a portion of the cost. To prevent the development of uncontrolled settlements in the vicinity of operating mines, the Department regulates the use of land and permits the establishment of well organized communities.

The Department maintains well equipped laboratories for the benefit of prospectors, geologists, engineers and mine operators. The facilities include equipment for mineralogy, petrography, ore dressing, and analysis by wet or dry assay, spectrography or X-ray. Qualitative and mineralogical determinations are made free of charge but quantitative analyses are charged for according to a tariff schedule. The Mining Act provides free coupons to be used by prospectors in paying for such analyses. The province has authorized the establishment of research laboratories and a pilot plant to assist mining and metallurgical enterprises in the processes and techniques of extracting, transforming and utilizing ores.

Two branches of the Department undertake geological mapping and inspection—one responsible for reconnaissance (areal) mapping, and the other for detailed mapping in mining districts and inspection of individual deposits or properties. The published reports on these investigations are available on request. When weather permits, about 40 crews, headed by geologists or mining engineers, work in different regions of the province. In five mining areas, offices managed by resident geologists are maintained where geological information obtained from mining explorations is gathered and compiled and from which copies of such documentation may be obtained by the public. Furthermore, four other crews are engaged in hydrogeological surveying, mainly for the purpose of assisting municipalities in resolving their water supply problems.

Departmental inspectors supervise the observance of all regulations concerning the safety of workmen in operating mines. Three Mobile Mine Rescue Stations are operated and a mine rescue training program is conducted.

Five-week courses for the training of prospectors are conducted by Laval and Montreal Universities, and lectures are given at different localities throughout the province. University scholarships are granted each year to deserving undergraduate and postgraduate students in mining, geology and metallurgy, thus contributing to the training of qualified engineers for the benefit of the mining industry.

Ontario.—The Ontario Department of Mines renders a multiplicity of services of direct assistance to the mining industry within the province. The *Mining Lands Branch* of the Department handles all matters dealing with the recording of mining claims, assessment work, etc., and the preparation of title to mining lands. As a service to the mining

public, individual township maps are prepared and kept up to date showing lands open for staking and recorded and patented claims therein. District Mining Recorders maintain offices at strategic locations throughout the province. The *Geological Branch* carries on a continuing program of geological mapping and investigation and prepares, for the use of the public, detailed reports and maps of the areas studied. A program is under way, in co-operation with the Geological Survey of Canada, through which the whole province is to be flown and mapped in a series of airborne magnetometer surveys. In many active areas of the province, resident geologists gather and make available to the public information concerning geological conditions, exploration and development within their respective districts. A geologist specializing in industrial minerals investigates methods of treatment and recovery of such minerals and compiles data on the uses, specifications and markets for such products. During the winter months, courses of instruction for prospectors are held in various centres throughout the province.

The work done by the *Laboratory Branch* includes wet analyses and assays of metal and rock constituents on a custom fee basis, as well as mineralogical analyses and physical testing. The same service is given free of charge to holders of valid assay coupons issued for the performance of assessment work on mining claims. The *Temiskaming Testing Laboratories*, situated at Cobalt, operate a bulk sampling plant mainly to assist the producers of the area in marketing their silver-cobalt ores; they also perform fire assays and chemical analyses. The *Inspection Branch* administers the operating rules of the Mining Act which call for the regular examination of all operating mines, quarries, sand and gravel pits and certain metallurgical works with a view to ensuring proper conditions of health and safety to the men employed. District offices to serve the local areas are maintained in the major mining centres of the province. Mine rescue stations in the principal mining sections are operated under the supervision of the Branch and all hoisting ropes in use at mines are periodically tested by a Branch-operated cable-testing laboratory.

Since 1951 the Department has been engaged in a road-building program to give access to mineralized areas and open them for full development. In 1955 this became an interdepartmental project with other interested departments participating through an interdepartmental committee of Ministers which decides on priorities and locations. Actual construction is carried out by the Department of Highways. The federal-provincial Roads-to-Resources program was inaugurated in Ontario in 1959; under the terms of agreement, the federal and provincial governments share equally in the cost of constructing roads to otherwise inaccessible areas (see also the Transportation Chapter, Part III, Section 2).

The *Public Relations Office* of the Department carries out a regular publicity and information program and maintains a library of films on mining subjects which are available for free loan to the public. Each year, displays pertaining to mining are prepared and presented at the Canadian National Exhibition and elsewhere in the province.

Manitoba.—The Mines Branch of the Manitoba Department of Mines and Natural Resources offers five main services of assistance to the mining industry: maintenance, by the Mining Recorder's offices at Winnipeg and The Pas, of all records essential to the granting and retention of titles to every mineral location in Manitoba; compilation, by the geological staff of the Branch, of historical and current information pertinent to mineral occurrences of interest and expansion of this information by a continuing program of geological mapping; enforcement of mine safety regulations and, by collaboration with industry, introduction of new practices such as those concerned with mine ventilation and the training of mine rescue crews which contribute to the health and welfare of mine workers; and maintenance of a chemical and assay laboratory to assist the prospector and the professional man in the classification of rocks and minerals and the evaluation of mineral occurrences.

Manitoba also aids the mining industry by the construction of access roads to mining districts.

Saskatchewan.—Assistance to the mining industry in Saskatchewan is administered by the Mines Branch, Department of Mineral Resources, with its head office at Regina.

The *Geology Division* is directed by the Chief Geologist and maintains resident geologists in or near the principal mining areas. The Division conducts a prospectors' school which gives basic training in geology, mineralogy, prospecting and exploration techniques and administers the Prospectors' Assistance Plan which assists by lending equipment, paying certain transportation costs, paying for a grub-stake, and by providing technical advice. During the summer months, geological crews survey and map areas and prepare reports which are made available to the public. Exploration costs are also underwritten to the extent of 25 p.c. of air travel expenses incurred in connection with approved mineral exploration activities in the Precambrian area. A further 25-p.c. subsidy is offered for approved airborne geophysical surveys or other surveys involving special instrumentation. A royalty-free period for new mines of three years or until a net operating profit of $2,000,000 has been realized, whichever comes first, is allowed for Precambrian mines.

The *Engineering Division* administers the Mines Regulation Act, the purpose of which is to ensure safe working conditions in mines. Inspections of mines are carried out by Division officers, a Chief Engineer of Mines stationed at Regina, and an Inspector of Mines stationed at Uranium City. Safety education is also part of the Division's work, taking the form of first aid instruction, mine rescue training and analysis of accidents.

The *Mining Lands Division* is responsible for making disposition of all Crown minerals with the exception of petroleum, natural gas and helium, and maintains records respecting areas let out by lease, permit or claim. Recording offices, having the responsibility of assisting the public in determining the lands available and accepting applications, are located at Regina, Prince Albert, La Ronge, Uranium City and Flin Flon.

Alberta.—Alberta Government assistance to the mining industry is diversified in character. The Mines Division of the Department of Mines and Minerals regulates coal mines and quarries and maintains standards of safety by inspection and certification of workers. The Workmen's Compensation Board also maintains safety standards and trains mine rescue crews. The oil and gas industries are served in a similar way by the Oil and Gas Conservation Board. Its regulatory measures, however, are also concerned with preventing the waste of oil and gas resources and with giving each owner of oil and gas rights the opportunity of obtaining a fair share of production. This Board compiles periodic reports and annual records which are of invaluable assistance in oil development in Alberta. The mining industry is also served by the Research Council of Alberta which has made geological surveys of most of the province and has carried forward projects concerned with the uses and development of minerals. The Council has studied the occurrence, uses and analyses of Alberta coals and their particular chemical and physical properties, the use of coals in the generation of power, and the upgrading and cleaning of coal, and has also studied briquetting, blending, abrasion loss, shatter and crushing strength, asphalt binders and dust-proofing of coal. Studies have been made of glass sands, salt, fertilizers, cement manufacture and brick and tile manufacture. (See also pp. 387-388.)

The province from time to time has had commissions examine various aspects of the mining industry when it has considered that their findings would be of assistance in developing such industries. The province, together with the Canadian Association of Oil Well Drilling Contractors and the Western Canada Petroleum Association, maintains a detailed supervisory and safety training program concerned with the drilling of oil and gas wells. Of assistance also to mining companies and oil companies are the special deductions provided for in the Alberta Income Tax Act. These follow the parallel provisions in the federal Income Tax Act.

British Columbia.—The Department of Mines and Petroleum Resources of British Columbia provides the following services: detailed geological mapping as a supplement to

the work of the Geological Survey of Canada; free assaying and analytical work for prospectors registered with the Department; assistance to the prospector in the field by departmental engineers and geologists; grub-stakes, limited to a maximum of $700, for prospectors; assistance in the construction of mining roads and trails; and inspection of mines to ensure safe operating conditions.

Section 3.—Mining Legislation

Federal Mining Laws and Regulations.—The Federal Government administers mining laws in the Yukon Territory, the Northwest Territories and certain other lands vested in the Crown in the right of Canada. The Yukon Quartz and Placer Mining Acts and the Canada Mining Regulations which are applicable to the Northwest Territories and other Crown lands are administered by the Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources. Minerals underlying federal land under grants are reserved to the Crown, and mining rights may be acquired by staking mineral claims under the appropriate Acts or Regulations. Twenty-one-year leases of claims may be issued and these leases may be renewed. The disposal of mineral rights underlying Indian reservations is subject to the consent of the Indians occupying the reserve and to the treaties relating thereto.

The Northwest Territories Quartz Mining Regulations were replaced by the Canada Mining Regulations, Mar. 3, 1961, amended in 1962. The new Regulations provide for the exploration and development of minerals in the Northwest Territories and for the exploration and development of minerals underlying territorial waters of Canada and lying outside any of the provinces and the Yukon Territory. The revised Regulations require a prospector's licence to enter, locate and prospect on lands subject to the Regulations. However, a prospector's licence is not required to maintain claims in good standing.

Any individual over 18 years of age or any joint stock company incorporated or licensed to do business in Canada may hold a prospector's licence. Claim tenure is limited to ten years from the date of recording. At the end of ten years, the claim owner must apply for a lease or relinquish his rights. No lease will be granted to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease; no lease will be granted to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are owned by Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have the opportunity of participating in the financing and ownership of the corporation.

Any new mine beginning production after the Canada Mining Regulations came into force will not be required to pay royalties for a period of 36 months, starting from the day the mine comes into production.

Oil and Gas Legislation.—The Federal Government administers oil and gas laws and regulations in the Yukon and Northwest Territories, through the Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa. All land in both territories is, in the first instance, owned by the Federal Government, complete with under-rights. These include oil and gas rights. When title to land is granted by letters patent, surface rights only are conveyed and under-rights continue to be vested in the Federal Government, which may dispose of them under appropriate legislation. Nine-year to 12-year permits to explore for oil and gas and 21-year oil and gas leases are available.

The Government has set up the Canada Oil and Gas Land Regulations and the Canada Oil and Gas Drilling and Production Regulations, both dated June 6, 1961. They also include provisions for the exploration, development and production of oil and gas from land under all sea-coast waters of Canada which are not within any province.

An oil and gas exploration permit may be issued to any individual over 21 years of age or to any joint stock company incorporated or licensed to do business in Canada, or incorporated in any province of Canada. Permits are issued in periods of nine, 10 or 12 years, depending on the location, by which times the permittee is expected to apply for an oil and gas lease or relinquish his rights. No oil and gas lease will be issued to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease, or to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are beneficially owned by persons who are Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange, and that Canadians will have an opportunity of participating in the financing and ownership of the corporation.

Provincial Mining Laws and Regulations.*—All Crown mineral lands lying within the boundaries of the several provinces (with the exception of those within Indian reserves and National Parks which are under the jurisdiction of the Federal Government) are administered by the respective provincial governments.

The granting of land in any province except Ontario and Nova Scotia no longer carries with it mining rights upon or under such land. In Ontario mineral rights are expressly reserved if they are not to be included. In Nova Scotia no mineral rights belong to the owner of the land except those pertaining to gypsum, limestone and building materials, and the Governor in Council may declare deposits of either limestone or building materials to be minerals. Such declaration is to be based on economic value or to serve the public interest. In such case, the initial privilege of acquiring the declared minerals lies with the owner of the surface rights who must then conform with the requirements of the Mines Act. In Newfoundland, mineral and quarry rights are expressly reserved. Some early grants in British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, Quebec and Newfoundland also included certain mineral rights. Otherwise, mining rights must be separately obtained by lease or grant from the provincial authority administering the mining laws and regulations. Mining activities may be classified as placer, general minerals (or veined minerals and bedded minerals), fuels (coal, petroleum and gas) and quarrying. Provincial mining regulations under these divisions are summarized in the following paragraphs.

Placer.—In most provinces in which placer deposits occur there are regulations defining the size of placer holdings, the terms under which they may be acquired and held, and the royalties to be paid.

General Minerals.—These minerals are sometimes described as quartz, lode, or minerals in place. With the exception of British Columbia, the most elaborate laws and regulations apply in this division. In all provinces except Alberta and Saskatchewan, a prospector's or miner's licence, valid for one year, must be obtained to search for mineral deposits, the licence being general in some areas but limited in others; a claim of promising ground of a specified size may then be staked. In Saskatchewan, a licence is required only for staking and any number of dispositions may be staked under one licence. A claim must be recorded within a time limit and payment of recording fees made, except in Quebec where no fees are required. Work to a specified value per annum must be performed upon the claim for a period of up to ten years; in Saskatchewan there is no work commitment in the first year of the claim. There is no time limit in British Columbia but $500 assessment work, of which a survey may represent two fifths, must be performed and recorded before a lease may be obtained. In Quebec, a specified number of man-days of work must be performed and the excess may be carried forward for renewal of licence; before mining

* Compiled from material supplied by the provincial governments.

can be commenced, a mining concession must be purchased for which it is necessary to produce an engineer's report indicating the presence of an orebody. The taxation applied most frequently is a percentage of net profits of producing mines or royalties. In Newfoundland, the provincial mining tax was modified after Confederation on Mar. 31, 1949 to conform with the provincial obligations under the Dominion-Provincial Tax Agreement. No other form of taxation or royalty exists. In Saskatchewan, subsurface mineral regulations covering non-metallics stipulate the size and type of dispositions that may be made in order to maintain the disposition in good standing, provide for fees, rentals and royalties, and set out generally the rights and obligations of the disposition holder.

Fuels.—In provinces where coal occurs, the size of holdings is laid down together with the conditions of work and rental under which they may be held. In Quebec, ordinary mining claims give rights to all mineral substances and to their development, and stakings for combustible natural gas, salt, coal, mineral oil or naphtha, or iron sands may cover 1,280 acres per claim. In Nova Scotia, mining rights to certain minerals, including petroleum, occurring under differing conditions may be held by different licensees. Provision is sometimes made for royalties. Acts or regulations govern methods of production. In the search for petroleum and natural gas, an exploration permit or reservation is usually required; however, in Manitoba, Saskatchewan, Alberta and British Columbia leases usually follow the exploration reservation whether or not any discovery of oil or gas is made. In Manitoba, Saskatchewan and Alberta, exploration costs are applicable in part on the first year's lease rental. In other provinces, the discovery of oil or gas is usually prerequisite to obtaining a lease or grant of a limited area, subject to carrying out drilling obligations and paying a rental, a fee, or a royalty on production.

Quarrying.—Regulations under this heading define the size of holdings and the terms of lease or grant. In Nova Scotia, sand deposits of a quality suitable for uses other than building purposes and limestone deposits of metallurgical grade belong to the Crown; gypsum quarries belong to the owner of the property. On Quebec private lands the quarry belongs to the owner; on Crown lands mineral rights belong to the Crown and may be obtained in accordance with the provisions of the law although the rights to exploit peat or marl must be obtained by special licence. In Saskatchewan, sand and gravel belong to the owner of the surface of the land. In Alberta, sand, gravel, clay and marl recovered by excavating from the surface belong to the owner of the surface of the land.

Copies of mining legislation including regulations and other details may be obtained from the provincial authorities concerned.

Section 4.—Statistics of Mineral Production

Subsection 1.—Value and Volume of Mineral Production

Statistics of the annual value of mineral production are available from 1886, total production being shown for five-year intervals from that date to 1950 and annually for subsequent years in Table 3. These figures are not strictly comparable throughout the period because of minor changes in methods of computing metallic content of ores sold and valuations of products but they do serve to show broad trends in the mineral industry.

The mineral industry has tripled its value of output in the past 15 years. In 1949, the base year for many economic studies, the production per head of population was $67.01; by 1963 this had advanced to $158.94. Although part of the increase was accounted for by higher prices, the index of the volume of output from Canadian mines recorded an advance from 100.0 to 294.4 in the same period (see p. 575).

3.—Value of Mineral Production, 1886-1963

Year	Total Value	Value per Capita	Year	Total Value	Value per Capita	Year	Total Value	Value per Capita
	$	$		$	$		$	$
1886	10,221,255	2.23	1930	279,873,578	27.42	1955	1,795,310,796	114.37
1890	16,763,353	3.51	1935[1]	312,344,457	28.84	1956	2,084,905,554	129.65
1895	20,505,917	4.08	1940	529,825,035	46.55	1957	2,190,322,392	131.87
1900	64,420,877	12.15	1945	498,755,181	41.31	1958	2,100,739,038	122.99
1905	69,078,999	11.51	1950[2]	1,045,450,073	76.24	1959	2,409,020,511	137.79
1910	106,823,623	15.29	1951	1,245,483,595	88.90	1960	2,492,509,981	139.48
1915	137,109,171	17.18	1952	1,285,342,353	88.90	1961	2,582,300,387	141.59
1920	227,859,665	26.63	1953	1,336,303,503	90.02	1962	2,850,986,179	153.53
1925	226,583,333	24.38	1954	1,488,382,091	97.36	1963p	3,003,409,918	158.94

[1] Beginning with 1935, exchange equalization on gold production is included. [2] Value of Newfoundland production included from 1949.

4.—Value of Mineral Production, by Class, 1954-63

Year	Metallics	Non-metallics	Fuels	Structural Materials	Total
	$	$	$	$	$
1954	802,401,423	128,038,507	352,959,465	204,982,696	1,488,382,091
1955	1,007,839,501	144,920,841	414,318,015	228,232,439	1,795,310,796
1956	1,146,349,595	160,341,599	518,761,191	259,453,169	2,084,905,554
1957	1,159,579,226	169,061.110	564,776,791	296,905,265	2,190,322,392
1958	1,130,160,395	150,354,802	510,768,681	309,455,160	2,100,739,038
1959	1,370,648,535	178,216,641	535,577,823	324,577,512	2,409,020,511
1960	1,406,558,061	197,505,783	565,851,829	322,594,308	2,492,509,981
1961	1,387,159,036	210,467,786	653,327,802	331,345,763	2,582,300,387
1962	1,496,433,950	217,453,009	780,932,387	356,166,833	2,850,986,179
1963p	1,504,532,688	250,890,047	882,412,442	365,574,741	3,003,409,918

Current Production.—The estimated value of mineral products shipped in Canada during 1963 was over $3,000,000,000, and was 5.3 p.c. above the 1962 value. Canada's mineral output exceeded $500,000,000 in value for the first time in 1940, passed the $1,000,000,000-mark in 1950 and exceeded $2,000,000,000 in 1956.

Metals, ores and concentrates produced in 1963 were valued at $1,505,000,000, an amount slightly higher than in 1962. Nickel contributed $363,000,000, iron ore $292,000,000 and copper $288,000,000, together making up almost 63 p.c. of the total 1963 metal output. There was a reduction in output of nickel-copper in the Sudbury area of Ontario but new base-metal mines came into production in British Columbia and the Maritime Provinces. The values of gold and uranium produced were below those of 1962 but silver, priced at an all-time high average of $1.38 oz.t., yielded about $7,000,000 more than in 1962, although the quantity shipped was only slightly higher.

The value of shipments of non-metallic minerals in 1963 increased 15.4 p.c. to reach $251,000,000. More than half of this total was accounted for by an asbestos output of $135,000,000, an amount approximately $5,000,000 higher than in 1962. Salt output was valued at $23,000,000 and potash, a new product with a high potential, at about the same amount. Over 1,000,000 tons of elemental sulphur were shipped from the natural gas processing plants of Alberta and, although production of sulphur exceeds current demand, there has been a notable increase in export sales.

An increase of over $100,000,000 brought the value of mineral fuels produced in 1963 to $882,000,000. Crude petroleum output of 260,000,000 bbl. was a new high and natural gas output exceeded 1,000,000,000 Mcf. for the first time, resulting in a corresponding increase in production of the by-products of the natural gas industry. Coal output remained about the same as in 1962.

Structural materials were valued at $366,000,000 as compared with $356,000,000 in 1962. The demand for brick, tile, cement and lime was about the same but more stone, sand and gravel were used in highway construction.

5.—Quantity and Value of Mineral Production, 1961-63

Mineral		1961		1962		1963	
		Quantity	Value	Quantity	Value	Quantity	Value
			$		$		$
Metallics	...	...	**1,387,159,036**	...	**1,496,433,950**	...	**1,504,532,688**
Antimony	lb.	1,331,297	469,948	1,931,397	748,223	1,525,830	595,074
Bismuth	"	478,118	957,625	425,102	839,912	380,289	747,458
Cadmium	"	1,357,874	2,172,598	2,604,973	4,730,957	2,431,171	5,834,809
Calcium	"	99,355	100,881	123,511	124,412	79,429	97,698
Cobalt	"	3,182,897	4,751,543	3,481,922	6,245,205	2,815,184	5,324,032
Columbium (Cb_2O_5)	"	62,229	65,619	1,016,514	1,006,349	1,270,000	1,260,000
Copper	"	878,175,084	255,157,626	914,770,211	282,732,696	917,470,086	287,704,456
Gold	oz.t.	4,473,699	158,637,366	4,178,396	156,313,794	3,979,003	150,175,632
Indium	"	..	..	..	..	..	..
Iron ore	ton	20,359,003	187,950,047	27,359,676	263,004,217	30,134,598	292,360,801
Iron, remelt	"	..	14,720,064	..	9,845,669	..	11,736,936
Lead	lb.	460,869,392	47,054,765	430,658,673	42,721,341	411,797,459	45,297,722
Magnesium	"	15,270,618	4,307,570	17,631,310	4,821,823	17,390,900	5,391,179
Molybdenum	"	771,358	1,092,201	817,705	1,261,451	1,000,000	1,534,000
Nickel	"	465,982,868	351,261,720	464,483,999	383,784,622	437,298,121	362,781,957
Platinum, metals	oz.t.	418,278	24,534,349	470,787	28,848,637	344,736	21,848,696
Selenium	lb.	430,612	2,798,978	487,066	2,800,630	482,960	2,240,101
Silver	oz.t.	31,381,977	29,580,651	30,422,972	35,442,761	30,739,429	42,543,371
Tellurium	lb.	77,609	376,404	58,725	352,350	74,942	483,271
Thorium	"	..	..	..	..	..	..
Tin	"	1,119,350	727,578	650,941	442,640	1,062,073	743,450
Tungsten (WO_3)	"	—	—	3,580	1,611	..	..
Uranium (U_3O_8)	"	19,281,465	195,691,624	16,859,169	158,183,669	16,281,957	148,890,731
Zinc	"	832,008,584	104,749,879	926,289,098	112,080,981	915,033,762	116,941,314
Non-metallics	...	...	**210,467,786**	...	**217,453,009**	...	**250,890,047**
Arsenious oxide	lb.	419,200	16,772	160,750	6,832	187,450	7,498
Asbestos	ton	1,173,695	128,955,900	1,215,814	130,281,966	1,272,024	134,880,206
Barite	"	191,404	1,799,119	226,600	2,123,964	177,079	1,753,728
Diatomite	"	214	8,817	211	10,228	322	12,880
Feldspar	"	10,507	229,626	9,994	222,460	8,557	194,954
Fluorspar	"	..	1,990,200	..	1,870,184	..	2,004,200
Garnet	"	80	3,200	—	—	—	—
Graphite	"	1	146	—	—	2	1,400
Grindstone	"	10	2,000	10	2,000	10	2,000
Gypsum	"	4,940,037	7,750,748	5,332,809	9,349,775	5,931,636	11,101,058
Iron oxides	"	808	68,199	771	58,363	1,004	73,866
Lithia	lb.	536,190	392,871	499,736	558,654	663,208	700,800
Magnesitic dolomite and brucite	ton	..	3,064,403	..	3,431,873	..	3,106,092
Mica	lb.	1,816,160	125,377	1,204,024	84,598	1,068,650	61,817
Mineral waters	gal.	364,933	208,709	377,248	207,325	..	..
Nepheline syenite	ton	240,320	2,572,169	254,418	2,605,421	255,409	2,508,356
Peat moss	"	224,031	7,295,087	238,035	7,480,396	258,857	8,923,632
Potash (K_2O)	"	—	—	..	3,000,000	..	22,500,000
Pozzolana	"	..	2,000	..	4,927	..	5,000
Pyrite, pyrrhotite	"	517,258	1,830,566	517,308	1,879,584	492,073	1,759,226
Quartz	"	2,194,054	3,152,882	2,085,620	3,817,445	1,942,355	4,209,777
Salt	"	3,246,527	19,552,006	3,638,778	21,927,135	3,733,985	22,501,851
Soapstone, talc and pyrophyllite	"	48,116	690,630	46,161	625,208	54,641	771,864
Sodium sulphate	"	250,996	4,036,625	246,672	3,954,273	254,078	4,065,625
Sulphur in smelter gas	"	277,056	2,708,110	292,728	3,089,537	311,156	3,261,596
Sulphur, elemental	"	394,762	7,287,881	695,098	9,286,999	1,161,661	12,232,668
Titanium dioxide, etc.	"	..	16,723,743	..	11,573,862	..	14,249,953
Fuels	...	...	**653,327,802**	...	**780,932,387**	...	**882,412,442**
Coal	ton	10,397,704	70,052,683	10,284,769	69,160,213	10,509,005	71,616,557
Natural gas	Mcf.	655,737,644	68,421,918	946,702,727	108,641,159	1,070,900,800	109,325,200
Natural gas by-products	bbl.	..	27,292,959	..	50,778,506	..	68,251,585
Petroleum, crude	"	220,848,080	487,560,242	244,115,152	552,352,509	259,613,000	633,219,100
Structural Materials	...	...	**331,345,763**	...	**356,166,933**	...	**365,574,741**
Clay products (brick, tile, etc.)	...	...	36,982,948	...	37,816,878	...	37,758,646
Cement	ton	6,205,948	103,923,644	6,878,729	113,232,726	6,988,412	117,588,571
Lime	"	1,415,290	19,217,371	1,424,459	17,646,588	1,439,583	17,447,478
Sand and gravel	"	170,750,947	104,654,132	181,245,762	118,603,283	185,498,913	121,167,131
Stone	"	48,938,804	66,567,668	50,553,485	68,866,358	55,090,659	71,612,915
Grand Totals	...	...	**2,582,300,387**	...	**2,850,986,179**	...	**3,003,409,918**

Analysis of Current Value and Volume.—To present a clearer and simpler interpretation of the trends in mineral production in Canada over the ten years 1954-63, the percentage of the total value contributed by each principal mineral in each year is given in Table 6.

6.—Percentage of the Total Value Contributed by Principal Minerals, 1954-63

Mineral	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Metallics[1]	**53.7**	**56.1**	**54.9**	**52.9**	**53.8**	**56.9**	**56.4**	**53.7**	**52.6**	**50.5**
Copper	11 8	13.4	14.1	9.4	8.3	9.7	10.6	9.9	9.9	9.7
Gold	10.0	8.7	7.3	6.8	7.4	6.2	6.3	6.1	5.5	5.0
Iron ore	6.2	6.2	7.6	7.6	6.0	8.0	7.0	7.3	9.2	9.8
Lead	3.9	3.2	2.8	2.3	2.0	1.6	1.8	1.8	1.5	1.6
Nickel	12.1	12.0	10.8	11.8	9.2	10.7	11.9	13.6	13.5	12.1
Platinum metals	1.4	1.3	1.1	1.2	0.7	0.5	1.2	0.9	1.0	0.7
Silver	1.7	1.4	1.2	1.1	1.3	1.2	1.2	1.1	1.2	1.4
Uranium	1.8	1.4	2.2	6.2	13.3	13.7	10.8	7.6	5.6	5.9
Zinc	6.1	6.6	6.1	4.6	4.4	4.0	4.4	4.1	3.9	3.9
Non-metallics[1]	**8.8**	**8.1**	**8.3**	**7.7**	**7.2**	**7.4**	**7.9**	**8.2**	**7.5**	**7.7**
Asbestos	5.8	5.4	5.3	4.8	4.4	4.5	4.9	5.0	4.6	4.5
Gypsum	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.4
Quartz	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Salt	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.8
Sulphur in smelter gas	0.3	0.3	0.4	0.1	0.2	0.1	0.1	0.1	1.1	0.1
Sulphur, elemental	—	—	—	—	—	0.1	0.2	0.3	0.3	0.4
Titanium dioxide, etc.	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.5
Fuels	**23.7**	**23.1**	**24.9**	**25.8**	**24.3**	**22.2**	**22.7**[1]	**25.3**[1]	**27.4**[1]	**29.6**[1]
Coal	6.5	5.2	4.6	4.1	3.8	3.1	3.0	2.7	2.4	2.4
Natural gas	0.8	0.9	0.9	1.0	1.5	1.6	2.1	2.6	3.8	3.7
Petroleum	16.4	17.0	19.4	20.7	19.0	17.5	17.0	18.9	19.4	21.2
Structural Materials	**13.8**	**12.7**	**11.9**	**13.6**	**14.7**	**13.5**	**12.9**	**12.8**	**12.5**	**12.2**
Clay products	2.2	2.0	1.8	1.6	2.0	1.8	1.5	1.4	1.3	1.3
Cement	4.0	3.6	3.8	4.3	4.6	4.0	3.7	4.0	4.0	3.9
Lime	1.0	0.9	0.7	0.8	0.9	0.9	0.8	0.7	0.6	0.6
Sand and gravel	4.0	3.8	3.5	4.2	4.6	4.3	4.5	4.1	4.2	4.0
Stone	2.6	2.4	2.1	2.7	2.6	2.5	2.4	2.6	2.4	2.4
Grand Totals	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

[1] Includes minor items not specified.

With 1949 production levels equalling 100,* the total quantity of mineral output had reached an all-time high of 294.4 by 1963, an increase of 2.4 p.c. over the previous year. The most significant gains were recorded in the iron ore, natural gas and crude petroleum industries, with lesser gains in asbestos and coal. Declines occurred in gold, copper, nickel and uranium (not shown).

* For a description of this index, as well as one for manufacturing and electric power and gas utilities, see DBS Reference Paper *Revised Index of Industrial Production, 1935-1957 (1949=100)* (Catalogue No. 61-502). To update these series and others in the Index of Industrial Production, see DBS monthly report *Index of Industrial Production (1949=100)* (Catalogue No. 61-005).

7.—Indexes of the Volume of Production of the Principal Mining Industries, 1954-63

(1949=100)

Mineral	1954	1955	1956	1957	1958	1959	1960	1961	1962r	1963
Metallics	**129.0**	**142.7**	**151.0**	**170.0**	**180.3**	**201.3**	**197.9**	**191.7**	**197.7**	**193.8**
Copper[1]	114.8	123.7	135.2	137.1	131.8	151.6	168.7	169.5	176.7	174.0
Gold[1]	105.8	110.2	107.9	106.7	109.7	108.4	111.2	107.1	100.1	95.5
Nickel[1]	125.3	135.9	139.0	146.8	110.2	144.8	166.9	183.8	184.2	171.0
Iron ore	185.4	316.5	418.6	462.6	321.5	448.9	406.3	504.7	632.5	670.8
Non-metallics	**161.4**	**180.2**	**187.6**	**179.0**	**171.1**	**191.4**	**192.6**	**211.7**	**222.5**	**228.1**
Asbestos	167.8	191.9	188.4	184.3	178.3	193.5	201.4	223.4	224.1	239.1
Fuels	**215.6**	**273.2**	**344.7**	**358.2**	**329.5**	**363.1**	**380.2**	**430.7**	**480.8**	**513.6**
Coal	75.2	74.1	76.6	65.4	56.7	51.9	53.3	49.9	48.8	52.0
Natural gas	169.6	204.5	235.0	295.1	401.6	503.9	589.2	712.0	1,005.7	1,179.8
Petroleum	457.8	616.8	812.7	859.5	782.6	873.7	909.9	1,043.7	1,154.0	1,221.6
Total Mining	**158.7**	**185.2**	**212.3**	**227.8**	**227.0**	**251.1**	**253.3**	**266.9**	**287.4**	**294.4**

[1] Based on commodity data.

Subsection 2.—Provincial Distribution of Mineral Production

Certain changes in provincial mineral production in 1963 are worthy of note. Newfoundland increased its output of iron ore when the Carol Lake project was brought into production. Nova Scotia increased the output of its major mineral products—gypsum, salt and coal. In New Brunswick, some of the base-metal mines resumed operations. In Quebec, three new base-metal mines—Orchan, New Hosco and Mattagami Lake—were officially brought into production on the same day—Oct. 16. The Sudbury area of Ontario did not produce as much nickel and copper as in the previous year, but Manitoba's base-metal mines increased their output of both these metals as well as of lead. Potash in Saskatchewan boosted the mineral value of the province by $23,000,000. The energy minerals—oil, gas and coal—of Alberta continued their upward trend with an increase of $66,000,000 over 1962. New copper mines in British Columbia helped to raise the value of that province's metallic output to $171,000,000. The Yukon Territory benefited from higher silver prices, but the closing of the nickel-copper mine in the Northwest Territories brought the total mineral output for the Territories down from 1962.

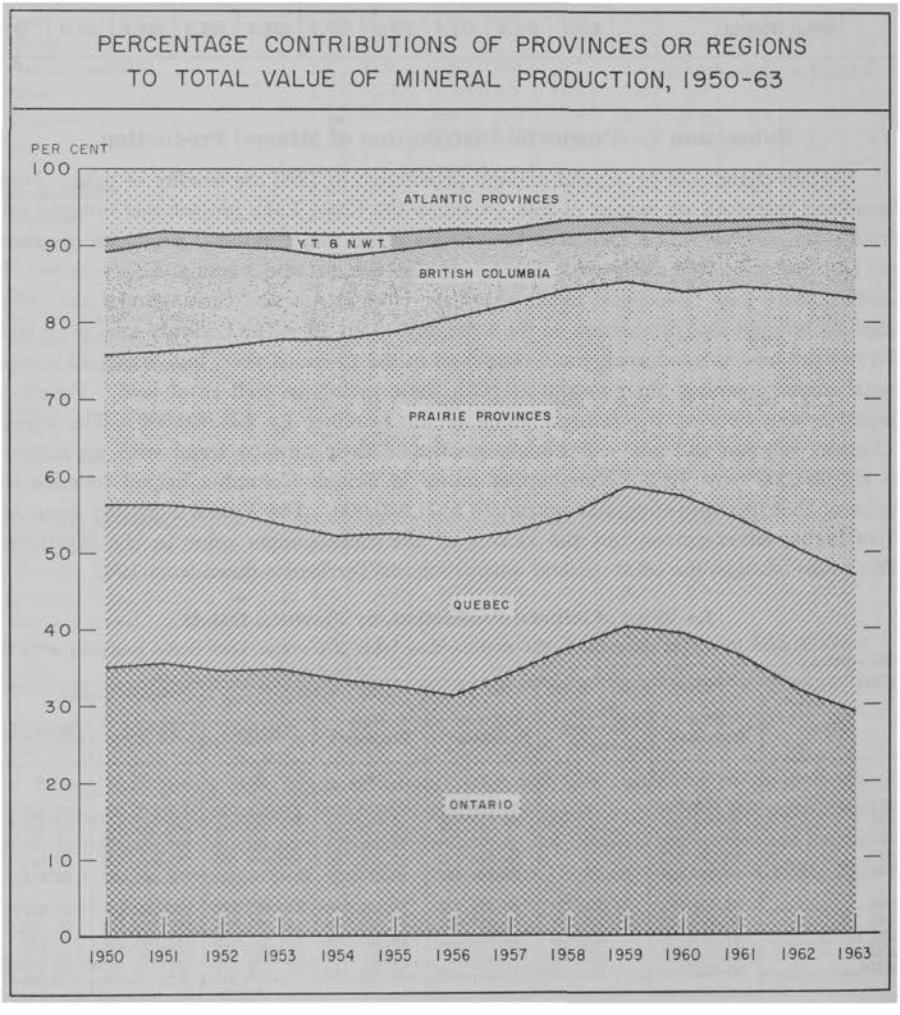
8.—Value of Mineral Production, by Province, 1954-63

NOTE.—Figures from 1899 are given in the corresponding table of previous Year Books beginning with the 1933 edition.

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	$	$	$	$	$	$	$
1954	42,898,033	—	73,450,898	12,468,322	278,818,070	496,747,571	35,106,922
1955	68,462,956	—	67,133,539	15,759,744	357,010,045	583,954,682	62,018,231
1956	84,249,006	—	66,092,274	18,258,302	422,464,410	650,823,362	67,909,407
1957	82,682,263	—	68,058,743	23,120,689	406,055,757	748,824,322	63,464,285
1958	64,994,754	—	62,706,891	16,275,971	365,706,489	789,601,868	57,217,569
1959	72,156,996	4,559,171	62,879,647	18,133,290	440,897,186	970,762,201	55,512,410
1960	86,637,123	1,172,587	65,453,531	17,072,739	446,202,726	982,104,412	58,702,697
1961	91,618,709	606,644	61,693,156	18,804,385	455,522,933	943,669,456	101,489,787
1962	101,858,960	677,906	61,651,093	21,811,575	519,453,166	913,342,174	158,932,169
1963p	121,785,645	654,120	67,307,328	26,501,143	537,388,211	874,783,824	169,832,024

8.—Value of Mineral Production, by Province, 1954-63—concluded

Year	Saskatchewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Canada
	$	$	$	$	$	$
1954	68,216,009	279,042,735	158,630,867	16,588,664	26,414,000	1,488,382,091
1955	85,150,128	325,974,326	189,524,574	14,724,750	25,597,821	1,795,310,796
1956	122,744,698	411,171,898	203,277,828	15,656,434	22,157,935	2,084,905,554
1957	173,461,037	410,211,763	178,931,120	14,111,798	21,400,615	2,190,322,392
1958	209,940,966	345,939,248	151,149,136	12,310,756	24,895,390	2,100,739,038
1959	210,042,051	376,215,593	159,395,092	12,592,378	25,874,496	2,409,020,511
1960	212,093,225	395,344,010	186,261,646	13,320,198	27,135,087	2,492,509,981
1961	215,977,233	473,480,540	188,542,078	12,750,304	18,145,162	2,582,300,387
1962	240,653,502	566,502,703	235,428,135	13,137,730	17,537,066	2,850,986,179
1963p	279,576,318	635,001,853	260,715,547	14,626,150	15,237,755	3,003,409,918



9.—Detailed Mineral Production, by Province, 1962 with Preliminary Totals for 1963

Mineral		Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and Northwest Territories	Canada 1962	Canada 1963[p]
Metallics	$	**93,283,793**	—	**1,685,182**	**3,483,969**	**281,432,864**	**729,769,944**	**128,835,154**	**71,161,033**	**6,978**	**156,993,998**	**29,781,035**	**1,496,433,950**	**1,504,532,688**
Antimony	lb.	—	—	—	—	—	—	—	—	—	1,931,397	—	1,931,397	1,525,830
	$	—	—	—	—	—	—	—	—	—	748,223	—	748,223	595,074
Bismuth	lb.	—	—	—	—	196,501	—	—	—	—	228,601	—	425,102	380,289
	$	—	—	—	—	332,418	—	—	—	—	507,494	—	839,912	747,458
Cadmium	lb.	—	—	—	—	66,293	—	189,272	128,223	—	2,086,692	134,493[1]	2,604,973	2,431,171
	$	—	—	—	—	114,024	—	325,548	220,544	—	3,839,513	231,328[1]	4,730,957	5,834,809
Calcium	lb.	—	—	—	—	—	123,511	—	—	—	—	—	123,511	79,429
	$	—	—	—	—	—	124,412	—	—	—	—	—	124,412	97,698
Cobalt	lb.	—	—	—	—	—	2,649,193	832,729	—	—	—	—	3,481,922	2,815,184
	$	—	—	—	—	—	4,765,808	1,579,397	—	—	—	—	6,345,205	5,324,032
Columbium (Cb_2O_5)	lb.	—	—	—	—	1,016,514	—	—	—	—	—	—	1,016,514	1,270,000
	$	—	—	—	—	1,006,349	—	—	—	—	—	—	1,006,349	1,260,000
Copper	lb.	34,616,626	—	407,418	7,347,949	294,861,820	377,990,690	25,475,004	64,033,759	—	108,979,144	1,057,801[2]	914,770,211	917,470,086
	$	10,731,154	—	126,300	2,277,864	91,407,164	116,347,723	7,897,714	19,850,465	—	33,766,394	327,918[2]	282,732,696	287,704,456
Gold	oz.t.	13,966	—	—	553	993,560	2,421,249	68,259	66,034	186	159,492	455,097[2]	4,178,396	3,979,003
	$	522,468	—	—	20,688	37,169,080	90,678,924	2,553,569	2,470,332	6,958	5,966,596	17,025,179[2]	156,313,794	150,175,632
Indium	oz.t.	—	—	—	—	—	—	—	—	—	..	—	..	..
	$	—	—	—	—	—	—	—	—	—	..	—	..	..
Iron ore	ton	7,986,910	—	—	—	11,163,982	6,414,936	—	—	—	1,793,848	—	27,359,676	30,134,598
	$	67,753,153	—	—	—	112,444,643	64,479,510	—	—	—	18,326,911	—	263,004,217	292,360,801
Iron, remelt	ton	—	—	—	—	—	—	—	—	—	—	—	..	..
	$	—	—	—	—	9,845,669	—	—	—	—	—	—	9,845,669	11,736,936
Lead	lb.	50,660,572	—	5,363,377	3,758,717	9,432,012	2,287,087	7,584,246	—	—	335,282,537	16,290,125[1]	430,658,673	411,797,459
	$	5,025,529	—	532,047	372,865	935,656	226,879	752,357	—	—	33,260,028	1,615,980[1]	42,721,341	45,297,722
Magnesium	lb.	—	—	—	—	—	17,631,310	—	—	—	—	—	17,631,310	17,390,900
	$	—	—	—	—	—	4,821,823	—	—	—	—	—	4,821,823	5,391,179
Molybdenum	lb.	—	—	—	—	817,705	—	—	—	—	—	—	817,705	1,000,000
	$	—	—	—	—	1,261,451	—	—	—	—	—	—	1,261,451	1,534,000
Nickel	lb.	—	—	—	—	3,080,117	333,163,344	122,963,069	—	—	3,476,467	1,801,002[4]	464,483,999	437,298,121
	$	—	—	—	—	2,571,898	274,219,955	102,586,082	—	—	2,902,850	1,503,837[4]	383,784,622	362,781,957
Platinum metals	oz.t.	—	—	—	—	—	470,782	—	—	—	5	—	470,787	344,736
	$	—	—	—	—	—	28,848,262	—	—	—	375	—	28,848,637	21,848,696
Selenium	lb.	—	—	—	—	276,409	142,915	11,477	56,265	—	—	—	487,066	482,960
	$	—	—	—	—	1,589,352	821,761	65,993	323,524	—	—	—	2,800,630	2,240,101
Silver	oz.t.	1,181,648	—	724,245	178,521	4,603,019	9,383,445	847,879	762,215	17	6,186,937	6,555,046[5]	30,422,972	30,739,429
	$	1,376,620	—	843,745	207,977	5,362,517	10,931,713	987,779	887,980	20	7,207,782	7,636,628[5]	35,442,761	42,543,371
Tellurium	lb.	—	—	—	—	45,724	7,011	1,008	4,982	—	—	—	58,725	74,942
	$	—	—	—	—	274,344	42,066	6,048	29,892	—	—	—	352,350	483,271
Thorium	lb.	—	—	—	—	—	..	—	—	—	—	—	..	..
	$	—	—	—	—	—	..	—	—	—	—	—	..	..

For footnotes, see end of table, p. 579.

9.—Detailed Mineral Production, by Province, 1962 with Preliminary Totals for 1963—concluded

Mineral	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and Northwest Territories	Canada 1962	Canada 1963p
Metallics—concl.													
Tin.....lb.	—	—	—	—	—	—	—	—	—	650,941	—	650,941	1,062,073
$	—	—	—	—	—	—	—	—	—	442,640	—	442,640	743,450
Tungsten (WO_3).lb.	—	—	—	—	—	—	—	—	—	—	3,580[1]	3,580	..
$	—	—	—	—	—	—	—	—	—	—	1,611[1]	1,611	..
Uranium (U_3O_8)lb.	—	—	—	—	—	12,805,203	—	4,053,966	—	—	—	16,859,169	16,281,957
$	—	—	—	—	—	118,283,081	—	39,900,588	—	—	—	158,183,669	148,890,731
Zinc.....lb.	65,081,560	—	1,513,140	4,996,488	141,473,544	126,264,684	99,840,226	61,799,241	—	413,431,339	11,888,876[1]	926,289,098	915,033,762
$	7,874,869	—	183,090	604,575	17,118,299	15,278,027	12,080,667	7,477,708	—	50,025,192	1,438,554[1]	112,080,981	116,941,314
Non-metallics.....$	**2,497,958**	—	**12,471,074**	**1,571,082**	**136,565,151**	**27,321,129**	**2,165,585**	**8,451,193**	**9,762,671**	**16,647,166**	—	**217,453,009**	**250,890,047**
Arsenious oxide..lb.	—	—	—	—	—	160,750	—	—	—	—	—	160,750	187,450
$	—	—	—	—	—	6,832	—	—	—	—	—	6,832	7,498
Asbestos.....ton	—	—	—	—	1,125,131	35,551	—	—	—	55,132	—	1,215,814	1,272,024
$	—	—	—	—	114,297,886	5,686,720	—	—	—	10,297,360	—	130,281,966	134,880,206
Barite.....ton	—	—	220,089	—	—	—	—	—	—	6,511	—	226,600	177,079
$	—	—	2,066,902	—	—	—	—	—	—	57,062	—	2,123,964	1,753,728
Diatomite.....ton	—	—	—	—	—	—	—	—	—	211	—	211	322
$	—	—	—	—	—	—	—	—	—	10,228	—	10,228	12,880
Feldspar.....ton	—	—	—	—	9,994	—	—	—	—	—	—	9,994	8,557
$	—	—	—	—	222,460	—	—	—	—	—	—	222,460	194,954
Fluorspar.....ton	..	—	—	—	—	—	—	—	—	—	—	..	..
$	1,870,184	—	—	—	—	—	—	—	—	—	—	1,870,184	2,004,200
Graphite.....ton	—	—	—	—	—	—	—	—	—	—	—	—	2
$	—	—	—	—	—	—	—	—	—	—	—	—	1,400
Grindstone.....ton	—	—	—	10	—	—	—	—	—	—	—	10	10
$	—	—	—	2,000	—	—	—	—	—	—	—	2,000	2,000
Gypsum.....ton	83,992	—	4,451,072	91,835	—	435,140	122,870	—	—	147,900	—	5,332,809	5,931,636
$	284,564	—	7,113,517	161,649	—	1,007,818	338,527	—	—	443,700	—	9,349,775	11,101,058
Iron oxide.....ton	—	—	—	—	771	—	—	—	—	—	—	771	1,004
$	—	—	—	—	58,363	—	—	—	—	—	—	58,363	73,866
Lithia.....lb.	—	—	—	—	499,736	—	—	—	—	—	—	499,736	663,208
$	—	—	—	—	558,654	—	—	—	—	—	—	558,654	700,800
Magnesitic dolo-ton	—	—	—	—	..	—	—	—	—	—	—	..	..
mite and brucite $	—	—	—	—	3,431,873	—	—	—	—	—	—	3,431,873	3,106,092
Mica.....lb.	—	—	—	—	702,762	501,272	—	—	—	—	—	1,204,034	1,068,650
$	—	—	—	—	75,350	9,248	—	—	—	—	—	84,598	61,817
Mineral water..gal.	—	—	—	—	372,048	5,200	—	—	—	—	—	377,248	—
$	—	—	—	—	204,545	2,780	—	—	—	—	—	207,325	—
Nepheline ton	—	—	—	—	—	254,418	—	—	—	—	—	254,418	255,409
syenite, $	—	—	—	—	—	2,605,421	—	—	—	—	—	2,605,421	2,508,356
Peat moss.....ton	—	—	4,734	35,010	77,889	24,801	19,720	—	—	75,881	—	238,035	258,857
$	—	—	132,866	1,407,433	1,968,483	455,826	812,724	—	—	2,703,064	—	7,480,396	8,923,632

Potash (K_2O)	ton	—	—	—	—	—	—	—	...	—	—	—	...	...
	$	—	—	—	—	—	—	—	3,000,000	—	—	—	3,000,000	22,500,000
Pozzolana	ton	—	—	—	—	—	—	—	—	—	...	—	...	...
	$	—	—	—	—	—	—	—	—	—	4,927	—	4,927	5,000
Pyrite, pyrrhotite.	ton	—	—	—	—	...	—	—	—	—	...	—	517,308	492,073
	$	—	—	—	—	1,813,785	—	—	—	—	65,799	—	1,879,584	1,759,226
Quartz	ton	—	—	2,502	—	392,395	1,352,613	120,541	172,219	—	45,350	—	2,085,620	1,942,355
	$	—	—	45,036	—	2,037,944	1,077,784	322,806	137,775	—	196,100	—	3,817,445	4,209,777
Salt	ton	—	—	312,519	—	—	3,155,589	25,010	54,931	90,729	—	—	3,638,778	3,733,985
	$	—	—	3,112,753	—	—	15,387,911	634,538	1,337,471	1,454,462	—	—	21,927,135	22,501,851
Soapstone, talc, pyrophyllite.	ton	22,794	—	—	—	15,285	8,082	—	—	—	—	—	46,161	54,641
	$	343,210	—	—	—	154,086	127,912	—	—	—	—	—	625,208	771,864
Sodium sulphate.	ton	—	—	—	—	—	—	—	246,672	—	—	—	246,672	254,078
	$	—	—	—	—	—	—	—	3,954,273	—	—	—	3,954,273	4,065,625
Sulphur, in smelter gas.	ton	—	—	—	—	...	...	—	—	—	...	—	292,728	311,156
	$	—	—	—	—	167,860	915,442	—	—	—	2,006,235	—	3,089,537	3,261,596
Sulphur, elemental.	ton	—	—	—	—	—	...	...	...	...	...	—	695,098	1,161,661
	$	—	—	—	—	—	37,435	56,990	21,674	8,308,209	862,691	—	9,286,999	12,232,668
Titanium dioxide, etc.	ton	—	—	—	—	...	—	—	—	—	—	—	...	...
	$	—	—	—	—	11,573,862	—	—	—	—	—	—	11,573,862	14,249,953
Fuels	$	—	—	**41,713,202**	**6,900,984**	—	**9,463,561**	**9,435,819**	**150,511,846**	**524,651,623**	**37,361,591**	**893,761**	**780,932,387**	**882,412,442**
Coal	ton	—	—	4,204,779	815,529	—	—	—	2,256,306	2,087,310	913,196	7,649[1]	10,284,769	10,509,005
	$	—	—	41,713,202	6,752,042	—	—	—	4,553,900	9,969,608	6,056,263	115,198[1]	69,160,213	71,616,557
Natural gas	Mcf.	—	—	—	95,750	—	15,648,294	—	38,845,732	770,963,122	121,093,122	56,707[4]	946,702,727	1,070,900,800
	$	—	—	—	134,476	—	5,802,387	—	2,295,783	88,660,759	11,724,236	23,518[4]	108,641,159	109,325,200
Natural gas, by-products.	bbl.	—	—	—	—	—	—	—	...	...	...	—	...	...
	$	—	—	—	—	—	—	—	1,878,643	46,190,893	2,708,970	—	50,778,506	68,251,585
Petroleum, crude.	bbl.	—	—	—	10,333	—	1,134,534	3,926,683	64,432,411	165,124,967	8,914,220	572,004[4]	244,115,152	259,613,000
	$	—	—	—	14,466	—	3,661,174	9,435,819	141,783,520	379,830,363	16,872,122	755,045[4]	552,352,509	633,219,100
Structural Materials	$	**6,077,209**	**677,906**	**5,781,635**	**9,855,540**	**101,455,151**	**146,787,540**	**18,495,611**	**10,529,430**	**32,081,431**	**24,425,380**	—	**356,166,833**	**365,574,741**
Clay products	$	142,000	—	1,712,503	822,400	7,450,131	20,146,786	621,275	1,354,635	3,445,687	2,121,461	—	37,816,878	37,758,646
Cement	ton	96,916	—	—	169,823	2,242,591	2,510,783	432,079	230,072	799,030	397,435	—	6,878,729	6,988,412
	$	1,985,524	—	—	2,774,908	33,330,630	38,704,090	8,715,034	5,830,227	14,780,423	7,112,890	—	113,233,726	117,588,571
Lime	ton	—	—	—	17,341	365,473	910,930	46,348	—	48,138	36,229	—	1,424,459	1,439,583
	$	—	—	—	389,876	4,431,612	10,527,910	800,418	—	842,615	654,157	—	17,646,588	17,447,478
Sand and gravel	ton	4,250,942	531,196	4,375,842	5,128,365	44,000,000	76,600,813	9,692,025	5,317,336	13,469,848	17,879,395	—	181,245,762	185,498,913
	$	3,504,594	452,906	2,738,424	2,790,933	23,000,000	52,365,204	6,770,210	3,344,568	12,644,098	10,992,346	—	118,603,283	121,167,131
Stone	ton	227,707	225,000	548,834	2,950,906	24,173,016	18,797,648	943,765	—	105,695	2,580,914	—	50,553,485	55,090,659
	$	445,091	225,000	1,330,708	3,077,423	23,242,778	25,043,550	1,588,674	—	368,608	3,544,526	—	68,866,358	71,612,915
Grand Totals, 1962	$	**101,858,960**	**677,906**	**61,651,093**	**21,811,575**	**519,453,166**	**913,342,174**	**158,932,169**	**240,653,502**	**566,502,703**	**235,428,135**	**30,674,796**	**2,850,986,179**	...
Grand Totals, 1963[p]	$	**121,785,645**	**654,120**	**67,307,328**	**26,501,143**	**537,388,211**	**874,783,824**	**169,832,024**	**279,576,318**	**635,001,853**	**260,715,547**	**29,863,905**	...	**3,003,409,918**

[1] All produced in Yukon Territory. [2] Yukon production 429,000 lb. valued at $132,990; remainder N.W.T. [3] Yukon production 54,805 oz.t. valued at $2,050,255; remainder N.W.T. [4] All produced in N.W.T. [5] Yukon production 6,482,244 oz.t. valued at $7,551,814; remainder N.W.T.

Subsection 3.—Production of Metallic Minerals

The metallic minerals of greatest dollar value to Canada during 1963 were, in order: nickel, iron ore, copper, gold, uranium, zinc, lead and silver. Except for iron ore, which advanced from third place to second, this order remained unchanged from 1962. Developments taking place in metal mining during 1963 are described in detail in Section 1, pp. 543-552. The following statistical information gives a comparison of quantity and value figures for each of the principal metals over the ten-year period 1954-63.

Nickel.—The output of nickel in Canada was slightly lower in 1963 than in 1962 because the older mines in Ontario, which are by far the largest producers, continued the cutback in production that commenced in 1962 (see p. 543). The other producing provinces—Quebec, Manitoba and British Columbia—recorded moderately higher quantities than in 1962 but the only mine in the Northwest Territories closed down.

Canada uses only about 5,000 tons of refined nickel (anodes, cathodes and ingots) annually. Exports amounted to 109,156 tons in 1963 compared with 121,712 tons in 1962, most of it going to the United States and Britain; exports of nickel in ores, concentrates and matte, mostly to Britain and Norway, amounted to 83,392 tons compared with 77,409 tons in the previous year.

10.—Nickel Production, by Province, and Total Value 1954-63

Year	Que.	Ont.	Man.	B.C.	N.W.T.	Canada	
						Quantity	Value
	tons	tons	tons	tons	tons	tons	$
1954	—	158,010	3,269	—	—	161,279	180,173,392
1955	—	161,161	13,767	—	—	174,928	215,866,007
1956	—	167,576	10,939	—	—	178,515	222,204,860
1957	—	177,396	10,034	—	528	187,958	258,977,309
1958	—	127,144	9,778	704	1,933	139,559	194,142,019
1959	—	173,964	10,139	531	1,921	186,555	257,008,801
1960	—	201,650	9,059	1,890	1,907	214,506	295,640,279
1961	—	196,218	32,978	2,090	1,705	232,991	351,261,720
1962	1,540	166,582	61,482	1,738	900	232,242	383,784,622
1963p	2,596	149,196	65,007	1,850	—	218,649	362,781,957

Iron Ore.—Shipments of iron ore from Canadian mines, which have fluctuated considerably over the past ten years, reached a record high level in 1963. The quantity shipped by each producing province was higher than in 1962, the largest increase being contributed by Newfoundland. Quebec accounted for 39.2 p.c. of the country's output, Newfoundland for 31.2 p.c., Ontario for 22.7 p.c. and British Columbia for the remainder.

Production of pig iron and production of steel ingots and castings were also at their highest levels in 1963. Exports of iron ore—direct shipping grade, concentrated, agglomerated and other forms—amounted to 26,717,570 tons valued at $270,948,783, a considerable increase over the 1962 totals. Of the 1963 tonnage exported, 76.8 p.c. went to the United States and most of the remainder to Europe, mainly to Britain. Japan received 2,216,227 tons compared with 1,729,866 tons in 1962.

11.—Iron Ore Shipments and Production of Pig Iron and Steel Ingots and Castings, 1954-63

Year	Iron Ore Shipments						Production of Pig Iron	Production of Steel Ingots and Castings
	Nfld.	Que.	Ont.	B.C.	Canada			
					Quantity	Value		
	tons	tons	tons	tons	tons	$	tons	tons
1954	3,758,526	650,415	2,416,911	535,746	7,361,598	49,666,507	2,211,029	3,195,030
1955	7,206,883	4,103,173	4,362,191	610,930	16,283,177	110,435,850	3,215,367	4,534,672
1956	8,463,572	7,956,549	5,558,203	369,954	22,348,278	160,362,118	3,568,203	5,301,202
1957	8,174,779	8,872,948	4,867,105	357,342	22,272,174	167,221,425	3,718,350	5,068,149
1958	5,390,775	6,060,325	3,644,952	630,271	15,726,323	126,131,181	3,059,579	4,359,466
1959	6,105,819	11,515,169	6,018,089	849,248	24,488,325	192,666,101	4,182,775	5,901,487
1960	7,611,365	7,457,971	5,325,197	1,156,297	21,550,830	175,082,523	4,278,425	5,789,570
1961	7,611,340	5,639,931	5,772,664	1,335,068	20,359,003	187,950,047	4,925,395	6,466,324
1962	7,986,910	11,163,982	6,414,936	1,793,848	27,359,676	263,004,217	5,288,589	7,173,475
1963p	9,407,100	11,811,000	6,844,660	2,071,838	30,134,598	292,360,801	5,914,997	8,190,279

Copper.—Production of copper in Canada reached its highest point in 1963 in both quantity and value. Increases in British Columbia, Manitoba, New Brunswick and Nova Scotia offset decreased output in the other producing provinces. There was no production in the Yukon and Northwest Territories in 1963.

12.—Copper Production, by Province, and Total Value 1954-63

NOTE.—Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1954	3,481	991	—	83,930	140,776	12,274
1955	3,052	1,028	35	101,021	146,407	19,379
1956	3,108	404	6	122,300	156,271	17,973
1957	4,536	—	5,738	112,409	171,703	18,551
1958	14,751	—	328	131,445	142,035	12,601
1959	14,989	—	—	134,912	188,272	12,945
1960	13,863	—	—	157,470	206,272	12,793
1961	15,752	—	—	149,007	211,647	12,454
1962	17,308	204	3,674	147,431	188,995	12,738
1963p	14,058	321	8,150	145,019	180,058	16,954

Year	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	$
1954	36,192	25,088	—	—	302,732	175,712,693
1955	32,945	22,127	—	—	325,994	239,756,455
1956	33,116	21,682	—	—	354,860	292,958,091
1957	30,597	15,410	—	165	359,109	206,897,988
1958	37,510	6,010	—	434	345,114	174,430,930
1959	35,536	8,121	—	494	395,269	233,102,813
1960	31,785	16,559	—	520	439,262	264,846,637
1961	33,479	15,845	440	463	439,087	255,157,626
1962	32,017	54,489	215	314	457,385	282,732,696
1963p	30,211	63,964	—	—	458,735	287,707,456

Gold.—Over the ten-year period 1954-63, Canada's annual gold production fluctuated narrowly between about 4,000,000 oz.t. and 4,600,000 oz.t., and its value between $149,000,000 and $159,000,000; the high point was reached in 1961. Output in 1963 was down by 200,000 oz.t. compared with 1962 and, despite the establishment of a higher price per oz.t. (see p. 546), the value was $6,000,000 lower. All provinces except New Brunswick and Saskatchewan, as well as the Yukon and Northwest Territories, reported decreased output in 1963, the major producers—Ontario and Quebec—declining by 4.7 p.c. and 6.2 p.c., respectively. Ontario produced 58.5 p.c. of Canada's gold output in 1963, Quebec 23.4 p.c., the Northwest Territories 9.5 p.c. and British Columbia 3.9 p.c.

13.—Quantity and Value of Gold Produced, by Province, 1954-63

NOTE.—Values are calculated at world prices in Canadian funds. Figures from 1862 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland		Nova Scotia		New Brunswick		Quebec	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	$	oz.t.	$	oz.t.	$	oz.t.	$
1954	6,528	222,409	3,754	127,899	—	—	1,098,570	37,428,280
1955	6,337	218,753	3,880	133,938	—	—	1,154,522	39,854,099
1956	8,213	282,938	1,279	44,061	—	—	1,036,059	35,692,233
1957	9,755	327,280	45	1,510	240	8,052	1,006,895	33,781,327
1958	13,381	454,686	131	4,451	52	1,767	1,044,846	35,503,867
1959	13,411	450,207	—	—	—	—	999,388	33,549,455
1960	13,515	458,834	3	102	—	—	1,035,914	35,169,280
1961	14,429	511,652	—	—	—	—	1,054,029	37,375,868
1962	13,966	522,468	—	—	553	20,688	993,560	37,169,080
1963P	12,724	480,204	—	—	850	32,079	921,621	35,159,377

Year	Ontario		Manitoba		Saskatchewan		Alberta	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	$	oz.t.	$	oz.t.	$	oz.t.	$
1954	2,361,385	80,452,387	134,944	4,597,542	101,785	3,467,815	195	6,644
1955	2,523,040	87,095,340	123,888	4,276,614	83,580	2,885,182	214	7,387
1956	2,513,912	86,604,268	120,232	4,141,992	82,687	2,848,567	119	4,100
1957	2,578,206	86,498,811	120,008	4,026,268	75,236	2,524,168	416	13,957
1958	2,716,514	92,307,146	87,356	2,968,357	86,590	2,942,328	282	9,582
1959	2,683,449	90,083,383	51,186	1,718,314	78,588	2,638,199	200	6,714
1960	2,722,673	92,774,248	52,762	1,791,270	84,775	2,878,111	191	6,484
1961	2,637,720	93,533,551	57,747	2,047,709	70,784	2,510,000	171	6,064
1962	2,421,249	90,578,924	68,259	2,553,569	66,034	2,470,332	186	6,958
1963P	2,326,433	87,799,581	50,550	1,915,437	69,074	2,606,853	111	4,567

Year	British Columbia		Yukon Territory		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	$	oz.t.	$	oz.t.	$	oz.t.	$
1954	268,508	9,148,068	82,208	2,800,826	308,563	10,512,741	4,366,440	148,764,611
1955	252,979	8,732,835	72,201	2,492,379	321,321	11,092,001	4,541,962	156,788,528
1956	196,692	6,776,040	72,001	2,480,434	352,669	12,149,447	4,383,863	151,024,080
1957	229,113	7,686,741	73,962	2,481,425	340,018	11,407,604	4,433,894	148,757,143
1958	210,612	7,156,596	67,745	2,301,975	343,838	11,683,615	4,571,347	155,334,370
1959	184,312	6,187,354	66,960	2,247,847	405,922	13,626,802	4,483,416	150,508,275
1960	212,859	7,226,563	78,115	2,652,004	418,104	14,194,631	4,628,911	157,151,527
1961	164,467	5,832,000	66,878	2,371,494	407,474	14,449,028	4,473,699	158,637,366
1962	159,492	5,966,596	54,805	2,050,255	400,292	14,974,924	4,178,396	156,313,794
1963P	156,000	5,887,440	53,120	2,004,749	378,520	14,285,345	3,979,003	150,175,632

Uranium.—Uranium mineralization has been found in Canada at intervals along the western and southern edges of the Canadian Shield but production has been concentrated in four areas within this belt—Great Bear Lake in the Northwest Territories, Beaverlodge in northern Saskatchewan, and Elliot Lake and Bancroft in Ontario. Although output of uranium first began in the Northwest Territories in 1942, figures were not available until 1954 because of government restrictions. However, it was after that time that the large mines and mills of Saskatchewan and Ontario came into production. Peak output amounting to 31,800,000 lb. was reached in 1959 from 23 mines, but by the end of 1963, for economic reasons (see p. 548), only seven mines remained in operation and production dropped to about 16,300,000 lb. for the year. Of the 1963 quantity, 76.3 p.c. was produced in Ontario and the remainder in Saskatchewan.

14.—Production and Value of Uranium (U_3O_8), by Province, 1954-63

Year	Ontario		Saskatchewan		Northwest Territories		Canada	
	Quantity[1]	Value	Quantity[1]	Value	Quantity[1]	Value	Quantity[1]	Value
	lb.	$	lb.	$	lb.	$	lb.	$
1954	—	—	..	10,981,417	..	15,486,157	..	26,467,574
1955	..	487,054	..	12,312,471	..	13,232,079	..	26,031,604
1956	906,614	9,361,867	2,780,534	27,194,202	873,912	9,176,076	4,561,060	45,732,145
1957	7,970,598	82,940,763	4,462,552	44,561,832	838,264	8,801,769	13,271,414	136,304,364
1958	19,970,136	210,149,700	5,924,253	59,815,924	910,843	9,572,847	26,805,232	279,538,471
1959	25,492,171	268,529,993	5,372,685	54,457,321	919,333	8,155,729	31,784,189	331,143,043
1960	19,793,727	211,983,533	4,624,431	48,722,961	1,077,211	9,231,698	25,495,369	269,938,192
1961	14,970,594	151,060,610	4,310,871	44,631,014	—	—	19,281,465	195,691,624
1962	12,805,203	118,283,081	4,053,966	39,900,588	—	—	16,859,169	158,183,669
1963[p]	12,418,896	115,069,438	3,863,061	33,821,293	—	—	16,281,957	148,890,731

[1] Figures for 1956 include radium salts, silver, cobalt and uranium oxides; figures for 1957-63 are for uranium oxide (U_3O_8).

Zinc.—The output of zinc fluctuates considerably from year to year. It reached its highest point in 1962, dropping by about 5,000 tons in 1963. British Columbia accounted for 44.4 p.c. of the quantity produced in 1963, Quebec for 14.0 p.c., Ontario 12.5 p.c. and Manitoba 10.1 p.c., followed in order by Newfoundland, Saskatchewan, New Brunswick, Yukon Territory and Nova Scotia.

15.—Quantity and Value of Zinc Produced, 1954-63

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Quantity[1]	Value	Average Price per lb.	Year	Quantity[1]	Value	Average Price per lb.
	tons	$	cts.		tons	$	cts.
1954	376,491	90,207,285	11.98	1959	386,008	96,942,663	12.24
1955	433,357	118,306,466	13.65	1960	406,873	108,635,003	13.25
1956	422,642	125,437,344	14.84	1961	416,004	104,749,879	12.59
1957	413,740	100,042,533	12.09	1962	463,145	112,080,981	12.10
1958	425,099	92,501,496	10.88	1963[p]	457,517	116,941,314	12.78

[1] Estimated foreign smelter recoveries and refined zinc produced in Canada.

Lead.—Lead production in 1963 in the form of refined pig and recoverable lead in ore and concentrates was somewhat lower than that in 1962. As stated on p. 549, most of the decrease resulted from lower production in the Eastern Townships of Quebec and in southeastern British Columbia. British Columbia produced about 77 p.c. of the total

1963 output. Lead also occurs in the complex ores at Buchans in Newfoundland and in the silver-lead ore mined in the Mayo district of Yukon Territory, and smaller amounts are produced in Quebec, Manitoba and Ontario. In 1963, Nova Scotia and New Brunswick each produced lead concentrates from complex ores.

16.—Quantity and Value of Lead Produced from Canadian Ores, 1954-63

NOTE.—Figures from 1887 are given in the corresponding table of previous Year Books beginning with the 1929 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	$		tons	$
1954	218,495	58,250,831	1959	186,696	39,616,835
1955	202,762	58,314,500	1960	205,650	43,926,888
1956	188,854	58,582,651	1961	230,435	47,054,765
1957	181,484	50,670,407	1962	215,324	42,721,341
1958	186,680	42,413,805	1963p	205,899	45,297,722

Silver.—Production of silver is fairly widespread across Canada, being recovered mainly as a by-product in the treatment of gold ores and ores of copper, lead, zinc, cobalt and nickel. Output is therefore often affected by changes in the production of these metals. The total amount produced in 1963 was slightly above that for 1962 but a considerable increase in the price of silver, for the second consecutive year, brought the value of that production to an all-time high. The peak volume production occurred in 1960.

17.—Quantity of Silver Produced, by Province, and Total Value, 1954-63

NOTE.—Figures from 1887 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Average Price per oz.t. (Canadian funds)	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	cts.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1954	83.26	742,120	262,361	—	4,907,304	5,443,721	411,125
1955	88.18	701,792	262,067	25,087	4,786,695	6,051,017	454,528
1956	89.67	957,125	92,859	18,182	4,063,966	6,626,447	430,124
1957	87.37	1,196,414	1	379,173	3,645,856	6,910,130	407,834
1958	86.81	1,267,078	4	51,139	3,908,361	9,815,257	320,759
1959	87.78	1,125,110	—	—	4,108,241	10,540,856	373,827
1960	88.91	1,271,126	—	—	4,115,105	11,220,823	501,637
1961	94.26	1,145,105	—	—	4,315,844	8,870,402	767,543
1962	116.50	1,181,648	724,245	178,521	4,603,019	9,383,445	847,879
1963p	138.40	1,025,080	508,921	358,000	4,755,325	9,925,406	745,802

Year	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada[1]	
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	$
1954	1,474,370	10,825,614	6,992,279	59,037	31,117,949	25,907,870
1955	1,230,179	8,702,122	5,712,219	58,477	27,984,204	24,676,472
1956	1,179,110	8,801,398	6,192,706	69,916	28,431,847	25,497,681
1957	1,145,571	8,584,991	6,484,185	69,104	28,823,298	25,182,915
1958	1,299,077	8,013,428	6,415,560	72,779	31,163,470	27,053,007
1959	1,187,439	7,463,285	7,054,632	70,560	31,923,969	28,022,860
1960	1,163,845	8,447,440	7,217,361	79,473	34,016,829	30,244,363
1961	876,450	8,391,640	6,937,086	77,890	31,381,977	29,580,651
1962	762,215	6,186,937	6,482,244	72,802	30,422,972	35,442,761
1963p	808,400	6,420,400	6,115,704	76,380	30,739,429	42,543,371

[1] Includes relatively small quantities produced in Alberta.

Subsection 4.—Production of Non-metallic Minerals (excluding Fuels)

Asbestos is by far the most important item in this group in point of value, followed by salt, potash, sulphur and gypsum. Four of these items are discussed separately below; potash, a recently developed product, is covered on p. 553. Next in importance is peat moss which, although included as a non-metallic mineral, consists of the dead fibrous moss produced from peat bogs; its growing use as a soil conditioner, as poultry and stable litter and as packaging material resulted in shipments valued at nearly $8,900,000 in 1963, double the shipments of 1958. Quantities and values of other non-metallic minerals produced are shown in Table 5, p. 573, and a review of recent developments in the industrial mineral field is given at pp. 552-554.

Asbestos.—In 1963, Canadian asbestos mines shipped a record 1,272,024 tons valued at $134,880,000, representing an increase of 4.6 p.c. in quantity and 3.5 p.c. in value over 1962. Quebec, with 10 producing firms, accounted for over 91 p.c. of the total tonnage; Ontario's one mine produced 34,000 tons and British Columbia's one mine produced 63,000 tons.

18.—Quantity and Value of Asbestos Produced, 1954-63

NOTE.—Figures from 1896 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	$		tons	$
1954	924,116	86,409,212	1959	1,050,429	107,433,344
1955	1,063,802	96,191,317	1960	1,118,456	121,400,015
1956	1,014,249	99,859,969	1961	1,173,695	128,955,900
1957	1,046,086	104,489,431	1962	1,215,814	130,281,966
1958	925,331	92,276,748	1963p	1,272,024	134,880,206

Salt.—The output of salt reached a high point in both quantity and value in 1963, with Ontario and Nova Scotia contributing most of the increase over 1962. Ontario produced over 86 p.c. of the total tonnage. Rock salt is mined in Nova Scotia and Ontario only; brine wells are operated in Nova Scotia, Ontario, Manitoba, Saskatchewan and Alberta.

19.—Quantity of Salt Produced, by Province, and Total Value, 1954-63

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Nova Scotia	Ontario	Manitoba	Saskatchewan	Alberta	Canada	
	tons	tons	tons	tons	tons	tons	$
1954	150,589	733,066	17,809	37,227	31,196	969,887	8,340,163
1955	144,862	998,789	18,954	40,748	41,408	1,244,761	10,122,299
1956	132,539	1,347,729	21,068	42,814	46,654	1,590,804	12,144,476
1957	122,763	1,538,805	19,372	43,684	46,935	1,771,559	13,989,703
1958	125,872	2,126,483	20,560	46,511	55,766	2,375,192	14,989,542
1959	120,225	3,036,230	23,547	48,776	61,198	3,289,976	18,034,522
1960	163,901	3,007,599	21,925	49,064	72,431	3,314,920	19,255,658
1961	225,875	2,861,705	23,103	51,964	83,890	3,246,527	19,552,006
1962	312,519	3,155,589	25,010	54,931	90,729	3,638,778	21,927,135
1963p	339,500	3,224,468	23,500	52,917	93,600	3,733,985	22,501,851

Sulphur.—The figures in Table 20 represent the quantity and value of sulphur contained in derivatives from smelter gases such as sulphur dioxide, sulphuric acid, etc., and in pyrite and pyrrhotite shipments, as well as the quantity and value of sulphur refined from natural gas production. The increase in the latter over the past six years has been quite remarkable. In Canada, sulphur is used in the treatment of sulphite pulps and in the manufacture of rayon, explosives, rubber goods, petroleum refining, matches and insecticides.

20.—Quantity and Value of Sulphur Produced from Smelter Gases and in Pyrite and Pyrrhotite Shipments, and Quantity of Elemental Sulphur Sales, 1954-63

Year	Sulphur in Smelter Gases		Producers' Shipments Pyrite and Pyrrhotite			Sales of Elemental Sulphur[1]	
	Quantity	Value	Gross Weight	Sulphur Content	Value	Quantity	Value
	tons	$	tons	tons	$	tons	$
1954	221,247[2]	2,212,470	687,928	311,159[3]	2,663,499	18,665	..
1955	224,457[2]	2,244,570	878,452	403,986[3]	3,740,383	25,976	..
1956	236,088[2]	2,323,590	1,046,740	473,605	4,538,785	34,784	..
1957	235,123[3]	2,322,067	1,166,416	515,096	4,808,228	93,338	..
1958	241,055[3]	2,361,252	1,191,731	512,427	4,248,668	94,377	1,872,832
1959	277,030[3]	2,716,416	1,099,564	..	3,433,095	145,656	2,620,787
1960	289,620[3]	2,854,623	1,032,288	..	3,316,378	274,359	4,298,906
1961	277,056[3]	2,708,110	517,258[4]	..	1,830,566	394,762	7,287,881
1962	292,728[3]	3,089,537	517,308[4]	..	1,879,584	695,098	9,286,999
1963[p]	311,156[3]	3,261,596	492,073[4]	..	1,759,226	1,161,661	12,232,668

[1] Recovered from sour natural gas and nickel sulphide ores. [2] Does not include sulphur in acid made from roasting zinc sulphide concentrates at Arvida. [3] Includes sulphur in acid made from roasting zinc sulphide concentrates at Arvida and Port Maitland. [4] Excludes pyrite and pyrrhotite used to produce iron residue or sinter.

Gypsum.—Nova Scotia deposits provided 83 p.c. of the total output of gypsum in 1963 and accounted for the major part of the increased production in that year, although Newfoundland showed the greatest relative increase. The over-all increase in quantity was about 11 p.c. and in value about 19 p.c. In Canada, gypsum is used in the manufacture of plaster and wallboard and is added to Portland cement to control setting, but most of the output is exported in crude form to United States plants for processing.

21.—Quantity of Gypsum Produced, by Province, and Total Value, 1954-63

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Ontario	Manitoba	British Columbia	Canada	
	tons	tons	tons	tons	tons	tons	tons	$
1954	26,653	3,168,134	88,856	357,432	162,037	147,310	3,950,422	7,094,671
1955	46,459	3,838,847	90,096	366,416	176,005	150,078	4,667,901	8,037,153
1956	37,000	4,144,147	86,104	366,956	185,986	75,618	4,895,811	7,260,236
1957	29,465	3,842,027	93,249	379,621	183,708	49,422	4,577,492	7,745,105
1958	36,307	3,149,719	105,749	425,733	176,123	70,498	3,964,129	5,189,159
1959	37,720	5,036,411	98,250	412,100	200,139	94,010	5,878,630	8,393,703
1960	34,346	4,490,427	90,892	355,603	122,063	112,400	5,205,731	9,498,711
1961	40,699	4,113,188	85,330	425,287	122,233	153,300	4,940,037	7,750,748
1962	83,992	4,451,072	91,835	435,140	122,870	147,900	5,332,809	9,349,775
1963[p]	220,300	4,926,000	81,500	435,000	107,350	161,486	5,931,636	11,101,058

Subsection 5.—Production of Fuels

Coal.—The downward trend in the production of coal, in evidence for some time, was interrupted in 1960 and again in 1963. In the latest year, all producing provinces with the exception of Saskatchewan showed some increase in output compared with the previous year. Imports and exports were also higher in both quantity and value.

22.—Coal Production, by Province, 1954-63

NOTE.—Figures from 1874 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon Territory	Canada	
	tons	tons	tons	tons	tons	tons	tons	$
1954.....	5,842,896	781,271	2,116,740	4,859,049	1,299,510	14,113	14,913,579	96,600,266
1955.....	5,731,026	877,838	2,293,816	4,455,279	1,453,881	7,040	14,818,880	93,579,471
1956.....	5,775,025	988,266	2,341,641	4,328,787	1,472,519	9,372	14,915,610	95,349,763
1957.....	5,685,770	976,597	2,248,812	3,156,546	1,113,699	7,731	13,189,155	90,220,670
1958.....	5,269,879	790,719	2,253,176	2,519,901	849,091	4,344	11,687,110	79,963,327
1959.....	4,391,829	1,003,387	1,947,380	2,528,755	751,492	3,879	10,626,722	73,875,895
1960.....	4,570,240	1,028,064	2,170,797	2,391,699	843,868	6,470	11,011,138	74,676,240
1961.....	4,300,758	887,903	2,208,851	2,027,826	964,663	7,703	10,397,704	70,052,683
1962.....	4,204,779	815,529	2,256,306	2,087,310	913,196	7,649	10,284,769	69,160,213
1963p.....	4,622,448	886,523	1,808,214	2,240,427	942,809	8,584	10,509,005	71,616,557

23.—Imports of Anthracite, Bituminous and Lignite Coal and Briquettes, and Exports of Domestic Coal, 1954-63

NOTE.—Figures from 1868 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Imports of Coal and Briquettes						Exports of Domestic Coal	
	Anthracite[1]	Bituminous[2]	Lignite	Briquettes[3]	Totals			
	tons	tons	tons	tons	tons	$	tons	$
1954.....	2,754,882	15,822,283	2,824	128,163	18,708,152	106,378,808	219,346	1,716,435
1955.....	2,646,503	17,094,480	1,548	124,216	19,866,747	108,087,269	592,782	4,870,598
1956.....	2,545,627	20,065,807	1,940	126,724	22,740,098	130,318,369	594,166	4,710,030
1957.....	1,925,498	17,548,585	2,166	73,306	19,549,555	118,581,708	396,311	3,357,959
1958.....	1,556,018	12,934,262	1,035	41,820	14,533,135	88,552,326	338,544	2,907,513
1959.....	1,603,909	12,621,429	10,780[4]	24,521	14,260,639	84,808,838	473,768	3,582,313
1960.....	1,297,467	12,250,832	16,537[4]	15,528	13,580,364	77,174,112	852,921	6,789,163
1961.....	1,058,157	11,237,629	10,712[4]	9,664	12,316,162	71,717,030	939,360	8,541,679
1962.....	914,336	11,687,898	11,955[4]	7,608	12,621,797	74,307,252	901,560	8,590,693
1963.....	847,326	12,248,703	9,657[4]	6,445	13,112,131	77,495,205	1,056,788	9,916,398

[1] Includes anthracite dust 1954-58. [2] Includes coal ex-warehoused for ships' stores. [3] Coal or coke. [4] Includes coal dust, ground coal and coal *n.o.p.*

The amounts and percentages of domestic and imported coal apparently consumed in Canada in the years 1954-63 are shown in Table 24. The imports represent amounts taken out of bond for consumption during the respective years, regardless of when received. Thus, the totals are exclusive of coal landed at Canadian ports and re-exported or ex-warehoused for ships' stores without being taken out of bond.

24.—Consumption of Canadian and Imported Coal in Canada, 1954-63

NOTE.—Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1921 edition.

Year	Canadian Coal[1]		Imported Coal 'Entered for Consumption'[2]				Grand Total	Consumption per Capita
			From United States	From Britain	Total[3]			
	tons	p.c.	tons	tons	tons	p.c.	tons	tons
1954	14,466,212	44.0	18,054,962	266,304	18,322,056	56.0	32,788,268	2.16
1955	14,060,039	42.1	19,053,434	269,898	19,322,134	57.9	33,382,173	2.14
1956	14,115,095	38.9	22,045,485	153,404	22,198,049	61.1	36,313,144	2.26
1957	12,478,626	39.6	18,910,544	134,671	19,041,030	60.4	31,519,656	1.90
1958	11,054,757	43.9	14,089,557	65,275	14,154,121	56.1	25,208,878	1.48
1959	10,589,263	43.1	13,861,676	96,814	13,958,996	56.9	24,548,259	1.41
1960	9,973,308	42.9	13,211,493	65,375	13,276,599	57.1	23,249,907	1.31
1961	9,572,805	44.3	12,253,272	53,226	12,057,086	55.7	21,629,891	1.19
1962	9,510,293	43.4	12,583,618	30,571	12,377,965	56.6	21,888,258	1.18
1963	9,504,903	42.0	13,348,913	21,101	13,105,686	58.0	22,610,589	1.20

[1] The sum of Canadian coal mines' sales, colliery consumption, coal supplied to employees and coal used in making coke, etc., less the tonnage of coal exported. [2] Imports of briquettes are not included in this table but are shown separately in Table 23. [3] Includes small tonnages from countries other than Britain and the United States. Deductions have been made from this column to take account of foreign coal re-exported from Canada and bituminous coal ex-warehoused for ships' stores.

Petroleum.—The upward climb of crude petroleum production which started with the discovery of the Leduc field in Alberta in 1947 halted temporarily in 1958 but resumed in 1959 and continued in subsequent years. Quantity production in 1963 reached a record level, about 15,000,000 bbl. higher than in 1962. Over 40 p.c. of this increase was contributed by Alberta.

25.—Quantity and Value of Crude Petroleum Produced, by Province, 1954-63

NOTE.—Figures from 1936 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Year	New Brunswick		Ontario		Manitoba		Saskatchewan	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	$	bbl.	$	bbl.	$	bbl.	$
1954	13,046	18,265	412,474	1,391,687	2,148,184	5,619,649	5,422,899	8,183,304
1955	12,548	17,567	525,510	1,599,335	4,145,756	9,618,154	11,317,168	18,317,968
1956	16,628	23,279	593,370	1,958,121	5,786,540	13,633,088	21,077,371	36,253,078
1957	19,401	27,161	623,666	2,160,000	6,089,743	15,467,947	36,861,089	79,325,064
1958	15,189	21,265	778,341	2,623,000	5,829,226	14,415,676	44,626,148	96,704,863
1959	14,479	20,271	1,001,580	3,194,000	5,056,075	11,619,872	47,442,498	97,731,546
1960	14,148	19,807	1,005,030	3,150,065	4,764,045	10,690,384	51,908,428	103,957,009
1961	12,024	16,833	1,149,087	3,546,740	4,480,348	10,156,000	55,860,104	115,719,791
1962	10,333	14,466	1,134,534	3,661,174	3,926,683	9,435,819	64,432,411	141,783,520
1963[p]	8,000	11,200	1,200,000	3,872,400	3,750,000	9,050,000	70,000,000	166,000,000

25.—Quantity and Value of Crude Petroleum Produced, by Province, 1954-63—concluded

Year	Alberta		British Columbia		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	$	bbl.	$	bbl.	$	bbl.	$
1954.....	87,713,855	228,319,165	—	—	369,887	344,960	96,080,345	243,877,030
1955.....	113,035,046	274,901,232	—	—	404,219	1,185,780	129,440,247	305,640,036
1956.....	143,909,641	353,629,158	148,454	302,375	449,409	762,773	171,981,413	406,561,872
1957.....	137,492,316	355,555,140	340,945	763,717	420,844	294,591	181,848,004	453,593,620
1958.....	113,277,847	283,262,592	512,359	1,022,156	457,086	698,266	165,496,196	398,747,818
1959.....	129,967,312	306,917,803	866,234	1,583,129	430,319	1,025,914	184,778,497	422,092,535
1960.....	130,506,968	302,841,423	867,057	1,626,590	468,545	641,219	189,534,221	422,926,497
1961.....	157,811,712	355,530,845	1,017,826	1,859,873	516,979	730,160	220,848,080	487,560,242
1962.....	165,124,967	379,830,363	8,914,220	16,872,122	572,004	755,045	244,115,152	552,352,509
1963p.....	171,400,000	428,500,000	12,629,000	24,959,000	626,000	826,500	259,613,000	633,219,100

Natural Gas.—The output of natural gas continues to increase at a rapid rate in Alberta and British Columbia. Total Canadian shipments, which amounted to 150,772,000 Mcf. in 1955, reached a high of 1,070,900,000 Mcf. in 1963; 895,000,000 Mcf. of that amount came from Alberta. A review of developments in the natural gas industry is given at pp. 557-558.

26.—Quantities of Natural Gas Produced, by Province, and Total Value, 1954-63

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year	New Brunswick	Ontario	Saskatchewan	Alberta	British Columbia	Northwest Territories	Canada	
	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	$
1954.....	183,457	10,015,818	3,333,077	107,173,777	—	29,085	120,735,214	12,482,109
1955.....	186,519	10,852,857	6,706,743	133,007,493	—	18,670	150,772,312	15,098,508
1956.....	190,322	12,811,618	9,807,697	146,133,893	187,846	21,210	169,152,586	16,849,556
1957.....	176,417	14,400,913	13,994,347	183,140,820	8,274,942	19,243	220,006,682	20,962,501
1958.....	123,957	16,147,986	18,819,795	239,049,591	63,638,297	24,100	337,803,726	32,057,536
1959.....	117,502	16,839,236	33,612,966	297,568,926	69,128,708	67,189	417,334,527	39,609,393
1960.....	98,701	16,987,056	36,571,633	383,682,986	85,592,166	39,785	522,972,327	52,196,882
1961.....	96,318	14,544,165	37,192,595	500,843,900	103,018,988	41,678	655,737,644	68,421,918
1962.....	95,750	15,648,294	38,845,732	770,963,122	121,093,122	56,707	946,702,727	108,641,159
1963p.....	101,500	16,750,000	39,000,000	895,000,000	120,000,000	49,300	1,070,900,800	109,325,200

Subsection 6.—Production of Structural Materials

Active construction throughout Canada has kept production of structural materials at a high level in recent years. The value of such materials produced reached the record total of $365,574,741 in 1963. In point of value, sand and gravel is the most important of the structural materials, followed by cement, stone, clay products and lime. Developments in the construction materials industries during 1963 are covered in the review at p. 554.

Sand and Gravel.—Deposits of sand and gravel are numerous throughout Eastern Canada, with the exception of Prince Edward Island where gravels are scarce. The local needs for these materials are usually supplied from the nearest deposits as their cost to the consumer is governed largely by the length of haul. This accounts for the large number of small pits and the small number of large plants in operation. Every province except New Brunswick and Prince Edward Island produces natural bonded sand but some grades particularly suitable for certain industries command much higher prices than ordinary sand. The greater part of the sand and gravel output is used in road improvement, concrete works or as railway ballast, and most of the commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone.

In 1963, an estimated 185,498,913 tons of sand and gravel were produced, valued at $121,167,131. This represented an increase of 2 p.c. in both quantity and value compared with 1962. Quebec and Ontario together contributed 64 p.c. of the quantity.

27.—Producers' Shipments of Sand and Gravel, by Province, and Total Value, 1954-63

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	tons	tons	tons	tons	tons	tons
1954	2,105,522	..	1,330,979	3,528,318	30,052,887	46,433,191
1955	3,142,226	..	1,156,710	5,731,835	26,722,008	51,488,067
1956	2,490,580	..	1,675,458	6,140,029	27,175,708	61,436,363
1957	2,796,273	..	1,933,070	7,342,928	40,913,961	66,129,158
1958	4,062,985	..	2,333,792	4,015,976	40,507,787	67,469,064
1959	4,825,724	5,244,968	8,032,122	5,093,496	42,449,734	73,981,703
1960	3,912,533	474,184	8,717,693	6,184,924	46,255,963	77,660,833
1961	3,383,724	544,497	5,574,377	5,014,234	44,126,199	70,208,199
1962	4,250,942	521,196	4,375,842	5,128,365	44,000,000	76,600,813
1963[p]	3,839,105	559,124	6,115,803	4,308,582	40,627,758	78,118,878

Year	Manitoba	Saskatchewan	Alberta	British Columbia	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	$
1954	4,831,716	5,211,429	7,313,380	10,153,612	110,961,034	58,987,671
1955	5,272,676	5,039,682	7,819,933	11,151,337	127,524,474	67,775,053
1956	6,883,026	6,466,810	10,522,441	16,010,853	148,801,268	81,957,352
1957	6,647,280	6,565,563	11,801,422	15,699,857	159,829,512	91,939,354
1958	9,997,546	5,380,151	13,226,668	13,216,976	160,210,945	96,282,363
1959	9,261,553	5,898,136	13,271,695	17,064,615	185,123,746	104,651,461
1960	10,860,566	8,952,539	13,385,970	15,669,293	192,074,498	111,163,886
1961	7,402,385	7,626,197	12,591,944	14,279,191	170,750,947	104,654,132
1962	9,692,025	5,317,326	13,469,848	17,879,395	181,245,762	118,603,283
1963[p]	11,580,888	5,613,103	15,937,485	18,798,187	185,498,913	121,167,131

Cement.—The production of cement in Canada reached an all-time high in 1963, output in that year being almost 2 p.c. above the previous peak of 1962. Consumption, continuing the almost steadily upward trend in evidence throughout the decade, also attained a record in 1963. Of the Canadian total of 6,988,000 tons produced in that year, Ontario contributed 36 p.c. and Quebec 33 p.c.; all other provinces except Prince Edward Island and Nova Scotia contributed to the remainder.

28.—Quantity and Value of Production, Imports, Exports and Apparent Consumption of Cement, 1954-63

NOTE.—Figures from 1910 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Shipments (sold or used)		Imports	Exports	Apparent Consumption[1]
	tons	$	tons	tons	tons
1954	3,926,553	59,035,644	401,135	21,638	4,306,050
1955	4,404,480	65,650,025	517,890	168,907	4,753,463
1956	5,021,683	75,233,321	677,616[2]	124,561	5,574,738
1957	6,049,098	93,167,477	92,380	338,316	5,803,162
1958	6,153,421	96,414,142	41,550	141,250	6,053,721
1959	6,284,486	95,147,798	29,256	303,126	6,010,616
1960	5,787,225	93,261,473	22,478	181,117	5,628,586
1961	6,205,948	103,923,644	29,217	249,377	5,985,788
1962	6,878,729	113,233,726	26,525	219,164	6,686,090
1963[p]	6,988,412	117,588,571	10,776	272,803	6,726,385

[1] Shipments plus imports less exports. [2] Includes imported clinker, other than white.

Stone.—The stone industry in Canada has two main divisions—stone quarrying and the stone products industry. The granite, limestone, marble, sandstone and slate quarries yield high-grade structural and decorative materials and also supply requirements for chemical and other allied industries but the major part of the tonnage produced is crushed stone.

29.—Producers' Shipments of Stone,[1] by Province, and Total Value, 1954-63

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec
	tons	tons	tons	tons	tons
1954	359,350	..	9,757,607	720,792	10,111,361
1955	333,982	..	367,320	1,075,230	12,633,335
1956	327,943	..	408,952	2,129,109	11,153,206
1957	348,373	..	434,726	1,285,811	16,053,665
1958	282,439	..	435,047	2,100,687	16,963,511
1959	352,231	1,700,000	1,393,668	2,119,136	20,437,243
1960	380,843	750,000	914,937	1,883,867	20,394,509
1961	322,820	225,000	1,021,880	2,957,886	22,648,010
1962	227,707	225,000	548,834	2,950,906	24,173,016
1963[p]	302,445	225,000	397,300	3,542,249	26,778,448

Year	Ontario	Manitoba	Alberta	British Columbia	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	$
1954	10,141,156	207,556	27,017	1,443,086	32,767,925	39,857,134
1955	12,739,139	228,157	45,659	3,090,098	30,512,920	43,736,687
1956	15,734,664	262,557	66,820	3,174,067	33,257,318	48,809,918
1957	17,390,438	454,972	80,565	4,233,531	40,282,081	59,197,662
1958	15,756,560	540,703	91,882	1,985,818	38,156,647	55,582,929
1959	17,288,796	526,696	528,961	2,092,804	46,439,535	60,958,784
1960	17,938,583	673,598	167,201	2,255,911	45,359,449	60,640,621
1961	18,361,843	594,921	96,753	2,709,691	48,938,804	66,567,668
1962	18,797,648	943,765	105,695	2,580,914	50,553,485	68,866,358
1963[p]	18,330,036	2,815,686	109,042	2,590,453	55,090,659	71,612,915

[1] Excludes limestone used to make lime or cement.

Clay Products.—The sales value of clay products produced in 1963 was slightly lower than in 1962. Common clays suitable for the production of building bricks and tile are found in all the provinces; production is greatest in Ontario and Quebec. Stoneware clays are produced largely from the Eastend and Willows areas in Saskatchewan and shipped to Medicine Hat, Alta., where, utilizing the cheap gas fuel, they are manufactured into stoneware, sewer pipe, pottery, tableware, etc. Stoneware clay also occurs in Nova Scotia and, although it has not been developed extensively for ceramic use, some is used for pottery. Two large plants and a few small plants manufacture fireclay refractories from domestic clay in British Columbia, Saskatchewan and Nova Scotia. Deposits of high-grade, plastic, white burning clays occur in northern Ontario and deposits yielding high-grade china clay have been found along the Fraser River in British Columbia but these have not been used on a commercial scale, nor have the ball clays of high bond strength occurring in the white mud beds of southern Saskatchewan been developed to any extent.

30.—Value (Total Sales) of Clay Products Produced, by Province, 1954-63

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario
	$	$	$	$	$
1954	33,042	1,082,039	587,994	8,055,692	17,230,231
1955	49,338	1,196,968	704,025	8,451,362	18,314,320
1956	47,145	1,196,868	975,855	9,415,703	19,173,336
1957	29,500	1,345,361	803,169	8,898,855	18,353,299
1958	58,282	1,509,536	629,921	10,675,463	22,786,291
1959	68,000	1,638,789	743,966	10,374,162	22,174,895
1960	83,435	1,673,618	705,366	8,093,038	20,191,325
1961	75,890	1,582,153	744,293	8,195,790	19,036,556
1962	142,000	1,712,503	822,400	7,450,131	20,146,786
1963p	90,000	1,589,231	774,024	6,718,792	21,433,073

Year	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
	$	$	$	$	$
1954	512,989	844,398	2,316,982	1,696,731	32,360,098
1955	635,554	992,307	2,800,481	2,115,415	35,259,770
1956	754,503	1,054,071	3,038,544	2,128,955	37,784,980
1957	827,697	1,015,389	2,628,187	2,020,701	35,922,158
1958	682,943	1,158,803	2,569,170	1,639,494	41,709,903
1959	618,550	1,374,834	3,572,920	1,949,332	42,515,448
1960	813,135	1,130,332	3,551,682	1,984,607	38,226,538
1961	623,966	1,115,474	3,517,473	2,091,353	36,982,948
1962	621,275	1,354,635	3,445,687	2,121,461	37,816,878
1963p	581,546	1,165,200	3,074,583	2,332,197	37,758,646

Section 5.—Industrial Statistics of the Mineral Industry

The scope of the annual statistics on mineral production published by the Dominion Bureau of Statistics includes a general review of the principal mineral industries such as the copper-gold, silver-lead-zinc, and nickel-copper industries as well as a section on metallurgical works. Additional data published at irregular intervals include such features as numbers of employees, salaries and wages paid and net value added by processing.

The figures for 'net value added by processing' of industries given in Tables **31** and **32** are, in each table, the settlements received for shipments by producers and the additional values obtained when the smelting of ores is completed in Canada, less the cost of materials, fuel, etc. The totals indicate returns to the different industries, or the 'business done' by these industries. These industry series of data are not comparable to the commodity series shown in Table **5**, p. 573 where, with respect to copper, lead, zinc and silver, values are computed by applying the average prices for the year in the principal metal markets to the total production from mines and smelters with no reduction for fuel, electricity and other supplies consumed in the production process.

Some imported ores and concentrates are treated in Canadian non-ferrous smelting and refining works, especially in the production of aluminum, where imported ore only is used. There are some imported lead-zinc concentrates processed at the smelter in British Columbia. The smelting and refining industry is classified as manufacturing and the data relative to that industry are included in the primary metal industry (see Chapter XVI on Manufactures).

31.—Principal Statistics of the Mineral Industry, by Province, 1962

NOTE.—Figures prior to 1961 are not comparable with those given for earlier years in previous editions of the Year Book.

Province or Territory	Plants or Establishments	Employees	Salaries and Wages	Cost of Process Supplies, Fuel, Electricity, Freight and Smelter Charges	Net Value Added by Processing
	No.	No.	$	$	$
Newfoundland	23	4,268	20,612,908	33,323,104	59,828,746
Prince Edward Island	5	55	186,591	59,451	245,782
Nova Scotia	50	7,493	26,663,163	13,572,704	44,353,868
New Brunswick	45	1,536	5,024,153	3,949,810	9,061,945
Quebec	536	23,720	117,747,643	116,011,261	309,016,600
Ontario	639	33,204	166,593,030	105,778,997	381,798,304
Manitoba	83	4,021	20,669,013	7,794,654	34,631,011
Saskatchewan	162	2,942	16,939,447	12,300,559	189,024,919
Alberta	290	4,991	26,722,952	66,049,556	561,933,315
British Columbia	204	7,075	37,239,874	61,185,293	134,838,670
Yukon Territory	33	813	4,929,898	3,410,619	8,592,850
Northwest Territories	16	932	5,859,026	3,287,060	13,607,769
Canada	**2,086**	**91,050**	**449,187,698**	**426,723,068**	**1,746,933,779**

A summary of the industrial statistics of the principal mineral industries operating in Canada in the year 1962 is presented in Table 32.

32.—Principal Statistics of the Principal Mineral Industries, 1962

NOTE.—Figures prior to 1961 are not comparable with those given for earlier years in previous editions of the Year Book.

Industry	Plants or Establishments	Employees	Salaries and Wages	Cost of Process Supplies, Fuel, Electricity, Freight and Smelter Charges	Net Value Added by Processing
	No.	No.	$	$	$
Metallics	**564**	**59,317**	**310,231,110**	**281,163,360**	**723,546,036**
Placer gold	39	231	1,340,953	171,105	1,989,696
Gold quartz	133	15,220	64,578,944	27,177,876	102,318,033
Copper-gold-silver	191	11,046	53,489,185	75,119,437	142,916,627
Silver-cobalt	21	611	2,517,012	1,096,485	5,011,493
Silver-lead-zinc	59	4,532	23,545,985	52,159,210	59,098,858
Nickel-copper	37	13,342	74,049,980	24,606,823	90,942,558
Iron	55	9,215	60,354,409	72,513,824	185,452,101
Miscellaneous metals	29	5,120	30,354,642	28,318,600	135,816,670
Non-metallics	**154**	**11,521**	**53,390,710**	**37,750,450**	**159,102,377**
Asbestos	18	6,997	36,072,604	23,884,728	111,180,837
Feldspar, quartz and nepheline syenite	20	380	1,559,605	954,211	4,574,332
Gypsum	10	608	2,407,662	2,237,491	5,914,110
Mica	15	21	55,664	11,847	74,981
Peat	49	1,370	3,397,964	2,720,222	7,097,682
Salt	11	907	4,271,593	4,171,471	18,210,072
Talc and soapstone	4	82	269,268	132,773	539,827
Miscellaneous non-metallics	27	1,156	5,356,350	3,637,707	11,510,536
Fuels	**650**	**14,293**	**63,223,873**	**94,671,444**	**783,815,792**
Coal	101	9,470	34,384,876	13,862,543	54,397,015
Natural gas processing	50	845	5,563,243	66,599,176	53,056,894
Petroleum and natural gas	499	3,978	23,275,754	14,209,725	676,361,883
Structural Materials	**718**	**5,919**	**22,342,065**	**13,137,814**	**80,469,574**
Sand and gravel	511	2,722	10,142,949	4,812,311	40,982,740
Stone	207	3,197	12,199,056	8,325,503	39,486,834
Grand Totals	**2,086**	**91,050**	**449,187,698**	**426,723,068**	**1,746,933,779**

Section 6.—World Production of Certain Metallic Minerals and Fuels

Table 33 shows the production of certain metallic minerals and fuels in the different countries of the world for the year 1962. These figures are taken from the *United Nations Statistical Yearbook 1963* which presents production figures for a much more extensive list of mining and quarrying industries. The 1962 figures are provisional and have been converted from kilograms to ounces troy for gold, from metric tons to ounces troy for silver, and from metric tons to short tons for the other metals and fuels shown.

33.—World Production of Certain Metallic Minerals and Fuels, 1962

NOTE.—Where dashes occur throughout this table they indicate that no figures were given in the *United Nations Statistical Yearbook* either because there was no production or because the quantity was not available.

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Afghanistan	—	—	—	—	—	—	73.9	—
Albania	—	—	2.9	—	—	—	—	865.3
Algeria	—	—	0.9	1,181.7	9.9	46.3	58.4	22,588.6
Angola	—	—	2.0	513.7	—	—	—	519.2
Argentina	—	—	—	—	31.7	—	232.6	15,480.9
Australia	1,073.1	17,830.8	124.0	3,499.8	414.6	378.0	27,418.9	—
Austria	—	—	2.2	1,283.1	6.6	9.8	110.2	2,637.8
Bahrain	—	—	—	—	—	—	—	2,479.1
Bechuanaland	0.3	—	—	—	—	—	—	—
Belgium	—	—	—	26.5	—	—	23,397.7	—
Bolivia	49.4	3,761.6[1]	2.6[1]	—	20.5[1]	4.0[1]	—	401.2
Brazil	—	—	2.2	—	15.4	—	2,698.5	4,811.6
Britain	—	—	—	4,619.8	0.4	—	221,128.0[2]	141.1
British Guiana	1.7	—	—	—	—	—	—	—
Brunei	—	—	—	—	—	—	—	4,215.2
Bulgaria	—	—	21.5	284.4	117.5	88.7	701.1	219.4
Burma	—	1,720.1	0.2	—	22.5	9.0	3.3	643.7
Cameroon	0.8	—	—	—	—	—	—	—
Canada[3]	4,178.4	30,423.0	457.4	27,359.7	215.3	463.1	10,284.8	36,312.1
Central African Republic	0.1	—	—	—	—	—	—	—
Chile	—	2,183.0	812.7	5,687.9	1.5	0.4	1,805.6	1,679.9
China—								
Mainland	—	—	110.2	—	99.2	110.2	—	—
Taiwan	24.0	—	2.3	—	—	—	5,019.9	2.2
Colombia	407.1	131.8	—	297.6	—	—	3,306.9	7,781.2
Congo—								
Brazzaville	3.7	—	—	—	0.4	—	—	135.6
Leopoldville	203.7	1,594.7	327.4	—	—	104.9	83.8	—
Cuba	—	—	7.5	5.5	—	—	—	13.2
Cyprus	—	—	27.8[1]	—	—	—	—	—
Czechoslovakia	—	—	—	1,129.9	14.9	—	29,926.6	195.1
Ecuador	20.6	128.6	—	—	—	—	—	374.8
Eritrea	2.3	—	—	—	—	—	—	—
Ethiopia	8.1	—	—	—	—	—	—	—
Fiji Islands	86.5	—	—	4.4	—	—	—	—
Finland	15.2	379.4	41.9	212.7	4.0	77.5	—	—
France	46.4	2,658.9	—	23,758.1	15.0	17.9	57,715.9	2,612.5
French Guiana	5.2[1]	—	—	—	—	—	—	—
Gabon	16.2	—	—	—	—	—	—	911.6
Germany—								
Eastern	—	—	28.1	543.4	7.7	8.8	2,838.5	—
Federal Republic of	137.0	15,374.5	2.2	4,299.0	54.9	124.3	156,527.1	7,469.3
Ghana	900.0	—	—	—	—	—	—	—
Greece	—	138.2	—	116.8	14.1	18.7	—	—
Greenland	—	—	—	—	0.9	2.4	28.7	—
Guatemala	—	—	—	—	2.1	2.5[4]	—	—
Guinea	—	—	—	385.8	—	—	—	—
Honduras	2.8[1]	2,990.0	—	—	6.5	7.1[4]	—	—
Hong Kong	—	—	—	69.4	—	—	—	—
Hungary	—	—	0.4	195.1	1.0	2.4	3,682.8	1,808.9
India	163.3	131.8	11.6	8,969.5	5.2	6.5	67,648.8	1,129.9
Indonesia	—	—	—	—	—	—	519.2	25,115.1
West Irian	—	—	—	—	—	—	—	136.7
Iran	—	—	—	33.1	11.0	8.3	174.2	72,003.0

For footnotes, see end of table.

33.—World Production of Certain Metallic Minerals and Fuels, 1962—concluded

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Iraq	—	—	—	—	—	—	—	54,263.5
Ireland	—	—	2.6	—	—	—	224.9	—
Israel	—	—	5.7	—	—	—	—	146.6
Italy	—	945.2	—	622.8	45.6	150.2	762.8	1,993.0
Japan	420.9	8,912.2	114.1	2,230.0	59.0	212.2	59,964.6	837.8
Kenya	8.9	—	—	—	—	—	—	—
Korea—								
North	—	—	—	—	55.1	93.7	8,267.3	—
Republic of	107.9	411.5	0.9	264.6	1.5	0.4	8,205.6	—
Kuwait	—	—	—	—	—	—	—	101,607.7
Kuwait (neutral zone)	—	—	—	—	—	—	—	14,357.6
Liberia	2.2	—	—	2,924.4	—	—	—	—
Libya	—	—	—	—	—	—	—	8,655.3[1]
Luxembourg	—	—	—	1,976.4	—	—	—	—
Madagascar	0.3	—	—	—	—	—	—	—
Malaya, Federation of	6.2	—	—	4,081.9	—	—	—	—
Mexico	236.8	41,210.8	51.9	1,202.6	213.1	276.3	1,220.3	17,637.0
Mongolia	—	—	—	—	—	—	937.0	—
Morocco	—	826.3	2.8	744.1	99.3	37.9	407.9	140.0
Mozambique	0.1	—	—	—	—	—	328.5	—
Netherlands	—	—	—	—	—	—	12,757.0	2,377.7
New Caledonia	—	—	—	187.4	—	—	—	—
New Guinea (Australia)	40.3	25.7	—	—	—	—	—	—
New Zealand	21.7	—	—	1.1	—	—	783.7	1.1
Nicaragua	220.9[1]	—	8.0	—	—	—	—	—
Nigeria	0.3	—	—	—	—	—	698.9	3,666.3
Norway	—	—	16.5	1,300.7	3.5	12.6	489.4	—
Pakistan	—	—	—	—	—	—	1,091.3	491.6
Papua	0.1	—	—	—	—	—	—	—
Peru	126.2	36,015.3	202.8	3,579.2	206.6	314.4	179.7	2,684.1
Philippines	423.4	675.2	60.3	856.5	0.1	5.0	179.7	—
Poland	—	—	15.1	751.8	41.8	159.9	120,817.7	222.7
Portugal	24.5	—	3.7	147.7	—	—	446.4	—
Qatar	—	—	—	—	—	—	—	9,709.2
Rhodesia and Nyasaland, Federation of—								
Northern Rhodesia	3.6	697.7	619.8	—	16.3	50.3	—	—
Southern Rhodesia	554.6	83.6	15.1	423.3	—	—	3,115.1	—
Romania	—	—	—	612.9	13.8	—	5,863.2	13,077.8
Sarawak	2.9	—	—	—	—	—	—	65.0
Saudi Arabia	—	—	—	—	—	—	—	83,501.2
Senegal	—	—	—	—	—	—	—	1.1
Sierra Leone	—	—	—	1,261.0[1]	—	—	—	—
South Africa	25,492.0	2,549.6	50.7	3,055.6	—	—	45,497.9	—
South West Africa	—	1,253.9	26.2	—	81.7	—	—	—
Spain	7.8	—	9.5	3,184.6	78.3	103.4	15,300.1	—
Sudan	1.5	—	—	—	—	—	—	—
Surinam	2.6	—	—	—	—	—	—	—
Swaziland	2.2	—	—	—	—	—	—	—
Sweden	128.7	3,369.4	21.1	14,697.1	74.7	69.9	153.2	—
Switzerland	—	—	—	46.3	—	—	—	—
Tanganyika	101.6	—	—	—	—	—	3.3	—
Thailand	—	—	—	33.1	2.6	—	—	—
Trinidad and Tobago	—	—	—	—	—	—	—	7,623.6
Trucial Oman	—	—	—	—	—	—	—	816.8
Tunisia	—	12.9	—	455.3	14.4	4.9	—	—
Turkey	—	—	31.1	503.8	3.7	6.3	4,291.3	655.9
Uganda	0.5[1]	—	17.2	—	—	—	—	—
Union of Soviet Socialist Republics	—	—	716.5	81,899.5	402.3	440.9	425,973.8	205,296.6
United Arab Republic	1.2	—	—	253.5	—	—	—	5,148.9
United States	1,556.0	36,346.4	1,228.4	43,730.9	237.0	505.5	436,021.3	398,659.6
Upper Volta	39.8	—	—	—	—	—	—	—
Venezuela	28.8	—	—	9,358.6	—	—	29.8	184,537.9
Viet Nam—								
North	—	—	—	—	—	—	2,866.0	—
Republic of	—	—	—	—	—	—	78.3	—
Yugoslavia	70.3	3,752.0	57.0	887.4	112.4	67.4	1,308.4	1,681.0

[1] Exports. [2] Excludes Northern Ireland. [3] Final DBS figures. [4] Imports into the United States.

CHAPTER XIV.—POWER GENERATION AND UTILIZATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Water Power Resources—Available and Developed*

Canada, a land of many large lakes and fast-flowing rivers, is richly endowed with immense water power resources. With the exception of the prairies of the mid-west, these resources are found in considerable magnitude in almost every part of the country.

British Columbia, traversed by three distinct mountain ranges and with, generally speaking, a high rate of precipitation, has many mountain rivers which offer abundant opportunity for the development of hydro-electric power. Notable for their power potential are such rivers as the Columbia, the Fraser, the Peace and the Stikine. Up to the present time, however, hydro-electric developments on smaller rivers in the southern part of British Columbia have supplied the province's major load requirements. The immense power resources of the larger rivers have gone unused, chiefly because of remoteness from present demand areas or because of conflicts of interest between fisheries and power development. The water power resources of British Columbia, in total magnitude the second greatest in Canada, have played and will continue to play a very important part in the development of the province.

Important water power sites await development on the Yukon River in the Yukon Territory and on the South Nahanni River in the Northwest Territories. Indications are that the rivers draining the District of Keewatin, north of Manitoba, will also contribute materially to the total power potential of the Northwest Territories. In view of the lack of developed native fuel sources and difficulties in transportation, water power is of special importance in the development of mining areas such as those at Yellowknife in the Northwest Territories and at Mayo in the Yukon Territory.

Of the three Prairie Provinces, Manitoba has the greatest water power potential. For many years, the more heavily populated southern region of the province has been supplied from hydro-electric developments on the Winnipeg River. With the advent of high-voltage, long-distance transmission, however, power from hydro-electric stations on northern rivers will flow south to help meet the constantly growing demands of industrial, urban and rural users. In both Alberta and Saskatchewan, abundant reserves of coal, oil and natural gas are used to fuel the thermal-electric plants which satisfy much of the demand for power in these provinces. In Alberta, the principal existing hydro-electric developments are located on the Bow River and its tributaries, but there are substantial power resources in northern regions of the province, too remote from urban centres to

* Revised by the Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa.

warrant development at the present time. In Saskatchewan, large water power resources exist in the central and northern parts of the province, principally on the Churchill, Fond du Lac, and Saskatchewan Rivers. In 1963, power from the first development on the Saskatchewan River was fed into the transmission network of the provincially owned Saskatchewan Power Corporation, which serves the more settled areas of the province. Previously, these areas had been served by thermal-electric plants fuelled by coal, oil or natural gas, the hydro-electric power generated in the province being used almost exclusively for mining purposes in northern areas.

The pace of industrial expansion in Ontario since the turn of the present century has made heavy demands on the province's substantial water power potential, to the extent that hydro-electric installed capacity in Ontario is exceeded in total magnitude only by that of Quebec. The largest hydro-electric development in the province is located on the Niagara River at Queenston, where the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 and the associated pumping-generating station have a combined capacity of 2,521,000 hp. Completion of development of most of Ontario's water power sites located within economic reach of demand areas has led, within the past few years, to an increasing dependence upon electric energy generated in thermal plants and to the building of Canada's first nuclear thermal plants. An important contributing factor is the growing recognition of the benefits offered by integrating the operation of hydro and thermal plants. Despite this growing emphasis on thermal power, development of a number of the province's more remote hydro sites is now considered economically feasible, largely as a result of recent marked advances in extra-high-voltage, long-distance transmission techniques. Several of these sites are under construction.

With more than 30 p.c. of the national recorded total, Quebec's water power resources are the most extensive in the country. Quebec leads the other provinces also in terms of installed turbine capacity with a total installation of some 13,200,000 hp.—about 47 p.c. of the total for all of Canada. The greatest concentration of hydro-electric capacity in one plant in Canada is installed in the 2,145,000-hp. Beauharnois development on the St. Lawrence River. Notable also are the Bersimis I development on the Bersimis River and the Shipshaw plant on the Saguenay River, each with an installed capacity of 1,200,000 hp. A major power scheme involving the harnessing of the headwaters of the Manicouagan and Outardes Rivers is under construction. The completed project will make available about 7,300,000 hp. of additional capacity at new and existing developments on the two rivers.

The water power resources of New Brunswick and Nova Scotia, although small in comparison with those of other provinces, are a valuable source of energy. Numerous rivers in both provinces provide moderate-sized power sites advantageously situated for urban or rural use. In Prince Edward Island there are no large streams and, consequently, water power plants are limited in size to those used for small mills. Topography and runoff conditions on the Island of Newfoundland are favourable for the development of power, even though river drainage areas are generally not large. Considerable power development has taken place on the Island, mainly to serve the pulp and paper industry. Labrador has what is considered to be one of the largest sources of water power in Canada in the Hamilton River and its tributaries.

An accurate comparison of the magnitude and state of development of Canada's water power resources with those of other countries is not possible because world statistics are incomplete and are not tabulated on the same basis. Available information would indicate, however, that Canada is exceeded only by the United States in the total amount of hydraulic turbine capacity actually installed. In terms of installed water power capacity per thousand population, Canada is second only to Norway. It is interesting to note that, with the exception of those of the United States, Canada's water power resources, fifth in order of magnitude, are more readily available to prospective markets than is the case in any of the countries that have greater power potential.

Table 1 gives, by province or territory, the estimated total water power resources of Canada and the total existing capacity of all water power plants.

1.—Available and Developed Water Power, by Province, as at Jan. 1, 1964

Province or Territory	Available 24-Hour Power at 80 p.c. Efficiency		Turbine Installation
	At Ordinary Minimum Flow	At Ordinary Six-Month Flow	
	hp.	hp.	hp.
Newfoundland	1,608,000	3,264,000	632,025
Prince Edward Island	500	3,000	1,660
Nova Scotia	30,500	177,000	204,538
New Brunswick	123,000	334,000	309,726
Quebec	12,557,000	23,711,000	13,176,845
Ontario	5,496,000	7,701,000	8,247,512
Manitoba	4,758,000	8,454,000	988,900
Saskatchewan	552,000	1,131,000	326,135
Alberta	911,000	2,453,000	414,455
British Columbia	18,200,000[1]	19,400,000[1]	3,831,326
Yukon Territory	5,859,000[1]	5,866,000[1]	38,190
Northwest Territories	1,367,000	1,791,000	22,250
Canada	**51,462,000**	**74,285,000**	**28,193,562**

[1]Reflects the effect of possible stream-flow regulation based on known storage potentials.

The figures in the first and second columns of Table 1 represent continuous 24-hour power based on available data on stream-flow and hydraulic head at individual sites. The hydraulic head used is the feasible concentration of head, which has been measured or at least estimated at existing falls, rapids and known power sites. No consideration has been given to possible economic concentrations of head on rivers and streams of gradual gradient, except at those locations where the available head has been definitely established by field investigations.

It should be emphasized that the figures of available power represent only the minimum water power possibilities of Canada. Many unrecorded power sites exist on rivers and streams throughout the country, particularly in the less-explored northerly districts. As power surveys are extended, detailed information on new sites will become available and, undoubtedly, substantial additions to present figures of available power will result. With the exception of British Columbia, Yukon Territory and the Northwest Territories, estimates of available power are based upon existing river flows and do not take into account the benefits of stream-flow regulation that would result from the development of storage potential. In addition, the figures of available power do not include the power potential of major river diversions that have been investigated but not developed.

The figures in the third column of Table 1 are the totals of plant capacities based upon the manufacturer's rating as indicated on the name-plate of each unit. In a few cases where, subsequent to installation of the unit, a change in the normal operating head has been effected, a rating based on the new normal operating head is used. The maximum economic turbine installation at any power site can be determined only by careful consideration of all the conditions and circumstances pertinent to its individual development. It is the usual practice, however, to install turbines with a total capacity in excess of the power equivalent of the ordinary six-month flow at the site. This additional capacity may be installed for use at peak-load hours or to facilitate plant or system maintenance, or to take advantage of high river flow.

The extent to which the installed capacity exceeds the power equivalent of the ordinary six-month flow depends upon the factors that govern the system of power-plant operation, and varies widely in different parts of the country. In some developments, the difference may amount to as much as several hundred per cent. For this reason, the figures in the third column of Table 1 are not directly comparable with those in column two. For the same reason, it is not feasible to forecast future capacity installation on the basis of estimates of available water power.

The steady growth of hydraulic turbine capacity is shown in Table 2. The average annual growth of 56,000 hp. in the period 1900-05 increased sharply to about 150,000 hp.

per annum in the 1906-22 period, largely as a result of improvements in electric power transmission and of the construction of large hydro-electric stations. Because of the heavier demand for electricity during the prosperous 1920's, the rate of installation increased appreciably in 1923 and continued at a nearly uniform rate of 377,000 hp. per annum until 1935. Conditions resulting from the economic depression of the early 1930's were responsible for a decrease in construction starts and the comparatively low rate of installation during the period 1936-39. The wartime demand for power accelerated the installation rate to an average of 481,000 hp. per annum for the period 1940-43. Few new developments were started in the later war years or in the immediate postwar period so that from 1944 to 1947 only a small amount of new capacity came into operation. However, the program of construction of hydro-electric power plants gained momentum soon after the War and the results are apparent in the substantial growth in new capacity brought into service during the period 1948-60, when the average annual rate of installation exceeded 1,200,000 hp. In sharp contrast to this high average rate are the comparatively moderate net totals of 294,650 hp.* and 415,468 hp. of new capacity put into service in 1961 and 1962, respectively. The previous high rate of installation resumed in 1963, however, when a total of 1,090,000 hp. of new capacity was brought into service.

* Does not reflect an increase of 60,000 hp. brought about by the re-rating of an existing plant in Quebec.

2.—Hydraulic Turbine Horsepower Installed, by Province, as at Dec. 31, Decennially 1900-50 and Annually 1954-63

NOTE.—Figures for the years 1900-30 are given in the 1939 Year Book, p. 362; for 1931-39 in the 1946 edition, p. 362; for 1940-49 in the 1954 edition, pp. 556-557; and for 1951-53 in the 1963-64 edition, pp. 584-585.

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	hp.	hp.	hp.	hp.	hp.	hp.
1900	—	1,521	19,810	4,601	82,864	53,876
1910	—	1,760	31,476	11,197	334,763	490,821
1920	—	2,233	37,623	21,976	955,090	1,057,422
1930	—	2,439	114,224	133,681	2,718,130	2,088,055
1940	—	2,617	139,217	133,347	4,320,943	2,597,595
1950	262,810	2,299	150,960	133,111	6,372,812	3,513,240
1954	323,150	1,882	170,908	164,130	7,773,822	4,845,486
1955	329,150	1,882	177,018	164,130	7,975,657	5,367,866
1956	336,750	1,882	179,718	164,130	8,489,957	5,443,766
1957	337,970	1,882	181,958	209,130	8,979,857	5,824,766
1958	368,935	1,660	183,168	254,375	9,857,607	7,150,851
1959	370,925	1,660	184,538	254,258	11,263,645	7,788,062
1960	384,025	1,660	184,538	254,258	12,440,145	7,814,562
1961	384,025	1,660	204,538	254,258	12,576,845	7,959,512
1962	504,025	1,660	204,538	309,726	12,816,845	7,959,512
1963	632,025	1,660	204,538	309,726	13,176,845	8,247,512

Year	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	hp.	hp.	hp.	hp.	hp.	hp.
1900	1,000	—	280	9,366	5	173,323
1910	38,800	30	655	64,474	3,195	977,171
1920	85,325	35	33,122	309,534	13,199	2,515,559
1930	311,925	42,035	70,532	630,792	13,199	6,125,012
1940	420,925	90,835	71,997	788,763	18,199	8,584,438
1950	595,200	111,835	107,225	1,284,208	28,450	12,562,750
1954	756,900	109,835	258,710	2,246,868	32,440	16,684,131
1955	796,900	109,835	284,010	2,271,460	33,240	17,511,148
1956	796,900	109,835	285,010	2,514,960	33,240	18,356,148
1957	778,900	109,835	308,010	3,122,460	36,240	19,891,008
1958	778,900	109,835	312,595	3,310,460	51,240	22,379,626
1959	778,900	128,835	312,455	3,499,106	51,240	24,633,624
1960	946,900	132,135	414,455	3,700,326	60,440	26,333,444
1961	988,900	142,135	414,455	3,701,326	60,440	26,688,094
1962	988,900	142,135	414,455	3,701,326	60,440	27,103,562
1963	988,900	326,135	414,455	3,831,326	60,440	28,193,562

The availability of large amounts of low-cost hydro-electric energy has been an essential factor in the development of Canadian industry. Power from hydro-electric plants ranging in capacity from a few hundred horsepower to more than a million horsepower is carried via transmission line networks to urban centres and rural districts. The ability to transmit power over relatively long distances has facilitated the decentralization of industry and has enabled manufacturers to carry on operations in many of the smaller centres of population.

Table 3 indicates the respective amounts of water power developed by utilities and by industrial establishments. For the purposes of this tabulation, utilities are defined as companies, municipalities or individuals who sell most of the power they develop. In some cases, they include also certain subsidiary companies whose main purpose is to develop and sell power to a parent company for industrial uses. The total of 21,972,661 hp. of turbine capacity installed in plants operated by utilities on Jan. 1, 1964 represented 78 p.c. of Canada's total installed capacity.

Industries are defined as companies or individuals who develop power mainly for their own use. The total installed capacity of plants operated by industrial establishments on Jan. 1, 1964 was 6,220,901 hp. In addition to the power generated in their own plants, industries purchase a considerable amount from utilities.

The total hydraulic installation at the beginning of 1964 (28,193,562 hp.) is the total of all existing installations of water wheels and hydraulic turbines in Canada.

3.—Installed Water Power Capacity, by Province, as at Jan. 1, 1964

Province or Territory	Turbine Installation		Total
	Utilities[1]	Industries[2]	
	hp.	hp.	hp.
Newfoundland	518,305	113,720	632,025
Prince Edward Island	240	1,420	1,660
Nova Scotia	189,345	15,193	204,538
New Brunswick	283,408	26,318	309,726
Quebec	9,519,678	3,657,167	13,176,845
Ontario	7,804,110	443,402	8,247,512
Manitoba	973,000	15,900	988,900
Saskatchewan	309,500	16,635	326,135
Alberta	413,390	1,065	414,455
British Columbia	1,920,945	1,910,381	3,831,326
Yukon and Northwest Territories	40,740	19,700	60,440
Canada	**21,972,661**	**6,220,901**	**28,193,562**
Percentage of total installation	78	22	100

[1] Includes only hydro-electric installations that develop power mainly for sale. [2] Includes only water power installations developed by industries mainly for their own use.

Section 2.—Power Generating Capability and Load Requirements*

Power generating *capability*, as covered in this Section, is the measurement of the available generating resources of all hydro and thermal facilities at the time of the one-hour firm peak load for each reporting company, and is not equal to the *capacity* of such generating facilities. For example, a hydro plant may have a capacity of 100,000 kw. but if, at the time of peak load, the water available for generation is only 80 p.c. of the plant capacity requirements, then its capability is 80,000 kw.

* Prepared by the Energy Statistics Section, Industry Division, Dominion Bureau of Statistics.

Total generating capability has grown at a rapid rate since 1950. The annual rate of increase was 8.0 p.c. in the twelve-year period 1951-63 and 6.0 p.c. in the period 1959-63. In comparison, the forecast rate of growth for the years 1964-68 is only 6.4 p.c.; thermal generating capability is expected to grow at the average rate of 7.3 p.c. a year in the forecast period compared with 15.8 p.c. in the period 1951-63 but hydro-electric capability is expected to increase at only 3.0 p.c. a year compared with 6.7 p.c. in the 1951-63 period.

Among the provinces, Quebec has the largest generating capability, followed by Ontario, British Columbia and Alberta. Quebec also has the largest hydro-electric generating capability, followed by Ontario and British Columbia, but Ontario has the largest thermal capability, followed by Alberta and British Columbia. The first nuclear capability is scheduled for 1967.

The largest absolute growth in generating capability for the forecast years is indicated for Quebec amounting to 2,323,000 kw., followed by Ontario 2,199,000 kw., Alberta 790,000 kw., and British Columbia 769,000 kw. Quebec will meet most of its increased generating capability by adding over 2,014,000 kw. in hydro capability and 309,000 kw. in thermal capability. Ontario will add 1,915,000 kw. thermal, including 218,000 kw. nuclear, and 284,000 kw. hydro, and Alberta will add 300,000 kw. hydro and 490,000 kw. thermal. Thus, it is apparent that thermal capability is becoming of greater importance, partly because of decreasing availability of hydro resources in provinces such as Ontario and partly because technological advances have made possible much more efficient use of thermal fuels in the operation of thermal base load plants.

Firm power peak load is the measure of the maximum average net kilowatt demand of one-hour duration from all loads, including commercial, residential, farm and industrial consumers as well as the line losses. Such load demand increased at the rate of 6.8 p.c. a year from 1951 to 1963 but only 6.4 p.c. a year from 1959 to 1963; peak load demand is forecast to increase at the average rate of 6.0 p.c. a year in the period 1964-68. As a result of the rapid increase in generating capability and the somewhat slower but steady increase in the peak loads, together with the slight reduction in deliveries of firm power to the United States, the indicated reserve on net generating capability increased each year from 1951 to 1963, with the exception of 1961 and 1963. The forecast is for decreases from 1964 to 1967 and an increase for 1968. The reserve ratio as a percentage of firm power peak load, which reached a high of 28.2 p.c. in 1960, is expected to decrease to 16.8 p.c. in 1968.

4.—Net Generating Capability, by Province, 1963

(Thousand kilowatts)

Type of Generating Facility	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
Hydro-electric	444	—	143	224	9,271	5,601
Thermal-electric—						
Steam	45	51	387	304	59	2,376
Internal combustion	7	7	2	7	10	12
Gas turbine	—	—	—	—	36	—
Totals	**496**	**58**	**532**	**535**	**9,376**	**7,989**

Type of Generating Facility	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
Hydro-electric	735	208	326	2,670	44	19,666
Thermal-electric—						
Steam	291	492	713	475	1	5,194
Internal combustion	7	36	31	106	11	236
Gas turbine	—	39	130	177	—	382
Totals	**1,033**	**775**	**1,200**	**3,428**	**56**	**25,478**

5.—Capability and Firm Power Peak Load Requirements, Actual 1951 and 1958-63 and Forecast 1964-68

(Thousand kilowatts)

Item	Actual							Forecast				
	1951	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Net Generating Capability—												
Hydro-electric	9,044	15,912	17,086	18,516	18,389	18,651	19,666	20,319	21,211	22,058	22,378	23,496
Steam—Conventional	1,032	2,716	3,119	3,824	3,648	4,596	5,194	5,813	6,356	6,856	7,623	8,251
Nuclear					—	—	—	—	—	—	218	218
Internal combustion					240	251	236	244	250	254	256	258
Gas turbine					351	371	382	383	384	384	385	415
Totals, Net Generating Capability	**10,076**	**18,628**	**20,205**	**22,340**	**22,628**	**23,869**	**25,478**	**26,759**	**28,201**	**29,552**	**30,860**	**32,638**
Receipts of firm power from United States	—	—	—	—	2	4	2	2	3	3	3	3
Deliveries of firm power to United States	175	152	152	166	146	121	122	127	90	91	97	101
Totals, Net Capability	**9,901**	**18,476**	**20,053**	**22,174**	**22,484**	**23,752**	**25,358**	**26,634**	**28,114**	**29,464**	**30,766**	**32,540**
Peak Loads—												
Firm power peak load within Canada	8,989	15,568	16,201	17,264	18,353	18,972	20,759	22,265	23,605	24,953	26,338	27,789
Indicated shortages	321	—	—	—	—	—	28	—	28	70	86	88
Totals, Indicated Peak Load within Canada	**9,310**	**15,568**	**16,201**	**17,264**	**18,353**	**18,972**	**20,787**	**22,265**	**23,633**	**25,023**	**26,424**	**27,877**
Indicated Reserve	**591**	**2,908**	**3,852**	**4,910**	**4,131**	**4,780**	**4,571**	**4,369**	**4,481**	**4,441**	**4,342**	**4,663**

Section 3.—Electric Power Statistics

Electric power statistics presented in this Section are based on reports of all electrical utilities and all industrial establishments that generate energy regardless of whether or not any is sold and therefore show the total production and distribution of electric energy in Canada. Utilities are defined as companies, commissions, municipalities or individuals whose primary function is to sell most of the electric energy that they have either generated or purchased. Industrial establishments are defined as companies or individuals that generate electricity mainly for use in their own plants.

The current series of electric power statistics dates back to 1956. Earlier reports, entitled *Central Electric Stations*, were concerned solely with the electrical utility industry and hence excluded statistics relating to power produced by industrial establishments for their own use, although power sold by such establishments was included.

The figures of total water and thermal power generated for the years 1950-55 shown in Table 6 are compiled on the old basis, figures for 1956 are shown on both bases for comparative purposes, and those for later years are on the new basis.

6.—Electric Energy Generated, by Type of Station 1950-62, and by Province 1961 and 1962

Year and Province or Territory	Generated by—		Total	Year and Province or Territory	Generated by—		Total
	Water Power	Thermal Power			Water Power	Thermal Power	
	'000 kwh.	'000 kwh.	'000 kwh.		'000 kwh.	'000 kwh.	'000 kwh.
1950	46,624,218	1,869,500	48,493,718	1956[1]	81,839,968	6,543,333	88,383,301
1951	52,955,002	1,896,842	54,851,844	1957	83,373,220	7,668,860	91,042,080
1952	57,023,530	2,385,668	59,409,198	1958	90,509,200	6,975,089	97,484,289
1953	58,926,462	3,934,465	62,860,927	1959	97,039,830	7,588,653	104,628,483
1954	62,572,316	3,364,124	65,936,440	1960	105,882,773	8,495,160	114,377,933
1955	69,478,003	3,432,589	72,910,592	1961	103,919,241	9,794,077	113,713,318
1956	73,524,583	4,479,770	78,004,353	1962	104,050,724	13,418,024	117,468,748
1961				**1962**			
Nfld.	1,320,552	137,008	1,457,560	Nfld.	1,550,516	112,135	1,662,651
P.E.I.	407	88,150	88,557	P.E.I.	407	101,347	101,754
N.S.	544,010	1,317,123	1,861,133	N.S.	715,400	1,233,689	1,949,089
N.B.	1,020,737	891,400	1,912,137	N.B.	1,213,475	961,180	2,174,655
Que.	49,547,805	307,790	49,855,595	Que.	49,907,955	351,347	50,259,302
Ont.	33,737,126	1,216,464	34,953,590	Ont.	30,912,426	4,377,429	35,289,855
Man.	3,589,242	257,367	3,846,609	Man.	4,220,586	146,019	4,366,605
Sask.	659,971	1,885,133	2,545,104	Sask.	706,739	1,981,635	2,688,374
Alta.	1,017,731	2,752,745	3,770,476	Alta.	956,195	3,137,192	4,093,387
B.C.	12,299,630	904,823	13,204,453	B.C.	13,668,585	983,492	14,652,077
Yukon and N.W.T.	182,030	36,074	218,104	Yukon and N.W.T.	198,440	32,559	230,999
Canada, 1961	**103,919,241**	**9,794,077**	**113,713,318**	**Canada, 1962**	**104,050,724**	**13,418,024**	**117,468,748**

[1] New series, see immediately preceding text.

Of the total generation in 1962 of 117,468,748,000 kwh., 88.6 p.c. was produced from water power and 11.4 p.c. was generated thermally; the proportions differed somewhat among provinces as shown in the following statement.

Province	*Hydro*	*Thermal*	*Province or Territory*	*Hydro*	*Thermal*
	p.c.	p.c.		p.c.	p.c.
Newfoundland	93.3	6.7	Manitoba	96.7	3.3
Prince Edward Island	0.4	99.6	Saskatchewan	26.3	73.7
Nova Scotia	36.7	63.3	Alberta	23.4	76.6
New Brunswick	55.8	44.2	British Columbia	93.3	6.7
Quebec	99.3	0.7	Yukon and N.W.T.	85.9	14.1
Ontario	87.6	12.4			

Table 7 gives summary figures of power production and distribution classified by province, and Tables 8 and 9 give figures classified by type of production establishment. Total installed capacity in Canada amounted to 24,967,000 kw. in 1962, an increase of 875,632 kw. over 1961. Of the 1962 total, 20,382,963 kw. were accounted for by utilities and the remainder by industrial establishments. During 1961 and 1962 total sales to ultimate customers amounted to 79,874,233,000 kwh. and 84,331,799,000 kwh., respectively, of which 99.6 p.c. was sold each year by utilities.

Sales to power customers made up 60.7 p.c. of the total in 1961 and 59.4 p.c. in 1962, sales to domestic and farm customers were 27.5 p.c. and 28.1 p.c., and commercial sales 10.9 p.c. and 11.5 p.c. in the respective years. Exports to the United States in 1962 amounted to 4,112,411,000 kwh. compared with 4,157,531,000 kwh. in 1961.

7.—Summary Electric Power Statistics, by Province, 1961 and 1962

Year and Province or Territory	Installed Generating Capacity	Energy Made Available in Canada	Exported to U.S.A.	Ultimate Customers	Total Revenue from Ultimate Customers	Electrical Utilities	
						Employees	Salaries and Wages
	kw.	'000 kwh.	'000 kwh.	No.	$'000	No.	$'000
1961							
Newfoundland	322,237	1,382,336	—	70,750	11,264	600	2,297
Prince Edward Island	37,396	88,557	—	23,541	2,812	177	675
Nova Scotia	520,248	1,776,692	—	204,611	30,774	1,567	6,530
New Brunswick	441,700	1,824,504	204,863	156,210	23,304	1,244	4,689
Quebec	9,138,934	43,767,356	406,814	1,455,449	228,046	10,365	48,879
Ontario	7,760,761	38,276,736	3,526,310	2,012,198	321,201	16,170	87,257
Manitoba	1,087,959	4,748,369	38	300,234	40,872	2,520	11,700
Saskatchewan	785,287	1,894,034	—	265,091	39,146	2,450	11,924
Alberta	931,529	3,794,730	—	367,941	57,470	1,737	9,099
British Columbia	3,000,011	13,178,383[r]	19,506[r]	513,734	100,033	2,335	14,111
Yukon and N.W.T.	65,306	218,104	—	5,686	3,956	224	1,255
Canada, 1961	**24,091,368**	**110,949,801[r]**	**4,157,531[r]**	**5,375,445**	**858,878**	**39,389**	**198,416**
1962							
Newfoundland	418,137	1,581,251	—	74,394	13,244	662	2,529
Prince Edward Island	39,156	101,754	—	24,607	3,165	173	701
Nova Scotia	520,848	1,935,746	—	209,271	32,772	1,558	6,706
New Brunswick	479,750	1,979,852	246,344	166,354	25,260	1,295	4,976
Quebec	9,320,325	44,160,040	299,468	1,501,326	237,233	10,850	56,927
Ontario	8,179,367	40,140,855	3,550,796	2,065,146	340,255	16,026	91,996
Manitoba	1,084,309	5,173,011	12	304,376	44,207	2,604	12,626
Saskatchewan	782,230	2,043,815	—	271,188	42,463	2,166	9,524
Alberta	1,081,156	4,126,598	—	384,112	62,373	1,738	9,734
British Columbia	3,000,918	14,661,125	15,791	532,866	103,397	2,673	14,972
Yukon and N.W.T.	60,804	230,999	—	5,763	4,110	258	1,297
Canada, 1962	**24,967,000**	**116,135,046**	**4,112,411**	**5,539,403**	**908,479**	**40,003**	**211,988**

8.—Summary Electric Power Statistics, by Type of Establishment, 1961 and 1962

Year and Item		Electrical Utilities			Industrial Establishments	Total
		Publicly Operated	Privately Operated	Total		
1961						
Installed generator capacity	kw.	13,565,063[r]	5,927,079[r]	19,492,142[r]	4,599,226[r]	24,091,368[r]
Energy generated	'000 kwh.	59,739,877	29,648,758	89,388,635	24,324,683	113,713,318
Hydro	"	*55,170,410*	*27,155,454*	*82,325,864*	*21,593,377*	*103,919,241*
Thermal	"	*4,569,467*	*2,493,304*	*7,062,771*	*2,731,306*	*9,794,077*
Energy Made Available in Canada	**'000 kwh.**	..	..	..	..	**110,949,801[r]**
Disposal of energy in Canada	'000 kwh.	56,677,025	31,588,866[r]	88,265,891[r]	305,985	88,571,876[r]
Energy exported to United States	"	3,481,345	560,684[r]	4,042,029[r]	115,238	4,157,531[r]

8.—Summary Electric Power Statistics, by Type of Establishment, 1961 and 1962—concluded

Year and Item		Electrical Utilities			Industrial Establishments	Total
		Publicly Operated	Privately Operated	Total		
1961—concluded						
Ultimate customers in Canada	No.	3,770,691	1,595,051	5,365,742	9,703	5,375,445
Domestic and farm	"	*3,325,923*	*1,381,964*	*4,707,887*	*8,932*	*4,716,819*
Commercial	"	*371,664*	*175,734*	*547,398*	*713*	*548,111*
Power	"	*69,489*	*34,810*	*104,299*	*54*	*104,353*
Street lighting	"	*3,615*	*2,543*	*6,158*	*24*	*6,182*
Revenue from ultimate customers	$'000	567,551	288,958	856,509	2,369	858,878
Revenue from exports to United States	"	5,642	2,919	8,561	991	9,552
Employees	No.	28,884	10,505	39,389	..	..
Salaries and wages	$'000	146,828	51,588	198,416	..	..
1962						
Installed generator capacity	kw.	15,340,490	5,042,473	20,382,963	4,584,037	24,967,000
Energy generated	'000 kwh.	66,715,796	25,380,300	92,096,096	25,372,652	117,468,748
Hydro	"	*58,662,737*	*22,680,823*	*81,343,560*	*22,707,164*	*104,050,724*
Thermal	"	*8,053,059*	*2,699,477*	*10,752,536*	*2,665,488*	*13,418,024*
Energy Made Available in Canada	**'000 kwh.**	..	..	..	..	**116,135,046**
Disposal of energy in Canada	'000 kwh.	64,154,920	28,125,794	92,280,714	383,435	92,664,149
Energy exported to United States	"	3,475,986	488,672	3,964,658	147,753	4,112,411
Ultimate customers in Canada	No.	4,234,422	1,297,053	5,531,475	7,928	5,539,403
Domestic and farm	"	*3,729,488*	*1,127,731*	*4,857,219*	*7,245*	*4,864,464*
Commercial	"	*426,513*	*132,496*	*559,009*	*619*	*559,628*
Power	"	*74,436*	*34,899*	*109,335*	*48*	*109,383*
Street lighting	"	*3,985*	*1,927*	*5,912*	*16*	*5,928*
Revenue from ultimate customers	$'000	673,719	232,216	905,935	2,544	908,479
Revenue from exports to United States	"	4,662	2,702	7,364	1,248	8,612
Employees	No.	30,577	9,426	40,003	..	..
Salaries and wages	$'000	164,927	47,061	211,988	..	..

9.—Electric Power Generated classified by Type of Establishment, by Province, 1961 and 1962

Year and Province or Territory	Electrical Utilities		Industrial Establishments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
1961				
Newfoundland	175	1,022,427	434,958	1,457,560
Prince Edward Island	7,269	81,288	—	88,557
Nova Scotia	589,137	1,106,686	165,310	1,861,133
New Brunswick	1,275,455	63,797	572,885	1,912,137
Quebec	17,896,450	18,173,915	13,785,230	49,855,595
Ontario	31,320,780	1,473,884	2,158,926	34,953,590
Manitoba	3,786,158	—	60,451	3,846,609
Saskatchewan	1,801,531	620,239	123,334	2,545,104
Alberta	1,091,039	2,360,203	319,234	3,770,476
British Columbia	1,825,184	4,733,244	6,646,025	13,204,453
Yukon and Northwest Territories	146,699	13,075	58,330	218,104
Canada, 1961	**59,739,877**	**29,648,758**	**24,324,683**	**113,713,318**
1962				
Newfoundland	170	1,223,877	438,604	1,662,651
Prince Edward Island	7,668	94,086	—	101,754
Nova Scotia	691,718	1,083,303	174,068	1,949,089
New Brunswick	1,518,783	71,050	584,822	2,174,655
Quebec	18,451,402	17,873,550	13,934,350	50,259,302
Ontario	31,809,348	1,293,262	2,187,245	35,289,855

9.—Electric Power Generated classified by Type of Establishment, by Province, 1961 and 1962—concluded

Year and Province or Territory	Electrical Utilities		Industrial Establishments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
1962—concluded				
Manitoba	4,304,694	—	61,911	4,366,605
Saskatchewan	1,944,660	649,374	94,340	2,688,374
Alberta	1,185,600	2,581,671	326,116	4,093,387
British Columbia	6,638,664	493,222	7,520,191	14,652,077
Yukon and Northwest Territories	163,089	16,905	51,005	230,999
Canada, 1962	**66,715,796**	**25,380,300**	**25,372,652**	**117,468,748**

Average domestic and farm consumption rose from 4,660 kwh. in 1961 to 4,873 kwh. in 1962. Among the provinces, the averages in 1962 varied from a low of 1,866 kwh. in Prince Edward Island to a high of 6,468 kwh. in Manitoba. For domestic and farm customers the average annual bill was $75.24 in 1962 as against $73.53 in 1961, an increase of 2.3 p.c.

Although many utilities do not keep records on farm customers separate from other domestic customers, the data reported on farm service indicate that the average consumption rose from 4,654 kwh. per customer in 1961 to 5,230 kwh. in 1962 and the average bill from $99.52 to $106.55.

10.—Domestic and Farm Service by Electric Utilities and Industrial Establishments, 1958-62

Item		1958	1959	1960	1961	1962
Customers	No.	4,188,946	4,381,564	4,542,780	4,716,819	4,864,464
Kilowatt-hours sold	'000	17,290,984	19,007,111	20,391,857	21,979,672	23,704,259
Revenue received	$'000	278,531	305,662	325,946	346,807	365,990
Kilowatt-hours per customer	No.	4,128	4,338	4,489	4,660	4,873
Average annual bill	$	66.49	69.76	71.75	73.53	75.24
Revenue per kwh.	cts.	1.61	1.61	1.60	1.58	1.54

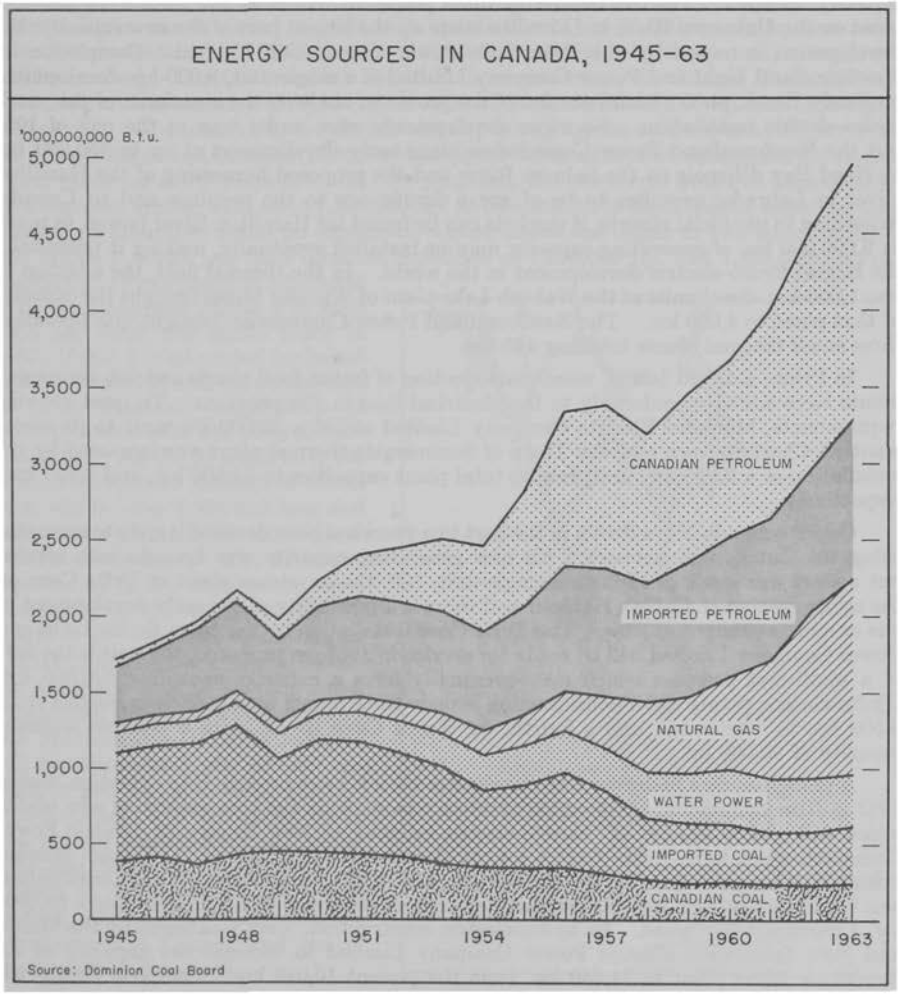
In 1962, natural gas accounted for 28.1 p.c. of thermal generation by utilities, coal for 60.0 p.c., petroleum fuels for 11.7 p.c. and nuclear fuel for 0.2 p.c.; corresponding proportions in 1961 were 43.5 p.c., 41.6 p.c., 14.9 p.c. and 0.0 p.c., respectively.

11.—Fuel Used by Electrical Utilities to Generate Power, by Province, 1961 and 1962

Year and Province or Territory	Coal		Petroleum Fuels		Gas	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	$	Imp. gal.	$	Mcf.	$
1961						
Newfoundland	—	—	6,376,192	506,426	—	—
Prince Edward Island	—	—	7,684,587	510,779	—	—
Nova Scotia	504,071	5,393,919	19,330,109	1,233,384	—	—
New Brunswick	167,814	1,632,814	9,278,872	710,229	—	—
Quebec	—	—	2,936,700	458,449	—	—
Ontario	272,115	2,083,059	2,272,763	249,244	114,928	40,608
Manitoba	115,954	475,248	991,675	166,217	1,674,707	270,039
Saskatchewan	963,989	1,464,312	28,811,726	1,628,011	9,270,157	1,378,699
Alberta	229,455	375,526	3,078,048	182,586	28,058,763	4,081,333
British Columbia	—	—	4,708,311	843,111	2,134,637	553,227
Yukon and Northwest Territories	—	—	1,767,870	435,979	—	—
Canada, 1961	**2,253,398**	**11,424,878**	**87,236,853**	**6,924,415**	**41,253,192**	**6,323,906**

11.—Fuel Used by Electrical Utilities to Generate Power, by Province, 1961 and 1962—concl.

Year and Province or Territory	Coal		Petroleum Fuels		Gas	
	Quantity	Value	Quantity	Value	Quantity	Value
1962	tons	$	Imp. gal.	$	Mcf.	$
Newfoundland	—	—	3,678,261	509,809	—	—
Prince Edward Island	—	—	8,737,592	582,990	—	—
Nova Scotia	514,737	5,448,621	11,236,948	700,678	—	—
New Brunswick	121,046	1,132,660	18,236,460	1,169,528	—	—
Quebec	—	—	5,264,605	841,286	—	—
Ontario	1,492,590	13,228,599	2,578,909	338,549	144,937	51,833
Manitoba	111,272	450,098	1,403,940	232,244	284,082	40,840
Saskatchewan	1,129,242	1,983,035	26,496,084	1,540,881	8,998,982	1,309,457
Alberta	356,118	516,020	4,093,749	240,986	30,901,999	4,707,244
British Columbia	—	—	5,879,452	906,665	3,320,387	850,964
Yukon and Northwest Territories	—	—	1,813,345	453,515	—	—
Canada, 1962	**3,725,005**	**22,759,033**	**89,419,345**	**7,517,131**	**43,650,387**	**6,960,338**



Section 4.—Progress in the Development of Hydro-Electric and Thermal-Electric Facilities, 1963

During 1963, a massive program of power plant construction in Canada boosted the nation's total generating capacity by 1,220,000 kw. About 785,000 kw. of this total was installed in hydro-electric plants with turbine capacities totalling 1,090,000 hp. and the other 435,000 kw. was installed in thermal-electric plants. No slackening in the pace of development is in sight—some 900,000 hp. of hydro capacity and another 700,000 kw. of thermal capacity being scheduled for completion in 1964. Moreover, almost 12,000,000 hp. of hydro capacity and 2,810,000 kw. of thermal capacity are proposed or under construction for installation over the years following 1964.

Atlantic Provinces.—During 1963, the Province of Newfoundland was the only Atlantic Province in which new hydro-electric capacity was brought into operation. This hydro capacity, totalling 128,000 hp., overshadowed the 2,440 kw. of new thermal generating capacity installed. The two 60,000-hp. units placed in service at the Twin Falls development on the Unknown River in Labrador made up the largest part of the new capacity; the development is owned by the Twin Falls Power Corporation Limited. Completion by Newfoundland Light and Power Company Limited of a single-unit, 8,000-hp. development on Sandy Brook, on the island portion of the province, made up the remainder of the year's hydro-electric installation. No other developments were under way at the end of 1963 but the Newfoundland Power Commission plans early development of up to 350,000 hp. at Head Bay d'Espoir on the Salmon River and the proposed harnessing of the Hamilton River in Labrador promises to be of great significance to the province and to Canada. According to unofficial reports, if markets can be found for Hamilton River power, as much as 6,000,000 hp. of generating capacity may be installed eventually, making it potentially the largest hydro-electric development in the world. In the thermal field, the addition of two 1,000-kw. diesel units at the Wabush Lake plant of Wabush Mines brought the capacity of that plant to 4,000 kw. The Newfoundland Power Commission brought into operation three small thermal plants totalling 440 kw.

In Prince Edward Island, recent introduction of frozen food plants and fish processing plants have added considerably to the electrical load in the province. To meet growing requirements, Maritime Electric Company Limited added a 20,000-kw. unit to its steam plant at Charlottetown and the Town of Summerside thermal plant was increased by the installation of a 2,250-kw. unit, raising total plant capacities to 52,500 kw. and 6,890 kw., respectively.

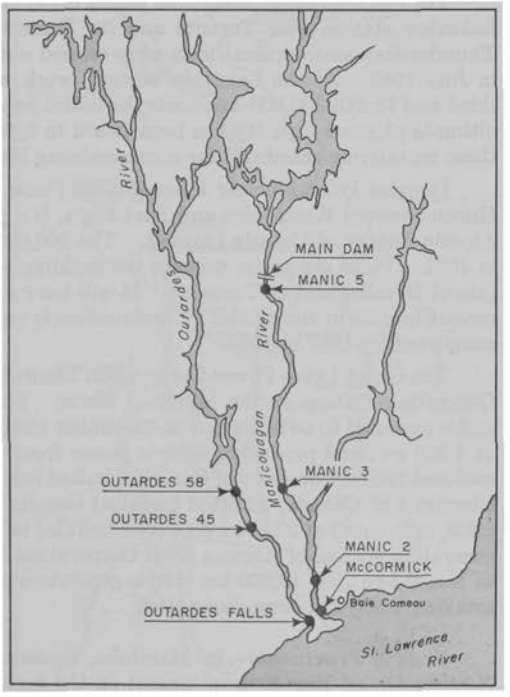
Construction in Nova Scotia in the past two years has been devoted largely to strengthening the distribution network. No new generating capacity was brought into service but a start was made in 1963 on a single-unit, 100,000-kw. steam plant at Tufts Cove on the upper reaches of Halifax Harbour and there is a possibility of the early development of one or more water power sites. The Tufts Cove installation by the Nova Scotia Light and Power Company Limited will be ready for service in 1965; as proposed, the unit is the first of a multi-unit complex which may eventually have a capacity exceeding 500,000 kw. Hydro-electric plants under consideration include three plants with capacities ranging from 6,500 hp. to 10,800 hp., and a fourth, on Wreck Cove Brook, with a possible ultimate capacity of 90,000 hp.

Although no new hydro- or thermal-electric capacity was brought into operation during 1963 in New Brunswick, considerable progress was made on the construction of new plants which will add 60,500 kw. of thermal-electric capacity to New Brunswick Electric Power Commission plants in 1964—60,000 kw. at Grand Lake and 500 kw. at Grand Manan, raising these plant capacities to 103,750 kw. and 1,490 kw., respectively. Construction was begun in 1963 of a 100,000-kw. thermal unit, an extension to the Commission's 50,000-kw. Courtenay Bay plant. In hydro-electric construction, work was begun by the Maine and New Brunswick Electric Power Company Limited to increase the capacity of its Aroostook River plant to 34,640 kw. from the present 10,040 kw. The New Brunswick

Electric Power Commission has undertaken initial development of the Mactaquac site on the St. John River where some 500,000 kw. of generating capacity is expected to be installed.

Quebec.—Development of Quebec's water power resources over the past decade has been spectacular but even more formidable was the pace of development in 1963 and that scheduled for the next few years. The 360,000 hp. of hydro capacity brought into service in 1963 and the estimated 256,000 hp. for 1964 are but a small part of a projected hydro-electric program involving almost 7,600,000 hp. The current thermal-electric program will bring 150,000 kw. into service in 1964 and another 150,000 kw. after 1964. During 1963, the Government of Quebec, through the Quebec Hydro-Electric Commission, purchased the assets of a number of private power-producing utilities in the province; the general administrative framework of each of the companies, however, has been retained, at least for the present. The Shawinigan Water and Power Company is one of the companies whose ownership has passed to the province.

Quebec Hydro-Electric Commission's Carillon hydro-electric development on the Ottawa River was extended in 1963 with installation of six 60,000-hp. units; four units remain to be installed in 1964 when the ultimate capacity of 840,000 hp. in fourteen units will be reached. The Commission's Rapid II development on the Ottawa River also will reach its ultimate capacity of 64,000 hp. in 1964 when the fourth 16,000-hp. unit is brought into service. The massive hydro-electric development program referred to above involves the Manicouagan and Outardes Rivers which appear destined to meet most of the province's power needs for many years to come. As proposed, the two rivers would be harnessed as an integrated system with some 7,300,000 hp. to be installed in eight plants, including two existing plants which would be extended. Construction has begun at two sites, *Manic 2* and *Manic 5*, which will have installed capacities of 1,360,000 hp. and 1,800,000 hp., respectively. First power is scheduled to be available from *Manic 2* in mid-1965 and from the entire plant in 1967; *Manic 5* is scheduled for initial operation in 1968 and for completion in 1971. Start of construction at other proposed sites has not yet been scheduled. At the *Manic 5* site, the dam, a buttressed multi-arch structure, will be over 4,000 feet long and some 703 feet high at the highest point above bedrock. The structure, reported to be the highest and most massive of its kind in the world, will create a reservoir containing 115,000,000 acre-feet of water, covering a surface area of 800 sq. miles. Power from the plants which make up the Manicouagan-Outardes complex will be transmitted via 300-kv. circuits to two major collector stations where voltages will be stepped up to 735 kv. for transmission to Quebec City and Montreal. The operating voltage of 735 kv. is the highest at present planned for long-distance transmission in Canada and one of the highest in the world.



Construction by Shawinigan Water and Power Company of a 300,000-kw. thermal-electric plant at Tracy on the south shore of the St. Lawrence River was on schedule; the first of two 150,000-kw. steam units is planned for operation in mid-1964 and the second unit for installation in mid-1965.

Ontario.—The 412,800 kw. of electric generating capacity brought into service in Ontario was the largest amount installed in any one province during 1963. This total included hydro and thermal capacity in approximately equal amounts. The forecast for 1964 indicates an expected addition of 315,000 kw., most of which will be thermal. Proposals for installation over later years indicate 1,700,000 kw. of thermal-electric capacity and more than 800,000 kw. of hydro-electric capacity. To meet increasing loads, Ontario Hydro during 1963 was engaged in the construction of seven generating stations, four of which are hydro-electric, two conventional thermal-electric and one nuclear thermal-electric.

The hydro-electric stations under construction during the year were the Otter Rapids Generating Station on the Abitibi River and the Little Long, Harmon and Kipling Stations on the Mattagami River. The Otter Rapids Station, with two units already in operation, was extended in 1963 by the addition of two more units, raising the plant capacity to 240,000 hp. The headworks at the Otter Rapids plant make provision for eight units, four of which are as yet unscheduled. At the Little Long Generating Station, construction has brought about the installation of two units of 84,000 hp., with provision for two other units. The Harmon and Kipling sites each will comprise initial installations of 186,000 hp. in two units, with provision for two other units. Construction at the Harmon site was well advanced at the end of 1963 and the construction program at the Kipling site was in the preliminary stage.

The two conventional thermal plants under construction in 1963 were the Commission's Lakeview station near Toronto and its Thunder Bay station at Fort William. At the Thunder Bay station, final tests were carried out and the 100,000-kw. unit commissioned in July 1963. At the Lakeview station, work was progressing on the installation of the third and fourth 300,000-kw. units for initial service in 1964 and 1965, respectively. The ultimate planned capacity has been raised to 2,400,000 kw. in eight units, with the last of these tentatively scheduled for commissioning late in 1968.

Douglas Point Nuclear Power Station, now under construction on the shore of Lake Huron between Kincardine and Port Elgin, is a joint undertaking of the Commission and Atomic Energy of Canada Limited. The 200,000-kw. unit is scheduled for commissioning in 1965. Plans are under way for the building of a nuclear power plant at Fairport, Ont. (about 20 miles east of Toronto). It will have a capacity of 1,000,000 kw. and will be the second largest in the world. Construction is expected to commence late in 1965 and be completed by 1967 or 1968.

The Great Lakes Power Corporation Limited commenced construction of its new Hogg Generating Station on the Montreal River. The station will house a 21,750-hp. turbine and is expected to be in service in December 1964. Two turbo-generator units, each rated at 8,900 kw. and producing electric power from waste steam, were installed at The International Nickel Company of Canada Limited iron ore recovery plant in Copper Cliff. Dow Chemical of Canada, Limited installed two turbo-generators at its plant in Sarnia; the units, each rated at 30,500 kw., were scheduled to go into operation in November 1963. The generating station of Algoma Steel Corporation Limited at Sault Ste. Marie was extended to house two new 12,500-kw. turbo-generators and several smaller units with capacities totalling 4,500 kw. were dismantled.

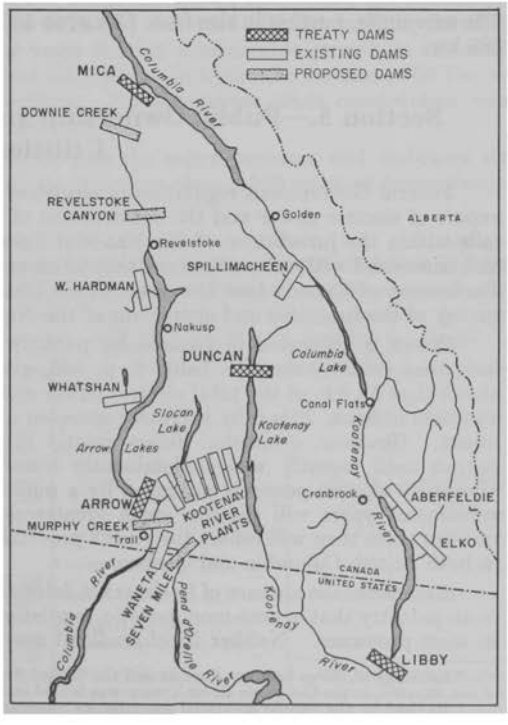
Prairie Provinces.—In Manitoba, construction progressed at the site of Manitoba Hydro's Grand Rapids development on the Saskatchewan River. Two 150,000-hp. units

will go into service in 1964 at that site and a third in 1965; provision is being made for the addition of a fourth unit. Engineering studies of potential sites on the lower Nelson River were continued during the year. Extensions to small thermal plants at Bakers Narrows and Norway House were under way in 1963.

Prior to 1963, Saskatchewan's total hydro-electric turbine capacity of approximately 142,000 hp. was used solely to service mining operations in the northern part of the province; in 1963, for the first time, hydro-electric power generated in the province was fed into the Saskatchewan Power Corporation's system serving the southern areas. This power was generated by four 46,000-hp. turbines brought into service at Squaw Rapids on the Saskatchewan River. Two units will be added in 1964 to bring the capacity to 276,000 hp. and there is provision in the powerhouse for another two units. At the South Saskatchewan Project near Outlook, the Corporation will install two 84,000-hp. units in 1967 and an 84,000-hp. unit in 1969. In the thermal field, the province's total installed capacity decreased by 59,700 kw. with the closing down of thermal stations at Moose Jaw and Prince Albert. There are no firm reports of thermal additions for 1964 or the years immediately following.

In Alberta, Calgary Power Ltd. continued construction at the Big Bend site on the Brazeau River where the first generating unit, with a 210,000-hp. turbine, will be ready for operation late in 1964. A pump-turbine unit rated at 11,000 hp. will be incorporated in the reservoir outlet works at Big Bend. Capacity of the Company's Wabamun thermal plant will be almost doubled in 1967 when a 225,000-kw. turbo-generator is placed on line. The City of Edmonton reported the commissioning of a 75,000-kw. thermal unit in 1963, and approved installation of a tenth and final unit at the Edmonton plant. In the Battle River thermal plant of Canadian Utilities Limited, installation of the second 32,000-kw. unit is proceeding on schedule, with in-service date expected in 1964.

British Columbia.—In 1963, British Columbia Hydro and Power Authority construction crews at the Portage Mountain damsite diverted the Peace River through three 48-foot diameter tunnels, setting the stage for construction of the main dam. First power from Portage Mountain will become available in 1968 and the entire development, comprising 2,300,000 kw., is expected to be operational by 1979.



Negotiations aimed at clarifying and adjusting arrangements proposed earlier with respect to the Columbia River Treaty were carried on between Canada and the United States during 1963. The Treaty, signed on behalf of the two countries in 1961, provides that Canada would receive one half of the power benefits accruing to the United States from regulation of 15,500,000 acre-feet of water stored in Canada behind the proposed Duncan Lake, High Arrow and Mica Dams on the Columbia River. In addition, Canada would receive one half of the estimated flood damage prevented in the United States through

operation of the proposed dams for flood control. The Treaty ratified by the United States has been presented to the Canadian Parliament and currently is being considered by a Parliamentary Committee.*

At B.C. Hydro's Burrard thermal-electric station, the second 150,000-kw. unit was placed in service and a third unit was being assembled for service late in 1964. The ultimate capacity of the Burrard plant will be 900,000 kw. in six units. A 6,000-kw. gas turbine unit was scheduled for installation at Prince George before the end of 1963 and several other units were transferred from one plant to another to meet changing load conditions.

Installation of a third generating unit at the Consolidated Mining and Smelting Company of Canada Limited Waneta plant on the Pend d'Oreille River was completed in 1963, bringing the installed turbine capacity to 370,000 hp. Installation of a 31,680-kw. unit at the Harmac thermal plant of MacMillan, Bloedel and Powell River Limited was completed in October 1963, raising the plant capacity to 36,930 kw.

The Yukon and Northwest Territories.—During 1963, the generating capacity of the Territories was increased by 4,385 kw. of thermal-electric capacity. This increase included a 1,000-kw. diesel unit installed by the Northern Canada Power Commission in its Inuvik thermal-electric plant, increasing the generating capacity at Inuvik to 3,460 kw. The Commission brought a new thermal plant into service at Frobisher Bay, comprising a new 1,000-kw. diesel unit, a new 1,500-kw. gas turbine unit and two 1,000-kw. diesels transferred from the old plant. Construction of an 18,000-kw. hydro-electric plant at Twin Gorges on the Taltson River, begun early in 1964, is scheduled to be in operation by December 1965.

During 1963, the Yukon Electrical Company Limited increased the capacity of two of its thermal plants and placed in service two other thermal plants in Yukon Territory. The new units, ranging in size from 75 kw. to 350 kw., have a total generating capacity of 885 kw.

Section 5.—Public Ownership and Regulation of Electrical Utilities†

Federal Government regulation of electrical utilities, particularly with respect to the export of electric power and the construction of lines over which such power is exported, falls within the jurisdiction of the National Energy Board established in November 1959 and concerned with all matters relating to energy resources within the jurisdiction of the Parliament of Canada (see Domestic Trade Chapter XXI, Part II, Section 4 for a brief survey of the functions and operations of the National Energy Board).

Power is generated in Canada by publicly and privately operated utilities and by industrial establishments. Table 9, p. 605, giving statistics by type of establishment, shows that 53 p.c. of the total electric power generated in 1961 was produced by publicly operated utilities, 26 p.c. by privately operated utilities and 21 p.c. by industrial establishments. However, ownership differs greatly in different areas of the country. Quebec output until recently was predominantly from privately owned plants and in Ontario almost all electric power is produced by a publicly owned utility. Figures for 1962 and subsequent years will show a much greater proportion of publicly operated electrical utilities since they will reflect the recent provincial take-over of privately owned facilities in both British Columbia and Quebec.

Because of the absence of free market determination of prices and regulation of services in an industry that is semi-monopolistic, regulation of electrical utilities has been attempted in most provinces. Neither Newfoundland nor Prince Edward Island has a provincially

* Exchange of Notes between Canada and the United States confirming the entry into force of the Protocol of Jan. 22, 1964, to the Columbia River Treaty was tabled in the House of Commons, Sept. 16, 1964.

† Revised by the various provincial commissions concerned.

operated electric power system, although in the former province a Commission, known as the Newfoundland Power Commission, was established by the provincial government in 1954 for the purpose of supplying electric power wherever needed throughout the province, particularly to rural areas. In Prince Edward Island, the town of Summerside and surrounding area is served by the municipally operated Town of Summerside Electric Light Department. The functions and activities of provincially operated electric power commissions in the other provinces are summarized in the following paragraphs.

Nova Scotia.—The Nova Scotia Power Commission was created under the Power Commission Act of 1919 with the function of supplying electric power and energy by the most economical means available. The Rural Electrification Act of 1937 greatly increased the possibilities for retail service by providing financial assistance to equalize cost and revenue of extensions approved by the Governor in Council. In 1941 an amendment to the Power Commission Act authorized the Commission, subject to the approval of the Governor in Council, to regulate and control the generation, transmission, distribution, supply and use of power in the province. Certain investigatory work is carried on in the province by the Federal Government in close association with the Commission, but the control of water resources is vested in the Crown and administered under the provisions of the Nova Scotia Water Act, 1919. The Commission pays regular fees for water rights.

Financially, the Commission is self-supporting, repaying borrowings from revenue. The balance sheet at Nov. 30, 1963 showed total fixed assets of $75,615,668 including work in progress amounting to $2,069,463. Current assets amounted to $3,595,017 and liabilities were as follows: fixed $51,008,727; current $2,263,960; contingency and renewal reserves $9,554,499; sinking fund reserves, $844,083; and special reserves $13,860,270.

The initial development of the Commission was an 800-hp. installation on the Mushamush River which went into operation in 1921 and delivered 208,752 kwh. in the first complete year of operation. Succeeding years showed considerable growth in installed capacity, which at the end of 1961 reached 132,650 hp. in hydraulic turbines, 700 kw. in diesel units and 60,000 kw. in steam turbines. No new power plant construction was undertaken in Nova Scotia during 1962 and 1963.

The territory of the Commission extends over the entire province and embraces six systems which include 24 generating stations and more than 4,500 miles of transmission and distribution lines.

12.—Capacity and Output of the Nova Scotia Power Commission, Year Ended Nov. 30, 1963

System[1] and First Year of Operation	Present Installed Capacity	Output	System[1] and First Year of Operation	Present Installed Capacity	Output
	kw.	kwh.		kw.	kwh.
Western Network—			St. Margaret (1921)	10,400	41,573,100
Harmony (1943)	600	3,772,000			
Roseway (1930)	888	3,406,610	Mersey—		
Gulch (1952)	6,000	35,433,893	Original development (1928)	21,780	137,084,000
Ridge (1957)	4,000	16,355,868	Cowie Falls (1938)	7,200	47,328,800
Portable (diesel)	200	3,360	Deep Brook (1950)	9,000	54,551,600
Sissiboo (1960)	6,000	32,939,200	Lower Great Brook (1955)	4,500	23,086,260
Weymouth (1961)	9,000	50,390,080			
Eastern Network—			Canseau (diesel) (1937)	700	16,760
Barrie Brook (1940)	360	1,470,050			
Dickie Brook (1948)	3,800	11,389,800	Tusket (1929)	2,160	14,657,024
Malay Falls (1924)	3,600	14,596,290			
Ruth Falls (1925)	6,970	40,270,520	Cumberland—		
Liscomb (1957)	450	2,040,185	Maccan (thermal) (1927)	26,850	54,941,300
Trenton (thermal) (1951)	60,000	163,224,400	**Totals**	**184,458**	**748,531,100**

[1] Hydro unless otherwise noted.

New Brunswick.—The New Brunswick Electric Power Commission was incorporated under the Electric Power Act, 1920. Generating stations owned by the Commission at Mar. 31, 1964 were as follows:—

Plant	Type	Capacity
		hp.
Grand Falls	Hydro	80,000
Musquash	Hydro	9,320
Tobique	Hydro	27,000
Beechwood	Hydro	145,000
Milltown	Hydro	4,200
Grand Lake	Steam	135,700[1]
Courtenay Bay	Steam	67,000[1]
Saint John (Dock St.)	Steam	21,500[1]
Chatham	Steam	43,600[1]
Grand Manan	Diesel	1,860[1]
TOTAL CAPACITY		535,180

[1] Capacity rating of generators in kw. converted to hp.

All the above generating units with the exception of Grand Manan were interconnected in a province-wide grid system. The statistical information given in Table 13 shows the growth of the Commission's undertakings since 1960. Power plant construction under way in New Brunswick during 1963 is outlined at p. 608.

13.—Growth of the New Brunswick Electric Power Commission, Years Ended Mar. 31, 1960-64

Item	1960	1961	1962	1963	1964
High-voltage transmission line...miles	1,396	1,585	1,744	1,845	1,947
Distribution line..... "	7,512	7,905	7,996	8,390	8,447
Direct customers..... No.	100,475	103,029	107,415	117,073	118,443
Plant capacities..... hp.	346,180	346,180	412,715	454,450	535,180
Power generated (incl. purchases) kwh.	1,184,798,350	1,273,719,910	1,425,489,140	1,644,740,890	1,797,928,340
Capital invested..... $	132,844,276	148,280,363	156,190,514	170,859,403	184,956,439
Revenue..... $	16,665,153	18,971,596	20,309,856	22,591,554	24,650,853

Quebec.—*Stream and Reservoir Control.*—The Quebec Streams Commission was created in 1910 (SQ 1910, c. 5) and given additional powers in 1912 (RSQ 1925, c. 46) and 1930 (SQ 1930, c. 34); it was authorized to ascertain the water resources of the province, to make recommendations regarding their control, and to construct and operate certain storage dams to regulate the flow of streams. On Apr. 1, 1955, the Commission was abolished and its powers and attributions transferred to the Hydraulic Resources Department, now the Department of Natural Resources. The rivers controlled by the Commission at the time of transfer, either by means of dams on the rivers or by regulating the outflow of lakes at the headwaters, were: the St. Maurice, the Gatineau, the Lièvre, the St. Francis, the Chicoutimi, the Au Sable and the Métis. The Commission also operated nine reservoirs on North River, two in the watershed of the Ste. Anne de Beaupré River, and one at the outlet of Lake Morin on Rivière du Loup (lower).

Storage reservoirs otherwise controlled or operated are: the Lake St. John, the Lake Manouane and Passe Dangereuse on the Peribonca River controlled by the Aluminum Company of Canada; the Onatchiway on the Shipshaw River controlled by Price Brothers and Company Limited; Memphremagog Lake on the Magog River controlled by the Dominion Textile Company; and Témiscamingue and Quinze Lakes on the Ottawa River controlled by the federal Department of Public Works. Storage reservoirs under the control of the Quebec Hydro-Electric Commission are: the Témiscouata Lake on the

Madawaska River, Kipawa Lake on the Ottawa River, Lac Dozois on the upper Ottawa River, Lac Cassé in the Bersimis River watershed and Lac Ste. Anne on the Toulnustouc River, a tributary of the Manicouagan River.

The Quebec Hydro-Electric Commission.—The Quebec Hydro-Electric Commission was established in 1944 (SQ 1944, c. 22) for the purpose of supplying power to the municipalities, to industrial and commercial undertakings and to citizens of the Province of Quebec at the lowest rates consistent with sound financial administration. On May 1, 1963, the Commission acquired control of the following privately owned electrical utilities operating in the Province of Quebec: the Shawinigan Water and Power Company, the St. Maurice Power Corporation, the Quebec Power Company, the Southern Canada Power Company, the Gatineau Power Company, the Northern Quebec Power Company, the Saguenay Electric Company and the Lower St. Lawrence Power Company. As a result of these transactions, all electricity production, except for facilities operated by certain industrial organizations in their own manufacturing operations, was brought under the control of a single authority. The services of the Commission now cover virtually the entire province except for local distribution of small amounts of electricity by some municipalities, most of which is purchased from the Commission or its subsidiaries.

At the end of 1963 the Commission controlled, among other assets, the following hydro-electric and thermal-electric plants:—

Item	Hydro-Electric			Thermal-Electric		
	Plants	Capacity[1]		Plants	Capacity	
	No.	kw.	hp.	No.	kw.	hp.
Hydro-Quebec only	8	3,899,760	5,178,400	1	36,000	48,000
Subsidiaries of Hydro-Quebec—						
Shawinigan	10	1,531,200	2,051,200	—	—	—
Quebec Power	6	24,140	41,925	—	—	—
Southern Canada Power	4	47,985	58,000	—	—	—
Gatineau Power	12	552,251	728,975	—	—	—
Northern Quebec Power	1	89,600	119,000	—	—	—
Saguenay Electric	2	3,195	4,300	—	—	—
Lower St. Lawrence Power	2	10,650	15,600	1	4,450	6,000
Totals	45	6,158,781	8,197,400	2	40,450	54,000
Purchases by Hydro-Quebec and subsidiaries	...	598,000	801,600	—	—	—

[1] Dependable hydro-electric peak capacity at time of freeze-up approximated 5,400,000 kw. or 7,240,000 hp.

These facilities now permit the balanced distribution of power throughout Quebec and the most efficient use of the water power resources of the province. In September, the Commission announced a standardization of rates for domestic customers in approximately 900 communities served by certain of the newly acquired subsidiaries. At the same time, new rates were announced for electric house heating to make this form of heating more attractive to customers. It is anticipated that complete administrative reorganization will be accomplished by the end of 1964. Nationalization of service will be of particular benefit to some 20,000 customers in the northwestern area where the system frequency is being changed from 25 cycle to 60 cycle. The changeover is scheduled for completion in 1965 at an estimated cost of $12,000,000.

Hydro-Quebec and its subsidiaries, at the end of 1963, served 1,550 communities with 1,363,390 customers and distributed primary power amounting to 5,695,000 kw. or 7,634,000 hp. Total power distributed was 5,909,000 kw. or 7,921,000 hp. Power distributed is given in terms of the net output of the sources of supply made available to each

system coincident with the time of the Montreal primary peak; it also includes purchases of power from other power producers. The distribution of primary power to systems of Hydro-Quebec on the day of primary peak in 1963 was as follows:—

System	Primary Power	
	kw.	hp.
Main System—		
Southwestern Quebec—		
Montreal Metro area	1,768,000	2,370,000
Beauharnois local	204,000	273,000
Ontario Hydro	186,000	250,000
Cedars Rapids Transmission Company	56,000	75,000
Northeastern Quebec—		
Cote Nord, Lower St. Lawrence River	118,000	158,000
Chibougamau region	26,000	35,000
Gaspe region served jointly by Hydro-Quebec and its subsidiary, Lower St. Lawrence Power	86,000	115,000
Northwestern Quebec System (incl. Northern Quebec Power and Gatineau Kipawa system)	132,000	177,000
Territories served by the subsidiaries: Shawinigan, Quebec Power, main Gatineau system, Southern Canada Power, and Saguenay Electric	3,119,000	4,181,000
TOTALS	5,695,000	7,634,000

Ontario.—The Hydro-Electric Power Commission of Ontario is a corporate entity, a self-sustaining public enterprise endowed with broad powers with respect to the supply of electricity throughout the Province of Ontario. Its authority is derived from an Act of the Provincial Legislature passed in 1906 to give effect to recommendations of earlier advisory commissions that the water powers of Ontario should be conserved and developed for the benefit of the people of the province. It now operates under the Power Commission Act (SO 1907, c. 19) passed in 1907 as an amplification of the Act of 1906 and subsequently modified from time to time (RSO 1960, c. 300, as amended). The Commission may have from three to six members, all of whom are appointed by the Lieutenant-Governor in Council. Two commissioners may be members of the Executive Council of the Province of Ontario.

The basic principle governing the financial operations of the Commission and its associated municipal utilities is that electrical service is provided at cost. The Commission interprets cost as including payments for power purchased, charges for operating and maintaining the power supply facilities, and related fixed charges. The fixed charges represent interest on debt, provisions for depreciation, allocations to reserves for contingencies and rate stabilization, and the further provision of a sinking fund reserve for retiring the Commission's capital debt. While the enterprise from its inception has been self-sustaining, the province guarantees the payment of principal and interest on all bonds issued by the Commission and held by the public. In addition, the province has materially assisted the development of agriculture by contributing under the Hydro-Electric Distribution Act toward the capital cost of extending rural distribution facilities.

The entire provincial area served is regarded for financial and administrative purposes as a unit, but there is no electrical connection between the Commission's facilities in northwestern Ontario and those serving customers in the remainder of the province. Statistics are therefore presented for two operating systems, the East System and the West System; the systems respectively serve the areas east and west of a line extending north from Lake Superior to the Albany River, a line that roughly conforms with the boundary dividing Thunder Bay District from the Districts of Algoma and Cochrane. Service is provided for the most part on a co-operative basis, and predominantly for the benefit of more than 350 municipalities supplied by the Commission with power at cost.

In addition to administering the enterprise over which it has direct control, the Commission, under the Power Commission Act and the Public Utilities Act, exercises certain regulatory functions, particularly with respect to the group of municipal electrical utilities which it serves. In order to provide convenient and expeditious service in this dual function of regulation and supply, the Commission subdivides its province-wide operations into seven regions with regional offices located in seven major municipalities.

The Commission is concerned primarily with the provision of electric power by generation or purchase, and its delivery to the electrical utilities for resale in the more than 350 municipalities having cost contracts with the Commission. The Commission supplies power in bulk, though not under cost contract, to approximately 200 direct customers, some located within the areas of the municipalities already referred to and some outside these areas. These direct customers include industrial customers whose requirements are so large or so unusual as to make service by the local municipal utilities impracticable. They also include mines, industries in unorganized territories, and certain interconnected systems, including a number of independent municipal utilities. These interconnected systems purchase power for resale either within or beyond the boundaries of the province.

In addition to these operations, which represent about 90 p.c. of its energy sales, the Commission delivers electric power to retail customers in rural areas and in a small group of about 30 municipalities served by Commission-owned local distribution facilities. A much larger part of retail service throughout the province is provided, however, by the municipal electrical utilities, who supply ultimate customers in most cities and towns, in many villages, and in certain populous township areas. The municipal electrical utilities are owned and operated by local commissions.

During 1963, the Commission's investment in fixed assets at cost increased by $97,928,049 and at the end of the year amounted to $2,664,942,685. Total assets after deducting accumulated depreciation were $2,751,881,845.

In 1963 a total of 355 associated municipal electrical utilities engaged in the retail distribution of electricity purchased power from the Commission. The total assets of these utilities, after deducting accumulated depreciation, amounted to $802,395,530, of which $329,924,857 represented the equity acquired in the Commission's systems by the municipal utilities operating under cost contracts.

The Commission's power development program as at Dec. 31, 1963 is given in Table 14 and is also outlined at p. 610.

14.—Current Power Development Program of The Hydro-Electric Power Commission of Ontario, as at Dec. 31, 1963

System and Development	Units	In Service	Installed Capacity
	No.		kw.
Lakeview—near Toronto	8	1961-68	2,400,000
Douglas Point Nuclear Power—near Kincardine	1	1965	200,000
Harmon—Mattagami River	2	1965	129,200
Kipling—Mattagami River	2	1966	132,000
Southwestern Ontario	2	1969	1,000,000

15.—Resources of The Hydro-Electric Power Commission of Ontario Generated and Purchased (All Systems), December 1961-63

Year and System	Generating Stations				Power Purchased	
	Hydro-Electric[1]		Thermal-Electric[1]			
	kw.	hp.	kw.	hp.	kw.	hp.
December 1961—						
East System	4,146,150	5,557,841	1,373,600	1,841,287	617,500	827,748
West System	593,500	795,576	—	—	3,000	4,021
Totals	**4,739,650**	**6,353,417**	**1,373,600**	**1,841,287**	**620,500**	**831,769**
December 1962—						
East System	4,135,550	5,543,632	1,741,000	2,333,780	617,500	827,748
West System	593,500	795,576	—	—	—	—
Totals	**4,729,050**	**6,339,208**	**1,741,000**	**2,333,780**	**617,500**	**827,748**
December 1963—						
East System	4,437,250	5,948,056	2,015,000	2,701,072	617,500	827,748
West System	593,500	795,576	93,000	124,665	—	—
Totals	**5,030,750**	**6,743,632**	**2,108,000**	**2,825,737**	**617,500**	**827,748**

[1] Dependable peak capacity—the amount of power which resources can be expected to supply at the time of the system primary peak requirements, assuming that all units are available and that the supply of water is normal. This capacity will vary from time to time in accordance with changing conditions. The capacity of a source of purchased power is based on the terms of the purchase contract.

16.—Distribution of Power to Systems of The Hydro-Electric Power Commission of Ontario, Years Ended Dec. 31, 1958-63

NOTE.—Peak load generated and purchased, primary and secondary, in terms of generation.

System	1958	1959	1960	1961	1962	1963
	kw.	kw.	kw.	kw.	kw.	kw.
East System	4,928,415	5,464,008	5,583,206	5,915,484	6,362,585	6,684,726
West System	489,121	554,196	574,328	548,448	606,300	615,570
Totals	**5,417,536**	**6,018,204**	**6,157,534**	**6,463,932**	**6,968,885**	**7,300,296**

17.—Growth of The Hydro-Electric Power Commission of Ontario, 1954-63

Year	Communities Served	Ultimate Customers Served Directly or Indirectly	Total Power Distributed[1]	Assets of Commission and Municipal Utilities
	No.	No.	kw.	$
1954	1,301	1,467,034	3,778,744	1,883,311,970
1955	1,325	1,540,011	4,436,340	2,040,174,745
1956	1,340	1,612,049	4,909,104	2,293,492,487
1957	1,376	1,674,062	4,970,576	2,563,058,384
1958	1,387	1,757,405	5,417,536	2,756,758,142
1959	1,405	1,830,453	6,018,204	2,909,088,086
1960	1,414	1,881,472	6,157,534	3,044,800,819
1961	1,418	1,938,897	6,463,932	3,196,429,522
1962	1,434	1,991,288	6,968,885	3,148,330,722
1963	—	—	7,300,296	—

[1] Sum of the maximum 20-minute coincident peak loads (primary plus secondary) of each of the systems operated by the Commission, given in terms of net output of the sources of supply to each system for the last month of each fiscal year.

Manitoba.—Manitoba Hydro is the primary developing, generating and distributing power agency in the Province of Manitoba. The corporation came into being Apr. 1, 1961, following the amalgamation of the two former provincial government electrical utilities engaged in the generation and distribution of electric power. It operates five hydro-electric generating stations, two thermal type plants and a limited number of diesel generating installations. The combined generating capability of the corporation is 832,860 kw. which will be increased by 330,000 kw. in 1965 following the completion of the Grand Rapids hydro-electric development on the Saskatchewan River.

Hydro installations account for 580,000 kw. of the generating capability—thermal for 244,000 kw. and diesel for 8,860 kw. Of the hydro stations, four are located on the Winnipeg River and, like the thermal installations, produce power for the southern section of the province; the fifth hydro station, rated at 160,000 kw., is situated on the Nelson River 425 miles north of Winnipeg and supplies power for The International Nickel Company of Canada, Limited, development and the townsite at Thompson in northern Manitoba. Diesel installations are used to provide power in several northern areas.

In serving its 205,847 urban, rural, commercial and industrial customers, the corporation maintains some 34,333 miles of primary transmission and farm distribution lines. Approximately 98 p.c. of the total resident-occupied farms in the province are electrified, and 534 cities, towns and villages are provided with power service. While Manitoba Hydro supplies power for most of the province, including the cities and municipalities adjoining the city of Winnipeg and comprising part of Metropolitan Winnipeg, it does not distribute power within the corporate limits of the city, although it does supply a portion of the city's basic power requirements.

Power plant construction in Manitoba in 1963 is outlined at pp. 610-611.

Saskatchewan.—The Saskatchewan Power Corporation was established on Feb. 1, 1949, and operates under the provisions of the Power Corporation Act (SS 1950, c. 10, as amended). It succeeded the Saskatchewan Power Commission which had operated from Feb. 11, 1929. The original functions of the Corporation included the generation, transmission, distribution, sale and supply of hydro and steam electric energy. Since 1952, the Corporation has been authorized to produce or purchase and to transmit, distribute, sell and supply natural or manufactured gas.

In 1963, the Corporation served approximately 965 urban communities (with six or more customers) in retail sales, and served the cities of Saskatoon and Swift Current, the town of Battleford and the hamlet of Waskesiu in bulk sales. Some bulk power was also sold to the City of Regina and to the Manitoba Hydro-Electric Board on an exchange basis. Activities of the Corporation cover the entire province with the exception of the city of Regina, which owns and operates municipal plants and a distribution system.

At the end of 1963, the Corporation served 240,812 customers, 201,807 of whom were retail customers and 39,005 of whom were located in communities supplied with power through bulk sales. The retail customers included 136,396 urban customers and 65,211 classified as rural, mainly farm meters. During 1963, 1,926,862,734 kwh. were made available to customers, of which 1,870,746,937 kwh. were generated in Corporation plants and 56,115,797 kwh. were purchased in bulk. At the end of the year, the Corporation had invested, at cost, a total of $325,262,458 in electric plants out of a total of $459,051,365 in fixed assets in the combined electric and natural gas systems.

During 1963, the first hydro-electric plant within the provincial system was put on the line at Squaw Rapids, supplying 13.0 p.c. of total system requirements. The Corporation also owned and operated four steam generating plants at year end—two each at Saskatoon and Estevan. Two other steam plants located at Moose Jaw and Prince Albert were closed at approximately mid-year. Steam supplied 80.2 p.c. of total system gross generation, and two internal combustion gas dual fuel plants at Kindersley and Swift Current supplied 6.7 p.c. System capability in operation at the end of 1963 was assessed at 619,150 kw. with 444,000 kw. in steam plants, 134,000 kw. in hydro and 41,150

kw. in gas dual fuel and diesel plants. At the end of 1963, the Corporation owned and operated 71,070 miles of transmission and rural lines; this figure excludes urban distribution and hi-lines but includes 231.5 miles of 480-volt line which services oil wells.

Power plant construction in Saskatchewan in 1963 is outlined at p. 611.

18.—Growth of the Saskatchewan Power Corporation, 1954-63

Year	Communities Served in Bulk and Retail Sales	Individual Meters in Communities Served	Power Distributed	Revenue
	No.	No.	kwh.	$
1954	664	134,587	472,763,014	11,936,234
1955	742	149,134	556,776,981	13,350,177
1956	799	162,594	659,720,877	15,566,910
1957	870	178,567	780,613,534	18,152,460
1958	880	188,293	909,086,629	20,687,771
1959	962	197,451	1,067,349,615	23,909,113
1960	984	221,675	1,233,531,753	26,667,471
1961	901	229,336	1,498,055,955	30,263,598
1962	961[1]	235,386	1,645,862,278	33,106,018
1963	969	240,812	1,926,862,734	36,892,949

[1] November 1962 figure.

Alberta.—The generation and distribution of electric power in Alberta is handled by a combination of several municipally-owned urban systems and three investor-owned companies serving the greater part of the province. The regulatory authority over the investor-owned systems is the Public Utilities Board, which has jurisdiction over the distribution and sale of electricity. The Board, which controls franchises and rates, has power to hold investigation upon complaint either by a municipality or by a utility company, and following such investigation may fix just and reasonable rates. The Alberta Power Commission controls all phases of system development, including the provincial grid system.

Plant additions completed or under way in Alberta during 1963 are outlined at p. 611.

British Columbia.—The British Columbia Hydro and Power Authority was created in 1962 by amalgamation of the British Columbia Electric Company Limited with the British Columbia Power Commission. The electric service of the organization includes the generation and transmission of electricity and its distribution throughout the areas of British Columbia containing more than 90 p.c. of the population of the province; the Authority also operates gas, passenger transportation and rail freight services.

Of the Authority's total electric power requirements of 7,243,013,053 kwh. for the year ended Mar. 31, 1964, 6,660,549,899 kwh. or 92.0 p.c. was produced by hydro-electric plant, 378,126,406 kwh. or 5.2 p.c. was produced by thermal plant and the remainder, amounting to 204,336,748 kwh., was purchased. Kilowatt-hours of electricity sold totalled 6,430,898,173, an amount 6.1 p.c. higher than the sales of the previous year. A relatively small percentage increase in gross revenue over 1962-63 compared with the more substantial increase in sales, was largely the result of rate reductions. The Central Interior Region, which includes Prince George, the fast-growing industrial and transportation centre of the north, and the Southern Interior Region, including Kamloops and Vernon, each reported an increase of 17 p.c. in amount of electricity sold, a growth well above the average for the system. There was a net increase of 19,288 in electric customers during the year, bringing the total to 478,386 at the year-end. Average annual consumption per residential account rose from 5,029 kwh. in 1962-63 to 5,200 kwh. in 1963-64.

Power plant additions and construction in British Columbia in 1963 are outlined at pp. 611-612.

19.—Summary Statistics of the British Columbia Hydro and Power Authority, Year Ended Mar. 31, 1964

Item		Amount	Item		Amount
Generating capacity	kw.	1,866,000	Proportionate Sales—concluded		
Hydro	"	*1,295,000*	Other systems (mainly residential)	p.c.	2
Thermal	"	*571,000*	Commercial, industrial, etc.	p.c.	66
Power requirements	'000 kwh.	7,243,013			
Generated	"	*7,038,676*	Pole Miles of Line—		
Purchased	"	*204,337*	Transmission (high voltage)	No.	3,536
			Distribution primaries	"	12,063
Customers at year-end	No.	478,386			
Electricity sold	'000 kwh.	6,431,000	Revenue (electric)	$'000	93,317
Proportionate Sales—			Capital Investment (plant in		
Residential	p.c.	32	operation)	$'000	925,771

Northwest Territories and Yukon Territory.—The Northern Canada Power Commission, formerly Northwest Territories Power Commission, was created by Act of Parliament in 1948 to supply electric power to points in the Northwest Territories where a need developed and where power could be provided on a self-sustaining basis. By legislation passed in 1950, the Act was extended to include Yukon Territory. The Commission has authority to construct and operate power plants as required in the Territories and, subject to approval of the Governor in Council, in any other parts of Canada.

The Commission has hydro-electric power developments on the Yukon River near Whitehorse, Y.T., the Mayo River near Mayo Landing, Y.T., and the Snare River northwest of Yellowknife, N.W.T. Diesel-electric plants are operated at Fort Simpson, Fort Smith, Fort Resolution, Fort McPherson, Aklavik and Field, B.C., and utility plants comprising power, central heat and water and sewerage services at Inuvik and Frobisher Bay, N.W.T., and at Moose Factory, Ont.

The Whitehorse Rapids power development, in service since 1958, supplies the Department of National Defence at Whitehorse, most of the power for the city of Whitehorse, and three electric steam generators for heating the Department of National Health and Welfare hospital and two Department of Citizenship and Immigration hostels. The Snare River hydro developments supply power to the mines in the Yellowknife area and, in conjunction with the Bluefish hydro-electric plant of the Consolidated Mining and Smelting Company of Canada Limited, the town of Yellowknife. The original Snare Rapids plant has been in operation since September 1948 and the Snare Falls plant, situated on the same river about 10 miles downstream from the original plant and remotely controlled from Snare Rapids, was placed in service in November 1960. The Mayo River plant has supplied power to mining properties in the Elsa and Keno areas and to the Mayo Landing and Keno City communities since 1952. A hydro-electric development is under construction on the Taltson River near Fort Smith, N.W.T. When completed in the fall of 1965 this plant will supply hydro power to Fort Smith and to the lead-zinc mining operation being developed by Pine Point Mines Limited at Pine Point, N.W.T., near Great Slave Lake. The diesel-electric plants supply the needs of Federal Government departments and the general public in the communities in which they are located. Details of plant additions and construction in the Territories during 1963 are outlined at p. 612.

CHAPTER XV.—FISHERIES AND FURS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—FISHERIES

Section 1.—Commercial Fishing and Marketing*

Canadian fishermen reap large harvests from two mighty oceans—the Atlantic and the Pacific—and from the most extensive system of lakes and rivers in the world. The annual catch amounts to some 2,000,000,000 lb. of fish and shellfish, which has a total marketed value of about $250,000,000. Only about one third of this output is used domestically and the remainder is shipped abroad in fresh, frozen, canned, salted, dried or otherwise preserved forms. Thus, Canada is one of the major suppliers of fish and fish products to world markets, being surpassed only by Japan and Norway in value of fish exports. There are more than 80,000 commercial fishermen in Canada and more than 13,000 persons employed in the fish processing industry.

Regional experience varied greatly in 1963. The Atlantic industry achieved a record level of prosperity in 1962 but surpassed it in 1963. The Pacific industry established an all-time record in 1958 when salmon fishermen sold their catch for $37,000,000 and the canneries produced a pack of 1,900,000 cases. Its second best year was 1962 when an unequalled abundance of pink salmon brought the fishermen more than $30,000,000 and the cannery pack was 1,800,000 cases. However, 1963 was not a good year. The value of the salmon catch dropped to $22,000,000 and the pack to 1,200,000 cases, and of the three major fisheries only herring showed satisfactory results. In the freshwater industry, the excellent progress achieved in 1962 was not continued because of export marketing problems over which the Canadian producers had no control.

Several government proposals affected planning within the industry in 1963. The Prime Minister announced in June that the Federal Government was considering the establishment of a 12-mile exclusive fishing zone along the whole of Canada's coastline; protection of Canadian owners of small vessels was revised upward under the Fishermen's Indemnity Plan; and, under terms of an existing treaty, Japanese vessels were admitted to the halibut fishery of eastern Bering Sea and the herring fishery west of the Queen Charlotte Islands.

*Prepared by the Information and Consumer Service, Department of Fisheries, Ottawa.

Atlantic Fisheries.—For the Atlantic fisheries, 1963 was a year of strong capital expansion, especially in the freezing industry, with emphasis on a swing from the export of raw materials to more fully processed products. Construction was started on four large new filleting plants in the Maritimes, one of which—at Lunenburg—will be among the largest on the Continent. All four will specialize in the latest oven-ready consumer products. Expansion taking place in other plants throughout the Atlantic area is also noteworthy and, with so much new equipment available in 1964, a considerable increase in output is anticipated to meet the growing market demand for processed fish products.

The fishermen added between $7,000,000 and $8,000,000 to their collective gross income in 1963 and the value of plant output increased by more than double that amount. High prices for lobsters and a continued increase in scallop landings gave the shellfish industry the largest percentage advance, although the groundfishery, which is a much larger operation, also made striking gains in value of products.

The Maritime Provinces.—In the Maritime Provinces, the total value of the fish catch increased from just under $40,000,000 in 1961 to nearly $46,000,000 in 1962 and almost $50,000,000 in 1963. The fishermen received more than half their income in 1963 from shellfish. The lobster catch alone brought them $18,000,000, despite the fact that it was smaller than in the previous year. Fishing results in southern Nova Scotia, the most important lobster-producing area, were generally good throughout the year but the catch in Northumberland Strait, the area of second importance, was consistently disappointing. Lobsters in the traps were few in number and small in size, a development that suggests over-fishing. By voluntary agreement, some fishermen in the area have for years limited the number of traps they fish per boat but others have been less foresighted. Local alarm was reflected in discussions at the Federal-Provincial Fisheries Development Conference held in Ottawa in January 1964 (see p. 625), at which it was agreed that strong measures must be continued to prevent poaching.

Much of the tremendous increase in shellfish landings in the Maritime Provinces in recent years has resulted from the discovery of abundant scallop supplies on Georges Bank. A fleet of large draggers was built to handle the resource and, after at first increasing rapidly, the catch has now levelled off at what is believed to be the maximum desirable yield in relation to conservation. In 1963, however, new supplies were found on St. Pierre Bank and Brown's Bank and even inshore in the Gulf of St. Lawrence near Richibucto, N.B. Several large draggers were added to the offshore fleet and new plants went into production. The total catch increased by 14 p.c. in 1963, reaching a value of $6,000,000. Meanwhile, the oyster industry of the area has been recovering, with the aid of government scientists, from a disease that decimated the beds six years ago. A sudden strong increase in production in 1963 indicated an early return to previous yields.

Good spring and fall weather gave the groundfish industry a long season. Landings of cod and haddock were a little heavier and landings of redfish much heavier than in the previous year. Flounders were abundant in the Gulf of St. Lawrence. Only halibut were scarce. All prices were strong and markets excellent. The swordfish catch quadrupled as a result of the use of the longline technique which in 1962 began to replace the traditional method of harpooning. Another successful innovation was a brief seine fishery for tuna by two vessels out of Campobello, N.B., which produced more than 700,000 lb., mostly bluefin.

Newfoundland.—Newfoundland fishermen had a year of unprecedented prosperity in 1963. The freezing industry has never absorbed more than about a third of the cod catch and in recent years, as consumer demand has turned toward frozen products, the saltfish output often has been in excess of demand. However, in 1963, the cod fishery of northern Europe had a poor yield and demand for Canadian salt cod rose sharply just as five new freezing plants were opening in Newfoundland. With the salters and freezers buying competitively, cod prices rose to record levels. Even in volume the cod catch, at 400,000,000 lb., was above average and at the high prices it reached a landed value of over $12,000,000.

The best fishing was found northward—on the northeast coast of the Island and on the Labrador coast. The fleet operating in the latter area increased in size from 31 vessels in 1962 to 43 in 1963 and produced in the later year 71,000 quintals of heavy-salted cod. There were also more men pursuing a shore-based fishery in the same area.

Demands of the freezing industry had the effect of stepping up fishing for other types of groundfish and, since the lobster catch actually increased while the decline of supplies from the Maritime Provinces was driving prices to record levels, Newfoundland's over-all landings were 7 p.c. heavier than in 1962 and increased 11 p.c. in value to the record-breaking total of $19,200,000. Output of the freezing plants, at 75,800,000 lb., was also at a record high. The sharpest increase was in the seasonal operations of the numerous small plants on the east and northeast coasts, which depend mainly on inshore cod. Haddock was very scarce and halibut was increasingly supplemented with turbot but since 1959 the Island's output of other frozen groundfish, including cod, has increased steadily; flounder products have doubled and redfish products tripled. The United States continued to be by far the most important market but there were marked increases in shipments to Britain and continental Europe.

Output of the salting plants, which in recent years has been declining fairly steadily for lack of market demand, remained below the average of the past ten years but showed an upswing compared with 1962. There were only 55 plants in operation, six fewer than in the previous year, and shipments of saltbulk to Nova Scotia drying plants declined. But, because of the scarcity in Europe, this slack was taken up by larger orders from Norway and Portugal and, for the first time in many years, buying by Greek importers. Also the Canadian Government made purchases on behalf of the World Food Bank of extra-hard heavy-salted fish. Over and above this, mainly in response to orders from Italy and Spain, output of light-salted fish expanded and actually accounted for the over-all production increase over 1962.

Pacific Fisheries.—In British Columbia the relative importance of salmon ensures that the over-all annual result in the fishing industry will depart little from the salmon record; in 1963 this was poor. In mid-July a strike in both fleets and plants brought the industry to a standstill and fishing was not resumed until Aug. 3. Meanwhile, the year's major run of sockeye, the most valuable salmon species, had come and gone, as had the early pink runs. The value of the July catch of all commercial fish dropped to less than $7,000,000 compared with $17,000,000 in July 1962. Pink salmon remained plentiful until late in the year. Fall chums were abundant through September and October but fell off so abruptly in November that several areas were closed to fishing as a protective measure. Although prices for canned pinks remained low because of over-supply, the year's export of canned salmon, much of which was, of course, from the previous year's pack, increased in value by $3,000,000 over the 1962 figure.

The autumn troll catch of spring and coho salmon for the freezing plants was good and output of frozen salmon increased. With prices and market demand both high, the 1963 value of frozen salmon exports was high enough to counterbalance losses on frozen halibut, the market for which was over-stocked and slow. Heartened by a $10,000,000 fishery in 1962, the halibut men left in unusually large numbers for distant-water operations in Bering Sea in the spring, and when fishing opened in British Columbia waters in May a larger number of small boats also joined in the effort. As a result, halibut stocks in Canada and the United States at the end of April were five times as large as at the same time in 1962 and slow buying pushed per-pound prices down by as much as eight and nine cents.

A very successful 1962-63 herring season closed in March and intensive fishing in the fall built up the year's receipts at reduction plants to over 286,000 tons, an all-time record. Output of meal went up to about 50,000 tons and oil production soared to above 5,000,000 gal. The unit price for herring oil rose during the year from 5.50 cents to 9.25 cents but the price for meal declined about 5 p.c.

Fishermen's earnings for the year from all commercial fisheries were about $9,000,000 below those for 1962.

Inland Fisheries.—Freshwater fisheries continued at the high level of prosperity established in 1962 until very hot July weather caused a scarcity of ice on the prairies, a long warm fall delayed the start of ice fishing, and a fish-poisoning scare in the United States in October caused a market collapse. No Canadian fish was involved but the American market, which is the main outlet for Canadian lake fish, was almost at a standstill until the end of the year. Up to the time of this setback, expansion had continued at the same rate as in 1962. The Lake Winnipeg fishery for pickerel and sauger yielded well and whitefish were plentiful in Saskatchewan and Alberta lakes. Exports of dressed fish declined during the summer but fillet exports increased 20 p.c. in volume up to October. The American market came back strongly in January but the break had left its mark on the 1963 sales record on this side of the border.

Section 2.—Governments and the Fisheries

The British North America Act gave the Federal Government full legislative jurisdiction for the coastal and the inland fisheries of Canada and under this Act laws are made for the protection, conservation and development of the fisheries throughout the country. However, the provinces have, by agreement, assumed administrative responsibilities in varying degree. Consequently, though all the regulations governing fishing are made by the Federal Government, the work of administering the fisheries (enforcing the different laws and regulations, inspecting fish products, issuing licences, etc.) is done without duplication of staff by either federal or provincial officers, according to arrangement.

Specifically, all tidal or sea fisheries except those of the Province of Quebec are administered by the federal Department of Fisheries, and the freshwater or non-tidal fisheries, with some exceptions, are administered by the provincial departments. Quebec takes responsibility for all its fisheries including those in salt waters. Ontario, Manitoba, Saskatchewan and Alberta administer their freshwater species. In British Columbia, provincial government control extends to the freshwater forms and the Federal Government is responsible for marine and anadromous species. In Prince Edward Island, Nova Scotia, New Brunswick, Newfoundland and the Yukon and Northwest Territories, the Federal Government maintains complete control; administration of the fisheries of the National Park areas throughout Canada is the responsibility of the Canadian Wildlife Service, Department of Northern Affairs and National Resources.

Federal-Provincial Conference on Fisheries Development.—The basis for a national fisheries development program was laid in Ottawa in January 1964 at the first federal-provincial ministerial conference convened to discuss Canadian fisheries. The Conference met at the invitation of the Minister of Fisheries for Canada and all provinces were represented.

Experts advised the delegates that Canada's fishery resource, if properly managed, could support a great long-term expansion of the industry. The following points were among those emphasized in the ensuing discussion of ways and means for bringing the industry to maximum efficiency and productivity while protecting fish stocks from overexploitation: without careful management, certain valuable but vulnerable species could be seriously reduced in one season, such as lobsters in Northumberland Strait or the entire fish population of a northern lake not previously subjected to commercial fishing; pollution can change the dominant species in a lake; sport fishing must be taken into account in calculating how much exploitation a local resource can stand; the commercial possibilities of unused species should be examined as well as the possibilities of commercial fish farming, a valuable source of food in many other countries but almost unknown in Canada.

Since it is clear that if Canada is to keep abreast of new fishing and processing techniques the fishermen and plant workers must be taught to use them, broad lines were laid

down for more applied research at government level, more effective communication of the results to the industry, more technical education for crews and workers. Initial arrangements were made to set up committees authorized to implement these decisions.

Because the need for credits, subsidies or grants varies from one area to another and assistance in vessel construction is most effective when most closely related to the local fishery, it was felt that the provinces can best meet the credit needs of their own fishermen and that the proper role of the Federal Government in this respect is to make additional capital available.

Marketing problems of certain areas were considered in detail and a committee to give further study to those peculiar to the Prairie Provinces was set up immediately after the Conference. Also, the Development Service of the Department of Fisheries established a study group to work with all the provinces in their efforts to expand opportunities for technical education in the fisheries field. Groundwork having been laid for attacks on many other problems defined at the Conference, other detailed studies are under way and, with the better integration of federal and provincial effort which was also achieved, effective solutions are being sought.

Subsection 1.—The Federal Government

The work of the Federal Government in the conservation, development and general regulation of the nation's coastal and freshwater fisheries is performed by three agencies under the Minister of Fisheries:—

(1) The Department of Fisheries proper with headquarters at Ottawa, Ont., and area offices under Area Directors at Vancouver, B.C., Winnipeg, Man., Halifax, N.S., and St. John's, Nfld.
(2) The Fisheries Research Board of Canada with headquarters at Ottawa and eight stations across Canada.
(3) The Fisheries Prices Support Board with headquarters at Ottawa.

A brief outline of the functions of these agencies is given in this Subsection.

The Department of Fisheries.—The chief responsibilities of the Department of Fisheries throughout Canada are, in brief: to conserve and develop Canada's primary fishery resources; to encourage the development of the fishing industry in the national economy; to inspect fish products, establish standards of quality and promote the optimum utilization of the resource; and to develop a proper public understanding of the resource and the industry. The larger part of the staff of the Department is stationed in the field and is composed mainly of protection and inspection officers. The protection officers, including those on the Department's 80 patrol and protection vessels, are concerned with the enforcement of the conservation regulations under the Fisheries Act and other Acts designed to ensure a continuing maximum yield of fish, and are also responsible for the inspection of fish products and processing plants under the Fish Inspection Act and relevant section of the Meat and Canned Foods Act.

A conservation program is carried out by the Conservation and Development Service of the Department. Protection officers enforce regulations pertaining to restricted areas, close seasons, limitations in location and types of gear, and also inspect spawning streams and keep them clear of obstructions. Biologists investigate such problems as pollution and water supply, and engineers construct fishways to enable fish to bypass obstructions of all kinds. Hatcheries are maintained to restock waters where the fisheries are under federal administration.

For the past few years a bounty has been paid for the killing of the parasite-carrying harbour seals along the Atlantic and Pacific Coasts at a rate of $10 for adult and $5 for young seals. Total payments for the year ended Mar. 31, 1964 amounted to $35,480.

Inspection of fish and fish products to ensure a high standard of quality is carried out by the Inspection Service, and fish inspection laboratories are maintained on the

Atlantic and Pacific Coasts and in Toronto and Winnipeg. A staff of home economists operates test kitchens in Ottawa, Toronto, Vancouver, Montreal, Halifax, Edmonton and Winnipeg, and conducts demonstrations and lectures on methods of preparing and cooking fish and fish products.

Through the medium of printed material, films, radio, television and exhibitions, the Information and Consumer Service of the Department informs the public on the various aspects of the industry and the work of the fisheries services. This Service works closely with the Conservation and Development Service in matters concerning the conservation of fisheries and with the Inspection Service toward encouraging increased consumption of Canadian fish products in the domestic, United States and other markets.

The Economics Service has two related fields of responsibility: (1) to provide the government and the commercial fishing industry with current information, including statistical data, under the general heading of trade intelligence, and (2) to carry out studies and investigations in the primary fisheries and in the processing and distribution of fish products.

In addition to these regular services, the Department assists the commercial fishing industry in several special ways. To promote efficient primary fishing operations and improve the marketing of fishery products, assistance is provided for the construction of draggers and longliners and for bait-freezing and storage facilities on the Atlantic Coast. The Fishermen's Indemnity Plan affords low-cost protection from losses of boats and lobster traps through storms and other causes. The Plan has been in operation since 1953 and at Dec. 31, 1963, a total of 6,719 vessels with an appraised value of $22,954,000 were insured under it. The Department also provides financial assistance to educational institutions agreeing to carry out specialized educational work among fishermen.

International Fisheries Conservation.—Conservation of the resources of the high seas can be effected only through regulation, and for this purpose international treaties have had to be made. Canada's obligations under such treaties with the United States and other countries are administered by the Department of Fisheries.

Canada and the United States have led the world in joint fisheries conservation development. Major examples of this joint effort are the International Pacific Halibut Convention, concerned with the preservation of the halibut stocks of the north Pacific and the Bering Sea, and the International Pacific Salmon Fisheries Convention, concerned with the conservation and development of the sockeye and pink salmon of the Fraser River. Investigations carried out under the auspices of Commissions appointed under these conventions, subsequent regulation and limitation of catches, and the construction of salmon fishways appear to have been successful in arresting and reversing an earlier trend toward depletion of these fisheries. Another example of restoring a depleted marine resource by international agreement and action is that of the fur seals of the Pribilof Islands in the Bering Sea. Under a treaty signed in 1911, known as the (North Pacific) Sealing Convention, pelagic sealing was prohibited while the animals were migrating to and from the Pribilofs where most of them breed. This treaty had been signed by the United States, Canada, Russia and Japan, and was one of the earliest conventions on resources of the sea. In 1941 Japan abrogated the treaty and the following year Canada and the United States signed a Provisional Fur Seal Agreement under which Canada, in return for abstaining from pelagic sealing, received 20 p.c. of the annual catch, which was supervised by the United States. A conference to re-negotiate the original convention was begun in Washington in November 1955 and a new settlement was signed by the original four countries on Feb. 9, 1957.

In 1949 the Government of Canada became a signatory, along with nine other countries, to the International Northwest Atlantic Fisheries Convention which came into force in 1950. The Commission established under this Convention, with headquarters at Halifax, N.S., makes scientific investigations of the fishery resources of the northwest Atlantic. The Commission has no regulatory powers but can make recommendations to the respective governments regarding measures that may be necessary for maintaining the

stocks of fish that support the international fisheries in the Convention area. Treaty signatories now are: Canada, Denmark, Iceland, the United States, Britain, France, Italy, Norway, Poland, Portugal, Spain, the Federal Republic of Germany and the Union of Soviet Socialist Republics.

A step toward international action in regulating the high seas fisheries of the northern Pacific Ocean was achieved in December 1951 when Canada, the United States and Japan conferred at Tokyo. The resulting Convention was ratified by the three contracting governments and instruments of ratification were deposited at Tokyo in June 1953. The treaty is known as the International Convention for the High Seas Fisheries of the North Pacific Ocean and aims at providing the maximum sustained yield of the fishery resources of the northern Pacific non-territorial waters with each of the parties assuming obligations to encourage conservation measures. The Commission established under this Convention is studying the northern Pacific fisheries and will determine the application of the treaty principles and promote and co-ordinate the necessary scientific studies.

The seventh, and latest, international fisheries agreement to which Canada is a signatory is the Great Lakes Fisheries Convention, which provides for joint action by Canada and the United States in Great Lakes fishery research and in a program for the control of the predator lamprey in these waters. This Convention came into force in October 1955.

Canada is a member of the International Whaling Commission and is obligated to collect biological data on whales caught by Canadian vessels. Whaling operations are conducted in some years off the coasts of Newfoundland and British Columbia.

The Fisheries Research Board of Canada.—The Fisheries Research Board is a research organization established by Act of Parliament (RSC 1952, c. 121) for the purpose of conducting basic and applied research on Canada's living aquatic resources, their environment and their utilization. Its antecedents go back to 1898 and it is thus the lineal descendant of one of the oldest scientific organizations in Canada and one of the oldest government-supported research organizations under the supervision of an independent scientific board in North America.

By its Act, the Board is placed under the control of the Minister of Fisheries. The Board proper consists of a permanent chairman, who is appointed by the Governor in Council and who is a member of the Public Service of Canada, and "not more than eighteen other members" holding honorary appointments from the Minister of Fisheries for five-year terms; the Act requires that "a majority of the members of the Board, not including the chairman, shall be scientists, and the remaining members of the Board shall be representative of the Department [of Fisheries] and the fishing industry". The scientific members are drawn principally from universities and research foundations across Canada, to include specialists in disciplines related to the Board's work. The industry members are selected from among Canada's leading business men with an intimate knowledge of fishing and the fishing industry and the Department of Fisheries representative is usually a senior staff member in Ottawa. Board members have both advisory and executive functions. The advisory functions are delegated in the first instance to regional Advisory Committees who conduct on-the-spot regional reviews and report to the Board on the operations and scientific programs with a view to their improvement. The executive functions are delegated to an Executive Committee elected from Board members and approved by the Minister.

The operations of the Board are highly decentralized, there being only a small administrative, supervisory and publications staff in Ottawa. The Board employs approximately 800 persons, of whom about 200 are scientists.

Biology.—The biological program of the Board is designed to add to fundamental knowledge concerning Canada's vast living marine and freshwater resources. Included here are life history, population and behaviour studies leading to a sound scientific basis for the conservation and management of the commercially important fisheries including those for lobsters, crabs, shrimps, oysters, scallops, clams, marine mammals and other

well known economically important aquatic species of animals, such as salmon, cod, herring and halibut, as well as some marine plants, such as phytoplankton and seaweeds. Also included are studies in fish and shellfish diseases, fish enemies including the ill effects of water pollution, and such basic studies as fish genetics, physiology and behaviour, the latter with a view to improving fish cultural and farming methods and also to improving fish farm and hatchery stocks. Besides these basic studies, new fishing grounds and new species for exploitation are sought and experiments in improving fishing methods are undertaken.

The biological work on the Atlantic Coast is conducted out of research stations located at St. Andrews, N.B., and St. John's, Nfld.; work on arctic fisheries and on sea mammals is directed from a laboratory situated in Montreal, Que.; freshwater work is carried out from a station in London, Ont.; and work on the Pacific Coast is directed from research laboratories situated at Nanaimo, B.C. The Board operates 15 research vessels for its biological studies, varying from small inshore and lake craft to specially built seagoing ships. The Board acts as Canada's research agent for three international fisheries commissions and two international sea-mammal commissions to which Canada is party.

Oceanography.—Oceanography includes the study of the marine (and freshwater) environment in which aquatic organisms live. This is under continuing study to further knowledge in primary and secondary productivity and the occurrence of ocean and freshwater life of importance to man. Encompassed here also are investigations into the distribution and physical and chemical characteristics of major ocean currents and the physical and biological structure of large ocean areas including the ocean bottom where concentrations of fish and other aquatic life occur. Ocean climate and ocean weather as they affect the distribution of fish and other living organisms as well as the vertical and horizontal distribution of nutrient matter and the cycle of energy and life in the seas are regularly observed and correlated. These studies, as well as special studies of interest to the Royal Canadian Navy, the Department of Transport and the international fishery commissions, are carried out by the Board's two oceanographic groups operating from Dartmouth, N.S., and Nanaimo, B.C., with strong ship support from the Navy and the Department of Transport, and co-operation from the Department of Mines and Technical Surveys.

Technology.—Investigations are conducted toward improving methods of preserving, processing, storing and distributing fish products, as well as of utilizing all parts of the fish. These include developments in refrigeration and the use of antibiotics as fish preservatives, of improved refrigerated rail cars for fish distribution, improvements in canning, smoking and salting of fish as well as the development of new products such as protein concentrates (fish flour) and new uses such as the development of wieners for the utilization of abundant species that are not now used for food. Fundamental studies of the structure and composition of fish proteins, fish oils, fish hormones, the energy expenditure of migrating salmon and the nutrition of marine bacteria are under way.

Technological investigations on the Atlantic Coast are carried out at research laboratories situated at Halifax, N.S., and Grande Rivière, Que., and applied work for Newfoundland is carried out at a Technological Unit at St. John's. For inland areas there is a Technological Unit in London, Ont., and a Technological Research Laboratory in Vancouver, B.C., undertakes investigation of Pacific Coast problems.

The Fisheries Prices Support Board.—Under the Fisheries Prices Support Act passed in 1944, this Board was set up in July 1947 to recommend to the Government price-support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry, representative of the various fish-producing regions of Canada.

The Board has authority to buy quality fishery products under prescribed conditions and to dispose of them by sale or otherwise, or to pay to producers the difference between

a price prescribed by the Board and the average price the product actually commands. The Board has no power to control prices nor has it any jurisdiction over operations in the fishing industry or the fish trade. Money necessary for dealings in fishery products is available to the Board from the Consolidated Revenue Fund to a maximum amount of $25,000,000 but only on recommendation of the federal Treasury Board and authorization of the Governor in Council.

The Board maintains a small staff for administrative activities. The work is closely integrated with that of the Department's Economics Service and, where possible, services required by the Board are carried out by Department personnel. The Board has carried out field surveys on market conditions and possibilities and on factors affecting the income of fishermen in the various producing areas. The financial position of fishermen is kept under continuous review and recommendations are made to the Government on the basis of the findings. Special investigations are made when serious problems arise in particular areas.

Subsection 2.—The Provincial Governments*

An outline of the work undertaken by each of the provincial governments in connection with administration of commercial and game fisheries is given in the following paragraphs.

Newfoundland.—The provincial Department of Fisheries in conjunction with the Newfoundland Fisheries Development Authority, a Crown corporation established in 1953, is concerned mainly with the improvement and development of fishing and production methods. It conducts experiments and demonstrations in longlining, Danish seining and otter trawling, in the construction of multi-purpose fishing craft, and in the exploration of potential fishing grounds.

Loans are made to processors for the establishment and expansion of fish processing plants and for deepsea draggers and also to fishermen for the construction and purchase of modern vessels capable of a greater variety of fishing operations and larger production. Fishermen receive further aid through bounty payments at the rate of $160 per ton for newly constructed vessels under the Fishing Ships (Bounties) Act, 1955. The Fishing and Coastal Vessels Rebuilding and Repairs (Bounties) Act, 1958 authorizes the government to assist financially in maintaining and prolonging the life of the existing fleet. The Coasting Vessels (Bounties) Act, 1959 authorizes the granting, for locally built ships, of a maximum bounty of $300 per ton for vessels measuring from 15 to less than 100 gross tons, and $150 per ton for vessels of between 100 and 400 gross tons. An Inshore Fisheries Assistance Programme provides a maximum bounty of $10 per foot on boats measuring from 24 to 35 feet and bounties are paid to fishermen on certain types of nylon and other synthetic fibre fishing nets and lines.

Other services include advisory services to fishermen on gear and equipment, industrial research, plant construction, plant engineering and economics; assistance to fishermen's unions; weather and ice reports; and search and rescue. The Fisheries Salt Act, 1957 implements more rigid control over the use of fisheries salt.

Sport Fisheries.—The inland waters of Newfoundland, although they provide excellent sport fishing, are not commercially exploited. The lakes and ponds actually remain under the authority of the Natural Resources Branch of the provincial Department of Mines, Agriculture and Resources but, under federal-provincial agreement, these waters, including rivers and streams, are under federal control in matters of conservation and guardianship.

Prince Edward Island.—The sea and inland fisheries of Prince Edward Island are administered by the Federal Government. The provincial Department of Fisheries supplements federal activity and is concerned mainly with development of the fisheries

* Prepared by the respective provincial departments responsible for fisheries administration.

industry. The Department provides technical assistance and, in conjunction with the Fisheries Research Board of Canada and branches of the federal Department of Fisheries, engages in some experimental work.

Financial assistance is made available to fishermen through the Fishermen's Loan Board of Prince Edward Island, a body corporate operating under the provincial Department. The Fishermen's Loan Board operates under authority given by the Re-establishment Assistance Act and regulations thereunder, approved by the Lieutenant-Governor in Council, Jan. 7, 1949, with amendments. Loans are made to fishermen and companies for the purchase of boats, engines and other deck machinery at an interest rate of 4 p.c. From its reorganization in 1949 until the end of March 1963, the Board has lent approximately $1,875,000 for the modernization of the inshore and offshore fleets. Loans for the construction or expansion of processing plants are available through the Industrial Establishments Promotion Act under which loans may be made for facilities handling agricultural, horticultural or fishery products.

Game fisheries are the responsibility of the Department of Industry and Natural Resources. The streams of the province, mostly spring-fed and fairly constant in flow, provide very favourable conditions for the reproduction of game fish, of which speckled trout is the most important variety. Investigations concerning the production of trout of a size attractive to anglers are being conducted by the Fisheries Research Board of Canada at sites provided by the provincial Department. Unfortunately, many of the formerly fertile and highly productive ponds of the province have disappeared, and the provincial Department is actively concerned with damming and restoring these for the enjoyment of the public.

Nova Scotia.—Although the Federal Government has exclusive jurisdiction over the marine and inland fisheries of Nova Scotia and attends to all phases of administration related thereto, the Nova Scotia Government operates in several fields where provincial initiative is found to be necessary and appropriate, having regard for the importance of the fishery resources in terms of employment, industry, trade and recreation.

In the commercial fisheries, provincial government interests are the concern of the Nova Scotia Department of Fisheries. The Fishermen's Loan Board is administered by that Department and the Industrial Loan Board by the Nova Scotia Department of Trade and Industry; the first makes loans to fishermen for the purchase of boats and engines and the second makes loans for the construction or improvement of fish processing plants. Fisheries engineers perform inspection and survey duties for the Loan Boards and provide technical assistance and advice to loan applicants and others in the fisheries and allied industries, notably the boatbuilding industry. Instructors conduct courses for fishermen in the care and maintenance of marine engines, in basic navigation and in the design, construction and maintenance of gear. This program receives substantial assistance from the Technical and Vocational Training Branch of the federal Department of Labour. The on-course instruction is supplemented frequently by informal on-the-spot assistance to smaller groups who find themselves in need of technical help with particular problems. The Nova Scotia Department of Fisheries, with the financial and/or technical assistance of the federal Department of Fisheries, organizes and conducts demonstrations of fishing methods and gear of types untried in some or all of the several fishing areas of the province.

Sport Fisheries.—In recent years, Nova Scotia, through the Wildlife Division of its Department of Lands and Forests, has spent a considerable amount of money on the improvement of certain streams in the province with a view to aiding salmon migration. A system of salmon-rearing ponds capable of producing 200,000 smolts each year has been established on the Medway River in Queens County, and a system of trout-rearing ponds with an annual capacity of 100,000 fingerlings has been set up on the Moser River in Halifax County. A full-time fisheries biologist is employed by the Division.

New Brunswick.—Commercial fishing is one of the most important basic industries of New Brunswick, employing more than 6,500 fishermen with annual earnings of over $9,000,000 and about 2,800 plant workers. The annual marketed value of fish products is about $33,000,000.

New Brunswick fisheries, both tidal and inland, are under the legislative jurisdiction of the federal Department of Fisheries, and angling in Crown waters is under the jurisdiction of the provincial Department of Lands and Mines. To supplement the activities of the federal Department of Fisheries and to make practical application of research data obtained from the Fisheries Research Board of Canada and other agencies, the New Brunswick Government created its own Department of Fisheries in 1963. The Fishermen's Loan Board of New Brunswick, formerly administered by the Department of Industry, was transferred to the new Department and three new Branches created—Administration Branch, Boatbuilding and Maintenance Branch, and Exploratory Fishing and Education Branch. The Department is also undertaking fish inspection control under authority of the Fish Inspection Act passed by the New Brunswick Legislature in 1964.

Since its inception in 1946, the Fishermen's Loan Board of New Brunswick has disbursed over $9,000,000 for the construction of fishing vessels and the purchase of modern gear and equipment for the commercial fishermen of the province. Loans ranging from $1,500 to $3,000 are made available to inshore fishermen for the purchase of lobster boats and marine engines, and amounts ranging from $15,000 to $225,000 are lent to offshore fishermen and companies for the construction of modern Danish seiners, purse seiners, draggers and trawlers. These amounts represent 70 p.c. of the total cost of each unit after deducting down payments and Federal Government subsidies. This long-term assistance program has been largely responsible for the doubling of the value of the fishing fleet during the past 15 years. Commercial fishermen now own a modern fleet of 90 groundfish draggers, seven steel stern trawlers, 27 Danish seiners, two steel tuna seiners, 30 herring purse seiners and more than 3,000 inshore boats.

New and improved designs of fishing vessels are under constant study by the technical staff of the Department in co-operation with naval architects, boatbuilders and fishermen. A certain pattern of standardization is followed to keep building and maintenance costs low because fishing has become very competitive with the influx of large foreign fishing vessels on Canadian east coast fishing grounds. Multi-purpose types have been successfully introduced in inshore fisheries of the Gulf of St. Lawrence area, capable of being converted easily into longliners, Danish seiners or scallop draggers. Modified versions of the 65-foot groundfish dragger, equipped with more powerful diesel engines and larger nets, have proved very efficient. Stern trawlers, the first to be built in North America, were added to the New Brunswick fleet in 1962, contributing in large measure to the expansion of the industry. The province has also taken the lead in the field of commercial tuna fishing—two ultra-modern tuna seiners, built in a New Brunswick shipyard, are operating successfully off the south shore of the province, making large catches of bluefin tuna and skipjack.

Exploratory projects conducted by the Department in co-operation with the Federal Government have led to the practical introduction of stern trawling, tuna purse seining, Danish seining, cod gillnetting, crab fishing, mechanical clam digging and the use of many other techniques and types of gear not generally in use by Atlantic Coast fishermen. And to educate the fishermen in the use of such modern vessels and gear, intensive training in navigation, motor mechanics, electronic devices, fishing gear technology, bacteriology, marine biology and other related subjects is being given at two new schools of fisheries erected in 1963; each school is equipped to give instruction to 50 students a year.

Sport fishing contributes substantially to the economy of the province, mainly through the tourist trade. Great Atlantic salmon rivers like the Miramichi, the Restigouche and the St. John are known around the world for their prolific production of this majestic game fish and attract many thousands of tourists to the province each year. Anglers catch as

many as 50,000 salmon a year in the Miramichi system alone. Many other species are also sought after by both residents and non-residents in the hundreds of streams, rivers and lakes of the province.

Quebec.—The Quebec Government, through its Department of Industry and Commerce, gives much consideration to the administration of the commercial fisheries of the province. For the benefit of producers and fishermen, it operates a network of cold storage plants for the freezing and preservation of fish. The network comprises 60 plants, together having a daily freezing capacity of 500 tons and a storage capacity of 25,000,000 lb. of fish. These plants also perform a valuable service to fishermen by providing them with frozen bait and ice. In addition, the Department owns and maintains 123 stations in small fishing ports where fish is kept under proper conditions while awaiting collecting trucks or boats, and operates an artificial drying plant with a processing capacity of 3,000,000 lb. of fish annually. A staff of fish wardens, technicians and technologists administers fishery legislation and assists in the application of new techniques for the expansion of the industry. The central administration is located at Quebec City with offices at the principal fishing centres for administration of the Protection, Refrigeration and Maritime Economy Services. Fish inspection is carried out by federal inspectors who are vested with additional powers by the provincial government with respect to local sales.

Educational work among the fishermen and producers is conducted by the Department to teach the latest methods of fish preparation and of obtaining high-quality products. The Fisheries Training School at Grande Rivière gives to fishermen of all ages the opportunity of taking free theoretical and practical courses in fishery. Encouragement is given to the Co-operative Associations of Fishermen through the Social Economic Service of Ste. Anne de la Pocatière subsidized by the Federal Government. Under a maritime credit system, fishermen may obtain loans from credit unions for the purchase of boats and gear. The fish trade is promoted through advertising campaigns in newspapers and magazines, exhibits at fairs, cooking demonstrations, educational films and the free distribution of fish recipes and publicity leaflets.

The Department adheres to the federal-provincial agreement on the building of draggers and longliners and assumes the building costs on a capital refunding plan. At the end of 1963, the fishing fleet of Quebec consisted of 85 draggers, eight longliners, 49 small longliners and four Danish seiners, representing an investment of over $5,000,000. After deduction of the federal subsidy of $250 per gross ton for wooden vessels or 50 p.c. of the cost for steel trawlers, the cost to the fishermen was approximately $4,000,000.

Biological and hydrographical research in the Gulf of St. Lawrence is directed by the Marine Biological Station at Grande Rivière and a laboratory is operated at Quebec City for the study of the biology of freshwater fish of the St. Lawrence River and its tributaries. The Quebec Aquarium at Quebec City exhibits freshwater and saltwater fish in 60 large tanks.

Sport Fisheries.—The Department of Tourism, Fish and Game exercises jurisdiction over the inland waters; it employs 250 full-time wardens. Licences are required for sport fishing and hunting. Four hatcheries are maintained at strategic points throughout the province—St. Faustin, Lac Lyster, Tadoussac and Gaspe. These establishments distribute speckled trout, Atlantic salmon and grey trout fry, maskinonge fingerlings and older fish in public waters.

The Department administers six parks and seven reserves in all of which, except for Mont Orford Park, excellent fishing may be found. Gaspesian and Laurentide Parks are renowned for their trout fishing. Chibougamau Reserve and La Vérendrye Park, situated on the height of land, are eminently suited to canoe trips in search of pickerel, pike and grey or speckled trout. Four salmon streams are open to anglers—the St. Jean River, the Petite Cascapédia River, the Matane River and the Port Daniel River. A joint committee composed of departmental officials and the directors of the federation of fish and game

associations recommends the proper legislation for the maintenance of satisfactory fishing and hunting conditions and other problems arising out of the ever-changing conditions of modern life and their effect on the wildlife of the province.

Ontario.—The fishery resources of Ontario are administered by the Fish and Wildlife Branch, Department of Lands and Forests. The Branch operates under the authority of the federal Fisheries Act, the Special Fishery Regulations for the Province of Ontario, the Ontario Game and Fish Act and the Regulations connected therewith.

Commercial Fisheries.—The commercial fishing industry in Ontario provides employment for about 3,000 persons directly and for many more indirectly, and produces an annual yield of from 45,000,000 lb. to 55,000,000 lb. of fish. A record of 63,783,000 lb. was established in 1962 with very heavy catches of smelt and yellow perch contributing to the increased landings. The industry, although widely scattered throughout the province, is centred chiefly on the Great Lakes, particularly Lake Erie which is the most productive of these lakes. The principal species of fish taken commercially are perch, smelt, whitefish, pickerel, lake trout, white bass, pike, herring, chub, sheepshead, carp, catfish and bullheads, sturgeon, eels, goldeyes, rock bass, sunfish and suckers. Over one hundred smaller inland lakes are commercially fished, principally those in the northwestern portion of the province, and careful management of these lakes is essential to ensure continued production.

The types of fishing boats in use vary from small craft to 60-foot tugs, and types of gear vary from the most common gillnets, pound-nets and trap-nets, seines and baited hooks to small hand-operated seines and dip-nets. Fishing methods and equipment have been modernized extensively during the past few years. Diesel-driven steel-hull tugs have replaced steam-driven wooden tugs, such aids as depth-sounding devices, radar, ship-to-shore and ship-to-ship communications have been developed and a better knowledge of the fish and their movements has been established from biological research findings. Modern icing facilities and transportation methods are in use as well as new types of fishing gear. Trawling has proved very efficient in harvesting smelt on a year-round basis in Lake Erie.

Most Ontario fishermen are organized into various local associations. Many of these associations are, in turn, represented by the Ontario Council of Commercial Fisheries which performs important services to the industry. The Ontario Fishermen's Co-operative and its member groups are of interest also in the organization of the fishery in the province.

Sport Fisheries.—Angling in Ontario is rapidly becoming one of the major industries of the province. With an estimated freshwater area of some 68,490 sq. miles, the province is one of the most attractive fishing areas on the Continent. Excellent angling opportunities are available for such prized fish as brook, rainbow, lake and brown trout, walleye, smallmouth and largemouth bass, pike and maskinonge. It is difficult to measure the total value of the sports fishing industry to the province but the annual revenue from the sale of angling licences alone (mainly to non-residents, as residents require a licence for provincial parks only) is in the neighbourhood of $2,500,000. The management of this valuable resource is administered by a well-trained field staff of conservation officers and biologists located in the 22 forestry districts of the province.

Provincial Hatcheries.—Ontario operates 17 hatcheries and rearing stations and excellent results have been produced in the culture and distribution of various species of game fish. The primary species reared in these operations include brook trout, rainbow trout, lake trout, smallmouth and largemouth bass, and maskinonge. Four of the finest trout-rearing stations on the Continent are located in this province—at Dorion near Port Arthur, Sault Ste. Marie, Hills Lake near Englehart, and Chatsworth.

Fisheries Research.—Research in Ontario is carried on in the Great Lakes and in inland waters. At the South Bay Mouth Station on Manitoulin Island in Lake Huron, Wheatley on Lake Erie, and Glenora on the Bay of Quinte on Lake Ontario, fishery biological stations are operated for the investigation and study of the commercial and sport

fisheries on the respective lakes. In Algonquin Park, detailed studies concerning lake trout, smallmouth bass and brook trout are in progress and management techniques are being tested against the background of a creel census which has been continuous since 1936. Studies on walleyes, parasitology and limnology have recently been initiated.

A selective breeding experiment concerning the hybrid between lake trout and speckled trout is progressing favourably. The deep-swimming character of the lake trout and the character of maturity at early age of the speckled trout are those being selected for combination in the hybrid.

Co-operation by Ontario in the field of sea lamprey control is being extended through the Great Lakes Fishery Commission.

Manitoba.—The fishing industry in Manitoba occupies an important position in the economy of the province. This valuable resource produces annually some 36,000,000 lb. of commercially caught fish with a market value in excess of $7,000,000. Over 5,000 persons are engaged in the industry as producing fishermen and 6,000 are employed in processing, transportation, boat building and other related industries. The lake area in Manitoba totals some 39,000 sq. miles. As road and transportation facilities are developed in the northern area and remote lakes become accessible for production, commercial production will increase.

Those engaged in the commercial fishing industry in Manitoba own and operate some 1,600 fishing boats ranging in size from large diesel lake freighters to small skiffs powered by outboard motors. The value of these boats together with gear and equipment is estimated at $4,000,000. Much of the fishing gear is costly but is essential to efficient production. New types of gear are at present in use on a research basis and experiments are being conducted in an effort to develop efficient low-cost methods of production. The Department of Mines and Natural Resources has given leadership in these matters and the continuing program of gear research has produced gratifying results.

Supervision of commercial fishing operations and the enforcement of the Manitoba Fishery Regulations occupies a staff of Conservation Officers who patrol the province using diesel boats during the open water season, bombardier snowmobiles and light trucks during the winter months, and aircraft in remote areas. All patrol units are equipped with two-way radio systems. An active and continuing campaign is conducted by the government and industry directed toward improvement of sanitation and quality standards in fish handling facilities and processing plants.

Sport Fishing.—Angling continues to be one of the most popular forms of outdoor recreation in Manitoba and many anglers are extending their activities to include winter ice fishing. During the year ended Mar. 31, 1963, more than 104,000 licences were sold to resident and non-resident anglers. In 1963, master angler awards were made to 640 anglers who caught fish of trophy size, an all-time record.

The Department formulated a program to diversify sport fishing waters and two new species have been introduced to Manitoba waters—the kokanee, a land-locked fish of the sockeye family, and the prized sportfish muskellunge. Eventually, these species will provide challenging and interesting angling opportunities.

Provincial Hatcheries.—Manitoba's four main hatcheries and two spawn-taking camps serve an important function in the management of fishery resources. The Whiteshell Trout Hatchery raises several trout species which are planted to diversify and improve sport fishing waters. The other three hatcheries support the populations in commercial fishing waters. Plantings of hatchery-reared pickerel are also made to replenish sport fishing waters. The two spawn-taking camps are operated on a seasonal basis.

Fisheries Research.—Biological research covers a wide field of scientific endeavour designed to provide factual information that can be used as a basis for sound management policies. Research studies involve oxygen tests to determine the incidence of winterkill,

test netting of planted lakes, whitefish investigations and quality tests, pollution studies, creel census, spawning habits of sport and commercial fish, bottom fauna and fish feeding, lake and river surveys, tagging to determine migratory trends and environmental effects and analyses of trends in fish populations.

Saskatchewan.—Saskatchewan's fishery resource, based on approximately 32,000 sq. miles of water area, has contributed much to the economic and recreational development of the province. The Fisheries Branch of the Department of Natural Resources, with head office at Prince Albert, is responsible for the administration of the fisheries.

Its main objective is to encourage multi-use (harvest) of the fishery, taking into consideration the interests of the various groups concerned—anglers, commercial fishermen and mink ranchers. The Branch plans policies and develops programs that will ensure the proper management and utilization of the fishery; interprets and explains policies, programs and regulations to the public; administers the Acts and Regulations, both federal and provincial, and adapts regulations to meet changing conditions. Its five Divisions deal with commercial fisheries, sport fisheries, fisheries research, spawn camps and the Fish Culture Station.

A record commercial production of 14,998,581 lb. was achieved in Saskatchewan in 1962. The province continues to be one of Canada's largest producers of whitefish and lake trout; 7,388,751 lb. of whitefish and 1,987,475 lb. of lake trout were harvested during the year. Market demand remained firm, returning a gross value of $3,114,798 from which the fishermen received $1,477,448 on the lake. The 14 processing plants operating in the province produced 2,045,879 lb. of fillets. Quality control and plant standards are maintained.

During the year, 1,162 domestic fishing licences were issued, with an estimated take of 1,162,000 lb. of fish. In addition, about 500,000 lb. were harvested under the 486 free Indian permits issued; 66 mink ranchers were licensed to permit the feeding of fish to 9,502 mink breeders and used an estimated 5,169,088 lb. of coarse fish (mainly suckers, marias and cisco).

Sport fishing is considered to be one of Saskatchewan's main outdoor attractions. In addition to the summer fishing activities, winter angling is on the increase. During 1962-63, a total of 96,904 angling licences were sold, 87,608 of them to residents of the province.

Continuing the fisheries research program instituted in the province 15 years ago, 11 research projects were undertaken during 1962-63; three reports, covering the survey of 11 lakes, were completed and depth-sounding maps were completed on four other lakes. In connection with the brine shrimp industry, 44 lakes were examined; brine shrimp eggs and shrimp were found to be present in 39 of these lakes. Limnological and fisheries surveys were continued on lakes in the Precambrian area along the highway from Lac la Ronge to the Churchill River and the Hanson Lake road, and on Provincial Park lakes. The creel census project on Lac la Ronge was conducted for the thirteenth consecutive year.

The first phase of the fish culture program entailed the taking of lake trout, northern pike and walleye (pickerel) eggs at the Lac la Ronge spawn camps; arctic grayling eggs were taken at the Black Lake spawn camp, near Lake Athabasca; whitefish eggs were taken from Lepine Lake in the vicinity of Pierceland; and rainbow and eastern brook trout and kokanee eggs were secured from the United States. The second phase of the program was the incubation and hatching of these eggs at the Fish Culture Station at Fort Qu'Appelle and the final phase was the transportation of the fry, fingerling and adult fish from the Fish Culture Station to the lakes selected for stocking. During the year, a total of 96 lakes were stocked with 15,664,150 fry, 645,298 fingerlings and 15,260 yearlings and adults.

Alberta.—Commercial and game fishing is administered by the Fish and Wildlife Division of the Department of Lands and Forests under authority of the Fisheries Act (Canada) and the Fishery Act (Alberta).

Commercial fish production in the year ended Mar. 31, 1963 totalled 9,039,000 lb. with a market value of $1,141,700—about the same as in 1961-62. Lake whitefish again accounted for about 50 p.c. of the market value but comprised only 27 p.c. of the catch. Tullibee, a low-priced animal food fish, made up 45 p.c. of the catch but only 19 p.c. of the market value. Northern pike production exceeded 1,000,000 lb. for the first time since 1936 and ranked third in quantity and value. Other species taken, in order of value, were walleye (pickerel), suckers, burbot, yellow perch, goldeye and trout.

Generally low water levels, heavy growths of plankton and rooted aquatic plants, and heavy snow cover during the winter months combined to cause widespread winterkills over most of the province. An extensive re-stocking program was undertaken in the many trout lakes in the north central portion of the province. The provincial hatchery located in Calgary operated at capacity; a total of 2,260,085 trout were stocked in 111 locations throughout the province. As in previous years, most of these were placed in lakes in the settled areas. Six licensed commercial game fish farms and two private game fish farms were operated during the year.

Research into the survival of hatchery trout in streams was continued at the Alberta Biological Station at Gorge Creek. This was supplemented by studies at Jumping Pound and Carbondale Rivers designed to ascertain recovery by anglers of catchable-size planted hatchery trout. Studies of growth and abundance of fish populations and basic lake productivity, as well as the general inventory of Alberta waters were continued in 1963.

British Columbia.—A Fisheries Office, which was organized in 1901-02 and became very active in fish culture work, building and operating fish hatcheries and instituting scientific research into various fishery problems, was superseded in 1947 by the Department of Fisheries which in turn was superseded in 1957 by the Department of Recreation and Conservation. Commercial fisheries are represented today as the Commercial Fisheries Branch of the Department of Recreation and Conservation. Broadly speaking, the administrative and regulative jurisdiction over the fisheries of British Columbia rests with the federal authority. The ownership of the fisheries in the non-tidal waters is vested in the Crown in the right of the province, as are the shell fisheries such as oyster fishing and clam fishing in tidal waters. The province administers these fisheries although the regulations covering them are made under federal Order in Council on the advice and recommendation of the province.

The provincial Fisheries Act provides for the taxation of the fisheries and, under civil and property rights, for the regulation and control of the various fish processing plants under a system of licensing. Provision is also made for arbitration of disputes regarding fish prices that may arise between the fishermen and operators of the various licensed plants. The administration of the Act involves the collection of revenue and the supervision of plant operations.

Regulation and administration of net fishing in the non-tidal waters of the province, including commercial fishing and authority for regulation of the game fisheries in non-tidal waters, is vested in the Fish and Game Branch which operates a number of trout hatcheries and egg-taking stations for re-stocking purposes.

The Branch co-operates closely with the Fisheries Research Board of Canada. The biological research into those species of shellfish over which the province has control, principally oysters and clams as well as marine plants, is conducted by the Fisheries Research Board of Canada at the Pacific Biological Station, Nanaimo, B.C., under agreement with the federal and provincial authorities. The object of this research is to encourage the industry to produce better products more economically and to enable the Commercial Fisheries Branch to regulate the various species so that maximum exploitation may be obtained on a sustained-yield basis.

Section 3.—Fishery Statistics

The review of commercial fishing and marketing given in Section 1, pp. 622-625, covers the situation in 1963 and contains estimated figures for that year. However, at the time of the preparation of this Chapter, the latest statistics available in detail for both the primary industry and the fish products industry were those for 1962 contained in the following Subsections.

Subsection 1.—Primary Production

Atlantic Coast fishermen experienced a very prosperous year in 1962, with landings valued at $68,373,000. This represented an increase of 15.9 p.c. over the 1961 catch of $59,004,000 and 28.6 p.c. over the 10-year 1952-61 average of $53,159,000. Lobster continued to be the most valuable species, returning $19,781,000 to the fishermen; cod valued at $18,904,000, haddock at $4,869,000 and scallops at $4,524,000 were also major sources of revenue.

Fishermen's earnings in Newfoundland reached record levels with the catch valued at $17,454,000. Fishing was good both on the Banks and inshore. The catch of cod off the southwest part of the province by both the small boats and the traps was something of a record. The market demand for frozen cod fillets and cod blocks, mainly in the United States, continued to increase. Production of frozen fillets and blocks, of which more than half were cod, reached 72,179,000 lb. with a value of $16,780,000.

Although the total catch in Nova Scotia was down from the previous year, the returns to fishermen in 1962 were at a record high level of $32,062,000, 16 p.c. over the value of the catch in 1961. Lobsters continued to be the chief source of income, with landings of 20,004,000 lb. having a value of $9,786,000. Scallop landings of 13,373,000 lb. valued at $4,492,000, cod landings of 95,920,000 lb. valued at $4,043,000, and haddock landings of 71,426,000 lb. valued at $3,573,000 were the other major sources of revenue, in order of importance. In New Brunswick, lobsters were also the principal income source for fishermen. In 1962, landings of 9,355,000 lb. had a value of $3,891,000; although the catch was somewhat lighter than that of 1961, improved unit values resulted in higher total returns to fishermen. Herring landings were almost double the 1961 catch but were still well below the 1959 and 1960 levels; the 1962 catch of 106,520,000 lb. had a value of $1,740,000. Cod, the third most important species, returned $1,456,000 for the 40,871,000 lb. caught. Both quantity and value were greater than the five-year 1957-61 averages of 37,870,000 lb. and $1,115,700, respectively. Prince Edward Island fishermen received slightly more for their efforts in 1962 than they did in the previous year; the total catch was valued at $4,649,000 compared with $4,489,000 in 1961. Of the 1962 total, 69 p.c. was accounted for by lobsters.

Total 1962 landings in Quebec, including both sea and inland species, had a value of $5,710,000, 21 p.c. higher than in 1961. Cod, valued at $2,148,000, was the most valuable species followed by lobsters at $1,421,000.

In 1962, the British Columbia catch was valued at $45,928,000, salmon accounting for $30,559,000. A record catch of 93,214,000 lb. of pink salmon returned $10,909,000 to the fishermen. Sockeye salmon, which have a four-year cycle, was expected to produce heavy runs in 1962 but the catch was disappointing, amounting to only 20,077,000 lb.; in the latest "on" year (1958), 74,011,000 lb. were taken. Although the herring fleet was tied up for six weeks during price negotiations, landings of 445,275,000 lb. were well above the five-year 1957-61 average of 356,128,000 lb. and returns to fishermen amounted to $4,752,000. The halibut catch of 24,527,000 lb. was smaller than that of 1961 but higher returns per pound brought the value to the fishermen up to $7,773,000; comparable figures for 1961 were 24,951,000 lb. and $5,316,000. Two converted salmon seiners fished for tuna off the California coast with encouraging results. These vessels were equipped with a new brine spray refrigeration and expansion of this type of fishery seems to be in prospect.

1.—Quantity and Value of Sea and Inland Fish Landed, by Province, 1958-62

NOTE.—Figures for the years 1918-57 are given in the corresponding table of previous Year Books, beginning with the 1947 edition.

Province or Territory	1958	1959	1960	1961	1962
	QUANTITY				
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland	464,024	562,228	573,771	503,079	549,341
Prince Edward Island	39,078	42,025	42,283	36,664	37,630
Nova Scotia	468,462	423,273	430,310	439,662	435,903
New Brunswick	160,972	227,994	232,662	147,925	204,511
Quebec	123,868	112,954	98,851	109,174	133,443
Ontario	47,175	48,984	47,600	54,951	63,780
Manitoba	31,929	31,052	31,944	30,658	36,105
Saskatchewan	12,600	12,550	14,530	14,515	14,999
Alberta	11,482	12,664	15,852	11,317	9,025
British Columbia	650,589	613,597	335,040	635,550	676,869
Northwest Territories	5,894	5,747	5,543	5,676	6,544
Totals	**2,016,073**	**2,093,068**	**1,828,386**	**1,989,171**	**2,168,150**
Sea Fish	1,901,460	1,975,856	1,705,362	1,866,098	2,031,119
Inland Fish	114,613	117,212	123,024	123,073	137,031
	VALUE				
	$'000	$'000	$'000	$'000	$'000
Newfoundland	11,312	14,529	15,856	14,922	17,454
Prince Edward Island	3,754	4,287	4,640	4,489	4,649
Nova Scotia	24,954	27,112	26,094	27,741	32,062
New Brunswick	7,499	8,763	9,358	7,730	9,222
Quebec	4,195	4,316	4,504	4,710	5,710
Ontario	7,271	4,866	4,983	5,745	5,341
Manitoba	3,540	3,757	3,867	3,174	4,229
Saskatchewan	1,091	1,190	1,367	1,385	1,478
Alberta	879	1,016	1,159	883	714
British Columbia	51,352	34,995	27,961	38,778	45,928
Northwest Territories	682	703	702	675	859
Totals	**116,529**	**105,534**	**100,491**	**110,232**	**127,646**
Sea Fish	102,505	93,431	87,725	97,782	114,301
Inland Fish	14,024	12,103	12,766	12,450	13,345

2.—Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1961 and 1962

Area and Species	Quantity Landed[1]		Value Landed[2]		Marketed Value of Products[2]	
	1961	1962	1961	1962	1961	1962
	'000 lb.	'000 lb.	$'000	$'000	$'000	$'000
Atlantic Coast						
Groundfish	**885,249**	**963,099**	**28,523**	**32,887**	**67,090**	**77,638**
Catfish	3,787	3,333	113	102	368	397
Cod	516,861	585,386	15,646	18,904	36,652	39,875
Flounder and sole	107,265	103,507	3,311	3,323	7,298	7,704
Haddock	118,395	115,021	4,647	4,869	11,524	11,769
Hake	16,733	18,828	349	452	603	619
Halibut	6,143	6,104	1,668	1,776	2,137	1,957
Pollock	49,655	60,810	1,067	1,656	3,318	2,936
Redfish	56,216	61,114	1,458	1,585	3,653	4,208
Other	10,194	8,996	264	220	1,537	8,173
Pelagic and Estuarial	**238,832**	**296,837**	**6,842**	**8,251**	**18,603**	**25,785**
Alewives	7,712	10,626	150	177	259	345
Herring	193,369	246,502	2,756	3,430	4,970	7,574
Mackerel	14,118	16,167	694	653	1,376	1,298
Salmon	3,466	3,776	1,417	1,752	1,993	2,309
Sardines	[3]	[3]	[3]	[3]	5,661	11,040
Smelts	2,267	2,635	221	240	292	299
Swordfish	3,196	3,495	1,238	1,580	1,635	2,052
Other	14,704	13,636	366	419	2,417	868

For footnotes, see end of table, p. 640.

2.—Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1961 and 1962—concluded

Area and Species	Quantity Landed[1]		Value Landed[2]		Marketed Value of Products[2]	
	1961	1962	1961	1962	1961	1962
	'000 lb.	'000 lb.	$'000	$'000	$'000	$'000
Atlantic Coast—concluded						
Molluscs and Crustaceans	**86,140**	**68,814**	**22,081**	**24,875**	**32,255**	**31,126**
Clams—						
Quahaugs	199	296	8	13	8	16
Soft-shelled	3,225	3,168	156	146	316	178
Lobsters	47,547	46,452	18,054	19,781	25,957	23,018
Oysters	4,083	3,259	455	356	540	541
Scallops	10,516	13,481	3,082	4,524	4,322	6,933
Other	20,570	2,158	326	55	1,112	440
Other	...	...	**1,558**	**2,360**	**6,863**	**6,089**
Totals, Atlantic Coast	...	...	**59,004**	**68,373**	**124,811**	**140,638**
Pacific Coast						
Groundfish	**40,701**	**41,773**	**6,429**	**9,075**	**9,485**	**11,204**
Cod	3,439	4,489	170	254	689	405
Halibut[4]	24,951	24,527	5,316	7,773	7,427	9,318
Ling cod	4,518	4,308	424	469	569	561
Sablefish	668	620	118	109	147	173
Sole	6,080	6,286	356	395	552	584
Other	1,045	1,543	45	75	101	163
Pelagic and Estuarial	**578,700**	**618,902**	**31,012**	**35,652**	**66,668**	**78,546**
Herring	448,433	445,275	4,589	4,752	8,207	8,492
Salmon	121,634	163,907	26,152	30,559	57,314	69,763
Chum	*14,602*	*18,047*	*1,917*	*2,196*	*4,198*	*5,493*
Coho	*22,508*	*24,148*	*6,569*	*6,900*	*12,321*	*12,187*
Pink	*49,525*	*93,214*	*5,696*	*10,909*	*17,136*	*30,648*
Sockeye	*26,595*	*20,077*	*8,860*	*6,723*	*18,521*	*15,444*
Spring	*8,200*	*8,185*	*3,064*	*3,774*	*4,426*	*5,146*
Other	*204*	*240*	*46*	*57*	*712*	*847*
Tuna	10	487	2	67	935	75
Other	8,623	9,233	269	274	212	216
Molluscs and Crustaceans	**14,554**	**16,023**	**1,111**	**1,181**	**2,335**	**2,499**
Clams, butter, little neck, razor, etc.	2,337	3,964	76	139	324	448
Crabs	4,602	2,771	470	302	1,144	945
Oysters	6,388	7,587	369	466	480	608
Shrimps and prawns	1,207	1,663	194	268	367	470
Other	20	38	2	6	20	28
Other	...	...	**226**	**20**	**270**	**2,424**
Totals, Pacific Coast	...	...	**38,778**	**45,928**	**78,758**	**94,673**
Inland						
Freshwater Fish	**105,743**	**112,926**	**11,854**	**12,358**	**18,669**	**19,218**
Bass	3,413	2,491	308	278	347	312
Catfish	1,146	1,223	188	201	204	217
Herring, lake (cisco)	1,854	2,630	67	68	76	77
Perch	19,723	22,598	2,005	1,412	2,305	1,620
Pickerel (blue)	2	--	1	--	1	--
Pickerel (yellow)	13,346	14,959	2,455	3,226	4,014	5,128
Pike	7,864	9,065	409	480	962	1,249
Saugers	3,300	3,797	566	791	987	1,320
Sturgeon	567	514	351	285	378	304
Trout	3,891	4,066	537	599	1,163	1,040
Tullibee	10,398	8,333	780	686	984	831
Whitefish	27,184	26,578	3,814	3,817	6,569	6,358
Other	13,055	16,672	373	515	679	762
Other	**17,330**	**24,105**	**596**	**987**	**641**	**1,074**
Totals, Inland	**123,073**	**137,031**	**12,450**	**13,345**	**19,310**	**20,292**
Grand Totals	...	...	**110,232**	**127,646**	**222,879**	**255,603**

[1] Excludes livers. [2] Includes value of livers and liver products. [3] Included with "Herring".
[4] Excludes landings by Canadian fishermen in United States ports.

3.—Persons Employed in the Primary Fishing Industry, by Province, 1960-62

Province or Territory	Sea Fisheries			Inland Fisheries		
	1960	1961	1962	1960	1961	1962
	No.	No.	No.	No.	No.	No.
Newfoundland	18,291	18,756	19,817	—	—	—
Prince Edward Island	3,274	3,464	3,367	—	—	—
Nova Scotia	12,780	12,578	11,711	—	—	—
New Brunswick	6,012	6,083	6,016	163	145	157
Quebec	4,989	3,771	3,786	1,015	1,173	1,031
Ontario	—	—	—	3,409	3,059	2,993
Manitoba	—	—	—	5,289	5,018	5,614
Saskatchewan	—	—	—	1,700	1,750	1,850
Alberta	—	—	—	5,730	5,422	4,563
British Columbia	15,159	16,805	16,437	—	—	—
Northwest Territories	—	—	—	360	336	476
Totals	**60,505**	**61,457**	**61,134**	**17,666**	**16,903**	**16,684**

Subsection 2.—The Fish Products Industry

The Census of Industry survey of the fish products industry covers establishments engaged in the processing of fish at the secondary industrial level. Some fishermen process the fish they land to a certain degree but their operations are not included nor are the minor amounts of processing done in the inland areas (Ontario, the Prairie Provinces, and the Northwest Territories). The value of all sea and inland fishery products processed or handled by processors, handlers and fishermen during 1962 was $255,603,000, the highest amount on record. All provinces, except Ontario, Saskatchewan and Alberta shared in the 15-p.c. increase over 1961.

4.—Value of All Products of the Fisheries, by Province, 1958-62

NOTE.—Figures for the years 1917-57 are given in the corresponding table of previous Year Books beginning with the 1922-23 edition. Totals for five-year intervals from 1870 are given in the 1956 edition, p. 597.

Province or Territory	1958	1959	1960	1961	1962
	$'000	$'000	$'000	$'000	$'000
Newfoundland	25,746	31,675	33,783	33,119	38,883
Prince Edward Island	5,449	5,961	7,261	6,093	6,403
Nova Scotia	50,812	50,480	51,753	55,593	67,380
New Brunswick	24,623	28,367	33,130	26,386	33,087
Quebec	7,827	7,856	7,622	8,131	10,625
Ontario	8,180	5,475	5,606	6,464	6,009
Manitoba	6,844	6,689	7,035	6,214	7,979
Saskatchewan	2,339	2,596	2,830	3,166	3,115
Alberta	1,450	1,684	2,021	1,701	1,234
British Columbia	97,016	67,067	53,983	78,758	94,673
Northwest Territories	1,235	1,146	1,075	1,179	1,231
Totals[1]	**231,540**	**203,040**	**198,005**	**222,879**	**255,603**
Sea Fish	210,931	184,879	178,750	203,568	235,311
Inland Fish	20,609	18,161	19,255	19,311	20,292

[1] Totals differ from the sum of provincial totals because duplications resulting from inter-shipments between provinces are removed.

Canned salmon produced in British Columbia has long been the most important product of the industry, although annual output fluctuates considerably with the extent of the catch. In 1962, for example, the output of 1,816,586 cases was almost three times as high as the 1960 production, as shown in Table 5.

5.—Pacific Coast Production of Canned Salmon, 1960-62

Species	1960		1961		1962	
	Quantity	Value	Quantity	Value	Quantity	Value
	Cases[1]	$'000	Cases[1]	$'000	Cases[1]	$'000
Chum	86,819	1,787	95,385	2,050	134,483	3,025
Coho	91,505	3,908	241,379	8,634	187,735	6,886
Pink	219,563	5,487	661,291	16,767	1,188,662	30,337
Sockeye	226,844	11,407	398,204	18,468	297,717	15,344
Spring	5,915	163	7,921	202	7,175	186
Steelhead	504	15	979	30	814	23
Totals	**631,150**	**22,767**	**1,405,159**	**46,151**	**1,816,586**	**55,801**

[1] 48 lb.

The demand for Atlantic Coast frozen groundfish fillets and blocks continues to rise, with the result that these products are running a close second to canned salmon and new and expanding facilities are being provided to supply the growing market. Table 6 shows the increase in production from 1960 to 1962.

6.—Atlantic Coast Production of Frozen Fillets and Fish Blocks, 1960-62

Area and Species	1960		1961		1962	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	$'000	'000 lb.	$'000	'000 lb.	$'000
Newfoundland	**57,447**	**12,542**	**64,009**	**14,445**	**72,179**	**16,780**
Cod	36,497	7,126	38,309	7,967	41,801	9,136
Haddock	6,735	1,570	11,129	2,619	11,499	2,769
Redfish	5,137	1,012	6,976	1,592	9,851	2,342
Flatfish	8,589	2,728	6,992	2,131	8,105	2,326
Other	489	106	603	136	923	207
Maritimes	**67,600**	**16,019**	**75,940**	**17,870**	**77,978**	**19,550**
Cod	24,449	4,841	25,989	5,522	32,457	7,253
Haddock	16,048	4,318	19,885	5,468	16,743	5,088
Redfish	6,214	1,374	6,423	1,400	4,260	1,397
Flatfish	15,623	4,665	13,355	3,778	12,414	3,828
Other	5,266	821	10,288	1,702	12,104	1,984
Quebec	**12,483**	**2,320**	**14,012**	**2,909**	**15,659**	**3,080**
Cod	9,458	1,652	10,415	2,102	12,238	2,360
Other	3,025	668	3,597	807	3,421	720
Totals, Atlantic Coast	**137,530**	**30,881**	**153,961**	**35,224**	**165,816**	**39,410**
Cod	70,404	13,619	74,713	15,591	86,496	18,749
Haddock	22,913	5,918	31,119	8,112	28,358	7,883
Redfish	12,887	2,639	15,327	3,367	16,079	4,106
Flatfish	25,523	7,758	21,750	6,274	21,725	6,461
Other	5,803	947	11,052	1,880	13,158	2,211

PART II.—FURS

Section 1.—The Fur Industry*

Although the relative importance of the fur industry in the Canadian economy has declined through the years, the production of furs continues to contribute substantially to the national income. Furs are produced in all the provinces and, in addition to returns from the sale of pelts, the thriving fur farming industry has boosted the economy of many areas through creation of a chain of associated businesses such as feed supply houses and pelt processing stations. Demand from the industry for feeding stuffs has resulted in the utilization of practically all of what were formerly the waste products from meat packing operations and poultry processing plants. In addition, some 50,000,000 lb. of rough fish and fish frames, formerly of little or no value, are used annually by this industry. In the case of furs from the wilds, trapping returns are distributed through countless northern villages, providing a welcome source of additional revenue for many part-time trappers as well as for the professionals.

The total value of furs produced in the 1962-63 season was $32,131,000, ranched furs accounting for $19,957,000 or 62.1 p.c. and wildlife pelts for the remainder. A large proportion of the Canadian furs are exported annually, the principal varieties being wild mink, beaver and muskrat. In 1963 the value of raw furs exported was $30,987,000 and during the same year raw furs worth $20,914,000 were imported. The chief imports were mink, Persian lamb, raccoon, fox and muskrat.

Fur Trapping.—Despite intensive trapping which has been carried on for many years, the numbers of wild fur bearers in Canada have been well maintained. Some species, principally beaver and muskrat, are still taken in the settled areas, but much of the wildlife has retreated before the advance of settlement so that the principal trapping areas now lie in the northern portions of the provinces and in the Northwest Territories.

Conservation measures instituted by the respective provincial governments and, for the Yukon and Northwest Territories, by the Department of Northern Affairs and National Resources have been largely responsible for maintaining the numbers of fur bearers. These measures include control of the length of the period during which trapping is permitted and, where necessary, the imposition of closed seasons for the protection of scarce species. Also, in many fur producing areas a system of registered traplines is in effect whereby trapping areas are assigned to individual trappers on a constant basis. This system puts the responsibility on the trapper for conservation of the fur bearers in his area and encourages him to trap less intensively any species that show signs of becoming scarce. Prior to institution of the registration system, competition between trappers in the same area often resulted in exhaustion of the fur resource.

According to records maintained by the Dominion Bureau of Statistics since 1919, the 1962-63 catches of beaver, lynx and otter were the largest on record and above-average numbers of fisher and marten were also taken. On the other hand, the white fox catch was the lowest on record because, in 1962, this species was at the low point of its four-year cycle throughout the Arctic.

The total value of the wild fur catch in 1962-63 was 17.5 p.c. higher than in the previous season, reflecting an increased catch of many species and also a fairly general advance in pelt prices. However, prices of most of the principal varieties of furs were still substantially lower than they were when records were commenced in 1919 and, consequently, recent returns from the trapping enterprise have not been sufficiently attractive to keep trappers on their traplines on a full-time basis. In areas where other forms of employment are available many trappers have become full-time or part-time wage-earners, carrying on their trapping activities on week-ends or off days, and others have abandoned trapping

* Prepared by A. Stewart, Production and Marketing Branch, Department of Agriculture, Ottawa.

completely. In the northern regions, however, trapping still plays an important part in the lives of the native Indians and Eskimos, providing an independent means of livelihood in these remote areas.

Fur Farming.—*Fox.*—Fur farming originated in Canada around 1890 with the raising of black and silver foxes on farms in Prince Edward Island. Subsequent years saw these fox furs gain world-wide prominence and then gradually fall again from favour until, by around 1950, the prices realized were less than breeders' production costs. In 1962, 1,647 fox pelts were produced on Canadian farms, the average value being estimated at $10 per pelt. Although fox furs of all types have been used extensively for coat collars and garment trimming in recent years, no major swing is evident toward the use of silver fox in the formerly fashionable capes, jackets or full-length garments.

Mink.—Mink farming had its beginnings in Canada around 1910 and has since grown to be by far the most important branch of fur farming. In 1962 the production of 1,308,281 mink pelts from 1,503 Canadian farms accounted for 99.1 p.c. of the value of fur farm production. This industry is carried on in all the provinces, the principal producers, in order of importance, being Ontario, British Columbia, Manitoba and Alberta. The following figures indicate the growth of the industry since 1935:—

Year	Pelt Production	Average Realization	Year	Pelt Production	Average Realization
	No.	$		No.	$
1935	30,558	10.58	1955	786,760	20.07
1940	229,202	9.64	1960	1,204,077	14.03
1945	255,968	21.51	1961	1,269,050	14.50
1950	589,352	17.08	1962	1,308,281	15.12

As the industry developed, improved ranching practices enabled producers to increase the size of their operations without additional help and also to improve the quality of their product. On early mink farms the mink were raised in cages which were ranged in rows in the open. Feed and water had to be carried to the mink and this limited to around 300 the number of animals that could be cared for by one operator. By the mid-1950's most of the old-style cages had disappeared and mink were being raised in roofed structures with more or less open sides, housing up to several thousand animals each. Most of the modern operations make use of automatic watering systems and other labour-saving devices, including electric powered feeding carts which roll through the sheds, with an operator controlling the delivery of the semi-liquid feed to each mink through a hose backed by a pressure system.

Through selective breeding, mink farmers have made marked improvement in the quality of their animals. Of prime importance also in this improvement are the Live Mink Shows at which experienced judges place the animals and the Field Days where expert fur graders discuss the fine points of the animals exhibited before mink farmer audiences. The diseases of mink have been the subject of considerable research at universities and at the Canada Department of Agriculture Experimental Fur Farm, Summerside, P.E.I. As a result of findings, most mink farmers now carry out programs of preventive vaccination for control of the major diseases.

Mink has remained the dominant fur in the world fur industry since the late 1940's. This continuing popularity is undoubtedly due in part to the many natural advantages of mink and to the resourcefulness of the industry in developing a large number of natural coloured mutations. However, some credit must also be given to the effective promotional campaigns waged by public relations firms on behalf of mink breeder associations in Canada and other countries. Members of Canada Mink Breeders' Association, the national association of Canadian mink farmers, voluntarily contribute 1.5 p.c. of the gross selling price of their mink pelts to the Association, the amount realized being used largely for promotional purposes. Similar fund-raising plans are in effect in other major mink producing countries such as the United States and Scandinavia.

Chinchilla.—The first chinchillas were imported into Canada in 1937 and since then growth of the industry has been steady. In 1962 Canadian raisers marketed 11,268 chinchilla pelts, the average realization being $13.50 per pelt. At present, chinchillas are being raised in 468 locations throughout Canada, the principal producers, in order of importance, being British Columbia, Ontario, Quebec and Alberta.

In planning for the future, the most pressing problem to be overcome by the raisers is the low production rate. Currently, kits raised to maturity annually from each breeding female average only 1½ and the goal of the industry is to increase this production to three or four kits per female. The reasons why the number of animals raised to maturity is comparatively small are numerous, ranging from failure of the female to conceive to loss of the litter for a variety of causes.

During the forty-year period from 1914, when the trapping of wild chinchillas in South America was prohibited, to 1954, when the first sale of ranch-raised pelts was held, this fur was completely off the market. As a result, when chinchilla again became available members of the fur industry knew very little about it, details of the dressing and manufacture of the pelts had to be re-learned and the fur had to be promoted anew at the retail level. Today a firm market exists for chinchilla and the business appears well on its way toward securing a place in the world fur industry.

Fur Marketing.—The bulk of Canada's fur production is sold by public auction through eight fur auction houses located in Montreal, North Bay, Winnipeg, Regina, Edmonton and Vancouver. Most of the ranched mink pelts are shipped directly from farm to auction house where they are sold for the account of the producer, the auction house charging a commission for its services based on a percentage of the selling price. In the case of wildlife pelts, a small percentage of the total catch goes direct from trapper to auction house but most of these furs pass initially from the trapper to the local fur buyer who may ship his collection to one of the selling outlets or may sell it outright to a travelling fur buyer who will add the furs to his larger collection before shipping.

The selling season commences in December with large offerings of ranched mink pelts, and later in the same month initial quantities of the new season's wild furs become available. Trapping in the northern regions gets under way around the same time as the pelting of ranched mink but, because of the slower process involved in shipping furs from isolated areas, major quantities of wildlife pelts are not generally available until January. In this and succeeding months, offerings of ranched mink continue, along with quantities of the world-famed Canadian wild mink, beaver and other varieties.

At the auctions, furs are purchased through competitive bidding by buyers who may be purchasing for their own accounts or who may represent firms in any part of the world. Canadian furs are traditionally sold in the raw or unprocessed state, facilitating entry into the many countries that maintain tariffs on imports of processed furs. In order to ensure that the auctions will be successful, it is important to obtain maximum possible purchasing power at these events, in the form of a substantial number of buyers. Mink are now being produced in many countries, the crops reaching the various markets practically simultaneously. Therefore, competition for the buyers' favour is keen and mink breeder associations in all the important producing countries are studying the problem of how to increase buyer attendance at their auctions. In this connection, Canadian fur auction houses are co-operating with each other in the scheduling of their sales, with a view to making it convenient for visiting buyers to take in two or more successive auctions while they are in this country. Also, Canada Mink Breeders' Association is encouraging its members to adopt uniform pelting methods with the object of producing large numbers of pelts having a similar appearance, rather than the mixed offering that formerly resulted from the use of a variety of pelt-handling methods. At the auction level these uniformly handled pelts facilitate rapid inspection by buyers who might otherwise pass up an auction entirely, due to lack of time to inspect all the offerings being made at the height of the season.

Section 2.—Provincial and Territorial Fur Resource Management

Most of the fur resources of the provinces of Canada are under the administration of the respective provincial governments. Exceptions include those resources within the boundaries of the National Parks and the Indian reserves, and the fur resources of the Yukon and Northwest Territories, all of which are under the administration of the Federal Government. The Canadian Wildlife Service of the Department of Northern Affairs and National Resources is responsible for all Federal Government interests in wildlife resources except for those related to Indian affairs, which are administered by the Indian Affairs Branch of the Department of Citizenship and Immigration. The Canadian Wildlife Service co-operates with provincial governments and other agencies concerned and handles federal interests in relevant national and international problems (see pp. 37-39). Provincial fur resource management practices are discussed in the following paragraphs.

Newfoundland.—One of the most important steps taken recently by the Wildlife Division of the Newfoundland Department of Mines, Agriculture and Resources in fur resource management was the setting up of experimental beaver traplines on the Avalon and Burin Peninsulas. It is intended that, using the beaver as a basis, the trapline system be expanded to cover the entire province and eventually all fur bearers. In the 1930's and 1940's beaver were transplanted from areas of high density to areas where there were few or no beaver and these transplants have resulted in fairly good beaver populations throughout most of the Island. The trapper is required to locate a minimum of five active beaver lodges before applying for permission to trap. His finds must be confirmed by a Wildlife Officer and he must trap according to regulations and agree to provide required information and certain organs for research purposes. This system, which has been quite successful in the two seasons it has been in operation, should eventually produce a relatively small number of trappers who will, in effect, be beaver managers, since the maintenance of a trapline will depend on the individual's care and attention to good management practices. Management of marten is also in prospect. Generally, Newfoundland trapping regulations provide limited open seasons for most species. On the Island these include beaver, mink, muskrat and otter, and in Labrador they include beaver, mink, marten, muskrat, otter, fisher and Arctic fox. Trapping of other foxes, lynx and weasel is permitted throughout the year in the whole province and wolves and wolverines may be trapped throughout the year in Labrador.

It is interesting to note that the mink population on the Island has developed from fur farm escapes and is therefore concentrated in the fur farm areas of Avalon Peninsula, Springdale and Corner Brook. The first mink trapping season was declared in 1958.

Nova Scotia.—Nova Scotia's wild fur bearers include beaver, muskrat, mink, otter, fox, raccoon and weasel and the trapping of these animals provides supplementary income for several thousand persons who harvest from $100,000 to $1,000,000 worth of wild furs each year. The value, of course, depends on the numbers of each fur species available and on fur prices, both being subject to marked variations from year to year.

The beaver, once almost extinct in the province, is now the most valuable fur bearer taken. A $2 licence is required by residents to trap a limited number of beavers (five to seven) during the approximately six-week season beginning Nov. 1. No licence is required to trap other fur bearers, although a royalty must be paid to the province for each pelt exported. These animals may be taken between Nov. 1 and Dec. 14.

Beaver research is at present being carried on in Nova Scotia to increase knowledge of this valuable animal as a preparation for better management of its populations. Behaviour, feeding, movement and reproduction studies are being conducted near the Tobeatic Sanctuary in western Nova Scotia, in Cumberland County in the eastern part of the province and in an enclosed area in Queens County. In addition, data as to size, age, etc., are collected from beaver carcasses taken by trappers in all parts of the province.

Several trappers' associations have been started throughout the province so that the men closest to the fur resources may have some say in their wise use and management.

These groups can also assist in ensuring proper handling and marketing of the raw furs and in up-grading quality, thus commanding good market prices.

New Brunswick.—A fur management program is just being started in New Brunswick. The first fur bearer to be investigated is the muskrat and the study area is on the St. John River in the Fredericton–Gagetown area, one of the best muskrat areas in the province. For many years the open season on muskrat has been held in the spring. Also, the beaver will soon be receiving more attention. For about 20 years, trapping of this animal was not permitted and the first open season was declared in 1946. As a result, the beaver has made a remarkable recovery and there has been an open season each year since 1951, the annual take averaging about 7,500 pelts. It is now thought that, if heavier trapping is not done, there will soon be cause for concern over beaver damage to farms and woodlots, highways and railways.

There are closed seasons on fisher and marten. These animals are found mainly in the northern part of the province but as their numbers appear to be increasing they are gradually working their way farther south. A zoned trapping season is being considered on these two animals in 1965. Mink and otter are not prevalent in the province but in the two-month fall trapping season the catches average about 1,700 and 240, respectively. In 1962-63 about 2,500 trapping licences were issued.

Recent provincial legislation will enable quick changes to be made in trapping seasons; thus, the autumn benefit of available fur may be utilized by the trapper or a closed season established on any fur bearer showing signs of serious depletion in numbers. A summary of trapping laws, which includes information as to how the different pelts should be handled to receive the best price, is available from the Fish and Wildlife Branch of the Department of Lands and Mines.

Quebec.—The fur trade has been of considerable importance in Quebec since the beginning of New France and the province has remained in the forefront of fur producers. The principal native species, in order of importance, are beaver, mink, muskrat, hair-seal, otter, lynx and marten.

Management of wild fur bearers began in 1932 with the establishment by an official of the Hudson's Bay Company of a privately leased reserve at Rupert House. The administration of this reserve passed to the Hudson's Bay Company and a second concession, at Nottoway, was granted to the Company in 1938. Strict conservation practices were enforced in these two reserves with such success that the provincial government took over their management and have since added steadily to the area of Crown lands set aside for Indian trappers. At present, 12 reserves are under conservation: Rupert House, 7,500 sq. miles (1932); Nottoway, 11,300 sq. miles (1938); Vieux Comptoir, 30,000 sq. miles (1941); Peribonca, 12,600 sq. miles (1941); Fort George, 17,700 sq. miles (1942); Abitibi, 6,000 sq. miles (1943); Great Victoria Lake, 6,300 sq. miles (1948); Mistassini, 50,000 sq. miles (1948); Manouane, 5,000 sq. miles (1951); Roberval, 20,000 sq. miles (1951); Bersimis, 21,000 sq. miles (1951); and Saguenay, 140,000 sq. miles (1955). The value of beaver pelts alone taken from these reserves in 1963 was $367,000.

In 1945, a separate system of registered lands for white trappers was set up in the areas of Abitibi-Est, Abitibi-Ouest, Rouyn–Noranda, Témiscamingue, Pontiac and part of Saguenay County. Each leaseholder is granted exclusive trapping rights on his assigned land and each is subject to strict regulation. The trapping of fur bearers, other than beaver, is not restricted on either the reserves or the registered lands except for a general regulation concerning the protection of animals and the fixing of catch limits. Recently, biological research has been undertaken to assess the results of this system.

In 1963, the value of the catch of wild furs in Quebec amounted to approximately $2,500,000—a fraction of the value of the finished product.

Ontario.—Legislation for the management of wild fur bearers had its beginning in Ontario with the setting of seasons in 1860 by an Act of Upper Canada. However, 32

years passed before there was any field staff to enforce the regulations and then began an era of restrictive legislation to protect species threatened by the earlier exploitation. Progress beyond the restrictive enforcement of open and closed seasons has come about only in the past 20 or 30 years. The first steps in this direction involved the setting aside of special Indian hunting areas in which white men were not allowed to trap.

The registered trapline system was introduced in 1935 on a very small scale. This system is based on government recognition of an individual's rights to trap a certain area. In its early stages, surveyed townships were assigned as trapline areas but more explicit trapline boundaries, established in 1947-48, now cover the province and mostly follow natural physiographical features. At the same time, resident traplines were established in areas of patented land, which means most of southern Ontario; these are blocks of land on which trappers are licensed to trap, providing they make their own written agreements with the landowners. Trapline licences are renewable annually as long as the trapper meets the conditions of the regulations and continues to trap. Trappers may sell the equipment and improvements they have made on their lines and so have a vested interest in their traplines.

In full realization that fur is a natural resource that cannot in nature be stockpiled, and is harvested on a commercial basis only, the Ontario Department of Lands and Forests has assisted the Ontario Trappers' Association to establish their fur auction at North Bay. This allows the trappers to sell furs on a competitive market and realize their full value.

Much valuable research has been carried out on fur bearers, with present emphasis on beaver and otter. Transplantings have been successfully carried out to speed the recovery of reduced populations, particularly with beaver. A new aging technique was perfected for beaver in 1964 and an aerial beaver survey technique was developed recently.

Manitoba.—Trading in furs is Manitoba's oldest industry and the province produces some of the finest pelts on the world markets. The annual value of production varies widely, depending both on the cyclic abundance of fur bearing animals and on world prices for the pelts produced.

As the northern portion of Manitoba became more accessible following construction of the Hudson Bay Railway to Churchill, competition for fur and for trapping grounds became so severe that the fur resources were sadly depleted. In 1940, Manitoba started a program of trapline registration. The program provided security of tenure to individuals or community groups of trappers, weeded out the part-time trappers and changed harvesting of wild fur from fur mining to wild fur farming. At that time beaver were a rarity and a series of closed seasons had been declared. Since then, beaver have increased steadily and 46,361 pelts were harvested in the 1962-63 season. Within the past decade new records in the production of muskrat, beaver, mink, lynx, fisher and otter have been set for this century.

The wild fur industry is still of economic importance in the province, and particularly so for northern residents, both white and native. A program of trapper education, inaugurated in 1957 and designed to improve the general handling of furs by trappers and at the same time achieve a certain measure of standardization in pelt care, has shown gratifying results. It has been expanded to include improved trapping methods and the use of humane trap sets; a booklet, *The Trapper's Guide*, is available from the Wildlife Branch of the Department of Mines and Natural Resources.

Manitoba has been working in close co-operation with federal and other provincial agencies in the promotion of quality furs by contributing a collection of representative wild furs for exhibit at the more important European fairs.

Saskatchewan.—Before the introduction of Saskatchewan's fur conservation and development program, little was done to control the trapping of beaver and muskrat. During open seasons, trappers took every pelt available and then the season had to be closed the following year in hope of natural population build-up. This "feast and famine" policy had a disastrous effect on both the fur resources and the livelihood of trappers.

Few trappers had exclusive rights to specific areas and most of them were unable to establish permanent homes in communities. Poaching was common practice and there was little economic security. Beaver began declining steadily after World War I and this affected the habitat for other fur bearers as well.

In 1944, the Saskatchewan Government set up a committee to study trapping problems and the following year the South Saskatchewan Muskrat Trapping Program was instituted. Under this plan, individuals received exclusive rights to trap on definite land locations. Owners and occupants received first consideration, with special priority given to Indians and metis on Crown lands. Muskrat quotas were established to assure continuing populations, and marketing of pelts under government supervision was instituted.

In 1946, under federal-provincial agreement, all Crown lands north of the 53rd parallel were set up as the Northern Fur Conservation Block. Up to $50,000 was to be expended over the following ten years to establish and administer conservation areas, purchase equipment, pay salaries of personnel, transplant live beaver and build dams; the Federal Government agreed to assume 60 p.c. of the cost and the province the remainder. A Fur Advisory Committee, with representation from the provincial Department of Natural Resources and the federal Indian Affairs Branch was set up to supervise the program. Organization of conservation areas was left to the trappers. Five-man councils were elected in all districts, with Indian, metis and white trappers sharing privileges, obligations and responsibilities on an equal basis. Conservation measures and licensing regulations were initiated. In 1962, a co-ordinating body was set up by the Fur Advisory Committee to promote better communications and understanding of the fur program.

Under the present fur program, security of trappers has been strengthened; fur bearer populations have increased; quotas have put trapping on a sustained-yield basis; poaching has been largely eliminated; higher water levels resulting from comeback of beaver have improved the habitat for other wildlife; and Indian and white trappers are sharing alike in the self-government of trapping areas and in fur management policies and programs.

Alberta.—Meetings under the auspices of the Fish and Wildlife Division of the provincial Department of Lands and Forests have been held with trappers to advise them of new and improved methods of trapping and to help alleviate problems in trapping that arise from time to time. Studies are being made by the biological staff of the Division regarding fur bearing animals, their habits and their habitat, and knowledge gained from these studies is passed on to the trapper. Pamphlets are distributed to trappers showing how and where to set traps, how to pelt the different fur bearing animals, and regulations in force. The Alberta Government has submitted pelts to the main fur exhibits in Canada and Europe, a policy that has increased the interest of foreign buyers in Alberta furs.

Several legislative measures have been taken in the past few years. The spring beaver season has been shortened, as a result of which Alberta has been marketing a higher grade pelt. Investigations have shown that beaver pelts coming on prime bring a higher price than pelts going off prime and the main reason for this legislation was to persuade trappers to trap beaver in winter when pelts are at their best. The season on otter was closed three years ago but there has been no significant change in their population. The prohibiting of mismanagement of registered trapping areas by holders, although introduced only in 1963, has already had the effect of greatly increasing activity in trapping—areas have been taken away from persons holding them for investment and given to persons willing and able to trap, and borderline trappers have been forced to put more effort into trapping. It should be stated that the present price of pelts has made it easier to make this legislation effective.

British Columbia.—The British Columbia wild fur resource is administered by the Fish and Game Branch of the Department of Recreation and Conservation. Regulations are derived under authority of the Game Act and resource use is controlled under the registered trapline system, in effect since 1926. Registered traplines are areas of Crown land allotted, for purpose of trapping wild fur, to trappers who are resident in the province.

Registration of a specific trapline is renewable on an annual basis by the trapper, subject to certain requirements of tenure aimed at conservation and sustained yield of fur species. Approximately 5,000 trappers are involved in provincial wild fur production, of whom one third are Indians.

The market value of wild fur produced during the fur harvest of 1962-63 was $1,024,878, beaver comprising 38 p.c., lynx 18 p.c. and wild mink 14 p.c. Pelts of muskrat, otter, marten, fisher, squirrel and weasel made up the remainder. The 1962-63 beaver harvest was the highest since 1923, numbering 26,529 pelts.

Recent legislative measures entail a general shortening of the annual trapping season to restrict the harvesting of unseasonable pelts and administrative emphasis being placed on the desirability of increasing the market value of the resource through improved pelt quality. Administrative interest in the fur resource currently includes membership in the Canadian Fur Council and the submission of an exhibit of selected wild British Columbia furs in the International Fur Fair at Frankfurt, Germany.

Section 3.—Fur Statistics

Subsection 1.—Fur Production and Trade*

Total Fur Production.—Early records of raw fur production were confined to the decennial censuses when account was taken of the number and value of pelts obtained by trappers. In 1920 the Dominion Bureau of Statistics commenced an annual survey of raw fur production. For a number of years the statistics were based on information supplied by the licensed fur trappers. More recently, annual statements based on royalties, export tax, etc., have been made available by the provincial game departments (except Prince Edward Island), and these statements are used in the preparation of the statistics issued annually by the Bureau. Figures for Prince Edward Island are based on returns supplied to the Dominion Bureau of Statistics by fur dealers in that province.

1.—Pelts of Fur Bearing Animals Produced and Percentage Sold from Fur Farms, Years Ended June 30, 1944-63

Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms	Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms
	Number	Value			Number	Value	
		$				$	
1944	6,324,240	33,147,392	28	1954	6,274,727	19,287,522	49
1945	6,994,686	31,001,456	31	1955	9,670,796	30,509,515	43
1946	7,593,416	43,870,541	30	1956	7,727,264	28,051,746	56
1947	7,486,914	26,349,997	37	1957	6,919,724	25,592,130	57
1948	7,952,146	32,232,992	37	1958	6,440,319	26,335,109	60
1949	9,902,790	22,899,882	33	1959	5,370,531	25,800,555	62
1950	7,377,491	23,184,033	34	1960	5,999,414	31,186,078	60
1951	7,479,272	31,134,400	36	1961	6,237,360	28,737,087	59
1952	7,931,742	24,215,061	42	1962r	5,771,129	28,971,077	64
1953	7,568,865	23,349,680	43	1963	5,136,151	32,130,896	62

Ontario continued to lead the provinces in value of fur production, accounting for 29 p.c. of the total in the 1962-63 season. British Columbia followed with 17 p.c., Manitoba with 15 p.c., Alberta 14 p.c., Quebec 9 p.c., Saskatchewan 8 p.c., the Atlantic Provinces 6 p.c., and the Yukon and Northwest Territories combined 3 p.c.

* Prepared by the Agriculture Division, Dominion Bureau of Statistics.

2.—Pelts of Fur Bearing Animals Produced, by Province, Years Ended June 30, 1962 and 1963

Province or Territory	1962[r]			1963		
	Pelts	Value	Percentage of Total Value	Pelts	Value	Percentage of Total Value
	No.	$		No.	$	
Newfoundland	51,987	556,509	1.9	42,201	502,189	1.6
Prince Edward Island	4,299	66,966	0.2	3,152	44,155	0.1
Nova Scotia	83,832	882,243	3.0	84,263	1,003,253	3.1
New Brunswick	57,150	228,853	0.8	60,227	310,114	1.0
Quebec	356,899	2,599,850	9.0	329,536	2,838,380	8.8
Ontario	1,030,195	8,195,423	28.3	1,096,168	9,228,489	28.7
Manitoba	662,112	4,243,578	14.6	582,489	4,725,547	14.7
Saskatchewan	842,957	2,451,250	8.5	614,397	2,685,859	8.4
Alberta	1,679,387	3,956,986	13.7	1,409,692	4,411,280	13.7
British Columbia	566,115	4,773,727	16.5	609,579	5,446,118	16.9
Yukon Territory	98,902	125,348	0.4	259,137	846,420	2.6
Northwest Territories	337,145	888,964	3.1	45,131	87,625	0.3
Canada[1]	**5,771,129**	**28,971,077**	...	**5,136,151**	**32,130,896**	...

[1] Totals include a few pelts and their values not allocated to a province or territory.

Wild Fur Production.—The principal kinds of wild fur pelts taken, according to their value in 1962-63, were beaver, mink, muskrat, lynx, squirrel, otter, rabbit, marten, white fox, other fox, ermine, fisher and raccoon. These 12 kinds of pelts accounted for 99.1 p.c. of the total value of wild pelts produced.

3.—Pelts of Wildlife Fur Bearing Animals Taken, by Kind, Years Ended June 30, 1962 and 1963

Kind	1962			1963		
	Pelts	Total Value	Average Value	Pelts	Total Value	Average Value
	No.	$	$	No.	$	$
Badger	658	1,909	2.90	388	989	2.55
Bear, white	497	27,102	54.53	477	27,222	57.07
Bear, black or brown	2,256	23,499	10.42	801[1]	7,741	10.83
Beaver	386,823	4,249,632	10.99	436,780	5,449,452	12.48
Coyote or prairie wolf	6,789	29,726	4.38	13,879	86,266	6.22
Ermine (weasel)	148,714	135,288	0.91	144,808	116,736	0.81
Fisher	5,863	72,670	12.39	6,254	70,283	11.24
Fox, blue	411	3,044	7.41	54	376	6.96
Fox, cross and red	15,300	51,483	3.36	15,198	70,718	4.65
Fox, silver	351	1,774	5.05	734	3,904	5.32
Fox, white	45,358	534,907	11.79	9,880	143,648	14.54
Fox, not specified	13	38	2.92	8	30	3.75
Lynx	47,625	448,052	9.41	51,376	684,446	13.32
Marten	36,102	201,809	5.59	37,432	310,046	8.28
Mink	147,011	1,992,629	13.55	134,291	2,121,819	15.80
Muskrat	1,524,363	1,334,229	0.88	1,392,282	1,850,963	1.33
Otter	17,202	387,371	22.52	17,722	407,175	22.98
Rabbit	192,991	121,459	0.63	179,260	84,610	0.47
Raccoon	23,534	47,363	2.01	27,953	66,247	2.37
Skunk	954	560	0.59	595	345	0.58
Squirrel	1,878,915[r]	683,315[r]	0.36	1,338,930	653,379	0.49
Wildcat	855	1,728	2.02	1,070	4,385	4.10
Wolf	416	4,110	9.88	656	9,258	14.11
Wolverine	387	5,990	15.48	257	3,822	14.87
Totals	**4,483,388[r]**	**10,359,687[r]**	...	**3,811,085**	**12,173,860**	...

[1] Includes 86 grizzly bears.

Fur Farm Production.—The number of fur farms in operation in Canada continues to decline, 2,083 reporting in 1962 compared with 2,161 in 1961. However, the value of pelts produced on fur farms was higher in 1962 than in the previous year. There were 39,369 more animals on 78 fewer farms and the number of pelts taken during the year increased from 1,288,157 to 1,325,667. Mink accounted for 99.1 p.c. of the value of fur farm production and fur farm production accounted for 62 p.c. of total production.

4.—Fur Farms and Value of Pelts Produced Thereon, by Province, 1961 and 1962

Province	Fur Farms at Year End		Value of Pelts Produced on Fur Farms	
	1961[r]	1962	1961[r]	1962
	No.	No.	$	$
Newfoundland	37	35	486,311	442,962
Prince Edward Island	15	15	66,075	43,149
Nova Scotia	115	106	764,777	903,654
New Brunswick	36	31	61,795	88,935
Quebec	232	182	1,003,870	1,335,404
Ontario	652	721	5,743,001	5,786,221
Manitoba	211	207	2,798,826	3,099,042
Saskatchewan	137	141	1,135,454	1,269,791
Alberta	308	265	2,405,732	2,462,650
British Columbia	418	380	4,144,169	4,523,761
Totals	**2,161**	**2,083**	**18,611,390**[1]	**19,957,036**[1]

[1] Includes some pelts not valued by province.

In 1962, the 1,503 farms raising mink reported having 557,046 animals; 468 farms raising chinchilla had 35,630 animals; 115 raising nutria had 5,856 animals; and 53 farms raising fox had 883 animals. Only farms raising chinchilla increased in number over 1961 but the number of mink on farms increased by 36,861, the number of chinchilla by 2,600 and the number of nutria by 315. Fox decreased by 395.

5.—Number and Value of Pelts Produced on Fur Farms, by Kind, 1961 and 1962

Kind	1961[r]		1962	
	Pelts	Value	Pelts	Value
	No.	$	No.	$
Fox	**1,811**	**18,110**	**1,647**	**16,470**
Blue	99	990	69	690
Platinum	564	5,640	748	7,480
Silver	1,095	10,950	753	7,530
Unspecified	53	530	77	770
Mink	**1,271,449**	**18,436,537**	**1,308,281**	**19,780,332**
Standard	229,117	3,439,280	223,291	4,037,101
Grey	43,960	584,694	45,244	589,983
Dark blue	78,439	1,230,103	97,975	1,388,307
Light blue	210,352	3,384,927	255,367	4,039,906
Brown	497,093	6,435,668	442,803	6,168,246
Beige	128,113	2,311,060	177,388	2,731,775
White	84,375	1,050,705	66,213	825,014
Chinchilla	**10,559**	**148,617**	**11,268**	**152,063**
Nutria	**3,884**	**7,768**	**3,772**	**7,544**
Totals[1]	**1,287,741**	**18,611,390**	**1,325,066**	**19,957,036**

[1] Includes pelts not allocated by type.

Exports and Imports.—The Canadian fur trade, both export and import, is mostly in undressed furs, the value of dressed and manufactured furs going out of or coming into Canada being a comparatively small proportion of the total. Canadian fur exports consist largely of those produced in greatest abundance, mink being by far the most valuable followed by beaver, muskrat, lynx, fox and squirrel. Mink, Persian lamb, raccoon and fox make up the major portion of the imports. Exports and imports of furs, undressed, dressed and manufactured, from and to Britain, the United States and all countries, are given for the years 1962 and 1963 in Table 6.

6.—Exports and Imports of Furs, by Kind, 1962 and 1963

Kind of Fur	1962			1963		
	Britain	United States	All Countries	Britain	United States	All Countries
	EXPORTS					
	$	$	$	$	$	$
Undressed—						
Beaver	613,117	2,701,432	3,916,597	1,138,007	2,727,055	5,597,822
Ermine or weasel	121,266	22,596	145,818	113,133	9,516	123,702
Fisher	8,943	72,691	90,311	33,755	31,854	90,488
Fox, all types	20,636	1,043,354	1,072,500	15,408	610,427	660,739
Lynx	57,403	527,623	590,188	74,201	714,616	794,183
Marten	46,052	198,028	249,023	97,787	366,864	469,637
Mink	2,018,413	12,927,634	16,825,397	2,625,253	15,628,836	20,627,097
Muskrat	775,085	51,906	919,303	1,066,767	86,371	1,357,758
Otter	6,585	33,915	63,009	1,686	69,923	118,240
Rabbit	—	132,577	134,518	38,234	13,655	55,237
Raccoon	—	66,725	69,440	1,357	39,439	45,398
Squirrel	644,917	17,262	662,839	614,220	5,280	619,998
Other	383,966	375,768	806,967	37,762	353,894	426,005
Dressed—						
Mink	52,046	34,832	380,020	50,471	38,180	285,071
Other	41,925	1,151,449	1,923,315	60,337	2,056,859	3,126,575
Manufactured	176,586	353,785	961,347	1,142,714	472,876	4,074,851
Totals	**4,966,940**	**19,711,577**	**28,810,592**	**7,111,092**	**23,225,645**	**38,472,801**
	IMPORTS					
	$	$	$	$	$	$
Undressed—						
China and Jap mink	88,271	301	663,851	71,767	2,975	578,758
Fox	560,900	224,449	1,061,986	568,458	201,826	1,187,548
Kolinsky	96,337	5,628	386,111	64,264	13,630	504,217
Mink	1,148,576	3,207,800	6,649,542	1,247,581	3,362,996	7,979,477
Muskrat	—	1,417,581	1,417,581	4,943	904,804	912,101
Persian lamb	2,060,303	2,377,531	5,797,940	2,168,596	2,785,256	6,588,900
Rabbit	—	53,096	106,564	304	145,001	223,257
Raccoon	21,735	577,279	599,014	—	1,304,934	1,306,633
Squirrel	14,898	2,038	19,551	49,202	16,146	71,960
Other	97,768	686,572	1,057,712	115,442	1,264,919	1,559,244
Dressed—						
Rabbit	1,459	37,196	63,958	950	25,122	67,845
Hatters' furs	72,849	225,786	792,652	19,650	199,938	697,821
Other	397,690	2,505,184	3,192,753	217,009	2,756,779	3,383,580
Manufactured	11,468	668,489	861,053	11,238	596,784	824,806
Totals	**4,572,254**	**11,988,930**	**22,670,268**	**4,539,404**	**13,581,110**	**25,886,147**

Subsection 2.—The Fur Processing Industry

The rather general term "fur processing" includes the fur dressing and dyeing industry and the fur goods industry. The former is concerned with the dressing or dyeing of pelts on a custom basis and the latter is a manufacturing industry that makes up fur goods such as coats, scarves and gloves.

In the 1962 survey, as fully explained in Chapter XVI on Manufactures, a change was made in the "total activity" approach and this new concept was also reflected in the 1961 data. Tables 7 and 8 give selected statistics on the new basis for 1961 and 1962. In 1962, the number of skins treated was 6,229,747, of which muskrat comprised 34 p.c., mink 20 p.c., Persian and other types of lamb 14 p.c., raccoon 5 p.c., and squirrel 4 p.c.

7.—Principal Statistics of the Fur Dressing and Dyeing Industry, 1961 and 1962

Item		1961	1962
Establishments	No.	15	19
Administrative and Other Salaried Employees—			
Male	No.	102	92
Female	"	17	25
Salaries paid	$	651,685	739,276
Production and Related Employees—			
Male	No.	747	781
Female	"	131	137
Wages paid	$	3,178,219	3,209,152
Cost of materials used in manufacturing	$	1,265,565	1,586,469
Pelts treated	No.	6,740,325	6,229,747
Amount received for treatment of furs and other manufacturing revenue	$	6,833,867	7,143,496
Total revenue	$	6,833,867	7,147,196

The shipments of ladies' fur coats, including boleros and jackets, by all industries, in 1962 numbered 138,860 and were valued at $37,862,266.

8.—Principal Statistics of the Fur Goods Industry, 1961 and 1962

Item		1961	1962
Establishments	No.	444	429
Administrative and Other Salaried Employees—			
Male	No.	598	496
Female	"	204	179
Salaries paid	$	3,544,888	3,310,355
Production and Related Employees—			
Male	No.	1,800	1,712
Female	"	1,133	928
Wages paid	$	9,759,310	9,342,619
Cost of materials used in manufacturing	$	37,261,574	36,369,045
Value of factory shipments and other manufacturing revenue	$	60,118,411	58,089,700
Total revenue	$	63,439,305	61,114,712

CHAPTER XVI.—MANUFACTURES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Recent Revisions in Classification and Concept of the Census of Manufactures

With the publication of the results of the 1962 Census of Manufactures, DBS has completed a major revision in classification and concept of its annual census of manufacturing establishments. Because of its size and complexity, this project had to be carried out in three stages. The first stage was the change in industrial classification, and the results of the 1960 Census, together with the re-compilation of the 1957, 1958 and 1959 Censuses, were published in Chapter XIV of the 1963-64 Year Book on the basis of the revised standard industrial classification. This part of the project was confined entirely to a re-coding of existing reporting units. The second stage consisted of the implementation of the new definition of the reporting unit, i.e., "establishment", as it applied to *manufacturing activities* of manufacturing establishments. Results of the 1961 Census reflected this change in concept and, in order to provide comparability of data for recent years, Table **1**, pp. 658-659, contains principal statistics on the basis of the revised standard industrial classification and the new establishment definition for years back to 1957.

The third stage, the extension of the definition of the establishment to cover *total activities* of manufacturing establishments, is reflected in the statistics for 1961 and 1962 contained in Tables **2**, **7**, **8** and **9**. This full implementation of the new definition of the establishment has resulted in an extension of the data to non-manufacturing activities of manufacturing establishments and in additional changes in the 1961 statistics of manufacturing activities. Statistics on manufacturing activities will continue to be shown separately in certain tables as in the past but, beginning with 1961, data on all operations (total activity) of manufacturing establishments will also be given. By definition, "total activity" relates to all operational data and excludes such non-operational items as rent, interest and dividends. In addition, statistics on man-hours paid will be included as part of the regular series of industry statistics. For many industries, adjustments and revisions were made to the 1961 data on *manufacturing activities* which were published during the second stage to bring them in line with reporting procedures followed in the 1962 Census

and to reflect the final application of the new concept. The 1961 statistics on manufacturing activities contained in Table 1 are thus not entirely comparable with those contained in Tables 2, 7 and 8. However, the 1961 statistics are shown in both their original and revised forms in order to provide a link with the immediate past.

A more complete account of recent changes and additions and brief descriptions of the principal industry statistics are given in the "Explanatory Notes" section in each of the more than 140 individual industry annual reports and various general and provincial reviews of manufacturing for 1962 published by the Industry Division, DBS.

Section 2.—Growth of Manufacturing

Subsection 1.—The Manufacturing Situation in 1962

Stimulated by continuing high levels of export and domestic demand, including a 6.6 p.c. increase in capital and repair expenditures, virtually all phases of Canadian manufacturing established new records in 1962; the index of the total volume of manufactured production increased by 7.8 p.c. and many of the current dollar measures of output by approximately 10 p.c. over 1961. Although the 1962 Census of Manufactures figures used in this Subsection are subject to revision, it is not anticipated that the changes will be important, particularly at the industrial group and provincial levels. Data on some individual industries, however, were not considered to be sufficiently final at time of publication and have been omitted from this edition of the Year Book. They may be obtained from DBS publication *Manufacturing Industries of Canada—Summary for Canada* (Catalogue No. 31-203) or from the more than 140 individual industry reports for 1962 to be published progressively by the Industry Division, as data become available.

As has been indicated in Section 1, 1962 is the first year for which data on both manufacturing and total activity have been published for the Canadian manufacturing industry. In order to provide comparisons with 1961, the data for that year have been re-compiled and are shown in Tables 2, 7 and 8. As far as manufacturing activity is concerned, all items included in the tables are conceptually identical with previous years, although this is the first time that data on "man-hours paid" have been included.

In the manufacturing activity sector, new records were established in 1962 for all five major dollar measures: wages, $3,880,000,000 (up 8.2 p.c. over 1961); cost of fuel and electricity, $557,000,000 (up 7.7 p.c.); cost of materials and supplies used, $14,691,000,000 (up 11.2 p.c.); value of shipments of own manufacture, $26,895,000,000 (up 10.2 p.c.); and value added by manufacture, $11,816,000,000 (up 9.8 p.c.). The number of establishments, at 33,440, was only marginally greater than the 1961 total of 33,355 but the number of production workers, at 985,369, represented an increase of 3.5 p.c. over the 1961 total of 951,835.

On the basis of the value of factory shipments, nine industrial groups each accounted for more than $1,000,000,000 of the total of $26,895,000,000. The food and beverage industries, with total shipments of $5,439,000,000, accounted for 20.2 p.c. of the total, followed by the primary metal industries with $2,991,000,000 (11.1 p.c.); the transportation equipment industries, $2,455,000,000 (9.1 p.c.); the paper and allied industries, $2,334,000,000 (8.7 p.c.); and the metal fabricating industries, $1,724,000,000 (6.4 p.c.). These were also the leading five industrial groups in their contribution to "value added", although the relative positions of the transportation equipment industries and paper and allied industries were interchanged in the latter category. Contributions of these five groups to the total "value added" figure of $11,816,000,000, with proportions of the total in parentheses, are as follows: food and beverage industries, $1,852,000,000 (15.7 p.c.); primary metal industries, $1,224,000,000 (10.4 p.c.); paper and allied industries, $1,131,000,000 (9.6 p.c.); transportation equipment industries, $993,000,000 (8.4 p.c.); and metal fabricating industries, $855,000,000 (7.2 p.c.).

Regionally, Ontario continued to dominate the Canadian manufacturing scene in 1962 with its value of factory shipments of $13,340,000,000 accounting for 49.6 p.c. of the total and representing an increase of 10.9 p.c. over its 1961 shipments. Quebec's shipments of $8,017,000,000 represented 29.8 p.c. of the total and were up by 8.9 p.c. over the 1961 total. The Prairie Provinces, with shipments of $2,276,000,000, accounted for 8.5 p.c.; British Columbia's $2,243,000,000 for 8.3 p.c.; and the Atlantic Provinces' $1,016,000,000 for 3.8 p.c. of the total. On an individual province basis, the largest proportional increases over 1961 shipments were registered by Prince Edward Island, 14.5 p.c.; Nova Scotia, 14.1 p.c.; British Columbia, 13.1 p.c.; Manitoba, 11.4 p.c.; and Ontario, 10.9 p.c. The smallest rates of increase were realized in New Brunswick, with 2.1 p.c.; the Yukon and Northwest Territories, 4.4 p.c.; and Newfoundland, 5.3 p.c.

The over-all increase of 3.5 p.c. in numbers of production workers obscures some rather marked regional changes, although all provinces except Newfoundland, which had a 1.6-p.c. decrease, shared in the increase. Two of the highest proportional increases occurred in the Atlantic Provinces—Nova Scotia registering a 9.2-p.c. increase and Prince Edward Island an 8.0-p.c. increase. Ontario, which employed 46.3 p.c. of all production workers in 1962, had an increase of 5.2 p.c., and the remaining provincial increases were each less than 4.0 p.c.

The increases of 3.5 p.c. in number of production workers and 4.9 p.c. in number of man-hours paid were accompanied by a 7.8-p.c. increase in the index of the total volume of manufactured production, indicating a continuation of the trend toward increased productivity for workers in manufacturing. The index of the total volume of manufactured production reached a record level of 164.9 (1949 = 100), with the two major sectors—durable manufactures at 165.0 and non-durable manufactures at 164.8—registering gains of 11.2 p.c. and 5.0 p.c., respectively, over 1961 (see Table 3). It should be noted that, as component groups of each of these major sectors are still based on the 1948 standard industrial classification rather than the 1960 version as are the statistics from the annual Census of Manufactures, direct comparisons are not possible between all components of the index and the current industrial groups.

The increase of 11.2 p.c. in the durable sector, the largest since 1955, was composed of rather widely varying increases of individual groups, ranging from 0.9 p.c. for non-ferrous metal products to 20.7 p.c. for transportation equipment. Electrical apparatus and supplies recorded the second highest increase, 16.6 p.c., and the three remaining groups—non-metallic mineral products, iron and steel products, and wood products—showed approximately the same increases over 1961 at 9.4, 9.1 and 8.5 p.c., respectively. All eleven groups in the non-durable sector registered increases in 1962, ranging from 2.3 p.c. for leather products to 15.0 p.c. for rubber products. The second and third largest increases were recorded by the miscellaneous industries with 11.4 p.c., and textile products (except clothing) with 8.9 p.c. Three groups—tobacco and tobacco products, products of petroleum and coal, and chemicals and allied products—had increases ranging from 5.0 p.c. to 5.4 p.c. and the remaining four were between 2.4 p.c. and 3.9 p.c.

As indicated in Section 1, statistics on total activity of the manufacturing industry are now being collected and published. Although much of these data represent a net addition to previously published data on manufacturing activity, it should be noted that statistics on working owners and partners, formerly included with administrative and office workers, are now being shown under "total activity". In 1962 the number of working owners and partners, at 17,220, was 1.4 p.c. higher than in 1961 and their withdrawals, at $60,743,000, were 4.8 p.c. higher. Total employees, i.e., those engaged in both non-manufacturing and manufacturing activities, numbered 1,404,566, an increase of 2.7 p.c. over 1961, and total salaries and wages were $6,158,000,000, an increase of 6.8 p.c. Total value added by all activities of the manufacturing industries was $12,392,000,000, an amount 10.2 p.c. higher than the 1961 total of $11,246,000,000.

Subsection 2.—Historical and Current Statistics of Manufacturing

Statistics on manufacturing in Canada have been collected since 1870, originally in connection with the decennial or quinquennial censuses for the period 1870 to 1915 and, since 1917, through the annual Census of Manufactures. Although every effort has been made to maintain comparability in the statistics since 1917, as shown in Table 1, changes in coverage of industries, type of data collected and the method of its treatment have inevitably introduced discontinuities or lack of comparability in certain components. One such major change in concept occurred in 1952 when the gross value of products was replaced by the value of factory shipments. More recently, as explained in Section 1, the introduction of the revised standard industrial classification in 1960 and the new establishment concept in 1961 led to a break in continuity with previous years. An indication of the effects of these revisions in classification and concept is given in Table 1 where statistics for the 1957-59 period are given on both the 1948 standard industrial classification and manufacturing activity concept and the revised (1960) standard industrial classification and new establishment concept. Under the latter concept, a manufacturing establishment (i.e., one whose major activity is manufacturing) is the smallest reporting unit capable of reporting all of the following: materials and supplies used, goods purchased for resale as such, fuel and power consumed, number of employees and their pay, inventories, and shipments or sales.

The introduction of the total activity concept in 1962 and its application to 1961 data has produced a considerable amount of data on non-manufacturing activities of manufacturing industries and has resulted in the transfer of statistics on some items, such as office and administrative workers and working owners and partners, from manufacturing to total activity. Table 2 sets out summary statistics for manufacturing activity and total activity for 1961 and 1962. It should be noted that the 1961 data in Table 2 are not directly comparable with those in Table 1 and that 1962 data were preliminary at the time of publication.

1.—Summary Statistics of Manufactures, 1917-61

NOTE.—Figures for alternate years from 1918 to 1940 are given in the 1962 Year Book, p. 616. Statistics of manufacturing from 1870 have been published but between that year and 1917 figures are not on a basis comparable to the series given below; statistics for significant years appear in the 1943-44 Year Book, p. 363. Figures of the non-ferrous metal smelting industries were first included with manufactures in 1925.

Year	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture[1]	Gross Value of Products[2]
	Basis: Industrial Classification in Use Prior to 1960					
	No.	No.	$'000	$'000	$'000	$'000
1917	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1919	22,033	594,066	601,716	1,779,057	1,442,401	3,221,457
1921	20,848	438,555	497,400	1,365,293	1,123,694	2,488,987
1923	21,080	506,203	549,530	1,456,595	1,206,332	2,662,927
1925[3]	20,981	522,924	569,944	1,571,788	1,167,937	2,816,865
1927[3]	21,501	595,052	662,705	1,741,129	1,427,649	3,257,215
1929[3]	22,216	666,531	777,291	2,029,671	1,755,387	3,883,446
1931	23,083	528,640	587,567	1,221,912	1,252,017	2,555,126
1933	23,780	468,658	436,248	967,789	919,671	1,954,076
1935	24,034	556,664	559,468	1,419,146	1,153,485	2,653,911
1937	24,834	660,451	721,727	2,006,927	1,508,925	3,625,460
1939	24,805	658,114	737,811	1,836,159	1,531,052	3,474,784
1941	26,293	961,178	1,264,863	3,296,547	2,605,120	6,076,308
1942	27,862	1,152,091	1,682,805	4,037,103	3,309,974	7,553,795
1943	27,652	1,241,068	1,987,292	4,690,493	3,816,414	8,732,861

For footnotes, see end of table.

1.—Summary Statistics of Manufactures, 1917-61—concluded

Year	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture[1]	Gross Value of Products[2]
	Basis: Industrial Classification in Use Prior to 1960—concluded					
	No.	No.	$'000	$'000	$'000	$'000
1944	28,483	1,222,882	2,029,621	4,832,333	4,015,776	9,073,693
1945	29,050	1,119,372	1,845,773	4,473,669	3,564,316	8,250,369
1946	31,249	1,058,156	1,740,687	4,358,235	3,467,005	8,035,692
1947	32,734	1,131,750	2,085,926	5,534,280	4,292,056	10,081,027
1948	33,420	1,155,721	2,409,368	6,632,882	4,938,787	11,875,170
1949[4]	35,792	1,171,207	2,591,891	6,843,231	5,330,566	12,479,593
1950[4]	35,942	1,183,297	2,771,267	7,538,535	5,942,058	13,817,526
1951	37,021	1,258,375	3,276,281	9,074,526	6,940,947	16,392,187
1952	37,929	1,288,382	3,637,620	9,146,172	7,443,533	16,982,687
1953	38,107	1,327,451	3,957,018	9,380,559	7,993,069	17,785,417
1954	38,028	1,267,966	3,896,688	9,241,858	7,902,124	17,554,528
1955	38,182	1,298,461	4,142,410	10,338,202	8,753,450	19,513,934
1956	37,428	1,353,020	4,570,692	11,721,537	9,605,425	21,636,749
1957	37,875	1,359,061	4,819,628	11,900,752	9,822,085	22,183,594
1958	36,741	1,289,602	4,802,496	11,821,567	9,454,955	22,163,186
1959	36,193	1,303,956	5,073,074	12,552,201	10,320,963	23,311,601
	Basis: Revised Standard Industrial Classification and New Establishment Concept[5]					
	No.	No.	$'000	$'000	$'000	$'000
1957	33,551	1,340,948	4,778,040	11,698,789	..	21,452,343
1958	32,446	1,272,686	4,758,614	11,630,789	9,419,983	21,434,855
1959	32,077	1,287,810	5,030,132	12,339,560	10,154,277	22,830,836
1960	32,852	1,275,476	5,150,503	12,446,104	10,380,148	23,279,804
1961	32,415	1,264,946	5,231,447	13,127,708	10,682,138	24,243,295

[1] For 1924-51, inclusive, the value added by manufacture is computed by subtracting cost of fuel, electricity and materials from gross value of products; for 1952 and 1953 the deduction is made from value of factory shipments and for 1954 and subsequent years from the calculated value of production. Figures prior to 1924 are not comparable because statistics for cost of electricity are not available. [2] In 1952 gross value of products was replaced by selling value of factory shipments; see text on p. 658. [3] A change in the method of computing the number of employees in the years 1925 to 1930, inclusive, increased the number somewhat over that which the method otherwise used would have given. In 1931, however, the method in force prior to 1925 was re-adopted. [4] Newfoundland is included from 1949 but figures for the fish processing industry for 1949 and 1950 are not available for that province and are not included. [5] See text on p. 655.

2.—Summary Statistics of Manufactures, 1961 and 1962

Note.—Based on the revised standard industrial classification and new establishment and total activity concepts (see p. 655). Figures in this table include poultry processors, book publishers, electroplating establishments, dental laboratories, and prescription branches in the ophthalmic goods manufactures industry, not included in Table 1.

Year	Manufacturing Activity[1]							
	Establishments	Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added
		Number	Man-Hours Paid	Wages				
	No.		'000	$'000	$'000	$'000	$'000	$'000
1961	33,355	951,835	1,996,790	3,584,303	517,435	13,216,092	24,399,624	10,763,287
1962[p]	33,440	985,369	2,094,400	3,879,668	557,018	14,691,175	26,895,363	11,815,580

For footnotes, see end of table, p. 660.

2.—Summary Statistics of Manufactures, 1961 and 1962—concluded

Year	Total Activity							
	Establishments	Working Owners and Partners[3]		Total Employees[4]		Total Cost of Materials and Supplies[5] Used and Goods Purchased for Re-sale	Total Operational Revenue[6]	Total Value Added[7]
		Number	Withdrawals	Number	Salaries and Wages			
	No.		$'000		$'000	$'000	$'000	$'000
1961.....	33,355	16,981	57,960	1,368,225	5,765,696	15,132,081	26,777,693	11,245,982
1962p.....	33,440	17,220	60,743	1,404,566	6,157,881	16,724,514	29,488,028	12,392,426

[1] Conceptually identical to previous years. [2] Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity. [3] Included with administrative and office employees in the Manufacturing series published in previous years. [4] Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners. [5] Includes fuel and electricity and supplies used in both manufacturing and non-manufacturing activity. [6] Includes shipments of goods of own manufacture, value of shipments of goods purchased for re-sale and other operational revenue. [7] Value of total operational revenue less total cost of materials, supplies, fuel and electricity used and goods purchased for re-sale; all adjusted for inventory changes where required.

Value and Volume of Manufactured Production

In assessing the growth of manufacturing in real terms, it is necessary to adjust the current dollar values of factory shipments for changes in price levels. Although there is currently no composite price index designed to measure these variations for manufacturing as a whole, selling prices for 102 individual industries are available.* The fundamental distinction between industry selling price indexes and wholesale price indexes is that the former are compiled on the basis of the 1948 standard industrial classification and the latter are classified by commodity on a chief component material basis. It has been found, however, that in the period for which the industry selling price indexes have been published (1956 to date) there has been a very close relationship between the movements of the two series of indexes. For practical purposes, this means that, for individual industries since 1956, industry selling price indexes will provide the most appropriate measure of price variations; for manufacturing as a whole, particularly for the period prior to 1956 for which there are no industry selling price indexes, either the general wholesale price index or the price index of fully and chiefly manufactured products will provide an approximate indication of the movement of prices of manufactured goods, as these latter indexes are composed mainly of manufacturers' prices. Indexes for selected years since 1917, on the base period 1935-39 = 100, are as follows:—

Year	*General Wholesale Price Index*	*Price Index of Fully and Chiefly Manufactured Products*	*Year*	*General Wholesale Price Index*	*Price Index of Fully and Chiefly Manufactured Products*
1917.....	148.9	150.9	1949.....	198.3	199.2
1920.....	203.2	208.2	1953.....	220.7	228.8
1929.....	124.6	123.7	1957.....	227.4	237.9
1933.....	87.4	93.3	1959.....	230.6	241.6
1939.....	99.2	101.9	1960.....	230.9	242.2
1944.....	130.6	129.1	1961.....	233.3	244.5
1946.....	138.9	138.0	1962.....	240.0	249.0

A more direct measure of the growth of manufacturing in physical terms is available in the index of the volume of industrial production† which, like the index of industry selling prices, is based on the 1948 standard industrial classification. The index covers three

* *Industry Selling Price Indexes 1956-59* (Catalogue No. 62-515) contains explanatory text, charts and weights relating to these indexes; current indexes are published monthly in *Prices and Price Indexes* (Catalogue No. 62-002).

† For a description of the methods used in constructing the index and a description of its scope, see DBS publication *Revised Index of Industrial Production, 1935-1957* (Catalogue No. 61-502).

industries—mining, manufacturing, and electric power and gas utilities. Manufacturing has a 1949 base period industry weight of 84.8 p.c. of which durable manufactures account for 39.1 p.c. and non-durable manufactures 45.7 p.c.

Table 3 shows the fluctuations in the volume indexes of durable, non-durable and total manufactured goods produced during the years 1953-62, and Tables 4 and 5 show the fluctuations in the groups comprised within the durable and non-durable classifications during the same period.

3.—Indexes of the Total Volume of Manufactured Production classified on the Basis of Durable and Non-durable Goods, 1953-62

(1949=100)

NOTE.—Indexes for the years 1935-45 are given in the 1961 Year Book, p. 637, and for 1946-52 in the 1963-64 edition, p. 649.

Year	Durable Manufactures	Non-durable Manufactures	All Manufactures	Year	Durable Manufactures	Non-durable Manufactures	All Manufactures
1953	133.6	120.2	126.4	1958r	139.9	141.3	140.7
1954	124.8	121.2	122.9	1959	149.5	150.1	149.8
1955	139.7	130.4	134.7	1960	146.4	151.8	149.3
1956	153.3	138.1	145.1	1961	148.4	157.0	153.0
1957	146.7	139.7	142.9	1962	165.0	164.8	164.9

4.—Indexes of the Volume of Manufactured Production of the Groups Comprised within the Durable Manufactures Classification, 1953-62

(1949=100)

NOTE.—Indexes for the years 1935-45 are given in the 1961 Year Book, p. 638, and for 1946-52 in the 1963-64 edition, p. 650.

Year	Wood Products	Iron and Steel Products	Transportation Equipment	Non-ferrous Metal Products	Electrical Apparatus and Supplies	Non-metallic Mineral Products
1953	125.4	115.3	165.2	120.1	150.9	139.2
1954	124.2	106.2	137.3	117.0	151.7	146.1
1955	136.4	123.8	145.1	127.5	176.2	171.1
1956	138.3	145.3	157.9	133.0	191.3	191.5
1957	127.3	139.6	151.2	127.6	183.6	191.3
1958r	132.0	128.3	132.5	126.7	176.2	205.9
1959	136.6	147.2	131.5	134.7	184.8	223.2
1960	136.0	137.3	130.0	148.3	180.2	210.9
1961	139.6	139.4	129.8	147.6	182.6	220.2
1962	151.5	152.1	156.7	148.9	212.9	240.9

5.—Indexes of the Volume of Manufactured Production of the Groups Comprised within the Non-durable Manufactures Classification, 1953-62

(1949=100)

NOTE.—Indexes for the years 1935-45 are given in the 1961 Year Book, pp. 639-640, and for 1946-52 in the 1963-64 edition, pp. 650-651.

Year	Foods and Beverages	Tobacco and Tobacco Products	Rubber Products	Leather Products	Textile Products (except clothing)	Clothing (textile and fur)
1953	117.4	120.3	130.3	106.4	107.9	115.0
1954	120.6	124.7	119.2	100.2	94.3	108.9
1955	126.8	135.5	141.0	106.9	114.0	112.8
1956	133.1	145.9	154.0	115.6	117.3	117.6
1957	135.6	161.0	147.8	115.6	117.6	116.8
1958r	141.9	173.2	137.2	114.4	109.9	114.4
1959	147.6	179.9	161.1	120.3	124.4	113.1
1960	150.2	182.0	143.3	111.8	122.5	107.9
1961	154.2	193.6	145.7	123.8	134.6	107.1
1962	158.9	203.7	167.6	126.7	146.6	111.0

5.—Indexes of the Volume of Manufactured Production of the Groups Comprised within the Non-durable Manufactures Classification, 1953-62—concluded

Year	Paper Products	Printing, Publishing and Allied Industries	Products of Petroleum and Coal	Chemicals and Allied Products	Miscellaneous Industries
1953	118.1	114.7	153.5	139.9	141.1
1954	124.1	121.6	165.0	152.1	134.3
1955	131.0	127.1	188.3	165.5	136.4
1956	137.8	137.3	216.1	174.8	147.0
1957	135.5	138.2	223.5	183.4	153.3
1958r	135.6	134.4	216.8	198.0	166.3
1959	144.7	143.2	241.5	208.4	183.2
1960	148.4	146.5	250.6	219.7	191.6
1961	153.4	148.2	258.8	222.1	213.0
1962	159.1	154.0	272.8	233.2	237.2

Capital and Repair Expenditures

Capital expenditures for new construction, machinery and equipment by the Canadian manufacturing industries in 1962 amounted to $1,269,600,000, the third highest on record and exceeding the $1,000,000,000 level for the seventh consecutive year. In addition to capital expenditures of $353,200,000 on construction and $916,400,000 on new machinery and equipment, a record $750,100,000 was expended on repairs. The combined expenditures of $2,019,700,000 on capital and repair expenditures was second only to the record $2,092,800,000 spent in 1957. Of the total capital expenditures in 1962, 17.1 p.c. was reported by the primary metal industries, 13.7 p.c. by the paper and allied industries and 13.3 p.c. by the food and beverage industries. These three groups also spent the largest amounts for repairs, the proportions being 22.7, 15.8 and 11.0 p.c., respectively.

6.—Capital and Repair Expenditures by the Manufacturing Industries, 1953-62, and by Province and Industrial Group, 1962

Year and Province	Capital Expenditure			Repair Expenditure		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
1953	324.5	644.5	969.0	94.6	385.5	480.1
1954	287.6	534.5	822.1	97.6	390.9	488.5
1955	344.5	601.8	946.3	100.6	413.0	513.6
1956	487.7	906.1	1,393.8	112.2	465.6	577.8
1957	519.9	959.0	1,478.9	115.4	498.5	613.9
1958	397.6	697.4	1,095.0	109.8	462.1	571.9
1959	373.9	769.9	1,143.8	125.2	537.3	662.5
1960	334.7	842.7	1,177.4	124.4	547.2	671.6
1961	279.1	805.7	1,084.8	124.0	557.9	681.9
1962	353.2	916.4	1,269.6	132.9	617.2	750.1
Province, 1962						
Newfoundland	12.2	9.6	21.8	0.9	5.7	6.6
Prince Edward Island	0.1	0.4	0.5	0.1	0.4	0.5
Nova Scotia	5.2	14.2	19.4	4.4	13.9	18.3
New Brunswick	5.1	17.6	22.7	2.0	12.5	14.5
Quebec	93.9	239.8	333.7	36.8	166.1	202.9
Ontario	175.0	473.2	648.2	58.9	310.0	368.9
Manitoba	7.8	16.8	24.6	5.2	14.9	20.1
Saskatchewan	3.7	7.9	11.6	3.0	3.8	6.8
Alberta	12.0	35.1	47.1	7.1	18.5	25.6
British Columbia	38.2	101.8	140.0	14.5	71.4	85.9

6.—Capital and Repair Expenditures by the Manufacturing Industries, 1953-62, and by Province and Industrial Group, 1962—concluded

Industrial Group	Capital Expenditure			Repair Expenditure		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Industrial Group, 1962						
Food and beverage industries	57.3	111.4	168.7	15.5	67.2	82.7
Tobacco products industries	0.9	5.4	6.3	0.8	2.9	3.7
Rubber industries	2.9	14.1	17.0	1.1	9.0	10.1
Leather industries	0.9	3.6	4.5	0.6	3.0	3.6
Textile industries	6.8	29.7	36.5	4.7	22.2	26.9
Knitting mills	0.8	7.0	7.8	0.4	2.0	2.4
Clothing industries	0.6	5.4	6.0	0.8	3.0	3.8
Wood industries	11.8	28.8	40.6	6.1	35.8	41.9
Furniture and fixture industries	2.4	4.6	7.0	1.0	2.6	3.6
Paper and allied industries	40.5	132.9	173.4	12.2	106.4	118.6
Printing, publishing and allied industries	10.8	25.7	36.5	2.4	7.8	10.2
Primary metal industries	58.4	159.1	217.5	18.5	151.9	170.4
Metal fabricating industries (except machinery and transportation equipment industries)	12.4	38.7	51.1	6.1	28.6	34.7
Machinery industries (except electrical machinery)	5.4	18.7	24.1	2.9	9.0	11.9
Transportation equipment industries	11.6	36.3	47.9	10.8	34.0	44.8
Electrical products industries	10.9	29.4	40.3	3.9	18.9	22.8
Non-metallic mineral products industries	13.7	38.5	52.2	5.2	51.4	56.6
Petroleum and coal products industries	56.8	8.8	65.6	28.1	4.9	33.0
Chemical and chemical products industries	40.1	59.9	100.0	10.0	49.4	59.4
Miscellaneous manufacturing industries	8.2	19.0	27.2	1.8	7.2	9.0
Capital items charged to operating expenses	—	139.4	139.4	—	—	—

Section 3.—Provincial and Local Distribution of Manufacturing Industries

Subsection 1.—Provincial Distribution of Manufacturing Production

The tables of this Subsection, containing summary statistics of manufactures by province and industrial group, indicate the predominance of Ontario and Quebec both in over-all manufacturing activity and, with the single exception of the wood industries, in industrial groups. Ontario's factory shipments of $13,339,600,000 and Quebec's $8,017,200,000 together accounted for 79.4 p.c. of the Canadian total in 1962.

Quebec had the greatest provincial shipments in five groups—tobacco products industries, textile industries, knitting mills, clothing industries and paper and allied industries. In each of the first four groups, Quebec's shipments accounted for over half the Canadian total; in the paper and allied group, its share of 36.1 p.c. was only marginally greater than Ontario's 35.9 p.c. With the exception of the wood industries, where British Columbia's factory shipments of $626,500,000 accounted for 54.3 p.c. of the Canadian total, Ontario led in factory shipments of the remaining 15 industrial groups. In three of these—rubber industries, machinery industries (except electrical machinery), and transportation equipment industries—its share was almost 75 p.c. of the Canadian total. In three others—the electrical products industries, chemical and chemical products industries, and miscellaneous manufacturing industries—it was between 60 and 69 p.c., and in printing, publishing and allied industries, primary metal industries, and metal fabricating industries it was between 52 and 58 p.c. of the Canadian total.

Details of the leading industries in each province in 1962 were not available at publication time. This information for 1961, and for 1962 when it becomes available, may be obtained from DBS publications in the Manufacturing Industries of Canada series: *Atlantic Provinces* (Catalogue No. 31-204), *Quebec* (No. 31-205), *Ontario* (No. 31-206), *Prairie Provinces* (No. 31-207) and *British Columbia, Yukon and Northwest Territories* (No. 31-208).

7.—Summary Statistics of Manufactures, by Province, 1961 and 1962

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts. Figures for 1961 have been re-compiled on the same basis as 1962 and are not directly comparable with those for previous years. Figures for 1962 are preliminary.

Province or Territory and Year	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Newfoundland 1961	340	8,084	16,870	27,761	7,067	60,498	137,686	70,782	231	458	10,114	37,306	72,153
1962p	332	7,957	17,559	28,000	7,489	67,856	145,027	73,103	241	427	10,197	38,554	75,508
Prince Edward Island 1961	163	1,317	2,798	2,974	471	21,528	30,681	8,524	111	281	1,695	4,228	8,811
1962p	157	1,422	3,090	3,360	605	24,875	35,131	9,867	104	277	1,834	4,849	10,106
Nova Scotia 1961	1,017	20,689	43,280	65,058	9,936	206,114	375,581	160,380	597	1,409	27,078	92,016	164,699
1962p	1,030	22,594	48,107	73,233	11,081	241,265	428,441	177,699	618	1,474	29,433	103,154	182,865
New Brunswick 1961	732	18,055	37,728	56,462	15,421	224,000	399,269	161,001	287	928	23,599	79,588	166,874
1962p	723	18,498	40,229	61,678	15,935	228,368	407,577	165,424	398	1,058	24,273	86,969	171,900
Quebec 1961	11,224	325,876	690,791	1,114,319	157,533	4,020,247	7,359,257	3,210,996	6,060	20,940	460,087	1,803,435	3,332,862
1962p	11,106	331,405	714,199	1,187,963	161,548	4,386,699	8,017,172	3,512,129	6,127	21,658	466,838	1,911,669	3,658,921
Ontario 1961	12,415	433,957	914,693	1,743,223	237,696	6,367,886	12,027,944	5,472,621	5,969	22,146	643,728	2,886,384	5,770,210
1962p	12,588	456,646	970,087	1,910,451	263,627	7,174,790	13,339,550	5,995,841	6,043	23,114	664,313	3,084,619	6,347,432
Manitoba 1961	1,474	31,627	65,202	110,232	16,369	445,755	780,492	321,615	747	2,556	44,287	170,266	330,184
1962p	1,464	32,079	66,923	116,817	16,956	465,904	869,220	387,209	745	2,476	45,092	180,974	400,610
Saskatchewan 1961	710	8,652	18,063	32,976	7,771	224,261	353,001	124,059	389	1,297	13,208	52,837	127,542
1962p	720	8,717	18,329	34,645	8,200	245,997	379,178	123,609	399	1,346	13,688	57,672	128,359
Alberta 1961	1,631	27,941	57,050	108,153	17,553	576,628	948,796	353,772	802	2,669	41,249	172,554	366,151
1962p	1,683	28,856	60,340	115,648	18,185	635,247	1,027,823	374,893	840	2,939	43,229	187,163	392,985
British Columbia 1961	3,636	75,531	150,071	322,620	47,567	1,066,605	1,983,485	878,798	1,684	5,263	103,034	466,364	905,810
1962p	3,622	77,085	155,281	347,333	53,320	1,217,753	2,242,660	994,603	1,700	5,953	105,516	501,533	1,022,509
Yukon and Northwest Territories 1961	13	106	245	524	52	2,570	3,434	738	4	11	146	719	686
1962p	15	110	256	540	73	2,420	3,585	1,204	5	20	153	725	1,231
Canada 1961	**33,355**	**951,835**	**1,996,790**	**3,584,303**	**517,435**	**13,216,092**	**24,399,624**	**10,763,287**	**16,981**	**57,960**	**1,368,225**	**5,765,696**	**11,245,982**
1962p	**33,440**	**985,369**	**2,094,400**	**3,879,668**	**557,018**	**14,691,175**	**26,895,363**	**11,815,580**	**17,220**	**60,743**	**1,404,566**	**6,157,881**	**12,392,426**

[1] Conceptually identical to previous years. [2] Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity. [3] Included with administrative and office employees in the Manufacturing series published in previous years. [4] Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners. [5] Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required.

8.—Summary Statistics of Manufactures, by Industrial Group, 1961 and 1962

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts. Figures for 1961 have been re-compiled on the same basis as 1962 and are not directly comparable with those for previous years. Figures for 1962 are preliminary.

Industrial Group and Year	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Food and beverage industries[6]	1961	7,711	129,457	274,739	422,982	70,997	3,258,043	5,033,509	1,725,140	4,433	14,550	209,863	779,134	1,793,578
	1962p	7,680	129,101	277,131	441,854	74,852	3,546,619	5,439,301	1,852,362	4,386	15,911	210,283	816,788	1,932,830
Tobacco products industries	1961	38	7,864	16,531	30,083	1,035	205,297	334,983	128,840	8	39	10,405	43,880	131,438
	1962p	39	8,422	16,993	31,976	1,290	212,307	350,747	130,064	7	31	11,035	46,922	130,985
Rubber industries	1961	93	14,395	30,934	58,258	5,276	150,069	331,135	170,208	10	33	21,482	94,799	176,047
	1962p	90	15,664	34,117	66,331	5,550	170,771	353,962	180,891	9	31	22,788	104,203	188,075
Leather industries	1961	556	27,543	56,399	70,972	2,275	151,391	291,161	140,493	193	736	33,535	98,343	142,157
	1962p	547	28,009	58,015	75,708	2,355	161,979	309,178	145,960	181	700	32,960	100,425	147,065
Textile industries	1961	884	50,192	108,520	150,382	15,096	471,268	876,606	390,656	383	1,581	65,104	224,564	398,134
	1962p	894	52,940	113,904	164,194	15,714	539,445	982,802	440,614	326	1,432	67,981	242,491	449,469
Knitting mills	1961	358	18,667	39,272	44,990	1,927	117,069	219,378	101,316	95	382	22,727	62,083	101,206
	1962p	351	19,161	40,597	47,412	2,014	131,488	233,506	103,112	80	385	23,040	64,303	103,185
Clothing industries	1961	2,307	76,864	149,756	180,876	3,018	427,256	802,719	378,644	1,066	4,841	93,632	256,595	381,360
	1962p	2,208	76,729	153,659	193,001	3,098	461,695	860,477	402,349	1,022	4,676	91,860	265,693	404,856
Wood industries	1961	5,245	67,640	139,251	226,593	20,336	582,470	1,037,092	436,304	3,344	7,114	82,299	293,459	461,933
	1962p	5,016	70,279	150,267	247,957	23,733	624,333	1,154,374	510,160	3,729	8,483	83,512	312,144	525,687
Furniture and fixture industries	1961	2,088	26,740	57,296	83,007	3,892	173,242	359,577	184,076	1,586	5,370	33,476	117,121	187,330
	1962p	2,144	27,601	60,511	90,282	4,085	187,748	386,569	198,655	1,568	5,319	34,381	125,267	201,416
Paper and allied industries	1961	567	76,058	164,325	352,948	122,271	1,020,320	2,203,517	1,070,299	49	211	98,722	494,719	1,082,268
	1962p	580	77,141	168,182	369,715	127,949	1,080,322	2,333,551	1,130,672	58	267	100,660	519,816	1,145,419
Printing, publishing and allied industries[7]	1961	3,464	43,453	86,608	187,419	6,534	280,758	884,435	598,574	1,905	7,656	76,304	349,004	609,923
	1962p	3,499	42,849	87,149	196,312	6,828	293,747	925,443	626,513	1,872	7,604	75,601	361,468	636,138
Primary metal industries	1961	409	69,671	147,307	348,141	87,989	1,560,977	2,776,236	1,130,340	85	310	89,873	474,830	1,113,245
	1962p	400	71,144	148,951	363,707	88,718	1,684,373	2,990,646	1,223,766	81	366	91,940	498,211	1,241,203

For footnotes, see end of table, p. 666.

8.—Summary Statistics of Manufactures, by Industrial Group, 1961 and 1962—concluded

Industrial Group and Year	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Metal fabricating industries (except machinery and transportation equipment industries)[6]													
1961	2,952	72,066	151,185	299,918	19,699	734,750	1,508,303	753,459	1,247	4,863	100,817	456,966	786,613
1962p	3,070	79,318	167,808	340,366	21,478	860,008	1,724,154	855,493	1,295	5,237	109,546	568,866	896,421
Machinery industries (except electrical machinery)													
1961	544	28,179	59,130	121,473	6,931	303,461	638,064	340,536	76	421	50,667	243,172	440,789
1962p	571	31,278	66,231	141,114	7,103	361,359	728,227	384,579	74	398	54,699	272,573	512,731
Transportation equipment industries													
1961	672	81,797	172,494	368,109	20,125	1,131,149	1,962,740	830,044	306	932	112,688	551,003	896,747
1962p	693	86,407	188,606	418,620	22,027	1,443,548	2,455,057	993,341	326	954	117,343	605,205	1,056,597
Electrical products industries													
1961	534	51,904	108,483	203,006	11,338	585,219	1,208,784	619,792	38	173	89,366	409,559	680,417
1962p	531	58,029	122,113	233,250	12,145	671,223	1,390,182	736,260	36	194	96,595	453,357	811,105
Non-metallic mineral products industries													
1961	1,294	33,016	72,947	135,314	46,708	250,746	676,025	381,631	471	1,388	44,736	197,937	396,543
1962p	1,327	33,680	74,111	143,593	50,815	289,957	771,771	436,067	511	1,567	45,501	210,105	453,677
Petroleum and coal products industries													
1961	91	7,819	16,746	43,424	11,351	920,680	1,219,178	289,633	4	18	16,186	99,508	287,960
1962p	89	7,494	16,175	43,571	10,850	1,003,806	1,294,070	283,292	4	16	16,052	103,710	284,619
Chemical and chemical products industries													
1961	1,067	31,694	67,832	137,070	54,660	623,024	1,435,752	763,747	185	612	62,409	319,047	808,512
1962p	1,080	31,572	67,318	141,564	70,047	666,323	1,543,884	811,396	192	659	63,946	332,777	861,504
Miscellaneous manufacturing industries[9]													
1961	2,481	36,816	77,034	119,339	5,976	268,902	600,429	329,553	1,497	6,731	52,940	199,971	369,782
1962p	2,531	38,551	82,562	129,141	6,367	300,122	667,462	370,033	1,463	6,515	54,843	213,554	409,444
Totals													
1961	**33,355**	**951,835**	**1,996,790**	**3,584,303**	**517,435**	**13,216,092**	**24,399,624**	**10,763,287**	**16,981**	**57,960**	**1,368,225**	**5,765,696**	**11,245,982**
1962p	**33,440**	**985,369**	**2,094,400**	**3,879,668**	**557,018**	**14,691,175**	**26,895,363**	**11,815,580**	**17,220**	**60,743**	**1,404,566**	**6,157,881**	**12,392,426**

[1] Conceptually identical to previous years. [2] Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity. [3] Included with administrative and office employees in the Manufacturing series published in former years. [4] Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners. [5] Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required. [6] Includes poultry processors; not included in Table 1. [7] Includes book publishers; not included in Table 1. [8] Includes electroplating establishments; not included in Table 1. [9] Includes dental laboratories, and prescription branches in the ophthalmic goods manufactures industry; not included in Table 1.

9.—Summary Statistics of Manufactures, by Province and Industrial Group, 1962

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts. Figures are preliminary.

Province and Industrial Group	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Newfoundland	**332**	**7,957**	**17,559**	**28,000**	**7,489**	**67,856**	**145,027**	**73,103**	**241**	**427**	**10,197**	**38,554**	**75,508**
Food and beverage industries	73	3,371	7,047	6,775	1,089	23,954	44,776	20,495	14	38	4,231	10,095	21,521
Leather industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Textile industries	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Knitting mills	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Clothing industries	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Wood industries	171	448	1,019	1,156	268	2,588	4,547	1,749	197	290	532	1,445	1,953
Furniture and fixture industries	7	18	43	70	2	62	207	143	5	11	20	80	143
Paper and allied industries[7]	2	2,472	5,715	14,325	5,331	27,815	68,427	36,507	—	—	3,127	18,769	36,862
Printing, publishing and allied industries	28	252	546	851	70	697	3,528	2,762	13	47	423	1,470	2,723
Primary metal industries	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Metal fabricating industries (except machinery and transportation equipment industries)	10	152	344	518	45	1,416	2,222	1,042	1	1	195	702	1,072
Machinery industries (except electrical machinery)	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Transportation equipment industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Electrical products industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Non-metallic mineral products industries	15	413	992	1,572	494	3,019	7,500	4,318	5	9	566	2,186	4,689
Petroleum and coal products industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Chemical and chemical products industries	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Miscellaneous manufacturing industries	8	65	143	191	12	264	715	446	3	11	82	260	451
Groups for which data cannot be shown	...	766	1,710	2,543	177	8,041	13,106	5,640	3	19	1,021	3,547	6,095
Prince Edward Island	**157**	**1,422**	**3,090**	**3,360**	**605**	**24,875**	**35,131**	**9,867**	**104**	**277**	**1,834**	**4,849**	**10,106**
Food and beverage industries	78	972	2,110	2,209	481	20,583	27,711	6,882	40	118	1,279	3,301	7,067
Tobacco products industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Leather industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Textile industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Wood industries	43	76	172	152	23	271	788	491	44	69	88	212	492
Furniture and fixture industries	3	3	7	6	1	9	30	21	2	6	4	8	21
Paper and allied industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Printing, publishing and allied industries	8	134	284	369	29	258	1,326	1,037	4	12	184	529	1,043
Primary metal industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]

For footnotes, see end of table, p. 672.

9.—Summary Statistics of Manufactures, by Province and Industrial Group, 1962—continued

Province and Industrial Group	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Prince Edward Island—concluded													
Metal fabricating industries (except machinery and transportation equipment industries)	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Transportation equipment industries	5	65	134	211	14	259	474	219	2	4	72	229	215
Non-metallic products industries	6	26	53	58	13	119	309	174	3	7	35	97	190
Chemical and chemical products industries	2	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Miscellaneous manufacturing industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Groups for which data cannot be shown	...	146	329	355	44	3,377	4,492	1,044	9	63	172	473	1,078
Nova Scotia	**1,030**	**22,594**	**48,107**	**73,233**	**11,081**	**241,265**	**428,441**	**177,699**	**618**	**1,474**	**29,433**	**103,154**	**182,865**
Food and beverage industries	330	6,840	14,542	15,944	2,723	86,981	137,127	47,696	149	454	9,420	25,504	50,233
Leather industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Textile industries	8	512	1,021	1,288	147	3,541	6,356	2,839	4	11	556	1,523	2,960
Knitting mills	7	1,105	2,285	2,245	122	5,423	10,444	5,039	—	—	1,233	3,033	5,084
Clothing industries	11	325	636	554	39	1,412	2,439	988	—	—	369	703	985
Wood industries	339	2,081	4,845	4,718	637	11,535	22,372	10,004	295	514	2,607	6,307	10,825
Furniture and fixture industries	32	210	453	514	25	884	2,047	1,158	23	61	245	666	1,171
Paper and allied industries	7	1,613	3,536	6,509	2,478	16,840	34,748	16,238	—	—	2,079	9,037	16,025
Printing, publishing and allied industries	75	777	1,635	2,728	151	2,870	13,126	10,102	30	109	1,370	5,252	10,224
Primary metal industries	5	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Metal fabricating industries (except machinery and transportation equipment industries)	49	1,270	2,532	4,558	567	10,891	20,440	9,082	22	68	1,661	6,259	9,867
Machinery industries (except electrical machinery)	6	236	508	875	78	472	2,046	1,228	1	5	390	1,742	1,293
Transportation equipment industries	67	3,683	7,796	14,382	756	14,395	38,977	23,875	54	123	4,246	17,086	23,756
Electrical products industries	3	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Non-metallic mineral products industries	34	316	705	1,025	459	2,107	5,530	2,952	11	23	435	1,625	2,932
Petroleum and coal products industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Chemical and chemical products industries	16	136	293	500	130	3,081	5,787	2,733	4	18	304	1,365	3,009
Miscellaneous manufacturing industries	37	156	324	464	70	620	1,862	1,174	23	83	197	649	1,295
Groups for which data cannot be shown	...	3,334	6,986	16,929	2,701	80,210	125,139	42,592	2	4	4,321	22,401	43,207
New Brunswick	**723**	**18,498**	**40,229**	**61,678**	**15,935**	**228,368**	**407,577**	**165,424**	**398**	**1,058**	**24,273**	**86,969**	**171,900**
Food and beverage industries	245	5,374	11,741	13,557	2,689	90,692	140,439	48,902	126	394	7,512	21,568	51,966
Leather industries	4	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Textile industries	11	419	896	992	130	2,226	4,176	1,924	7	26	534	1,176	1,924

Knitting mills	2	c	c	c	c	c	c	c	c	c	c	c	c	c
Clothing industries	4	217	401	383	11	298	942	643	1	4	229	434	649	
Wood industries	244	2,636	6,138	6,532	728	17,110	31,651	14,167	187	343	3,075	8,043	14,899	
Furniture and fixture industries	16	77	158	165	22	312	781	428	11	27	90	213	429	
Paper and allied industries	19	3,903	8,414	18,561	9,677	55,704	112,676	48,235	1	5	4,755	24,229	50,362	
Printing, publishing and allied industries	50	576	1,257	2,149	107	2,239	8,536	6,197	13	37	963	3,601	6,259	
Primary metal industries	4	c	c	c	c	c	c	c	c	c	c	c	c	
Metal fabricating industries (except machinery and transportation equipment industries)	31	780	1,584	2,953	205	5,057	12,377	7,199	17	83	1,006	4,061	7,541	
Machinery industries (except electrical machinery)	3	72	142	180	11	252	707	443	1	3	149	703	449	
Transportation equipment industries	9	2,394	5,263	9,677	621	6,227	21,175	14,352	3	5	3,103	12,973	14,239	
Electrical products industries	4	490	1,018	1,587	156	3,844	7,532	3,916	—	—	763	2,692	3,931	
Non-metallic mineral products industries	29	479	1,071	1,638	1,038	2,304	8,088	4,882	7	12	573	2,077	4,960	
Petroleum and coal products industries	1	c	c	c	c	c	c	c	c	c	c	c	c	
Chemical and chemical products industries	9	110	229	381	64	3,793	5,335	1,627	1	2	157	629	1,777	
Miscellaneous manufacturing industries	38	322	691	921	69	1,826	4,485	2,500	21	100	477	1,515	2,549	
Groups for which data cannot be shown	...	649	1,227	2,001	404	36,484	48,676	10,008	2	16	887	3,056	9,967	
Quebec	**11,106**	**331,405**	**714,199**	**1,187,963**	**161,548**	**4,386,699**	**8,017,172**	**3,512,129**	**6,127**	**21,658**	**466,838**	**1,911,669**	**3,658,921**	
Food and beverage industries	2,447	33,357	73,359	110,446	18,373	929,400	1,440,973	497,795	1,486	5,393	55,328	210,666	518,475	
Tobacco products industries	21	5,713	11,812	23,435	642	107,201	198,482	91,231	1	3	7,220	32,604	92,193	
Rubber industries	32	4,877	10,531	16,269	1,245	35,048	76,623	41,814	3	14	6,862	25,597	42,228	
Leather industries	292	14,310	29,905	36,813	781	72,789	145,463	72,845	95	410	16,962	49,284	73,514	
Textile industries	400	31,598	69,019	95,586	8,767	312,853	563,952	248,503	116	548	41,252	144,757	254,669	
Knitting mills	204	9,936	21,398	24,679	1,018	73,754	125,833	53,594	45	251	11,859	32,244	53,744	
Clothing industries	1,523	49,127	98,425	121,641	1,879	306,816	560,315	255,437	682	2,994	58,986	167,878	256,421	
Wood industries	1,636	15,891	37,307	43,436	4,316	110,491	210,703	96,909	1,385	3,254	18,731	55,837	100,118	
Furniture and fixture industries	722	11,222	25,222	34,204	1,558	68,763	142,668	74,228	518	1,744	13,719	46,677	75,654	
Paper and allied industries	193	29,225	64,721	139,573	50,405	385,160	841,497	405,253	24	95	37,857	193,817	411,836	
Printing, publishing and allied industries	992	11,872	24,478	53,279	1,703	88,677	267,669	177,606	589	2,455	20,801	98,620	180,003	
Primary metal industries	110	14,186	30,342	69,839	23,730	594,446	870,024	250,684	22	75	20,423	108,675	257,404	
Metal fabricating industries (except machinery and transportation equipment industries)	736	21,579	46,561	90,558	4,999	228,213	449,092	219,690	362	1,330	29,052	134,873	225,368	
Machinery industries (except electrical machinery)	96	5,784	12,855	23,994	1,229	63,748	126,325	65,556	13	81	10,944	52,154	76,371	
Transportation equipment industries	109	22,623	49,890	104,869	5,273	193,820	399,954	199,617	60	169	31,465	155,312	204,634	
Electrical products industries	112	16,486	35,233	67,874	3,065	171,322	379,608	218,570	8	31	29,582	145,759	266,243	
Non-metallic mineral products industries	393	10,141	22,832	42,168	15,976	80,828	221,943	125,273	212	645	12,806	61,998	129,894	
Petroleum and coal products industries	17	1,916	4,238	11,600	2,498	315,469	403,720	85,268	3	13	3,605	22,618	85,176	
Chemical and chemical products industries	337	9,961	20,774	42,201	12,392	169,147	416,312	234,134	67	225	22,439	115,184	253,007	
Miscellaneous manufacturing industries	734	11,601	25,297	35,499	1,699	78,756	176,014	98,120	435	1,929	15,945	57,116	101,969	
Ontario	**12,588**	**456,646**	**970,087**	**1,910,451**	**263,627**	**7,174,790**	**13,339,550**	**5,995,841**	**6,043**	**23,114**	**664,313**	**3,084,619**	**6,347,432**	
Food and beverage industries	2,712	50,480	109,075	182,369	32,066	1,394,912	2,233,081	818,667	1,672	6,141	84,889	349,506	848,775	
Tobacco products industries	17	2,700	5,163	8,527	647	105,093	152,212	38,794	6	29	3,527	12,903	38,754	
Rubber industries	47	10,459	22,846	48,540	4,102	128,935	263,624	132,298	4	9	14,812	73,361	139,075	
Leather industries	208	12,544	25,868	36,018	1,469	81,928	150,916	67,241	69	240	14,610	47,362	67,601	
Textile industries	370	18,915	39,824	61,944	6,343	200,944	376,263	175,312	154	618	23,675	88,351	177,561	
Knitting mills	125	7,627	15,894	19,333	829	49,797	91,999	41,771	34	131	9,378	27,334	41,642	

For footnotes, see end of table, p. 672.

9.—Summary Statistics of Manufactures, by Province and Industrial Group, 1962—continued

Province and Industrial Group	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
Ontario—concluded													
Clothing industries	563	18,895	38,070	50,818	820	104,947	208,408	105,076	280	1,442	22,921	70,314	106,229
Wood industries	917	13,149	29,170	42,060	3,638	97,951	191,538	88,187	601	1,533	16,021	55,616	92,873
Furniture and fixture industries	877	12,495	27,141	42,949	1,902	89,498	185,155	95,643	646	2,224	15,850	60,604	96,409
Paper and allied industries	261	29,100	62,882	134,775	37,933	414,942	838,721	390,404	27	129	37,849	192,745	395,388
Printing, publishing and allied industries	1,496	22,238	44,838	105,041	3,461	158,286	483,576	323,010	805	3,267	39,136	194,400	329,677
Primary metal industries	202	44,899	93,094	232,555	48,747	877,364	1,668,180	751,073	43	217	55,887	305,822	758,069
Metal fabricating industries (except machinery and transportation equipment industries)	1,568	45,011	95,471	195,781	13,091	495,334	999,999	500,464	631	2,750	62,794	294,234	526,791
Machinery industries (except electrical machinery)	343	22,326	46,777	104,023	5,006	268,988	540,572	286,626	40	235	37,936	192,342	401,195
Transportation equipment industries	295	46,127	101,591	237,730	13,490	1,155,775	1,837,061	672,293	117	388	63,915	351,572	729,103
Electrical products industries	345	39,119	81,786	156,724	8,429	466,209	945,987	485,564	21	133	62,525	288,854	511,799
Non-metallic mineral products industries	535	16,432	36,086	72,141	24,342	146,886	378,935	212,132	185	646	22,314	106,383	222,296
Petroleum and coal products industries	26	2,318	4,981	13,521	2,617	316,767	410,088	92,027	—	—	6,988	48,462	91,657
Chemical and chemical products industries	535	18,096	39,101	82,103	50,684	416,343	937,235	474,912	101	334	35,071	185,924	500,988
Miscellaneous manufacturing industries	1,146	23,716	50,431	82,498	4,012	203,889	446,001	244,348	607	2,650	34,215	138,530	271,550
Manitoba	**1,464**	**32,079**	**66,923**	**116,817**	**16,956**	**465,904**	**869,220**	**387,209**	**745**	**2,476**	**45,092**	**180,974**	**400,610**
Food and beverage industries	389	6,821	14,356	25,597	4,078	219,422	312,207	88,727	199	700	11,096	45,222	95,330
Rubber industries	1	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Leather industries	16	489	950	1,255	42	3,699	5,790	2,370	6	24	565	1,627	2,376
Textile industries	36	474	985	1,180	78	7,037	10,519	3,432	14	79	584	1,696	3,457
Knitting mills	4	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
Clothing industries	129	5,239	10,331	12,313	200	30,917	53,958	23,178	34	144	5,960	15,918	23,462
Wood industries	137	804	1,748	2,436	260	5,408	11,029	5,323	133	264	975	3,154	5,688
Furniture and fixture industries	117	1,435	3,137	4,681	228	11,817	21,906	9,888	75	243	1,823	6,604	10,144
Paper and allied industries	24	1,198	2,638	4,860	1,772	19,141	40,699	19,833	—	—	1,585	7,017	19,928
Printing, publishing and allied industries	197	2,222	4,584	9,272	356	12,844	41,627	28,541	105	376	3,793	16,242	28,815
Primary metal industries	15	2,491	5,514	12,274	5,294	26,664	123,403	91,549	—	—	2,945	15,060	91,860
Metal fabricating industries (except machinery and transportation equipment industries)	119	2,508	5,248	10,503	529	22,091	50,765	28,064	71	256	3,530	16,008	28,780
Machinery industries (except electrical machinery)	33	887	1,851	3,131	214	9,280	18,571	8,664	8	18	1,506	6,605	9,731
Transportation equipment industries	31	4,291	8,892	17,378	925	25,828	51,924	25,393	11	25	5,287	22,634	26,025
Electrical products industries	18	648	1,380	2,156	145	8,558	16,232	7,649	5	18	1,230	5,029	8,195
Non-metallic mineral products industries	56	995	2,005	3,960	2,061	8,632	27,574	16,678	18	52	1,448	6,380	16,886

Petroleum and coal products industries..	7	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]
Chemical and chemical products industries	34	333	664	1,095	151	9,323	18,588	8,975	4	10	777	3,207	10,146
Miscellaneous manufacturing industries..	101	828	1,750	2,614	116	4,898	11,043	6,047	60	260	1,140	4,311	6,750
Groups for which data cannot be shown..	...	416	889	2,109	508	40,347	53,384	12,898	2	6	848	4,259	13,035
Saskatchewan	**720**	**8,717**	**18,329**	**34,645**	**8,200**	**245,997**	**379,178**	**123,609**	**399**	**1,346**	**13,688**	**57,672**	**128,359**
Food and beverage industries	240	3,539	7,515	14,050	2,450	128,950	182,097	50,499	110	466	5,973	24,226	52,667
Textile industries	8	58	121	153	6	927	1,277	353	2	3	83	233	419
Clothing industries	7	206	409	537	15	1,707	3,316	1,494	4	14	285	989	1,586
Wood industries	118	837	1,707	2,621	372	6,297	11,776	5,135	96	133	1,053	3,550	5,687
Furniture and fixture industries	34	44	94	127	15	262	654	378	33	105	49	143	381
Paper and allied industries	8	169	339	551	162	1,873	3,449	1,489	1	8	203	730	1,453
Printing, publishing and allied industries.	133	846	1,764	3,486	185	3,591	13,765	9,999	86	314	1,406	5,733	10,123
Primary metal industries	4	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]
Metal fabricating industries (except machinery and transportation equipment industries)	54	663	1,354	2,532	145	9,719	15,711	5,874	27	108	937	3,890	6,386
Machinery industries (except electrical machinery)	12	140	317	543	34	1,155	2,973	1,876	4	12	343	1,738	1,980
Transportation equipment industries	5	13	31	53	7	125	311	192	3	10	187	1,040	199
Electrical products industries	4	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]
Non-metallic mineral products industries.	36	566	1,233	2,188	1,051	6,067	15,953	9,234	7	21	739	3,008	9,572
Petroleum and coal products industries..	9	681	1,435	3,691	1,057	59,893	77,900	17,039	—	—	1,084	6,352	17,121
Chemical and chemical products industries	8	34	70	124	21	1,103	2,272	1,341	—	—	95	387	1,796
Miscellaneous manufacturing industries...	40	177	376	568	23	801	2,289	1,453	26	153	238	833	1,688
Groups for which data cannot be shown..	...	744	1,562	3,421	2,657	23,526	45,435	17,252	—	—	1,013	4,820	17,300
Alberta	**1,683**	**28,856**	**60,340**	**115,648**	**18,185**	**635,247**	**1,027,823**	**374,893**	**840**	**2,939**	**43,229**	**187,163**	**392,985**
Food and beverage industries	462	8,058	16,947	31,414	4,200	330,913	435,158	100,142	240	862	13,040	53,929	105,820
Rubber industries	5	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]
Leather industries	6	60	124	192	14	648	1,079	453	3	6	65	222	449
Textile industries	19	280	623	1,082	86	5,296	8,497	3,161	7	41	419	1,777	3,169
Knitting mills	3	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]	[x]
Clothing industries	19	1,236	2,416	2,885	39	7,770	15,836	8,133	4	11	1,402	4,349	8,096
Wood industries	293	3,053	6,078	9,083	1,209	22,079	43,144	19,912	206	444	3,873	12,346	21,647
Furniture and fixture industries	98	643	1,381	2,330	100	5,148	10,317	5,004	80	275	781	3,100	5,078
Paper and allied industries	21	892	1,900	4,085	1,437	19,984	41,375	19,980	—	—	1,589	7,940	20,266
Printing, publishing and allied industries	198	1,568	3,242	6,983	251	9,224	33,417	23,947	103	472	2,837	12,270	23,846
Primary metal industries	18	1,057	2,183	5,207	1,204	26,629	40,775	13,839	3	13	1,456	7,804	14,448
Metal fabricating industries (except machinery and transportation equipment industries)	171	3,150	6,363	13,175	679	34,950	69,627	33,513	68	264	4,479	19,469	38,216
Machinery industries (except electrical machinery)	22	472	968	1,856	218	5,876	10,328	4,903	1	6	1,074	5,188	5,646
Transportation equipment	39	2,367	5,087	10,038	280	15,346	29,983	14,574	10	37	2,978	13,223	14,962
Electrical products industries	12	233	471	749	70	4,491	7,931	3,809	—	—	409	1,539	3,931
Non-metallic mineral products industries.	104	2,867	6,198	11,888	2,720	25,950	71,933	43,140	20	51	3,645	16,186	43,519
Petroleum and coal products industries...	16	890	1,919	5,164	1,908	85,791	114,160	25,801	—	—	1,682	10,311	26,065
Chemical and chemical products industries	33	1,183	2,595	6,230	3,479	25,628	72,966	42,965	1	6	2,012	11,239	44,155
Miscellaneous manufacturing industries...	144	538	1,146	1,912	110	2,826	8,010	5,156	94	451	847	3,269	7,226
Groups for which data cannot be shown..	...	309	698	1,375	181	6,698	13,287	6,462	—	—	641	3,004	6,444

For footnotes, see end of table, p. 672.

9.—Summary Statistics of Manufactures, by Province and Industrial Group, 1962—concluded

Province and Industrial Group	Establishments	Manufacturing Activity[1]							Total Activity				
		Production and Related Workers			Cost of Fuel and Electricity[2]	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manufacture	Value Added	Working Owners and Partners[3]		Total Employees[4]		Total Value Added[5]
		Number	Man-Hours Paid	Wages					Number	Withdrawals	Number	Salaries and Wages	
	No.		'000	$'000	$'000	$'000	$'000	$'000		$'000		$'000	$'000
British Columbia	**3,622**	**77,085**	**155,281**	**347,333**	**53,320**	**1,217,753**	**2,242,660**	**994,603**	**1,700**	**5,953**	**105,516**	**501,533**	**1,022,509**
Food and beverage industries	700	10,281	20,420	39,467	6,689	320,734	485,506	172,425	350	1,346	17,495	72,704	180,836
Rubber industries	5	44	105	197	25	210	668	434	1	4	275	1,287	444
Leather industries	14	211	408	567	28	1,107	2,305	1,213	6	17	257	773	1,290
Textile industries	37	557	1,129	1,663	119	4,996	9,082	4,186	18	66	712	2,529	4,311
Knitting mills	5	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]
Clothing industries	50	1,397	2,751	3,689	88	7,585	14,756	7,145	15	48	1,610	4,875	7,143
Wood industries	1,112	31,272	62,028	135,666	12,251	350,453	626,516	268,153	583	1,637	36,508	165,484	271,362
Furniture and fixture industries	238	1,454	2,875	5,234	233	10,993	22,804	11,764	175	624	1,800	7,172	11,987
Paper and allied industries	44	8,566	18,032	46,469	18,754	138,834	351,894	192,698	5	29	11,612	65,521	193,264
Printing, publishing and allied industries	319	2,349	4,489	12,092	508	15,012	58,680	43,174	122	500	4,666	23,258	43,281
Primary metal industries	39	4,946	10,339	26,024	4,824	108,779	191,364	76,662	8	36	6,893	38,843	78,974
Metal fabricating industries (except machinery and transportation equipment industries)	330	4,179	8,291	19,704	1,212	52,197	103,612	50,402	96	377	5,859	29,259	52,238
Machinery industries (except electrical machinery)	55	1,318	2,710	6,328	308	11,424	26,316	14,995	6	38	2,292	11,795	15,777
Transportation equipment industries	130	4,551	9,334	23,191	622	30,860	73,805	42,385	66	193	5,775	29,935	43,022
Electrical products industries	32	727	1,524	2,997	198	11,874	23,515	12,098	2	12	1,451	6,845	12,338
Non-metallic mineral products industries	118	1,445	2,935	6,953	2,662	14,044	34,002	17,280	41	97	1,940	10,164	18,736
Petroleum and coal products industries	10	732	1,589	4,279	1,430	95,997	116,599	23,857	—	—	1,303	8,129	24,758
Chemical and chemical products industries	104	1,633	3,380	7,623	3,093	35,220	81,252	43,197	14	64	2,970	14,355	45,025
Miscellaneous manufacturing industries	285	1,423	2,942	5,188	275	7,432	19,983	12,534	192	865	2,098	8,602	17,723
Yukon and Northwest Territories	**15**	**110**	**256**	**540**	**73**	**2,420**	**3,585**	**1,204**	**5**	**20**	**153**	**725**	**1,231**
Food and beverage industries	4	8	18	26	13	79	225	134	—	—	20	69	141
Wood industries	6	32	55	98	31	149	310	130	2	2	49	148	143
Printing, publishing and allied industries	3												
Non-metallic mineral products industries	1	70	184	417	30	2,192	3,050	940	3	18	84	508	947
Petroleum and coal products industries	1												

[1] Conceptually identical to previous years. [2] Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity. [3] Included with administrative and office employees in the Manufacturing series published in former years. [4] Includes production and related workers, administrative and office employees, sales, distribution and other employees. [5] Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required. [6] Confidential under the secrecy provisions of the Statistics Act; included in "Groups for which data cannot be shown". [7] Publication of these figures was authorized by the firms concerned. [8] Confidential; included in "Miscellaneous manufacturing industries".

Subsection 2.—Manufacturing Industries in Urban Centres

Table 10 indicates the extent to which the manufacturing industries are concentrated in urban centres and shows, by province, the proportion of the selling value of factory shipments contributed by cities and towns each having shipments of over $1,000,000. In 1961, the latest year for which data were available at time of publication, there were 536 such centres with combined shipments of $19,723,500,000. Their proportion of total factory shipments, at 80.7 p.c., was little changed from the 1960 figure of 81.1 p.c. and has remained relatively stable for several years. Proportions of provincial total shipments accounted for by urban centres having shipments of $1,000,000 or over ranged from 45.3 p.c. in British Columbia, where four of the six leading industries in 1961 were in the wood industries group, to 94.1 p.c. in Quebec, where pulp and paper mills, smelting and refining, petroleum refining, and slaughtering and meat packing were the leading industries.

10.—Urban Centres, Each with Selling Value of Factory Shipments of Over $1,000,000, Number of Establishments and Total Shipments in these Centres as a Percentage of the Provincial Total, by Province, 1961.

Province or Territory	Urban Centres with Shipments of Over $1,000,000 Each	Establishments Reporting in Urban Centres with Shipments of Over $1,000,000	Shipments of Urban Centres having $1,000,000 or Over	Total Shipments of Each Province	Shipments of Urban Centres having $1,000,000 or Over as a Percentage of Total Shipments in the Province
	No.	No.	$	$	p.c.
Newfoundland	8	105	118,870,768	137,283,824	86.5
Prince Edward Island	3	53	22,205,219	30,633,999	72.4
Nova Scotia	26	423	235,163,228	379,070,915	62.0
New Brunswick	18	308	321,149,623	398,756,870	80.5
Quebec	210	8,069	6,953,273,773	7,384,270,747	94.1
Ontario	194	8,409	9,608,275,429	12,035,807,772	79.8
Manitoba	14	1,025	609,269,129	780,296,056	78.0
Saskatchewan	12	423	290,565,394	353,363,055	82.2
Alberta	20	1,031	665,767,421	946,059,224	70.3
British Columbia	31	1,903	898,974,726	1,982,602,793	45.3
Yukon and Northwest Territories	—	—	—	3,434,135	—
Canada	**536**	**21,749**	**19,723,514,710**	**24,431,579,390**	**80.7**

Of the 3,613 manufacturing establishments in 1961 with selling value of factory shipments of $1,000,000 or over, 1,749 or almost one half were located in Ontario and 1,044 in Quebec. Except for Prince Edward Island, such establishments accounted for more than 70 p.c. of the total value of shipments in their respective provinces, with the highest proportion, 85.3 p.c., occurring in Ontario. That province also had the highest proportion of total Canadian shipments in this category, 42.1 p.c., followed by Quebec with 24.2 p.c. For Canada as a whole, such establishments accounted for 82.3 p.c. of the $24,243,000,000 of factory shipments in 1961.

11.—Principal Statistics of the Manufacturing Industries of the Six Leading Manufacturing Cities, Selected Years, 1939-61

City and Year	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Selling Value of Factory Shipments[1]
	No.	No.	$	$	$
Montreal, Que.....1939	2,501	105,315	114,602,118	254,188,246	483,246,583
1944	3,109	185,708	308,396,358	650,618,563	1,215,988,014
1949	4,136	184,779	399,943,526	847,444,669	1,596,713,694
1953	4,398	193,129	544,284,191	1,067,911,378	2,042,662,785
1955	4,379	176,998	529,339,811	1,021,717,306	1,963,367,235
1957	4,268	183,996	611,657,486	1,214,443,559	2,288,258,169
1959	3,951	173,279	626,970,086	1,231,974,393	2,334,129,536
1960	3,996	171,621	643,387,247	1,224,513,359	2,349,783,042
1961	3,802	165,385	632,333,473	1,209,756,397	2,314,979,772
Toronto, Ont.....1939	2,885	98,702	122,553,435	240,532,281	482,532,331
1944	3,344	154,538	260,776,613	513,429,109	1,020,345,353
1949	4,005	158,562	368,510,524	827,148,440	1,579,186,456
1953	3,781	154,251	478,086,271	980,873,073	1,875,747,249
1955	3,497	134,235	448,775,761	916,493,539	1,732,099,123
1957	3,312	132,356	482,758,834	961,000,335	1,832,080,726
1959	2,890	123,963	503,765,998	1,008,784,582	1,867,389,948
1960	2,971	120,335	506,872,752	999,132,659	1,872,972,293
1961	2,765	116,043	498,275,086	1,010,974,767	1,873,844,843
Hamilton, Ont.....1939	461	31,512	39,562,423	70,829,034	152,746,340
1944	480	53,500	94,982,915	171,117,467	363,033,672
1949	546	54,665	137,641,333	285,180,403	563,982,920
1953	566	60,451	201,515,979	385,515,852	824,407,215
1955	588	55,202	200,311,361	395,047,070	844,835,085
1957	562	57,095	237,883,530	502,608,132	1,031,436,829
1959	506	52,820	244,629,848	524,165,589	1,088,875,035
1960	534	50,850	243,415,160	494,976,608	1,031,197,944
1961	513	49,886	248,228,632	519,239,145	1,092,499,426
Vancouver, B.C.....1939	829	17,957	22,382,192	56,565,511	101,267,243
1944	933	43,473	79,141,407	142,416,371	289,390,718
1949	1,225	33,536	78,793,345	204,642,985	358,620,526
1953	1,316	33,822	108,896,725	255,906,780	448,591,543
1955	1,330	34,683	120,488,180	276,666,483	489,181,449
1957	1,280	35,666	138,199,452	305,719,965	540,766,123
1959	1,173	32,911	139,700,859	277,475,428	516,907,552
1960	1,189	32,059	142,578,640	275,445,595	516,525,735
1961	1,143	30,989	141,169,361	278,679,062	509,665,553
Windsor, Ont.....1939	222	17,729	25,938,890	63,907,106	122,474,320
1944	231	35,912	80,667,573	232,102,240	387,603,874
1949	283	34,591	94,304,627	271,392,923	494,162,203
1953	338	37,514	140,481,193	402,209,586	682,273,319
1955	334	25,654	101,810,378	186,275,443	374,512,418
1957	318	29,377	122,169,670	290,073,160	533,531,623
1959	280	23,355	115,427,371	221,182,915	439,252,612
1960	287	22,152	112,225,758	244,010,059	467,675,624
1961	282	20,351	105,820,857	222,681,753	417,752,351
Winnipeg, Man.....1939	648	17,571	20,717,273	44,873,043	81,024,272
1944	686	25,870	38,824,299	119,917,745	198,169,626
1949	860	28,687	58,604,162	143,827,270	255,006,806
1953	860	28,230	76,008,218	156,860,845	300,186,774
1955	873	26,392	75,281,647	152,575,494	291,084,611
1957	856	27,039	83,809,725	166,092,377	314,229,185
1959	794	25,864	88,968,328	172,048,819	340,717,738
1960	767	24,689	87,508,228	166,238,709	334,895,200
1961	736	23,694	86,394,635	170,235,309	327,006,840

[1] Gross value of products prior to 1953; see text on p. 658.

12.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of $10,000,000 or Over and with Three or More Establishments, 1961

NOTE.—Statistics for urban centres with three or more establishments cannot be published when one establishment has 75 p.c. or two establishments 90 p.c. of the total value of shipments.

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	$	$	$
Newfoundland—					
St. John's	72	2,423	7,736,948	13,200,995	29,606,976
Prince Edward Island—					
Charlottetown	31	670	2,214,912	10,868,298	15,647,978
Nova Scotia—					
Amherst	26	966	3,210,139	4,714,631	10,648,033
Halifax	95	5,141	18,792,384	32,341,798	66,607,441
Trenton	9	739	2,834,153	5,687,926	10,385,224
Truro	21	1,229	3,009,935	7,327,223	13,488,692
Yarmouth	27	924	2,143,704	5,742,687	10,889,547
New Brunswick—					
Fredericton	35	928	2,776,457	6,161,508	11,139,796
Lancaster	7	1,106	4,610,781	17,307,437	35,070,608
Moncton	60	2,590	9,264,664	24,672,063	39,306,935
Saint John	84	3,552	12,807,972	85,796,891	125,528,393
Quebec—					
Acton Vale	12	1,362	3,345,251	8,957,329	15,213,908
Beauharnois	15	1,377	6,071,395	12,060,113	29,002,499
Cap de la Madeleine	44	2,747	9,325,107	31,515,551	55,732,352
Drummondville	69	6,183	20,130,023	38,932,753	89,764,736
Farnham	20	1,008	3,187,976	6,041,615	12,598,741
Granby	80	6,058	20,352,149	47,145,600	94,004,506
Grand'Mère	30	2,116	8,190,077	12,668,806	29,968,886
Hull	51	2,776	11,805,666	29,031,480	50,171,460
Huntingdon	13	686	2,518,380	6,996,979	11,016,307
Jacques Cartier	28	3,619	17,542,559	27,313,185	46,903,919
Joliette	56	2,262	7,206,015	16,611,359	32,625,524
Lachine	78	11,774	55,689,408	88,342,756	182,262,761
LaSalle	57	5,227	23,866,930	81,302,671	170,746,640
Longueuil	38	1,333	4,416,408	6,391,546	12,157,935
Louiseville	20	1,063	3,000,414	4,969,243	12,123,808
Marieville	19	705	1,964,066	8,729,584	12,940,958
Montmagny	38	1,312	4,173,665	9,421,973	19,083,118
Montreal	3,802	165,385	632,333,473	1,209,756,397	2,314,989,772
Montreal East	36	6,538	33,214,274	476,245,771	597,347,675
Montreal North	100	1,714	6,507,748	12,765,866	23,988,672
Mount Royal	65	6,543	29,288,029	89,293,891	166,397,992
Outremont	90	3,079	10,868,218	26,351,834	47,920,504
Plessisville	26	954	3,684,370	6,692,238	12,651,332
Pointe Claire	14	786	3,733,043	9,448,576	22,853,762
Princeville	14	516	1,584,219	7,486,373	11,014,118
Quebec	380	14,122	51,254,095	106,395,680	220,653,543
St. Hyacinthe	86	4,311	12,399,076	31,636,208	59,178,165
St. Jean	80	5,008	18,530,562	41,118,206	76,666,884
St. Jérôme (Terrebonne Co.)	68	3,450	11,185,735	22,667,767	44,013,096
St. Lambert	26	928	3,160,661	6,365,048	11,897,757
St. Laurent	119	18,546	90,317,289	145,008,215	293,965,680
Ste. Marie	21	1,085	3,285,929	8,230,555	17,383,687
St. Michel	139	3,006	10,673,662	25,630,926	51,507,403
Ste. Thérèse	32	1,309	4,401,348	11,573,630	20,966,470
Shawinigan	45	5,522	27,391,775	52,330,865	127,998,142
Sherbrooke	118	7,875	25,479,356	63,249,729	113,570,731
Trois Rivières	82	7,837	32,162,609	58,035,591	136,614,767
Valleyfield	48	3,086	10,490,525	25,684,604	53,190,873
Verdun	71	1,842	5,898,078	8,801,309	19,121,954
Victoriaville	56	2,429	6,911,648	13,965,594	25,858,985
Westmount	36	1,816	7,970,314	11,571,505	28,935,329
Ontario—					
Acton	18	970	3,567,936	8,207,290	15,119,521
Ajax	37	1,785	6,928,741	16,187,525	30,092,882
Arnprior	16	773	2,924,270	4,305,277	11,350,873
Aurora	17	1,120	4,143,611	12,684,872	25,260,018
Barrie	44	2,250	8,966,790	24,606,781	44,119,332

12.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of $10,000,000 or Over and with Three or More Establishments, 1961—continued

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	$	$	$
Ontario—continued					
Belleville	59	3,425	14,225,896	19,903,855	50,306,376
Brampton	59	2,833	11,551,741	26,554,103	50,340,483
Brantford	165	9,484	37,557,991	80,233,507	155,614,156
Brockville	38	2,806	11,580,765	36,430,686	58,040,307
Burlington	61	2,283	8,935,531	21,718,116	39,690,398
Chatham	72	3,263	14,320,903	79,076,498	116,752,904
Cobourg	28	1,282	4,653,226	13,710,054	27,564,910
Cornwall	54	4,863	21,758,555	37,531,749	89,370,816
Dundas	38	1,077	4,269,176	5,758,843	13,095,323
Dunnville	13	1,323	3,522,455	7,527,565	13,267,552
Elmira	19	754	2,949,424	8,714,810	15,432,505
Fort Erie	27	1,044	4,966,645	8,084,803	18,099,420
Fort William	60	2,848	13,580,115	33,990,594	67,997,445
Galt	96	6,690	26,126,357	48,754,955	100,288,322
Gananoque	14	786	3,222,745	5,848,854	11,750,673
Georgetown	27	1,373	5,759,480	11,824,003	22,100,937
Guelph	114	6,667	26,006,121	55,475,767	110,121,046
Hamilton	513	49,886	248,228,632	519,239,145	1,192,499,436
Hanover	20	961	2,959,865	6,556,833	10,792,170
Hespeler	17	1,270	4,473,473	11,463,682	20,035,854
Ingersoll	23	926	3,533,279	15,896,383	23,708,107
Kingston	66	4,495	19,887,180	40,713,761	66,062,487
Kitchener	191	15,091	60,586,814	131,239,912	235,454,119
Leaside	51	6,599	29,753,955	60,259,912	108,014,345
Lindsay	37	1,665	5,802,747	10,083,984	21,285,983
London	282	16,852	68,286,888	131,367,249	274,893,623
Long Branch	25	864	3,508,233	9,016,292	17,819,570
Midland	26	1,283	4,229,950	11,889,853	18,835,079
Milton	17	691	3,059,955	5,374,425	11,186,321
Mimico	38	1,265	4,829,436	10,871,307	20,585,228
Newmarket	19	1,009	3,475,726	6,900,947	14,033,049
New Toronto	30	6,063	32,728,289	87,525,683	167,982,440
Niagara Falls	74	3,972	17,961,257	30,152,442	68,699,892
Orillia	54	2,106	7,592,193	10,247,610	22,891,521
Ottawa	218	9,091	37,024,549	59,511,842	137,330,140
Owen Sound	43	2,063	6,925,599	10,641,642	23,285,587
Paris	26	1,061	3,271,048	5,930,852	11,639,030
Pembroke	25	1,348	4,671,756	8,367,551	17,663,460
Perth	25	877	2,525,574	5,336,486	10,704,348
Peterborough	81	7,709	36,925,419	52,942,138	114,497,683
Port Arthur	54	2,222	10,429,689	22,469,600	48,209,926
Preston	45	2,226	8,560,655	16,297,217	31,070,396
St. Catharines	152	11,785	54,084,721	91,761,462	188,721,490
St. Mary's	13	701	2,872,491	9,332,889	19,647,125
St. Thomas	57	2,272	8,724,866	16,395,540	32,495,616
Sarnia	53	6,800	38,953,849	204,758,828	352,170,970
Simcoe	31	1,433	6,086,063	27,960,806	46,008,212
Smiths Falls	27	777	2,781,655	4,419,965	12,186,370
Stratford	67	3,278	11,261,701	27,846,313	49,704,141
Streetsville	17	646	2,712,070	5,184,892	10,939,860
Swansea	19	1,276	6,102,485	10,733,060	20,449,456
Thorold	20	1,461	6,799,981	12,549,153	26,782,314
Tillsonburg	25	984	3,380,236	11,187,179	17,100,866

12.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of $10,000,000 or Over and with Three or More Establishments, 1961—concluded

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	$	$	$
Ontario—concluded					
Toronto	2,765	116,043	498,275,086	1,010,974,767	1,873,844,843
Trenton	30	1,665	5,596,132	12,600,433	27,479,577
Wallaceburg	31	1,655	6,567,319	8,424,634	19,748,205
Waterloo	67	3,688	13,901,627	25,061,646	68,131,308
Welland	53	3,966	17,000,980	50,297,911	89,660,933
Weston	73	2,754	11,622,961	20,172,442	41,418,386
Windsor	282	20,351	105,820,857	222,681,753	417,752,351
Woodstock	56	3,842	15,543,594	43,267,733	76,607,894
Manitoba—					
Brandon	39	653	2,440,929	8,261,545	12,471,341
St. Boniface	83	4,699	20,322,818	135,629,042	171,670,975
St. James	69	2,838	10,818,017	21,635,789	42,983,135
Winnipeg	736	23,694	86,394,635	170,235,309	327,006,840
Saskatchewan—					
Moose Jaw	47	1,432	5,808,285	35,167,374	48,720,692
Prince Albert	26	841	3,420,721	14,322,647	23,185,429
Regina	124	3,521	15,116,033	59,954,268	100,631,753
Saskatoon	134	3,461	14,234,301	66,548,310	97,171,036
Alberta—					
Calgary	367	9,717	41,927,548	166,941,388	253,181,804
Edmonton	420	12,928	51,724,636	172,936,964	276,174,133
Lethbridge	64	1,413	5,309,118	24,994,715	39,314,323
Medicine Hat	42	1,226	4,901,707	19,404,840	33,522,382
Red Deer	31	434	1,451,462	5,910,595	10,356,195
British Columbia—					
Kelowna	31	911	3,565,083	6,725,963	12,800,167
New Westminster	97	5,328	24,440,919	53,579,335	101,383,744
North Vancouver	71	2,025	9,994,933	14,256,603	36,562,451
Port Moody	7	674	3,460,424	20,232,405	28,652,902
Prince George	47	817	3,179,280	8,303,683	13,915,925
Vancouver	1,143	30,989	141,169,361	278,679,062	509,665,553
Victoria	158	3,884	16,832,357	26,821,315	54,442,123

Section 4.—Selected Characteristics of the Manufacturing Industries—Ownership, Employees and Factory Shipments

This Section includes a number of classifications and cross-classifications of the manufacturing industries according to type of ownership, employees and value of shipments. Table 13 shows the distribution of establishments, employees and shipments by type of ownership and size of establishment. As is to be expected, the smaller establishments, regardless of the type of products manufactured, are operated mainly under individual ownership or partnerships. Industries conducted on a small scale usually contain a large number of establishments in this category, the percentage decreasing as the scale of operation increases; with the increase in size, the importance of individual ownership as well as that of partnerships declines. For incorporated companies, however, the opposite is true; as the size increases their importance increases—numerically and also as employers and producers.

13.—Percentage Distribution of Manufacturing Establishments, Employees and Shipments, by Type of Ownership and Size of Establishment, 1961

Item	Selling Value of Factory Shipments			
	Under $25,000	$25,000 to $99,999	$100,000 to $499,999	$500,000 or Over
	p.c.	p.c.	p.c.	p.c.
Establishments—				
Individual ownership	74.8	41.4	9.7	0.6
Partnerships	12.6	15.6	5.9	0.9
Incorporated companies	12.2	41.0	79.7	96.4
Co-operatives	0.4	2.0	4.7	2.1
Totals	100.0	100.0	100.0	100.0
Employees—				
Individual ownership	68.5	36.0	5.8	0.2
Partnerships	15.6	15.1	4.8	0.3
Incorporated companies	15.6	47.7	87.6	98.8
Co-operatives	0.3	1.2	1.8	0.7
Totals	100.0	100.0	100.0	100.0
Factory Shipments—				
Individual ownership	70.1	37.0	7.0	0.2
Partnerships	14.3	14.9	4.8	0.2
Incorporated companies	15.1	45.6	83.6	98.4
Co-operatives	0.5	2.5	4.6	1.2
Totals	100.0	100.0	100.0	100.0

Type of Ownership.—Of the 32,415 establishments operating in 1961, individual ownership numbered 11,160 establishments, partnerships 3,058, incorporated companies 17,439, and co-operatives 758. The percentage distribution of the four categories of ownership is given in Table 14 for the years 1952-61 and by province and industrial group for 1961. It is interesting to note that incorporated companies are becoming increasingly important, the percentage of the total number of establishments rising from 36.9 in 1952 to 54.0 in 1961. Within industrial groups, the extent of incorporation shows considerable variation, ranging from 34.3 p.c. in the wood industries to 95.6 p.c. in the petroleum and coal products industries in 1961. Individual ownership ranged from 4.4 p.c. in the petroleum and coal products industries to 53.6 p.c. in the furniture and fixture industries. Partnerships had their highest proportion—12.5 p.c. of the total—in the wood industries, and co-operatives—9.7 p.c.—in the food and beverage industries.

14.—Percentage Distribution of Manufacturing Establishments classified by Type of Ownership, 1952-61, and by Province and Industrial Group, 1961

Year, Province or Territory and Group	Individual Ownership	Partnerships	Incorporated Companies	Co-operatives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
1952	44.9	15.4	36.9	2.8	100.0
1953	44.4	14.8	38.2	2.6	100.0
1954	43.6	14.3	39.5	2.6	100.0
1955	42.7	13.6	41.1	2.6	100.0
1956	41.4	12.7	43.4	2.5	100.0
1957	40.6	12.0	44.9	2.5	100.0
1958	39.2	11.1	47.1	2.6	100.0
1959	38.4	10.8	48.2	2.6	100.0
1960	37.7	10.3	49.5	2.5	100.0
1961	34.4	9.4	54.0	2.2	100.0
Province, 1961					
Newfoundland	39.3	22.5	38.2	—	100.0
Prince Edward Island	46.2	14.7	34.0	5.1	100.0
Nova Scotia	43.5	10.2	44.0	2.3	100.0
New Brunswick	41.0	8.6	48.4	2.0	100.0
Quebec	40.7	8.2	47.4	3.7	100.0
Ontario	29.3	9.8	59.6	1.3	100.0
Manitoba	34.3	10.1	53.7	1.9	100.0
Saskatchewan	38.2	9.6	45.2	7.0	100.0
Alberta	30.3	10.5	55.8	3.4	100.0
British Columbia	28.5	9.8	60.9	0.8	100.0
Yukon and Northwest Territories	30.8	—	69.2	—	100.0
Industrial Group, 1961					
Food and beverage industries	39.9	9.9	40.5	9.7	100.0
Tobacco products industries	10.5	[1]	81.6	7.9	100.0
Rubber industries	9.7	[1]	90.3	—	100.0
Leather industries	21.8	6.5	71.7	—	100.0
Textile industries	24.2	9.7	66.1	[2]	100.0
Knitting mills	12.0	6.7	81.3	[2]	100.0
Clothing industries	23.5	11.0	65.5	—	100.0
Wood industries	53.0	12.5	34.3	0.2	100.0
Furniture and fixture industries	53.6	11.1	35.3	[2]	100.0
Paper and allied industries	5.8	2.5	91.7	—	100.0
Printing, publishing and allied industries	36.6	9.9	53.3	0.2	100.0
Primary metal industries	12.0	7.0	81.0	—	100.0
Metal fabricating industries (except machinery and transportation equipment industries)	25.3	9.0	65.6	0.1	100.0
Machinery industries (except electrical)	7.0	3.1	89.9	[2]	100.0
Transportation equipment industries	24.1	9.0	66.9	—	100.0
Electrical products industries	4.9	1.1	94.0	—	100.0
Non-metallic mineral products industries	25.2	7.9	66.9	[2]	100.0
Petroleum and coal products industries	4.4	[1]	95.6	[2]	100.0
Chemical and chemical products industries	11.6	2.9	85.0	0.5	100.0
Miscellaneous manufacturing industries	32.0	9.1	58.9	[2]	100.0

[1] Included with individual ownership. [2] Included with incorporated companies.

The establishments operating under individual ownership are not as important from the point of view of employment provided as their large numbers would indicate. These establishments, which comprised 34.4 p.c. of the total number in 1961, had only 3.7 p.c. of the total employees. Partnerships accounted for 9.4 p.c. of the establishments and 1.9 p.c. of the total employees. Incorporated companies, with 54.0 p.c. of the number of establishments, had 93.5 p.c. of the employees, and co-operatives with 2.2 p.c. of the number had 0.9 p.c. of the employees.

Thus, on the basis of employment provided, incorporated companies are, by a wide margin, the most important factor in the employment field. Such companies had 99 p.c. or more of the employees in the rubber, paper, primary metal, machinery, transportation equipment, electrical products and chemical products groups; over 97 p.c. of the employees in the tobacco products and petroleum and coal products groups; and over 95 p.c. in the leather, textiles, knitting mills and non-metallic minerals groups. The lowest proportion was 84 p.c. in the wood group.

15.—Percentage Distribution of Employment in the Manufacturing Industries classified by Type of Ownership, 1952-61, and by Province and Industrial Group, 1961

Year, Province or Territory and Group	Individual Ownership	Partnerships	Incorporated Companies	Co-operatives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
1952	5.9	3.6	89.6	0.9	100.0
1953	5.7	3.3	90.2	0.8	100.0
1954	5.4	3.3	90.5	0.8	100.0
1955	5.2	2.9	91.0	0.9	100.0
1956	4.8	2.6	91.8	0.8	100.0
1957	4.5	2.4	92.2	0.9	100.0
1958	4.4	2.3	92.4	0.9	100.0
1959	4.3	2.2	92.6	0.9	100.0
1960	4.1	2.0	92.9	1.0	100.0
1961	3.7	1.9	93.5	0.9	100.0
Province, 1961					
Newfoundland	2.7	1.9	95.4	—	100.0
Prince Edward Island	13.1	6.7	73.9	6.3	100.0
Nova Scotia	6.8	1.9	89.3	2.0	100.0
New Brunswick	5.7	2.3	90.4	1.6	100.0
Quebec	5.0	2.1	92.0	0.9	100.0
Ontario	2.5	1.6	95.6	0.3	100.0
Manitoba	3.7	2.0	93.0	1.3	100.0
Saskatchewan	6.9	2.9	78.3	11.9	100.0
Alberta	4.6	2.3	90.8	2.3	100.0
British Columbia	3.3	1.7	93.2	1.8	100.0
Yukon and Northwest Territories	14.5	—	85.5	—	100.0
Industrial Group, 1961					
Food and beverage industries	7.2	2.8	85.1	4.9	100.0
Tobacco products industries	0.8	[1]	97.9	1.3	100.0
Rubber industries	0.3	[1]	99.7	—	100.0
Leather industries	3.6	1.3	95.1	—	100.0
Textile industries	2.0	1.3	96.7	[2]	100.0
Knitting mills	2.4	1.7	95.9	[2]	100.0
Clothing industries	6.3	5.9	87.8	—	100.0
Wood industries	11.5	4.1	84.0	0.4	100.0
Furniture and fixture industries	10.0	4.3	85.7	[2]	100.0
Paper and allied industries	0.2	0.1	99.7	—	100.0
Printing, publishing and allied industries	6.3	2.6	90.6	0.5	100.0
Primary metal industries	0.3	0.3	99.4	—	100.0
Metal fabricating industries (except machinery and transportation equipment industries)	3.0	1.9	94.8	0.3	100.0
Machinery industries (except electrical)	0.4	0.5	99.1	[2]	100.0
Transportation equipment industries	0.5	0.3	99.2	—	100.0
Electrical products industries	0.1	0.1	99.8	—	100.0
Non-metallic mineral products industries	2.9	1.8	95.3	[2]	100.0
Petroleum and coal products industries	2.2	[1]	97.8	[2]	100.0
Chemical and chemical products industries	0.6	0.3	99.0	0.1	100.0
Miscellaneous manufacturing industries	4.6	2.5	92.9	[2]	100.0

[1] Included with individual ownership. [2] Included with incorporated companies.

Size of Manufacturing Establishments Based on Number of Employees and on Factory Shipments.—The size of a manufacturing establishment is usually measured either by the number of employees or by the value of the product, but each of these methods has its limitations. The former takes no account of the differences in capital equipment at different times or in various industries and obviously the increased use of machinery

may lead to increased production concurrently with the use of fewer employees. Also, industries with high capital investment in machinery and equipment are underrated as compared with industries lacking such equipment and employing larger numbers of hand workers. The latter measure must be adjusted for price changes and, as between industries, those in which the cost of raw materials is relatively high appear to operate on a larger scale.

Size Based on Number of Employees.—In the late 1920's there was a tendency in evidence of increasing concentration into larger units. Although this trend was checked during the depression of the 1930's, it was resumed again during the war years. However, following the War, the larger establishments began to decrease in size and by 1961 only 52 establishments employed over 1,500 persons as compared with 101 in 1944.

16.—Establishments and Employees in Manufactures classified by Number of Employees per Establishment, 1949, 1955, 1959 and 1961

Employee Group	Establishments	Employees	Average per Establishment	Establishments	Employees	Average per Establishment
	1949			1955[1]		
	No.	No.	No.	No.	No.	No.
Under 5 employees	16,647	34,865	2.1	17,602	36,340	2.2
5 to 14 "	9,133	75,482	8.3	9,864	81,471	8.3
15 " 49 "	5,967	159,012	26.7	6,340	169,575	26.7
50 " 99 "	1,905	132,069	69.3	2,082	144,411	69.4
100 " 199 "	1,114	156,084	140.1	1,175	163,091	138.8
200 " 499 "	694	213,130	307.1	739	227,667	308.1
500 " 999 "				243	167,720	690.2
1,000 " 1,499 "	332	391,455	1,179.1	76	91,840	1,208.4
1,500 or over				61	200,413	3,285.5
Head offices[2]	—	9,110	—	—	15,933	—
Totals and Averages	**35,792**	**1,171,207**	**32.7**	**38,182**	**1,298,461**	**34.0**
	1959			1961		
	No.	No.	No.	No.	No.	No.
Under 5 employees	15,319	31,710	2.2	12,071	27,788	2.3
5 to 14 "	9,728	80,558	8.3	9,239	76,825	8.3
15 " 49 "	6,466	174,506	27.0	6,434	173,974	27.0
50 " 99 "	2,250	156,127	69.4	2,276	157,952	69.4
100 " 199 "	1,255	173,220	138.0	1,249	173,351	138.8
200 " 499 "	799	241,597	302.4	809	244,688	302.5
500 " 999 "	252	172,659	685.2	228	158,965	697.2
1,000 " 1,499 "	72	89,438	1,242.2	57	71,500	1,254.4
1,500 or over	52	167,454	3,220.3	52	163,973	3,153.3
Head offices[2]	—	16,687	—	—	15,930	—
Totals and Averages	**36,193**	**1,303,956**	**36.0**	**32,415**	**1,264,946**	**39.0**

[1] Newfoundland included from 1955. [2] Includes only those head offices not located at a plant.

The provincial concentration of manufacturing in large establishments in 1961 is shown in Table 17. Of the 337 establishments in Canada with 500 or more employees, almost half were in Ontario and more than one third in Quebec. The 157 establishments in this category in Ontario accounted for 43.0 p.c. of the total value of factory shipments for the province and 21.2 p.c. of the Canadian total. Comparable percentages for the other provinces or regions were: Quebec, 36.8 and 11.7; the Atlantic Provinces, 31.8 and 1.2; British Columbia, 29.1 and 2.4; and the Prairie Provinces, 18.3 and 1.5. There were no plants in either Prince Edward Island or the Yukon and Northwest Territories with 500 or more employees.

17.—Manufacturing Establishments classified by Number of Employees and by Province, 1961

Province or Territory	Employees— Up to 199	200 to 499	500 to 999	1,000 to 1,499	1,500 or Over	Total
	No.	No.	No.	No.	No.	No.
Newfoundland	331	5	—	1	1	338
Prince Edward Island	155	1	—	—	—	156
Nova Scotia	979	17	4	1	1	1,002
New Brunswick	688	13	5	1	1	708
Quebec	10,569	266	81	22	17	10,955
Ontario	11,536	388	102	27	28	12,081
Manitoba	1,383	24	6	2	1	1,416
Saskatchewan	665	9	1	—	—	675
Alberta	1,532	28	9	—	—	1,569
British Columbia	3,418	58	20	3	3	3,502
Yukon and Northwest Territories	13	—	—	—	—	13
Canada	**31,269**	**809**	**228**	**57**	**52**	**32,415**

Table 18 shows the wide variation that occurs in the degree of concentration in some of the leading manufacturing industries of Canada.

18.—Number and Relative Importance of Establishments with 200 or more Employees in the 25 Leading Industries, 1961

NOTE.—Based on the revised standard industrial classification and new establishment concept (see p. 655).

	Industry	Number of Establishments Employing 200 or more Persons	Percentage of Total Establishments in the Industry	Percentage of Total Shipments in the Industry
1	Pulp and paper mills	84	67.2	95.1
2	Smelting and refining	21	87.5	98.2
3	Petroleum refining	18	40.9	78.5
4	Slaughtering and meat packing plants	34	14.0	72.9
5	Motor vehicle manufacturers	9	52.9	98.9
6	Iron and steel mills	18	42.9	94.2
7	Sawmills	23	0.7	33.6
8	Manufacturers of industrial chemicals	16	12.5	67.8
9	Pasteurizing plants	21	2.9	31.9
10	Miscellaneous food manufacturers	10	3.7	31.2
11	Miscellaneous machinery and equipment manufacturers	33	7.9	46.9
12	Metal stamping, pressing and coating industry	22	5.0	52.2
13	Printing and publishing	30	4.0	68.4
14	Bakeries	27	1.1	35.2
15	Motor vehicle parts and accessories manufacturers	16	12.7	74.4
16	Aircraft and parts manufacturers	23	28.8	92.2
17	Fruit and vegetable canners and preservers	14	4.2	41.6
18	Butter and cheese plants	—	—	—
19	Feed manufacturers	—	—	—
20	Men's clothing factories	32	6.6	36.0
21	Women's clothing factories	9	1.4	8.0
22	Breweries	10	18.5	59.7
23	Communications equipment manufacturers	21	16.8	80.3
24	Synthetic textile mills	19	33.9	79.7
25	Cotton yarn and cloth mills	23	59.0	91.7

Size Based on Factory Shipments.—Although historical statistics on the value of manufacturing output in Canada are not strictly comparable because of differences in concept and coverage, there has been a general trend toward large establishments accounting for an increasing proportion of total output. In 1949, the number of factories having an output of $1,000,000 or over numbered 1,926 and the proportion of their production to the total was 74.4 p.c. By 1961 the number of establishments in that category had increased to 3,613 and their proportion of the output to 82.3 p.c.

19.—Manufacturing Establishments and Total and Average Selling Value of Factory Shipments classified by Value of Product Group, 1949, 1955, 1959 and 1961

Value Group	Establishments	Selling Value of Factory Shipments[1]	Average per Establishment	Establishments	Selling Value of Factory Shipments[1]	Average per Establishment
	1949			1955[2]		
	No.	$	$	No.	$	$
Under $25,000	16,176	145,907,685	9,020	15,327	143,480,957	9,362
$ 25,000 but under $ 50,000	4,884	174,899,010	35,810	5,112	184,847,245	36,159
50,000 " 100,000	4,487	320,878,071	71,513	4,781	343,512,650	50,933
100,000 " 200,000	3,630	514,921,581	141,852	4,250	608,414,152	143,156
200,000 " 500,000	3,195	1,000,486,294	313,141	3,970	1,261,916,569	317,863
500,000 " 1,000,000	1,494	1,041,235,578	696,945	2,013	1,411,584,589	701,234
1,000,000 " 5,000,000	1,505	3,164,936,378	2,102,948	2,101	4,364,363,277	2,077,279
5,000,000 or over	421	6,116,328,703	14,528,097	628	11,195,814,372	17,827,730
Totals and Averages	**35,792**	**12,479,593,300**	**348,670**	**38,182**	**19,513,933,811**	**511,077**
	1959			1961		
	No.	$	$	No.	$	$
Under $25,000	11,967	118,491,742	9,902	8,788	101,796,226	11,584
$ 25,000 but under $ 50,000	4,795	172,972,326	36,073	4,530	162,752,093	35,928
50,000 " 100,000	4,874	350,262,824	71,854	4,434	319,653,784	72,092
100,000 " 200,000	4,382	626,769,497	143,032	4,194	601,098,287	143,323
200,000 " 500,000	4,459	1,424,683,038	319,507	4,484	1,437,837,546	320,660
500,000 " 1,000,000	2,322	1,645,987,369	708,866	2,372	1,672,586,766	705,138
1,000,000 " 5,000,000	2,624	5,594,574,528	2,132,079	2,823	6,019,674,443	2,132,368
5,000,000 or over	770	13,377,860,157	17,373,844	790	13,927,895,804	17,630,248
Totals and Averages	**36,193**	**23,311,601,481**	**644,091**	**32,415**	**24,243,294,949**	**747,904**

[1] Gross value of products for 1949. [2] Newfoundland included from 1955.

The dominant role of the large establishment is particularly evident in the leading industries, as shown in Table 20.

20.—Number and Relative Importance of Establishments each with Selling Value of Factory Shipments of $1,000,000 or Over in the 25 Leading Industries, 1961

NOTE.—Based on the revised standard industrial classification and new establishment concept (see p. 655).

	Industry	Number of Establishments with Value of Shipments of $1,000,000 or Over	Percentage of Total Establishments in the Industry	Percentage of Total Value of Shipments in the Industry
1	Pulp and paper mills	110	88.0	99.5
2	Smelting and refining	22	91.7	99.9
3	Petroleum refining	43	97.7	99.9
4	Slaughtering and meat packing plants	98	40.5	95.6
5	Motor vehicle manufacturers	14	82.4	99.8
6	Iron and steel mills	30	71.4	99.1
7	Sawmills	96	2.9	57.2
8	Manufacturers of industrial chemicals	52	40.6	93.9
9	Pasteurizing plants	96	13.1	66.7
10	Miscellaneous food manufacturers	84	31.5	89.3

20.—Number and Relative Importance of Establishments each with Selling Value of Factory Shipments of $1,000,000 or Over in the 25 Leading Industries, 1961—concluded

	Industry	Number of Establishments with Value of Shipments of $1,000,000 or Over	Percentage of Total Establishments in the Industry	Percentage of Total Value of Shipments in the Industry
11	Miscellaneous machinery and equipment manufacturers	106	25.2	79.1
12	Metal stamping, pressing and coating industry	73	16.7	78.6
13	Printing and publishing	59	7.8	80.5
14	Bakeries	70	2.8	53.5
15	Motor vehicle parts and accessories manufacturers	47	37.3	92.9
16	Aircraft and parts manufacturers	27	33.8	95.8
17	Fruit and vegetable canners and preservers	69	20.6	81.1
18	Butter and cheese plants	58	6.3	40.7
19	Feed manufacturers	55	5.7	52.3
20	Men's clothing factories	69	14.1	56.0
21	Women's clothing factories	71	11.2	39.3
22	Breweries	42	77.8	97.8
23	Communications equipment manufacturers	35	28.0	89.2
24	Synthetic textile mills	37	66.1	96.6
25	Cotton yarn and cloth mills	31	79.5	98.6

Section 5.—The Federal Department of Industry

The Department of Industry was established July 25, 1963 by Act of Parliament (SC 1963, c. 3). The duties and powers of the Minister of Industry under the Act include all matters relating to manufacturing industries in Canada over which the Parliament of Canada has jurisdiction not assigned to any other branch or agency of the Government. The Department is responsible for fostering the establishment, growth, efficiency and improvement of manufacturing industries by programs: (1) to assist the adaptation of manufacturing industries to changing conditions in domestic and export markets and to changes in the techniques of production; (2) to assist manufacturing industries that require special measures to develop an unrealized potential or to cope with exceptional problems of adjustment; and (3) to promote the development and use of modern industrial technology in Canada and improve the effectiveness of participation by the Government of Canada in industrial research. In addition, the Department has an Area Development Agency which has been established to formulate and implement programs to assist economic development in designated areas. In all of its activities, the Department of Industry works in the closest possible liaison with representatives of industry and with the provincial governments.

The establishment of the Department of Industry formally recognized the importance of secondary industry to the over-all economy of Canada. The Department is the representative and spokesman in the Government for Canada's secondary industries.

Branches.—Each of the ten Branches of the Department has a special responsibility for dealing with matters relating to a specific sector of manufacturing and each is directly concerned with industrial development and government procurement. The *Aircraft Branch* is concerned with the aircraft industry development and expansion; the *Chemicals Branch* is concerned with industrial development and government procurement of chemical, petroleum, plastic and rubber products; the *Clothing and Textiles Branch* with the primary textiles, clothing and leather industries; the *Electrical and Electronics Branch* with the development and expansion of programs to widen the base of electrical and electronic manufacturing; the *Food Products Branch* with the development of food industries including fruits, vegetables, meat products, confectionery and beverages as well as cereals and prepared foods; the *Machinery Branch* with industrial development of machinery, mechanical

products and armament; the *Materials Branch* with industrial development of the products and processes of the iron and steel and non-ferrous industries, as well as of industrial materials or non-metallic minerals; the *Mechanical Transport Branch* with the industrial development of motor vehicle manufacturing, including parts and accessories as well as truck body and trailer manufacturing, and also with railway rolling-stock, agricultural implements and construction equipment industries; the *Shipbuilding Branch* with the development of the shipbuilding complex and heavy equipment industries; and the *Wood Products Branch* with industrial development of wood, pulp, paper, printing, lumber, plywood, furniture and other wood-based products. Within these ten Branches are 33 Divisions, each covering a major segment of an industrial group and directing its attention to one type of industry.

Each Branch is headed by a Director supported by a Deputy Director, and each Division is supervised by a Division Chief; all are specialists in their own field of industry.

Product Design.—The organization also includes a National Design Branch the function of which is to promote good design in all sectors of the economy. This Branch provides administrative support to the National Design Council and together they have prepared a program and initiated projects to assist industry in product design. The Design Centre, which operates under the guidance of these two bodies, is located in Toronto and constitutes a permanent place of exhibition for products of Canadian design.

Area Development Agency.—This Agency, established under the provisions of the Department of Industry Act, is responsible for developing economic intelligence on an area or regional basis and employing programs of development for areas of high unemployment and slow economic growth throughout the country. This is done in co-operation with the provincial Departments of Trade and Industry as well as other developmental and industrial groups within the provinces.

The activities of the Area Development Agency will be carried out at the local level by area development officers, each of whom will be responsible for a group of the 35 areas in Canada that have been designated as in need of industrial development assistance. Each Area Development Officer must be thoroughly familiar with the economic problems peculiar to the areas of concern to him and must serve as liaison with the Department and local industrial, civic and provincial government officials in initiating and sustaining an active industrial development program. Through these officers the facilities of the Department of Industry and of all sources of assistance available at the federal level can be integrated to stimulate economic activity within any designated area.

CHAPTER XVII.—CAPITAL EXPENDITURES, CONSTRUCTION AND HOUSING*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

This Chapter provides data on the capital expenditures made by all sectors of the Canadian economy on construction and on machinery and equipment, together with summaries of other available statistics for the construction industry. Section 1 shows the amounts spent by each of the various industrial or economic sectors. Section 2 brings together a number of summaries of related series on construction activity—value of work performed by type of structure, value of materials used, salaries and wages paid and numbers employed, contracts awarded and building permits issued. Government aid to house-building, construction of dwelling units and housing statistics of the 1961 Census are covered in Section 3.

Section 1.—Capital Expenditures on Construction and on Machinery and Equipment

Capital expenditures† in all sectors of the economy amounted to $9,312,000,000 in 1963, an increase of 6.9 p.c. over the 1962 total of $8,715,000,000. The over-all increase resulted from an 8.0-p.c. rise in the purchase of machinery and equipment and a 6.3-p.c. increase in construction expenditures. Throughout most of the period after 1946, capital outlays in Canada increased each year, reaching a peak in 1957; after a four-year decline, a significant increase was shown in 1962 and a further strengthening occurred in 1963 when capital spending, in current dollars, exceeded the 1957 total. However, in constant (1957) dollars, the total 1963 capital program was still 5 p.c. below the level of 1957, declines having occurred in constant dollar volume each year following 1957 until 1962 and 1963. A significant proportion of Canada's gross national product is being devoted to the expansion, modernization or renewal of the nation's production facilities, notwithstanding the decline in this proportion in recent years.

* Except where otherwise noted, prepared in the Planning and Development Section, Business Finance Division, Dominion Bureau of Statistics.

† Capital expenditure figures for 1962 and earlier years are final and those for 1963 are preliminary and subject to revision at a later date. Capital expenditures for 1962 and 1963, as well as intentions for 1964, appear in greater detail in the publication *Private and Public Investment in Canada, Outlook 1964*, available from the Queen's Printer (Catalogue No. C51-1/1964).

1.—Capital Expenditures on Construction and on Machinery and Equipment, in Current and Constant (1957) Dollars, 1954-63

NOTE.—Actual expenditures 1954-62; preliminary actual 1963.

Year	Capital Expenditures						Total Expenditure as Percentage of Gross National Product	
	Construction		Machinery and Equipment		Totals			
	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	p.c.	p.c.
1954.....	3,737	4,149	1,984	2,245	5,721	6,394	23.0	23.9
1955.....	4,169	4,512	2,075	2,305	6,244	6,817	23.0	23.5
1956.....	5,273	5,445	2,761	2,888	8,034	8,333	26.3	26.4
1957.....	5,784	5,784	2,933	2,933	8,717	8,717	27.3	27.3
1958.....	5,830	5,865	2,534	2,467	8,364	8,332	25.4	25.9
1959.....	5,709	5,557	2,708	2,590	8,417	8,147	24.1	24.5
1960.....	5,453	5,224	2,809	2,636	8,262	7,860	23.0	23.2
1961.....	5,518	5,331	2,654	2,455	8,172	7,786	21.8	22.2
1962.....	5,787	5,388	2,928	2,643	8,715	8,031	21.6	21.6
1963.....	6,149	5,485	3,163	2,799	9,312	8,284	21.7	21.3

As shown in Table 1, construction accounts for about two thirds of the total capital expenditures each year and machinery and equipment for about one third. Recently, there has been a slightly upward trend in the proportion of the total being used for the purchase of machinery and equipment. This rose from 32.5 p.c. in 1961 to 34.0 p.c. in 1963. The proportion used for housing construction also rose in the same period—from 17.9 p.c. to 18.4 p.c.—but the non-residential construction outlays dropped from 49.6 p.c. of the total to 47.6 p.c., accounting for the lower proportion spent on construction as a whole.

All economic sectors, with the exception of trade and finance, reported increased capital outlays in 1963. The mining industry showed an increase of $23,000,000, reflecting an expanding program in non-metallic minerals, particularly in oil and gas well development, with some offsetting decline in plans of producers of primary metals. Expenditures on new manufacturing facilities increased by $78,000,000 over 1962, accounted for mainly by higher outlays for newsprint and pulp-making facilities and increased spending by chemical companies and capital goods producing industries. Capital expenditures for utilities—including transportation, communication and storage facilities, and public utilities such as gas, water and electricity—went up by $221,000,000, much of the increase resulting from additions to facilities for power generation and gas distribution, accelerated work on the rapid-transit systems in two major cities, an expanded pipeline program, and installation of additional telegraph facilities. Institutional services—including hospitals, schools, universities, churches and welfare institutions—recorded an advance of $22,000,000; the technical school building program and greater expenditure on university facilities kept the school construction outlay at a somewhat higher level than in 1962, offsetting a decline in spending on hospitals. Capital outlays by government departments at all levels increased by $37,000,000 over 1962; government departments as defined for capital expenditure purposes include the part of government activity (excluding institutions) generally dependent on tax revenues for financial support as opposed to activities directly producing revenues on a service-rendered basis. Spending by provincial governments increased by $63,000,000 and spending by municipal governments by $19,000,000 but the Federal Government spent $44,000,000 less than in the previous year, reflecting the continuance of the austerity program for part of 1963. One of the major activities of government involving expenditures by federal, provincial and municipal governments is the roads, highways, bridges and streets program.

All provinces except Newfoundland contributed to the increase in capital spending in 1963. An advance of 21.2 p.c. was recorded by Manitoba and one of 9.7 p.c. by British Columbia, both reflecting, in part, larger electric power programs. Increases above the national rate of 6.9 p.c. were also recorded by Saskatchewan with 16.6 p.c., Nova Scotia with 10.3 p.c. and New Brunswick with 7.3 p.c., but in Quebec, Alberta and Prince Edward Island the increases were more modest at 5.9 p.c., 5.3 p.c., and 4.7 p.c., respectively. Newfoundland's decline of 13.0 p.c. was accounted for by the near completion of construction on a major iron ore development in Labrador. It should be pointed out that sharp year-to-year fluctuations in capital outlays in any one province are often associated with the changing phases of a few large projects.

2.—Summary of Capital and Repair Expenditures, by Economic Sector, 1962 and 1963

NOTE.—Actual expenditures 1962; preliminary actual 1963.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
Agriculture and fishing....1962	185	478	663	71	150	221	256	628	884
1963	186	558	744	72	163	235	258	721	979
Forestry....1962	29	25	54	16	33	49	45	58	103
1963	27	33	60	16	32	48	43	65	108
Mining, quarrying and oil wells....1962	340	140	480	31	105	136	371	245	616
1963	367	136	503	37	103	140	404	239	643
Manufacturing....1962	353	916	1,269	133	617	750	486	1,533	2,019
1963	341	1,006	1,347	131	632	763	472	1,638	2,110
Utilities....1962	982	619	1,601	281	453	734	1,263	1,072	2,335
1963	1,141	681	1,822	280	466	746	1,421	1,147	2,568
Construction....1962	14	95	109	4	126	130	18	221	239
1963	15	101	116	4	133	137	19	234	253
Housing....1962	1,587	—	1,587	513	—	513	2,100	—	2,100
1963	1,713	—	1,713	544	—	544	2,257	—	2,257
Trade (wholesale and retail).1962	120	199	319	38	41	79	158	240	398
1963	138	174	312	36	45	81	174	219	393
Finance, insurance and real estate....1962	249	49	298	17	4	21	266	53	319
1963	218	38	256	18	5	23	236	43	279
Commercial services....1962	69	174	243	13	51	64	82	225	307
1963	89	199	288	13	51	64	102	250	352
Institutional services....1962	729	105	834	61	15	76	790	120	910
1963	744	112	856	59	17	76	803	129	932
Government departments....1962	1,130	128	1,258	330	58	388	1,460	186	1,646
1963	1,170	125	1,295	336	60	396	1,506	185	1,691
Totals....1962	**5,787**	**2,928**	**8,715**	**1,508**	**1,653**	**3,161**	**7,295**	**4,581**	**11,876**
1963	**6,149**	**3,163**	**9,312**	**1,546**	**1,707**	**3,253**	**7,695**	**4,870**	**12,565**

Details of some of the above economic sectors are given in Table 3. The value of construction work performed, together with statistics of contracts awarded and building permits issued in recent years, is covered in Section 2 of this Chapter. Housing is treated separately in Section 3.

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1962 and 1963

NOTE.—Actual expenditures 1962; preliminary actual 1963.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
	MANUFACTURING								
Foods and beverages.....1962	57.3	111.4	168.7	15.5	67.2	82.7	72.8	178.6	251.4
1963	53.3	102.6	155.9	13.8	61.3	75.1	67.1	163.9	231.0
Tobacco products.....1962	0.9	5.4	6.3	0.8	2.9	3.7	1.7	8.3	10.0
1963	0.4	3.2	3.6	1.1	3.1	4.2	1.5	6.3	7.8
Rubber.....1962	2.9	14.1	17.0	1.1	9.0	10.1	4.0	23.1	27.1
1963	3.3	12.1	15.4	1.0	10.4	11.4	4.3	22.5	26.8
Leather.....1962	0.9	3.6	4.5	0.6	3.0	3.6	1.5	6.6	8.1
1963	1.6	3.1	4.7	0.6	3.1	3.7	2.2	6.2	8.4
Textile.....1962	6.8	29.7	36.5	4.7	22.2	26.9	11.5	51.9	63.4
1963	9.3	35.7	45.0	4.2	21.6	25.8	13.5	57.3	70.8
Clothing and knitting mills..1962	1.4	12.4	13.8	1.2	5.0	6.2	2.6	17.4	20.0
1963	2.2	11.3	13.5	1.4	4.6	6.0	3.6	15.9	19.5
Wood.....1962	11.8	28.8	40.6	6.1	35.8	41.9	17.9	64.6	82.5
1963	12.4	34.7	47.1	6.3	34.9	41.2	18.7	69.6	88.3
Furniture and fixtures.....1962	2.4	4.6	7.0	1.0	2.6	3.6	3.4	7.2	10.6
1963	5.2	5.1	10.3	1.2	2.7	3.9	6.4	7.8	14.2
Paper and allied industries...1962	40.5	132.9	173.4	12.2	106.4	118.6	52.7	239.3	292.0
1963	36.7	178.1	214.8	11.4	111.4	122.8	48.1	289.5	337.6
Printing, publishing and allied industries.....1962	10.8	25.7	36.5	2.4	7.8	10.2	13.2	33.5	46.7
1963	15.7	29.8	45.5	1.8	7.8	9.6	17.5	37.6	55.1
Primary metals.....1962	58.4	159.1	217.5	18.5	151.9	170.4	76.9	311.0	387.9
1963	40.0	130.0	170.0	15.6	157.3	172.9	55.6	287.3	342.9
Metal fabricating.....1962	12.4	38.7	51.1	6.1	28.6	34.7	18.5	67.3	85.8
1963	13.6	38.5	52.1	5.4	29.5	34.9	19.0	68.0	87.0
Machinery.....1962	5.4	18.7	24.1	2.9	9.0	11.9	8.3	27.7	36.0
1963	13.7	22.9	36.6	3.3	11.8	15.1	17.0	34.7	51.7
Transportation equipment....1962	11.6	36.3	47.9	10.8	34.0	44.8	22.4	70.3	92.7
1963	26.3	49.4	75.7	11.8	39.3	51.1	38.1	88.7	126.8
Electrical products.....1962	10.9	29.4	40.3	3.9	18.9	22.8	14.8	48.3	63.1
1963	8.6	36.5	45.1	3.7	20.1	23.8	12.3	56.6	68.9
Non-metallic mineral products.....1962	13.7	38.5	52.2	5.2	51.4	56.6	18.9	89.9	108.8
1963	13.2	38.5	51.7	5.0	47.6	52.6	18.2	86.1	104.3
Petrolcum and coal products.1962	56.8	8.8	65.6	28.1	4.9	33.0	84.9	13.7	98.6
1963	42.7	8.0	50.7	29.6	4.7	34.3	72.3	12.7	85.0
Chemicals and chemical products.....1962	40.1	59.9	100.0	10.0	49.4	59.4	50.1	109.3	159.4
1963	36.8	80.9	117.7	11.8	52.9	64.7	48.6	133.8	182.4
Miscellaneous.....1962	8.2	19.0	27.2	1.8	7.2	9.0	10.0	26.2	36.2
1963	6.1	18.7	24.8	2.3	7.5	9.8	8.4	26.2	34.6
Capital items charged to operating expenses.....1962	—	139.4	139.4	—	—	—	—	139.4	139.4
1963	—	167.1	167.1	—	—	—	—	167.1	167.1
Totals, Manufacturing...1962	**353.2**	**916.4**	**1,269.6**	**132.9**	**617.2**	**750.1**	**486.1**	**1,533.6**	**2,019.7**
1963	**341.1**	**1,006.2**	**1,347.3**	**131.3**	**631.6**	**762.9**	**472.4**	**1,637.8**	**2,110.2**

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1962 and 1963—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
	UTILITIES								
Electric power 1962	440.7	142.5	583.2	50.8	31.5	82.3	491.5	174.0	665.5
1963	497.1	134.5	631.6	56.4	34.1	90.5	553.5	168.6	722.1
Gas distribution 1962	60.0	9.3	69.3	6.8	2.0	8.8	66.8	11.3	78.1
1963	64.9	16.3	81.2	5.5	2.0	7.5	70.4	18.3	88.7
Railway transport 1962	139.4	48.8	188.2	136.4	166.9	303.3	275.8	215.7	491.5
1963	169.4	35.3	204.7	136.7	176.7	313.4	306.1	212.0	518.1
Urban transport systems 1962	17.1	9.7	26.8	3.8	18.7	22.5	20.9	28.4	49.3
1963	28.5	14.3	42.8	3.9	18.1	22.0	32.4	32.4	64.8
Water transport and services 1962	26.2	56.5	82.7	7.7	16.5	24.2	33.9	73.0	106.9
1963	16.1	59.6	75.7	7.3	15.6	22.9	23.4	75.2	98.6
Motor transport 1962	4.5	46.4	50.9	1.7	57.6	59.3	6.2	104.0	110.2
1963	7.3	47.5	54.8	2.1	55.9	58.0	9.4	103.4	112.8
Grain elevators 1962	16.7	3.6	20.3	3.8	2.2	6.0	20.5	5.8	26.3
1963	10.9	4.7	15.6	4.5	2.1	6.6	15.4	6.8	22.2
Telephones 1962	135.7	235.6	371.3	38.4	105.1	143.5	174.1	340.7	514.8
1963	151.7	267.3	419.0	38.1	115.1	153.2	189.8	382.4	572.2
Broadcasting 1962	3.9	9.3	13.2	0.6	3.0	3.6	4.5	12.3	16.8
1963	5.5	9.0	14.5	0.9	2.8	3.7	6.4	11.8	18.2
Water systems 1962	61.3	2.8	64.1	23.4	1.3	24.7	84.7	4.1	88.8
1963	56.1	2.8	58.9	18.9	2.0	20.9	75.0	4.8	79.8
Other utilities 1962	76.5	40.6	117.1	7.2	47.8	55.0	83.7	88.4	172.1
1963	133.6	45.1	178.7	6.0	41.9	47.9	139.6	87.0	226.6
Capital items charged to operating expenses 1962	—	13.8	13.8	—	—	—	—	13.8	13.8
1963	—	44.3	44.3	—	—	—	—	44.3	44.3
Totals, Utilities 1962	**982.0**	**618.9**	**1,600.9**	**280.6**	**452.6**	**733.2**	**1,262.6**	**1,071.5**	**2,334.1**
1963	**1,141.1**	**680.7**	**1,821.8**	**280.3**	**466.3**	**746.6**	**1,421.4**	**1,147.0**	**2,568.4**
	TRADE								
Wholesale 1962	21.2	36.7	57.9	6.2	9.5	15.7	27.4	46.2	73.6
1963	22.2	32.8	55.0	6.0	13.2	19.2	28.2	46.0	74.2
Chain stores 1962	18.7	37.2	55.9	5.5	6.7	12.2	24.2	43.9	68.1
1963	26.0	32.1	58.1	4.8	6.5	11.3	30.8	38.6	69.4
Independent stores 1962	30.6	59.0	89.6	10.9	10.9	21.8	41.5	69.9	111.4
1963	42.6	50.9	93.5	9.6	10.8	20.4	52.2	61.7	113.9
Department stores 1962	20.4	18.8	39.2	4.5	2.1	6.6	24.9	20.9	45.8
1963	15.9	13.9	29.8	4.9	2.5	7.4	20.8	16.4	37.2
Automotive trade 1962	29.5	29.1	58.6	11.0	12.0	23.0	40.5	41.1	81.6
1963	30.8	28.3	59.1	10.8	11.6	22.4	41.6	39.9	81.5
Capital items charged to operating expenses 1962	—	17.8	17.8	—	—	—	—	17.8	17.8
1963	—	16.2	16.2	—	—	—	—	16.2	16.2
Totals, Trade 1962	**120.4**	**198.6**	**319.0**	**38.1**	**41.2**	**79.3**	**158.5**	**239.8**	**398.3**
1963	**137.5**	**174.2**	**311.7**	**36.1**	**44.6**	**80.7**	**173.6**	**218.8**	**392.4**

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1962 and 1963—concluded

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
	INSTITUTIONS								
Churches 1962	52.8	3.7	56.5	7.2	0.7	7.9	60.0	4.4	64.4
1963	45.0	3.3	48.3	6.5	0.7	7.2	51.5	4.0	55.5
Universities 1962	97.0	17.9	114.9	4.7	0.8	5.5	101.7	18.7	120.4
1963	111.8	20.6	132.4	7.6	2.7	10.3	119.4	23.3	142.7
Schools 1962	402.4	48.8	451.2	29.1	6.8	35.9	431.5	55.6	487.1
1963	424.9	51.2	476.1	24.8	6.4	31.2	449.7	57.6	507.3
Hospitals 1962	165.0	33.2	198.2	18.1	6.1	24.2	183.1	39.3	222.4
1963	144.8	35.2	180.0	18.5	6.8	25.3	163.3	42.0	205.3
Other institutional services 1962	12.2	1.2	13.4	1.5	0.2	1.7	13.7	1.4	15.1
1963	17.3	1.5	18.8	1.2	0.2	1.4	18.5	1.7	20.2
Totals, Institutions 1962	**729.4**	**104.8**	**834.2**	**60.6**	**14.6**	**75.2**	**790.0**	**119.4**	**909.4**
1963	**743.8**	**111.8**	**855.6**	**58.6**	**16.8**	**75.4**	**802.4**	**128.6**	**931.0**
	FINANCE								
Banks 1962	28.6	17.4	46.0	4.7	1.4	6.1	33.3	18.8	52.1
1963	25.3	12.3	37.6	6.2	2.5	8.7	31.5	14.8	46.3
Insurance, trust and loan companies 1962	25.4	12.4	37.8	2.5	0.9	3.4	27.9	13.3	41.2
1963	14.9	7.6	22.5	2.5	0.8	3.3	17.4	8.4	25.8
Other financial 1962	194.8	19.5	214.3	9.8	2.0	11.8	204.6	21.5	226.1
1963	177.8	17.8	195.6	8.9	1.8	10.7	186.7	19.6	206.3
Totals, Finance 1962	**248.8**	**49.3**	**298.1**	**17.0**	**4.3**	**21.3**	**265.8**	**53.6**	**319.4**
1963	**218.0**	**37.7**	**255.7**	**17.6**	**5.1**	**22.7**	**235.6**	**42.8**	**278.4**
	COMMERCIAL SERVICES								
Laundries and dry-cleaners 1962	1.5	6.0	7.5	1.2	3.3	4.5	2.7	9.3	12.0
1963	1.9	6.3	8.2	1.5	3.0	4.5	3.4	9.3	12.7
Theatres 1962	0.6	0.9	1.5	0.6	0.6	1.2	1.2	1.5	2.7
1963	1.9	1.5	3.4	0.7	0.5	1.2	2.6	2.0	4.6
Hotels 1962	24.0	13.9	37.9	8.9	7.3	16.2	32.9	21.2	54.1
1963	30.7	14.2	44.9	8.3	5.7	14.0	39.0	19.9	58.9
Other commercial services 1962	42.9	152.8	195.7	2.5	40.1	42.6	45.4	192.9	238.3
1963	54.8	176.6	231.4	2.3	41.6	43.9	57.1	218.2	275.3
Totals, Commercial Services 1962	**69.0**	**173.6**	**242.6**	**13.2**	**51.3**	**64.5**	**82.2**	**224.9**	**307.1**
1963	**89.3**	**198.6**	**287.9**	**12.8**	**50.8**	**63.6**	**102.1**	**249.4**	**351.5**

A summary of the capital expenditures in each province for the years 1962 and 1963 is given in Table 4. Such expenditures represent gross additions to the capital stocks of the province and are a reflection of economic activity in the area, although the actual production of these assets may generate major employment and income-giving effects in other

regions. For example, the spending of millions of dollars on oil refineries and pipelines in Western Canada means activity in the steel industries of Ontario as well as construction activity in the western provinces.

4.—Capital and Repair Expenditures, by Province, 1962 and 1963

NOTE.—Actual expenditures 1962; preliminary actual 1963.
(Millions of dollars)

Province and Year	Capital			Repair			Capital and Repair		
	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total	Construction	Machinery and Equipment	Total
Newfoundland 1962	177	84	261	23	21	44	200	105	305
1963	161	66	227	29	25	54	190	91	281
Prince Edward Island 1962	30	13	43	8	5	13	38	18	56
1963	29	16	45	9	5	14	38	21	59
Nova Scotia 1962	154	69	223	51	40	91	205	109	314
1963	162	84	246	55	42	97	217	126	343
New Brunswick 1962	117	62	179	38	36	74	155	98	253
1963	115	77	192	42	40	82	157	117	274
Quebec 1962	1,512	642	2,154	379	413	792	1,891	1,055	2,946
1963	1,569	712	2,281	386	411	797	1,955	1,123	3,078
Ontario 1962	1,936	1,118	3,054	512	631	1,143	2,448	1,749	4,197
1963	2,045	1,160	3,205	540	657	1,197	2,585	1,817	4,402
Manitoba 1962	278	146	424	83	89	172	361	235	596
1963	348	166	514	82	93	175	430	259	689
Saskatchewan 1962	332	181	513	85	86	171	417	267	684
1963	353	245	598	86	93	179	439	338	777
Alberta 1962	653	284	937	167	133	300	820	417	1,237
1963	694	293	987	159	134	293	853	427	1,280
British Columbia 1962	598	329	927	162	199	361	760	528	1,288
1963	673	344	1,017	158	207	365	831	551	1,382
Totals 1962	**5,787**	**2,928**	**8,715**	**1,508**	**1,653**	**3,161**	**7,295**	**4,581**	**11,876**
1963	**6,149**	**3,163**	**9,312**	**1,546**	**1,707**	**3,253**	**7,695**	**4,870**	**12,565**

Section 2.—Construction Statistics

Subsection 1.—Value of Construction Work Performed

Statistics of the construction industry are based largely on information received at the same time and from the same sources as the data on capital expenditures that appear in Section 1.* The data represent the estimated total value of all new and repair construction performed by contractors; by labour forces of utility, manufacturing, mining and logging firms; and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

Table 5 shows the value of new and repair construction work performed during the ten-year period 1954-63, and Table 6 shows that contractors account for 75 p.c. to 80 p.c. of the work performed each year.

* An explanation of sources and methods is given in DBS annual report *Construction in Canada* (Catalogue No. 64-201).

5.—Value of New and Repair Construction Work Performed, 1954-63

NOTE.—Actual expenditures 1954-62; preliminary actual 1963.

Year	New	Repair	Total	Total Construction as Percentage of Gross National Product
	$'000,000	$'000,000	$'000,000	p.c.
1954	3,737	1,105	4,842	19.5
1955	4,167	1,141	5,308	19.6
1956	5,272	1,182	6,454	21.1
1957	5,785	1,238	7,023	22.0
1958	5,831	1,261	7,092	21.6
1959	5,710	1,367	7,077	20.3
1960	5,454	1,432	6,886	19.0
1961	5,518	1,456	6,974	18.7
1962	5,787	1,509	7,296	18.1
1963	6,150	1,546	7,696	17.9

6.—Value of Construction Work Performed, by Contractors and Others, 1960-63

NOTE.—Actual expenditures 1960-62; preliminary actual 1963.
(Millions of dollars)

Item	1960	1961	1962	1963
Contract Construction	**5,183**	**5,347**	**5,710**	**6,158**
New	4,506	4,621	4,900	5,296
Repair	677	726	810	862
Other Construction[1]	**1,703**	**1,627**	**1,586**	**1,538**
New	948	897	887	854
Repair	755	730	699	684
Totals, Construction	**6,886**	**6,974**	**7,296**	**7,696**
New	**5,454**	**5,518**	**5,787**	**6,150**
Repair	**1,432**	**1,456**	**1,509**	**1,546**

[1] Work done by the labour forces of utilities, manufacturing, mining and logging firms and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

Table 7 gives estimates of total expenditures in Canada on each type of construction for which information is available.

7.—Value of Construction Work Performed, by Type of Structure, 1962 and 1963

NOTE.—Actual expenditures 1962; preliminary actual 1963.

Type of Structure	1962			1963		
	New	Repair	Total	New	Repair	Total
	$'000	$'000	$'000	$'000	$'000	$'000
Building Construction						
Residential	**1,587,000**	**513,000**	**2,100,000**	**1,713,400**	**544,000**	**2,257,400**
Industrial	**363,991**	**127,601**	**491,595**	**378,400**	**128,304**	**506,704**
Factories, plants, workshops, food canneries	271,622	101,206	372,828	288,045	97,702	385,747
Mine and mine mill buildings	73,931	9,252	83,183	71,137	12,371	83,508
Railway stations, offices, roadway buildings	11,995	11,839	23,834	12,764	11,797	24,561
Railway shops, engine houses, water and fuel stations	6,446	5,304	11,750	6,454	6,434	12,888

7.—Value of Construction Work Performed, by Type of Structure, 1962 and 1963—continued

Type of Structure	1962			1963		
	New	Repair	Total	New	Repair	Total
	$'000	$'000	$'000	$'000	$'000	$'000
Building Construction —*concluded*						
Commercial	**603,041**	**116,459**	**719,500**	**604,188**	**111,646**	**715,834**
Warehouses, storehouses, refrigerated storage, etc.	47,944	14,595	62,539	55,381	14,107	69,488
Grain elevators	23,996	5,299	29,295	18,134	6,313	24,447
Hotels, clubs, restaurants, cafeterias, tourist cabins	36,250	11,230	47,480	49,383	10,330	59,713
Office buildings	281,855	42,078	323,933	252,147	40,373	292,520
Stores, retail and wholesale	138,487	25,677	164,164	148,467	22,839	171,306
Garages and service stations	26,076	10,022	36,098	28,975	10,205	39,180
Theatres, arenas, amusement and recreational buildings	46,878	6,390	53,268	49,406	6,056	55,462
Laundries and dry-cleaning establishments	1,555	1,168	2,723	2,295	1,423	3,718
Institutional	**753,374**	**73,939**	**827,313**	**764,424**	**65,599**	**830,023**
Schools and other educational buildings	500,831	36,349	537,180	539,764	34,833	574,597
Churches and other religious buildings	53,860	7,350	61,210	45,360	6,750	52,110
Hospitals, sanatoria, clinics, first-aid stations, etc.	169,402	20,501	189,903	150,791	20,736	171,527
Other institutional buildings	29,281	9,739	39,020	28,509	3,280	31,789
Other Building	**308,678**	**95,849**	**404,527**	**290,488**	**99,297**	**389,785**
Farm buildings (excluding dwellings)	168,808	64,114	232,922	171,229	64,998	236,227
Broadcasting, radio and television, relay and booster stations, telephone exchanges	61,670	2,835	64,505	58,641	3,383	62,024
Aeroplane hangars	4,292	2,657	6,949	2,253	2,988	5,241
Passenger terminals, bus, boat or air	28,858	1,387	30,245	18,307	1,208	19,515
Armouries, barracks, drill halls, etc.	10,690	16,506	27,196	8,994	17,638	26,632
Bunkhouses, dormitories, camp cookeries, bush depots and camps	15,240	4,048	19,288	10,163	3,722	13,885
Miscellaneous	19,120	4,302	23,422	20,901	5,360	26,261
Totals, Building Construction	**3,616,087**	**926,848**	**4,542,935**	**3,750,900**	**948,846**	**4,699,746**
Engineering Construction						
Marine	**69,019**	**15,977**	**84,996**	**46,153**	**14,693**	**60,846**
Docks, wharves, piers, breakwaters	50,205	7,626	57,831	31,822	8,208	40,030
Retaining walls, embankments, riprapping	1,847	855	2,702	7,243	416	7,659
Canals and waterways	7,899	1,612	9,511	2,145	937	3,082
Dredging and pile driving	6,752	4,440	11,192	2,560	4,234	6,794
Dyke construction	449	267	716	389	182	571
Logging booms	396	564	960	326	415	741
Other	1,471	613	2,084	1,668	301	1,969
Road, Highway and Aerodrome	**603,326**	**199,385**	**802,711**	**663,069**	**215,090**	**878,159**
Hard surfaced or paved streets, highways, parking lots, etc.	406,724	106,058	512,782	477,470	138,315	615,785
Gravel or stone streets, highways, roads, parking lots, etc.	110,936	54,353	165,289	101,876	57,516	159,392
Dirt, clay or other streets, roads, parking lots, etc.	24,900	18,885	43,785	18,019	9,184	27,203
Grading, scraping, oiling, filling	18,412	11,924	30,336	26,470	3,747	30,217
Sidewalks, paths	19,792	7,066	26,858	20,461	5,187	25,648
Aerodromes, landing fields, runways, tarmac	22,562	1,099	23,661	18,773	1,141	19,914
Waterworks and Sewage Systems	**186,817**	**40,798**	**227,615**	**194,924**	**36,223**	**231,147**
Tile drains, drainage ditches, storm sewers	3,094	2,340	5,434	9,261	1,483	10,744

7.—Value of Construction Work Performed, by Type of Structure, 1962 and 1963—concluded

Type of Structure	1962			1963		
	New	Repair	Total	New	Repair	Total
	$'000	$'000	$'000	$'000	$'000	$'000
Engineering Construction—concluded						
Waterworks and Sewage Systems—concluded						
Water mains, hydrants and services	66,490	20,637	87,127	50,609	19,337	69,946
Sewage systems and connections	109,996	12,434	122,430	121,225	13,430	134,655
Pumping stations, water	5,969	2,720	8,689	8,947	1,719	10,666
Water storage tanks	1,268	2,667	3,935	4,882	254	5,136
Dams and Irrigation	**86,682**	**6,635**	**93,317**	**166,765**	**6,923**	**173,688**
Dams and reservoirs	70,027	2,520	72,547	148,461	2,698	151,159
Irrigation and land reclamation projects	16,655	4,115	20,770	18,304	4,225	22,529
Electric Power	**395,550**	**58,788**	**454,338**	**380,449**	**63,431**	**443,880**
Electric power generating plants, including water conveying and controlling structures	201,971	15,601	217,572	130,695	13,150	143,845
Electric transformer stations	25,657	6,462	32,119	48,647	7,574	56,221
Power transmission and distribution lines, trolley wires	154,900	30,663	185,563	189,005	36,799	225,804
Street lighting	13,022	6,062	19,084	12,102	5,908	18,010
Railway, Telephone and Telegraph	**222,866**	**150,023**	**372,889**	**246,128**	**151,101**	**397,229**
Railway tracks and roadbed	107,295	103,957	211,252	115,307	106,047	221,354
Signals and interlockers	6,535	7,408	13,943	8,914	7,252	16,166
Telegraph and telephone lines, underground and marine cables	109,036	38,658	147,694	121,907	37,802	159,709
Gas and Oil Facilities	**362,827**	**53,269**	**416,096**	**439,404**	**55,650**	**495,054**
Gas mains and services	61,856	6,024	67,880	59,048	4,653	63,701
Pumping stations, oil	1,971	1,083	3,054	3,668	1,392	5,060
Pumping stations, gas	25,163	260	25,423	27,222	379	27,601
Oil storage tanks	13,279	3,116	16,395	11,241	2,689	13,930
Gas storage tanks	929	38	967	2,641	46	2,687
Oil pipelines	14,348	2,582	16,930	19,580	2,056	21,636
Gas pipelines	22,750	1,028	23,778	54,851	968	55,819
Oil wells	129,340	8,727	138,067	163,476	10,897	174,373
Gas wells	24,649	608	25,257	26,710	717	27,427
Oil refinery—processing units	50,530	26,876	77,406	33,891	29,215	63,106
Natural gas cleaning plants	18,012	2,927	20,939	37,076	2,638	39,714
Other Engineering	**243,865**	**57,277**	**301,142**	**261,892**	**53,721**	**315,613**
Bridges, trestles, culverts, overpasses, viaducts	141,082	25,804	166,886	150,277	29,571	179,848
Tunnels and subways	17,426	154	17,580	29,846	705	30,551
Incinerators	158	436	594	143	307	450
Park systems, landscaping, sodding, etc.	6,717	4,733	11,450	6,754	4,031	10,785
Swimming pools, tennis courts, outdoor recreation facilities	5,339	2,014	7,353	7,370	2,275	9,645
Mine shafts and other below surface workings	31,736	2,761	34,497	35,276	2,107	37,383
Fences, snowsheds, signs, guardrails	15,392	9,399	24,791	13,021	6,400	19,421
Miscellaneous	26,015	11,976	37,991	19,205	8,325	27,530
Totals, Engineering Construction	**2,170,952**	**582,152**	**2,753,104**	**2,398,784**	**596,832**	**2,995,616**
Totals, All Construction	**5,787,039**	**1,509,000**	**7,296,039**	**6,149,684**	**1,545,678**	**7,695,362**

Principal statistics of the construction industry are shown by province and for contractors, utilities, governments and others in Table 8. The statistics given for Canada as a whole may be considered as relatively accurate but those for individual provinces and

by class of builder are approximations only. All estimates given for cost of materials used are based on ratios of this item to total value of work performed, derived from annual surveys of construction work and applied to the total value-of-work figures. Estimates of labour content are similarly based but, in addition, are adjusted to include working owners and partners and their withdrawals. Although the ratios were calculated in some detail by type of industry, still further refinements are required. There are also some difficulties in obtaining the precise location of projects undertaken or to be undertaken by large companies operating in a number of provinces. However, if used with these qualifications in mind, the table provides useful estimates.

8.—Labour Content, Cost of Materials and Value of Work Performed in Construction, by Province and by Employer, 1962 and 1963 with Totals for 1959-63

NOTE.—Actual expenditures 1959-62; preliminary actual 1963. Comparable figures from 1953 are given in the corresponding table of previous Year Books beginning with the 1957-58 edition.

Province or Employer and Year	Labour Content		Cost of Materials Used	Value of Work Performed
	Number	Value		
		$'000	$'000	$'000
Province				
Newfoundland 1962	14,462	66,792	88,646	199,786
1963	13,603	63,607	84,606	190,426
Prince Edward Island 1962	3,047	11,414	19,166	38,741
1963	2,953	11,257	18,875	37,735
Nova Scotia 1962	17,283	67,817	98,412	205,146
1963	17,817	71,508	102,679	217,188
New Brunswick 1962	13,972	52,142	77,604	155,321
1963	13,798	52,787	77,112	157,795
Quebec 1962	138,031	632,002	948,708	1,890,669
1963	138,803	648,036	980,696	1,953,502
Ontario 1962	176,792	853,319	1,176,478	2,448,295
1963	181,880	895,492	1,243,519	2,584,968
Manitoba 1962	27,098	124,109	174,007	361,112
1963	30,725	144,877	204,727	430,047
Saskatchewan 1962	30,080	140,254	200,247	416,984
1963	30,950	147,321	211,032	440,190
Alberta 1962	55,669	263,049	373,472	820,209
1963	55,871	272,229	381,229	853,017
British Columbia 1962	52,487	264,772	350,998	759,776
1963	55,786	286,142	384,503	830,494
Totals 1959	**571,912**	**2,378,214**	**3,367,254**	**7,077,383**
1960	**541,191**	**2,336,891**	**3,251,622**	**6,886,255**
1961	**530,854**	**2,349,229**	**3,273,513**	**6,974,379**
1962	**528,921**	**2,475,670**	**3,507,738**	**7,296,039**
1963	**542,186**	**2,593,256**	**3,688,978**	**7,695,362**
Employer				
Contractors 1962	381,526	1,803,234	2,809,407	5,709,666
1963	401,479	1,939,273	3,010,085	6,158,122
Utilities 1962	64,981	327,132	377,500	763,298
1963	62,966	322,798	371,943	752,318
Governments 1962	53,434	216,760	161,775	492,320
1963	50,325	208,007	152,582	465,321
Others 1962	28,980	128,544	159,056	330,755
1963	27,416	123,178	154,368	319,601

Subsection 2.—Contracts Awarded and Building Permits Issued

In this Subsection, statistics are given of work actually in sight either as contracts awarded or as building permits. These figures are related to those of work performed during the year only so far as the work thus provided for is completed and duly reported in the capital expenditure surveys. Further, values of contracts awarded, and especially of building permits, are estimates (more often under-estimates) of work to be done.

9.—Value of Construction Contracts Awarded, 1940-63

(SOURCE: *MacLean Building Guide*)

NOTE.—Figures for the years 1926-39 are given in the corresponding table of the 1962 Year Book, p. 682.

Year	Value of Construction Contracts	Year	Value of Construction Contracts	Year	Value of Construction Contracts
	$		$		$
1940	346,009,800	1948	954,082,400	1956	3,426,905,500
1941	393,991,300	1949[1]	1,143,547,300	1957	2,894,168,100
1942	281,594,100	1950	1,525,764,700	1958	3,593,709,200
1943	206,103,900	1951	2,295,499,200	1959	3,219,073,300
1944	291,961,800	1952	1,812,177,600	1960	3,053,749,500
1945	409,032,700	1953	2,017,060,700	1961	3,220,937,300
1946	663,355,100	1954	2,154,959,200	1962	3,351,717,500
1947	718,137,100	1955	3,183,592,000	1963	3,685,634,300

[1] Newfoundland included from Apr. 1, 1949.

10.—Value of Construction Contracts Awarded, by Province and Type of Construction, 1962 and 1963

(SOURCE: *MacLean Building Guide*)

Province and Type of Construction	1962	1963	Type of Construction	1962	1963
	$'000	$'000		$'000	$'000
Newfoundland	43,823	57,677	**Business**	**1,285,934**	**1,274,095**
Prince Edward Island	10,457	13,908	Churches	49,257	49,090
Nova Scotia	75,009	86,086	Public garages	12,088	11,188
New Brunswick	80,880	88,749	Hospitals	94,030	107,047
Quebec	914,962	1,007,727	Hotels and clubs	109,107	120,663
Ontario	1,420,363	1,468,941	Office buildings	118,064	200,117
Manitoba	143,845	173,621	Public buildings	110,672	125,582
Saskatchewan	113,154	134,401	Schools	500,512	409,547
Alberta	310,864	265,594	Stores	196,380	145,089
British Columbia	228,359	388,930	Theatres	1,459	2,656
			Warehouses	94,365	103,116
			Industrial	**277,559**	**280,216**
Totals	**3,351,718**	**3,685,634**			
			Engineering	**626,851**	**895,860**
			Bridges	92,169	108,369
			Marine	41,391	22,101
			Sewerage and waterworks	132,785	157,929
Residential	**1,161,374**	**1,235,464**	Roads and streets	219,799	301,129
Apartments	349,949	435,794	Power and communications	91,719	176,180
Residences	811,425	799,670	Miscellaneous	48,988	130,152

Building Permits.—The estimated value of proposed construction is indicated by the value of building permits issued. Figures of building permits issued are collected for more than 1,300 municipalities across the country and are available for the individual municipalities, for metropolitan areas, for provinces and for economic areas in Quebec, Ontario and Manitoba.

The total value of permits issued for construction work exceeded $2,800,000,000 for 1963, the highest figure on record and an increase of 12.2 p.c. over 1962. Residential

construction was 20.9 p.c. higher, with new construction up 21.5 p.c. and repairs up 11.5 p.c. Non-residential construction increased 4.1 p.c., industrial construction showing a gain of 28.8 p.c. and commercial construction a decline of 2.0 p.c. No change was recorded in institutional and government construction. All provinces except Alberta recorded gains in 1963, the largest percentage increases being shown by the Atlantic Provinces. Table 11 shows the value of building permits issued in each of 50 municipalities for 1962 and 1963.

11.—Estimated Value of Proposed Construction as Indicated by Building Permits Issued in 50 Municipalities, 1962 and 1963

NOTE.—Comparable figures for 1956-60 are given in the 1962 Year Book, p. 684, and for 1961 in the 1963-64 Year Book, p. 692.

Province and Municipality	1962	1963	Province and Municipality	1962	1963
	$'000	$'000		$'000	$'000
Newfoundland—			**Ontario**—concluded		
St. John's	12,521	17,765	Port Arthur	11,178	9,146
			Scarborough Township	53,189	52,411
Prince Edward Island—			Toronto	107,346	121,774
Charlottetown	2,724	7,320	Toronto Township	26,096	31,329
			Windsor	9,844	17,199
Nova Scotia—			York North Township	124,050	131,720
Halifax	15,835	14,574	York Township	9,006	17,153
New Brunswick—			**Manitoba—**		
Fredericton	5,386	3,632	Fort Garry	82,847[1]	100,494
Moncton	7,644	10,381	St. Boniface		
Saint John	4,474	6,753	St. James		
			Winnipeg		
Quebec—			**Saskatchewan—**		
LaSalle	7,976	11,066	Moose Jaw	4,129	3,392
Montreal	170,715	185,023	Prince Albert	5,573	906
Quebec	34,557	17,551	Regina	29,902	35,918
St. Laurent	10,811	18,205	Saskatoon	24,093	24,163
Ste. Foy	18,007	21,891			
Sept Iles	5,802	1,793	**Alberta—**		
Sherbrooke	13,337	20,727	Calgary	87,918	90,977
Trois Rivières	9,424	10,003	Edmonton	90,250	75,774
			Jasper Place	11,327	12,724
Ontario—			Lethbridge	9,243	6,888
Brampton	13,483	21,427	Medicine Hat	5,607	4,533
Burlington	12,602	17,084	Red Deer	10,326	11,029
Etobicoke Township	67,050	88,669			
Hamilton	42,781	50,951	**British Columbia—**		
Kitchener	16,262	23,451	Burnaby District	20,840	17,114
London	47,976	48,904	Richmond Township	5,416	8,966
London Township	448	660	Surrey District	8,162	9,100
Nepean Township	20,293	18,854	Vancouver	44,397	55,828
Oshawa	9,660	21,296	Victoria	12,608	10,088
Ottawa	66,163	105,218			

[1] Metropolitan Corporation of Greater Winnipeg.

Table 12 shows the value of building permits issued in 17 metropolitan areas across Canada. In 1963 the permits issued in these areas made up 68.6 p.c. of the total for Canada.

12.—Estimated Value of Building Permits Issued in Metropolitan Areas, 1962 and 1963

Metropolitan Area	1962	1963	Metropolitan Area	1962	1963
	$'000	$'000		$'000	$'000
St. John's[1]	12,521	17,765	Sudbury	21,695	15,969
Halifax	30,523	30,127	London	51,578	52,087
Saint John	4,936	15,413	Windsor	21,811	30,682
Quebec	76,926	71,182	Winnipeg	82,847	100,494
Montreal	404,777	470,301	Calgary	89,579	93,945
Ottawa–Hull	109,746	141,305	Edmonton	113,073	98,871
Toronto	441,739	499,738	Vancouver	119,174	138,794
Hamilton	63,234	76,991	Victoria	30,924	31,651
Kitchener	36,059	52,489			

[1] Although this is a metropolitan area, only St. John's proper is included in the building permits survey.

Table 13 shows the value of building permits, by province, for the years 1962 and 1963.

13.—Value of Building Permits Issued, by Province, 1962 and 1963 with Totals for 1959-63

NOTE.—Comparable figures from 1952 are given in the corresponding table of previous Year Books beginning with the 1957-58 edition.

Province and Year	Residential Construction			Non-residential Construction			Total
	New	Repair	Total	Industrial	Commercial	Institutional and Government	
	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Newfoundland 1962	6,843	693	7,536	782	3,771	6,551	18,640
1963	8,845	892	9,737	441	5,097	6,645	21,920
Prince Edward Island 1962	820	120	940	336	827	1,224	3,327
1963	1,083	102	1,185	240	958	5,749	8,132
Nova Scotia 1962	17,533	1,763	19,296	5,502	8,805	11,097	44,700
1963	25,898	2,427	28,325	16,589	8,729	12,111	65,754
New Brunswick 1962	9,310	1,435	10,745	1,878	6,232	7,908	26,763
1963	13,250	1,512	14,762	6,187	6,403	9,015	36,367
Quebec 1962	315,522	15,056	330,578	61,520	136,764	118,083	646,945
1963	372,617	17,892	390,509	50,141	115,769	165,924	722,343
Ontario 1962	450,284	25,022	475,306	108,872	177,245	303,557	1,064,980
1963	580,092	28,344	608,436	151,910	182,734	264,225	1,207,305
Manitoba 1962	39,782	3,100	42,882	7,776	24,683	24,044	99,385
1963	54,121	3,062	57,183	15,025	24,306	23,627	120,141
Saskatchewan 1962	38,835	2,315	41,150	2,923	15,725	31,119	90,917
1963	44,391	2,795	47,186	4,563	19,043	21,556	92,348
Alberta 1962	139,083	4,714	143,797	14,179	50,325	75,868	284,169
1963	130,691	4,371	135,062	21,220	48,808	70,185	275,275
British Columbia 1962	126,352	10,600	136,952	14,370	44,979	40,451	236,752
1963	158,935	10,846	169,781	14,732	48,275	40,853	273,641
Totals 1959	**1,190,580**	**64,681**	**1,255,261**	**192,713**	**508,845**	**422,357**[1]	**2,379,076**
1960	**883,823**	**60,676**	**944,499**	**184,221**	**432,749**	**463,358**[1]	**2,024,827**
1961	**1,107,518**	**68,472**	**1,175,990**	**198,110**	**437,852**	**432,301**[1]	**2,244,253**
1962	**1,144,364**	**64,818**	**1,209,182**	**218,138**	**469,356**	**619,902**	**2,516,578**
1963	**1,389,923**	**72,243**	**1,462,166**	**281,048**	**460,122**	**619,890**	**2,823,226**

[1] Includes other construction.

The indexes given in Table 14 show as far as possible the fluctuations in building costs and their effect upon construction work and employment. The relative proportions of material and wage costs in general building are difficult to determine since such proportions vary with the type of building and the centres studied.

14.—Index Numbers of Prices of Building Materials, and Wage Rates and Employment in Construction Industries, 1954-63

(Av. 1949=100)

Year	Prices of Building Materials		Wage Rates in Construction Industries[1]	Employment in Building Construction[2]
	Residential	Non-residential		
1954	121.7	121.8	141.1	111.1
1955	124.3	123.4	146.6	120.2
1956	128.5	128.0	152.4	145.5
1957	128.4	130.0	162.9	147.7
1958	127.3	129.8	173.6	130.1
1959	130.0	131.7	183.4	136.5
1960	129.2	132.3	195.5	128.6
1961	128.4	131.1	199.7	122.5
1962	129.6	131.9	209.7	127.7
1963	134.4	135.5	217.5	129.4

[1] Compiled by the Department of Labour. [2] As reported by employers with 15 or more employees.

Section 3.—Housing*

Subsection 1.—Government Aid to House-Building

Federal Assistance.—The role of the Federal Government in housing has expanded progressively since the introduction of the first continuing statute in 1935. Although the Government originally entered the housing field in 1918, when it made money available to the provinces for re-lending to municipalities for housing purposes, the first general piece of federal housing legislation was the Dominion Housing Act passed in 1935. This was followed by the National Housing Acts of 1938 and 1944, culminating in 1954 with the present National Housing Act, defined as "an Act to promote the construction of new houses, the repair and modernization of existing houses and the improvement of housing and living conditions" Central Mortgage and Housing Corporation (CMHC), a Crown agency incorporated by Act of Parliament in 1945, administers the National Housing Act and co-ordinates the activities of the Federal Government in housing. The Corporation has the authority and responsibility for a variety of functions affecting housing in its long-term outlook as well as in its immediate requirements. It is empowered to act as an insurer of mortgage loans, as a lender or investor of public funds, as a guarantor and as an owner of property and other assets. It also acts as a research agency in fields associated with housing and assists provinces and municipalities in many aspects of urban growth.

In general, the Government, through the successive Housing Acts, has attempted to stimulate and supplement the market for housing rather than assume direct responsibilities that rightfully belong to other levels of government or that could be borne more effectively by private enterprise. In each case the aim has been to increase the flow of mortgage money and to encourage lenders to make loans on more favourable terms to prospective home owners.

The volume of house-building in Canada since 1935 has been spectacular. Close to half of the country's present stock of approximately 5,000,000 houses have been built since the first covering legislation was enacted; about one-third of these were financed in one way or another under the Housing Acts.

Under the terms of the National Housing Act, 1954 and its subsequent amendments, the Federal Government is active in many ways.

Loan Insurance.—Mortgage loans made by approved lenders may be insured for new home-ownership and rental housing and for existing dwellings in approved urban renewal areas. They are normally available from approved lenders (chartered banks, life insurance, trust and loan companies) to individual home-owner applicants, to builders constructing houses for sale or for rent, to rental investors and to special groups such as co-operative housing associations and farmers. Upon application, the borrower pays CMHC a fee of $35 per unit to help defray expenses incurred in the examination of plans and specifications, in the determination of lending values and in compliance inspections during construction. An approved lender requires evidence that a home owner or home purchaser is providing 5 p.c. of the value of the house from his own resources. For the home owner this equity may be in the form of cash or a combination of cash, land and labour; for the home purchaser it may be in cash or labour. The regulations require that gross debt service—the ratio of repayments of principal, interest and municipal taxes to the income of the borrower—should not exceed 27 p.c., although instances involving higher ratios may be considered on their merits. The borrower pays an insurance fee which is added to the amount of the loan and is repaid over the term of the mortgage; the fee ranges from 1¾ p.c. to 2½ p.c. of the loan, according to type of unit and time of mortgage advances.

For home-ownership housing, loans may be up to 95 p.c. of the first $13,000 of lending value and 70 p.c. of the balance but may not exceed $15,600 for a house with four or more bedrooms or $14,900 for a house with fewer than four bedrooms. Loans for rental houses may be up to 85 p.c. of the lending value, subject to the same maximum loan amounts.

* Prepared in the Information Division, Central Mortgage and Housing Corporation, Ottawa.

The maximum loan available for apartment multiple-family dwellings is $12,000 per family housing unit. The period for loan repayment is generally 25 years but may be extended to 35 years if the lender agrees. Repayments are made in equal monthly instalments which include payment of interest and loan principal. The total monthly payment includes one twelfth of the estimated municipal taxes. The interest rate is prescribed by the Governor in Council; on June 13, 1963, it was reduced from 6½ p.c. to 6¼ p.c.

Direct Loans.—CMHC may make direct loans for both home-ownership and rental housing where, in the opinion of the Corporation, loans are not available through approved lenders. Loans are made to any eligible home-owner applicant but direct loans to builders are subject to a requirement that the houses be pre-sold to satisfactory purchasers. Loans not subject to pre-sale condition were made available in the fall of 1963 and again in 1964 to support the Federal Government's winter-building incentive program by ensuring an adequate supply of mortgage funds. By the end of 1963, direct lending by the Corporation totalled nearly $1,900,000,000 and in June 1964 the amount that may be advanced for this purpose out of the Consolidated Revenue Fund was increased from $2,000,000,000 to $2,500,000,000.

CMHC, with Government approval by Order in Council, may make loans to non-profit corporations and limited-dividend housing companies to assist in financing the construction of low-rental housing projects or in the purchase of existing buildings and their conversion into a low-rental housing project. In addition to self-contained units, developments undertaken by non-profit corporations may include hostel or dormitory accommodation for the elderly and individuals and families of low income. The dividends of a limited-dividend company are restricted by the terms of its charter to 5 p.c. or less of paid-up share capital. Loans may be up to a maximum of 90 p.c. of the lending value established by CMHC. The period for repayment may not exceed the useful life of the project and in any case may be for not more than 50 years. The interest rate is established by Order in Council. Plans and specifications for such projects must be approved by the Corporation as well as financing and operating arrangements.

Since December 1960, the National Housing Act has provided financial assistance for the elimination or prevention of water and soil pollution. CMHC is authorized to make a loan to a province, municipality or a municipal sewerage corporation for the construction or expansion of a central plant for the treatment and disposal of sewage wastes and the construction of one or more trunk collector sewers. The loan may not exceed two thirds of the cost of the project and the maximum repayment term is 50 years from date of completion. The interest rate is prescribed by the Governor in Council. The agreement covering the project contains a condition whereby 25 p.c. of the loan principal and 25 p.c. of the accrued interest will be forgiven for projects completed to the satisfaction of CMHC on or before Mar. 31, 1967. Where construction is not complete before that date, 25 p.c. of the loan advanced or warrantable by construction progress at that date, plus 25 p.c. of the accrued interest on advances, may be forgiven.

Long-term loans to universities, colleges, co-operative associations and charitable corporations are authorized under the Act for the construction of university housing projects or the acquisition of existing buildings and their conversion into a university housing project. CMHC may lend up to 90 p.c. of the project cost subject to maximum amounts as follows: houses with four or more bedrooms, $15,600 and with fewer than four bedrooms, $14,900; self-contained apartments, $12,000 per unit; and hostels, $7,000 per student accommodated. Term of the loan may not exceed 50 years. The interest rate is prescribed by the Governor in Council.

Guarantees.—CMHC is authorized to give a limited guarantee to banks or approved instalment credit agencies in return for an insurance fee paid by the borrower on loans made for additions, repairs and alterations to existing houses and apartments. A home improvement loan and the balance owing on any existing NHA home improvement loan on the property may not exceed $4,000 for a one-family dwelling or $4,000 for the first unit of a

duplex, semi-detached or multiple-family dwelling, plus $1,500 for each additional unit. Loans are repayable in monthly instalments, together with interest at the rate of 6 p.c., in not more than 10 years.

Public Housing.—Under the National Housing Act and complementary provincial legislation, the Federal Government and the government of a province may enter into a partnership agreement to build rental housing for families and individuals of low income or purchase and rehabilitate existing housing for this purpose. Projects may include hostel or dormitory accommodation in addition to self-contained units. The Federal Government bears up to 75 p.c. of the capital costs and the provincial government the remainder, although the latter may call upon the municipality concerned to bear a portion of the provincial share. Projects are of two types—subsidized and full recovery. In the former, rents are related to the tenant's family income and size of family and operating deficits are shared on the same contractual basis as the capital costs; in the latter, rents are set at a level sufficient to amortize capital costs and to recover operating expenses. The Federal Government and the government of a province may also enter into an agreement to provide for a land assembly project which involves the development of raw land for housing purposes. Such projects are financed in the same manner as federal-provincial housing projects.

A 1964 amendment to the National Housing Act authorized another type of assistance to produce public housing—the Corporation may make long-term loans to a province, or to a municipality or public housing agency with the approval of the province, for the provision of public housing accommodation for low-income individuals and families. Projects may consist of new construction or existing buildings and include dormitory and hostel accommodation as well as self-contained family units. Loans may be up to 90 p.c. of the total cost as determined by CMHC and for a term as long as 50 years but not in excess of the useful life of the development. The maximum amount that may be borrowed for a house with four or more bedrooms is $15,600 and for a house with three or fewer bedrooms, $14,900. The maximum loan for a fully serviced apartment is $12,000 and for hostels or dormitories, $7,000 for each person accommodated. The interest rate is set by the Governor in Council.

The 1964 amendment also provides for federal contributions to assist in meeting losses incurred in the operation of public housing projects. Such grants, covering up to 50 p.c. of operating losses, may be for a period up to 50 years but not exceeding the useful life of the project. Grants may be provided whether or not a public housing project is undertaken with a loan under the National Housing Act. Loans to assist proponents of public housing projects to acquire land for future projects were also authorized; the maximum loan is 90 p.c. of the cost of acquiring and servicing the property.

Urban Renewal.—The 1964 changes in the National Housing Act broadened substantially the scope of federal assistance available to provinces and municipalities undertaking programs of urban renewal. CMHC, with Federal Government approval, may arrange with a municipality to undertake either a city-wide study or a study within a specific area for the purpose of identifying blighted areas, determining housing requirements and providing data upon which an orderly program of conservation, rehabilitation and redevelopment can be based. The federal contribution may be as much as 75 p.c. of the cost of a city-wide study and up to 50 p.c. of the cost of a limited area study. The amended legislation also authorizes federal contributions equal to one half of the costs of preparing an urban renewal scheme setting out proposals for urban renewal action, a similar cost-sharing arrangement for the implementation of a scheme, and loans up to two thirds of the provincial or municipal share of the cost of carrying out an urban renewal scheme. Loans may be for 15 years at an interest rate prescribed by the Governor in Council. To encourage the improvement and conservation of housing meeting minimum standards of construction, loans under the home-ownership and rental housing provisions of the Act were also authorized in June 1964 for the sale, purchase or refinancing of existing housing in urban renewal areas not designated for demolition.

CMHC Building.—The Corporation may construct and administer housing and certain other buildings on its own account and for other government departments and agencies. Its responsibilities include the provision of architectural and engineering designs, the calling of public tenders and the administration of construction contracts—including any necessary on-site surveying and engineering. On such contracts the Corporation carries out full architectural and engineering inspections.

Research.—CMHC is concerned with building technology in the formulation of standards for housing construction, in the use of suitable materials and in the development of new building techniques. The Corporation has no laboratory facilities but has direct experience of performance in the field and seeks the advice of specialists in various agencies and departments of the Federal Government in such matters. Research into the factors affecting housing is concerned with the measurement of the demand for new housing, the volume of new housing built and the supply of mortgage money for house construction. The Corporation also co-ordinates and publishes statistical information on housing. Funds provided under the National Housing Act support the activities of the Canadian Housing Design Council, the Community Planning Association of Canada and the Canadian Council on Urban and Regional Research.

Other Federal Legislation.—The Farm Credit Act, 1959 provides for federal long-term loan assistance for housing as well as for other farm purposes (see pp. 450-451); the Veterans' Land Act, 1942 provides a form of loan and grant assistance to veterans for housing and other purposes (see pp. 326-327); and the Farm Improvement Loans Act, 1944 (see pp. 452-453) provides for guarantees for intermediate- and short-term loans made by approved lending agencies to farmers for housing and other purposes. These three statutes are concerned only incidentally with housing.

Provincial Assistance.—All provinces have complementary legislation providing for joint federal-provincial housing and land assembly projects. In addition, separate legislation with respect to housing has been enacted by several provinces. An Act to Improve Housing Conditions, 1948 (QS 1948, c. 6), passed by the Quebec Government, provides for a subsidy on mortgage loan interest charges in excess of 3 p.c. on new dwellings. In Ontario, the Planning Act (RSO 1960, c. 296) empowers municipalities with approved official plans to designate redevelopment areas and acquire and clear land for designated purposes. The Rural Housing Assistance Act (RSO 1960, c. 355) authorizes the establishment of a Crown company—the Rural Housing Finance Corporation—to lend and invest mortgage money for new rural housing. The Junior Farmer Establishment Act (RSO 1960, c. 198) provides loans to young qualified farmers for housing and other purposes.

Four provinces have legislation enabling their government to make grants for the construction of housing for elderly people. Manitoba provides one third of the construction costs of a two-person unit or $1,667 per unit, whichever is the lesser, and one third of the construction costs of a one-person unit or $1,400 per unit. In addition, grants are made for the construction of hostels and the purchase and conversion of existing buildings—one third of the construction cost or $1,200 per bed for the former and one third of $700 per bed for existing buildings. Grants in Ontario may be made only to a limited-dividend housing company that has received a loan under NHA provisions. Grants are calculated at the rate of $500 for each dwelling unit or 50 p.c. of the costs in excess of the CMHC loan, whichever is the lesser. In British Columbia, capital grants do not exceed one third of the total cost of the project and the limited-dividend housing company must provide equity amounting to 10 p.c. of the total. In Saskatchewan, capital grants are made up to 20 p.c. of the total capital cost.

Subsection 2.—Housing Activities in 1963-64

Housing starts in Canada reached their second highest annual volume in 1963 and increased again in the first eight months of 1964. The 1963 total of 148,624 units, substantially in excess of the previous year's figure of 130,095, was surpassed only in 1958 when starts on all types of dwellings numbered 164,632. Total investment in new housing in 1963 amounted to $1,713,000,000, 7.9 p.c. more than in 1962. Between the first of January and the end of August 1964, housing starts in municipalities of 5,000 or more population totalled 78,318 units, nearly 11 p.c. above the figure for the same period of 1963.

The high level of starts since the beginning of 1963 reflected an accelerated program of apartment construction in many Canadian cities. Starts on these dwellings, a large number of which were financed by conventional mortgage loans, totalled 59,680 in 1963, an increase of 46 p.c. over the 1962 total of 40,935. The upward swing continued into 1964, reaching 43,888 in the first eight months, a rise of 26 p.c. over the same period of 1963.

Although starts on single detached dwellings were lower during the first eight months of 1963 than in the similar period of 1962, they were very high in the last three months of the year, so that the total for 1963 reached 77,158, a figure nearly 4 p.c. above the 1962 volume. This late-year increase was mainly attributable to the introduction of the Federal Government's house-building incentive program which provided a cash payment of $500 to the first owner of houses built during the winter months—Dec. 1, 1963 to Apr. 15, 1964; nearly 30,000 dwellings qualified for the bonus. An increase in the maximum amounts of National Housing Act loans authorized in the summer of 1963 and an extended program of direct lending by CMHC in the fall also contributed to the record level of starts in the usual off-season period.

15.—Dwelling Units Started and Completed, by Type of Financing, 1954-63 and by Region, 1962 and 1963

Year and Region	Dwelling Units Started					Dwelling Units Completed
	National Housing Act		Conventional Institutional Loans	All Other Financing	Total	
	CMHC Loans	Approved Lenders Loans				
	No.	No.	No.	No.	No.	No.
1954	1,215	48,819	32,891	30,602	113,527	101,965
1955	2,120	63,073	35,999	37,084	138,276	127,929
1956	2,712	40,149	35,687	48,763	127,311	135,700
1957	22,333	23,971	32,866	43,170	122,340	117,283
1958	35,795	44,533	42,929	41,375	164,632	146,686
1959	35,229	26,596	45,198	34,322	141,345	145,671
1960	13,788	18,923	40,116	36,031	108,858	123,757
1961	23,852	35,334	38,316	28,075	125,577	115,608
1962	15,633	31,790	54,214	28,458	130,095	126,682
1963	21,213	28,505	71,983	26,923	148,624	128,191
1962						
Atlantic Provinces	668	1,031	2,668	3,076	7,443	7,650
Quebec	4,760	6,844	18,590	9,958	40,152	35,782
Ontario	3,886	15,974	20,876	3,570	44,306	47,287
Prairie Provinces	5,167	6,315	5,869	6,951	24,302	24,043
British Columbia	1,152	1,626	6,211	4,903	13,892	11,920
1963						
Atlantic Provinces	636	614	3,146	2,566	6,962	7,903
Quebec	6,462	5,335	22,678	8,916	43,391	38,989
Ontario	6,408	16,428	27,449	5,672	55,957	43,400
Prairie Provinces	6,062	4,750	8,874	5,299	24,985	22,087
British Columbia	1,645	1,378	9,836	4,470	17,329	15,812

16.—Dwelling Units Started in Metropolitan and Major Urban Areas, 1962 and 1963

Area	Population (Census 1961)	Dwelling Units Started				
		1962	1963			
			Total	Single Detached	Semi-detached and Duplex	Row and Apartment
	'000	No.	No.	No.	No.	No.
Metropolitan Areas—						
Calgary	279	5,136	3,672	1,990	248	1,434
Edmonton	337	5,255	4,883	2,890	166	1,827
Halifax	184	1,590	1,660	458	120	1,082
Hamilton	395	2,921	3,868	2,015	69	1,784
Kitchener	155	1,381	2,628	1,184	78	1,366
London	181	2,251	2,129	1,018	110	1,001
Montreal	2,110	25,610	26,616	7,216	1,227	18,173
Ottawa-Hull	430	6,346	7,244	2,028	845	4,371
Quebec	358	3,946	4,535	2,056	192	2,287
Saint John	96	541	441	293	30	118
St. John's	91	373	521	511	—	10
Sudbury	111	1,232	484	306	108	70
Toronto	1,824	16,546	23,423	7,947	2,490	12,986
Vancouver	790	7,387	8,941	3,788	86	5,067
Victoria	154	1,601	1,848	1,018	30	800
Windsor	193	495	728	405	—	323
Winnipeg	476	2,857	4,519	2,056	172	2,291
Totals, Metropolitan Areas	**8,164**	**85,468**	**98,140**	**37,179**	**5,971**	**54,990**
Major Urban Areas—						
Brantford	57	326	324	280	2	42
Chicoutimi-Jonquière	105	373	379	316	12	51
Drummondville	39	161	321	223	46	52
Fort William-Port Arthur	93	570	547	500	14	33
Guelph	42	311	271	189	16	66
Kingston	63	445	777	424	20	333
Moncton	56	480	308	222	30	56
Niagara Falls	55	197	313	189	2	122
Oshawa	81	680	1,314	816	6	492
Peterborough	50	157	266	213	4	49
Regina	112	1,208	1,512	943	24	545
St. Catharines	95	437	618	526	2	90
St. Jean	35	118	113	98	4	11
Sarnia	61	214	436	269	—	167
Saskatoon	96	1,009	1,156	706	45	405
Sault Ste. Marie	58	556	693	322	4	367
Shawinigan	64	222	171	165	2	4
Sherbrooke	70	691	972	346	108	518
Sydney-Glace Bay	106	110	103	101	2	—
Timmins	40	77	84	78	6	—
Trois Rivières	84	544	589	435	116	38
Valleyfield	30	167	198	108	40	50
Totals, Major Urban Areas	**1,492**	**9,053**	**11,465**	**7,469**	**505**	**3,491**
All Other	8,545	35,574	39,019	32,510	1,415	5,094
Canada[1]	**18,201**	**130,095**	**148,624**	**77,158**	**7,891**	**63,575**

[1] Excludes the Yukon and Northwest Territories.

Operations under the National Housing Act.—Mortgage loans for 54,694 dwellings were approved under the Act in 1963 compared with 47,689 in 1962. In the same period, approved lenders provided loans in the amount of $364,500,000 as against $383,852,000, and direct lending by Central Mortgage and Housing Corporation rose to $295,828,000 from $163,309,000.

Following a reduction in the interest rate on insured mortgages from 6½ p.c. to 6¼ p.c. in June 1963, there were developments in the United States which had the effect of increasing long-term interest rates in Canada. These developments included a rise in the U.S. Federal Reserve discount rate and announcement of the proposed interest equalization tax. Consequently, NHA lending by approved lenders declined during the year, with loans for

30,085 dwellings compared with 32,437 in 1962. Under these circumstances, the private lenders directed their operations mainly to the conventional mortgage sector, particularly for apartment construction. Conventional lending for new housing totalled $1,307,000,000 in 1963, surpassing by a wide margin the 1962 figure of $862,000,000. Of the 30,085 dwellings financed by approved lender loans under the NHA in 1963, 16,986 were made by life insurance companies, 11,970 by trust companies, and 1,126 by loan and other companies. The chartered banks continued virtually inactive as mortgage lenders.

While the reduced NHA lending activity by approved lenders was accompanied by an increase in the demand for direct loans, the main impetus to the high volume of lending by CMHC was the extension of these loans to builders, without the usual pre-sale requirements, in the fall. As a result of this action to support the Federal Government's winter house-building incentive program, direct loans reached an unprecedented level in the last quarter of the year. Loans were approved for 15,333 dwellings during the period as compared with 4,031 in the same three months of 1962. When the success of the winter-building program was assured by Nov. 15, the Corporation reverted to its policy of making direct loans to individual prospective home owners and builders where the sale of the houses had already been arranged. Direct loans continued to be available for rental housing construction where assistance was not available from approved lenders and CMHC was satisfied that a need for the units existed.

Lending under the Act declined by some 9 p.c. in the first eight months of 1964 with the approval of loans for 30,073 dwellings as against 33,048 a year previous. Approved lender loans declined by 20 p.c. to 19,604 but the drop was substantially offset by an increase of nearly 24 p.c. in direct loans, which numbered 10,469. Following announcement of the Government's decision to repeat the winter house-building incentive program in 1964-65, CMHC was authorized in September to again make available direct loans to merchant builders without the pre-sale requirement. This action will undoubtedly have a marked effect on the housing market during the winter months.

17.—Mortgage Loans Approved by Lending Institutions, by Type of Property and of Loan, 1954-63

Year	New Housing		Existing Houses	Other Property	Total
	NHA Loans	Conventional Loans	Conventional Loans	Conventional Loans	
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
1954	464	180	145	115	904
1955	639	235	183	138	1,195
1956	425	255	177	141	998
1957	278	239	150	104	771
1958	519	291	208	174	1,192
1959	308	343	216	216	1,083
1960	242	307	221	263	1,033
1961	453	333	300	298	1,384
1962	412	450	358	311	1,531
1963	385	652	430	373	1,840

Borrower and House Characteristics—Purchasers of NHA-financed houses in 1963 had an average income of $6,179—slightly higher than the 1962 figure of $6,015. Income of borrowers for houses financed by approved lender loans averaged $6,450 and, for houses assisted by direct loans from CMHC, $5,684. The purchase price of the average house was $15,229 with a down payment of $2,634. Monthly payments by borrowers, including principal, interest and municipal taxes, averaged 21.4 p.c. of income, unchanged from 1962.

As in 1962, the average age of borrowers was 34.5 years, with approximately half the total in the 25-34 age group. The percentage of larger families borrowing under the Act

continued to increase, 31.0 p.c. having three or more children as compared with 29.6 p.c. in 1962 and 12.5 p.c. in 1950. Approximately 72 p.c. of borrowers were buying a house for the first time.

The increase in family size of borrowers was accompanied by a heavier volume of houses with four or more bedrooms. These homes, representing 22.7 p.c. of the total as against 17.8 p.c. in 1962, contributed to an increase in the average size of dwellings to 1,204 square feet from 1,189 square feet in 1962. While bungalows remained by far the most popular type of house—72.0 p.c. of the total—the trend to larger houses was accompanied by an increase in the number of two-storey dwellings to 7.0 p.c. from 4.7 in 1962. Split-level houses, as in 1962, formed 20.2 p.c. of the total.

Loans to Limited-Dividend Housing Companies.—Construction of limited-dividend housing projects showed a marked increase in 1963. Loans were approved for projects comprising 2,094 units as compared with 1,482 dwellings in 1962. Of the total, 1,111 units were for occupancy by low-income families and 983 for elderly persons. Loans were made to non-profit organizations and municipalities for projects involving 1,889 units; entrepreneurs, whose developments are subject to more restrictive terms, received loans for 205 dwellings.

Home Improvement Loans.—The volume of NHA-guaranteed bank loans for home improvements declined slightly in 1963 when 22,024 loans amounting to $36,700,000 were approved, as compared with 23,895 loans for $38,000,000 in 1962. Outstanding debt of such loans at the end of 1963 was reported by the banks as $71,700,000; the total a year earlier was $69,900,000. The Home Improvement Loan Insurance Fund, comprised of fees received from borrowers, was $2,600,000 compared with $2,500,000 a year previously.

Loans for University Housing Projects.—There was a sharp increase in 1963 in the volume of NHA lending for university housing projects. Thirty-three loans, amounting to $27,600,000, were made to universities and colleges for the construction of accommodation for 6,300 students. In 1962, 19 loans were approved for projects housing 4,400 students. Loans made in 1963 were distributed provincially as follows:—

Province	*Loans*	*Amount*	*Students to be Accommodated*
	No.	$'000	No.
Nova Scotia	1	1,232	244
Quebec	21	13,515	3,081
Ontario	6	3,226	855
Alberta	2	3,845	997
British Columbia	3	5,810	1,220

Since authorization of university housing loans in December 1960 to December 1963, 74 loans totalling $70,100,000 were approved for the construction of residences for 15,100 students. The statutory limit of $100,000,000 that may be advanced for university housing loans was increased to $150,000,000 in June 1964.

Loans for Municipal Sewage Treatment Projects.—During 1963, 178 loans amounting to $36,000,000 were made to assist municipalities in financing sewage treatment projects. This activity was distributed provincially as follows:—

Province	*Loans*	*Amount*	*Province*	*Loans*	*Amount*
	No.	$'000		No.	$'000
Newfoundland	3	83	Ontario	62	16,999
Prince Edward Island	2	25	Manitoba	28	12,618
Nova Scotia	2	219	Saskatchewan	39	550
New Brunswick	5	179	Alberta	9	243
Quebec	19	2,273	British Columbia	9	2,723

By the end of 1963, nearly 18 p.c. of all Canadian cities, towns and villages had received assistance for municipal sewage treatment projects, which were first authorized in December 1960. During the period, 532 loans totalling $119,000,000 were made to 442 municipalities. Projects have been approved for all ten provinces with the greatest volume in Ontario, Saskatchewan, Manitoba and Quebec.

Mortgage Marketing.—Further efforts were made during the year to stimulate the development of a market for NHA insured first mortgages. Including those sold by CMHC, sales of mortgages in 1963 amounted to more than $130,000,000 as compared with $101,000,000 in 1962. The Corporation made two offerings amounting to $70,000,000, of which $62,250,000 were sold to members of the Investment Dealers' Association of Canada, NHA approved lenders and their NHA approved correspondents. Total sales from the Corporation's mortgage portfolio since the initial offering was made in June 1961 reached almost $154,000,000 at the end of 1963. An amendment to the National Housing Act in June 1964 empowered the Corporation to give added support to the development of a mortgage market by making short-term loans available to any holder of NHA mortgages. Previously, such loans were restricted to NHA approved lenders.

Urban Redevelopment.—Federal aid to assist municipalities undertaking redevelopment projects was extended to three cities in 1963. A net contribution of $848,600 was approved for the third redevelopment project in Halifax, involving the acquisition and clearance of a 31-acre blighted area in the northeast section of the city. The cleared land will be used mainly for residential purposes including a proposed 150-unit public housing development. Approximately 19 acres of land near Montreal's waterfront are being redeveloped for industrial purposes, with a net federal contribution of $1,200,000. Families living in the area have been offered alternative accommodation in federal-provincial and CMHC-owned projects in the city. Half of the $3,300,000 net cost of an Ottawa redevelopment project is being met through a federal grant. The project calls for clearance of a rundown area of 16.7 acres in the west-central part of the city. The land will be used for the construction of a subsidized low-rental housing project and a high school and for commercial purposes. Other redevelopment projects have been completed or are under way in St. John's, Nfld., Saint John, N.B., Toronto, Hamilton, Sarnia and Windsor, Ont., Winnipeg, Man., and Vancouver, B.C.

Federal-Provincial Projects.—Approval under federal-provincial arrangements was given during 1963 to projects in Chatham and Moncton, N.B.; Cochrane, Collingwood, Delhi, Fort Frances, Kapuskasing, Lindsay, Ottawa, Palmerston, Port Arthur, Timmins and Toronto, Ont.; and Estevan, North Battleford and Regina, Sask. The projects will provide 864 units of rental accommodation for lease to low-income families. Developments comprising 12,031 units have been approved since 1950 when the first project was authorized. During 1963, three land-assembly projects were also approved under federal-provincial arrangements. The developments, located in Carleton Place, Toronto and Trenton, Ont., will provide a total of 597 serviced building lots. From the inception of the program in 1949, a total of 18,085 lots had been authorized for development and 10,253 sold by the end of 1963.

Subsection 3.—Housing Statistics of the 1961 Census*

The tremendous upsurge in building construction in the 1951-61 decade is reflected in the 1961 Housing Census results† which recorded 1,145,198 more occupied dwellings in 1961 than in 1951, the total for Canada in the later year being 4,554,493. The rate of increase in occupied dwellings of 33.6 p.c. exceeded the population increase of 30.2 p.c. in the same period.

* More detailed information may be found in Vol. II (Part 2) of the 1961 Census (Catalogue Nos. 93-523 to 93-535).
† Based on a 20-p.c. sample of occupied dwellings across Canada. A dwelling, for census purposes, is a structurally separate set of living quarters with a private entrance either from outside the building or from a common hall or stairway inside. The entrance must not be through anyone else's living quarters.

Table 18 gives a summary of housing characteristics for Canada in 1951 and 1961. In this period both owned and rented dwellings increased by about one third and single detached dwellings and apartments and flats increased at about the same proportionate rate. The median value of homes was $11,021 in 1961 and the median monthly cash rent $62. Almost two out of five dwellings were constructed in the postwar period, a fact reflected in part in the proportion of dwellings in need of repair, which dropped from 13.4 p.c. in 1951 to 5.6 p.c. in 1961.

18.—Housing Characteristics, Censuses of 1951 and 1961

Item		1951[1]	P.C. of Total	1961	P.C. of Total
Totals, Occupied Dwellings	**No.**	**3,409,295**	**100.0**	**4,554,493**	**100.0**
Tenure—					
Owner-occupied	No.	2,236,955	65.6	3,005,587	66.0
Tenant-occupied	"	1,172,340	34.4	1,548,906	34.0
Type—					
Single detached	No.	2,275,615	66.7	2,978,501	65.4
Apartments, flats	"	885,565	26.0	1,151,098	25.3
Dwellings by period of construction—					
Before 1920	No.	..	..	1,391,719	30.6
1920–1945	"	..	..	1,148,389	25.2
Since 1945	"	..	..	2,014,385	44.2
Dwellings in need of major repair	No.	457,570	13.4	255,414	5.6
Av. rooms per dwelling	No.	5.3	...	5.3	...
Av. bedrooms per dwelling	"	..	..	2.7	..
Crowded dwellings[2]	"	641,820	18.8	750,942	16.5
Median value	$	..	..	11,021	...
Dwellings with mortgage[3]	No.	394,910	29.3	979,966	45.5
Median monthly cash rent[4]	$	34	...	62	...
Dwellings heated principally by—					
Coal or wood	No.	2,387,375	70.0	1,062,751	23.3
Oil	"	774,535	22.7	2,565,416	56.3
Gas	"	163,165	4.8	857,953	18.8
Dwellings with—					
Steam or hot water furnace	No.	529,465	15.5	829,984	18.2
Hot air furnace	"	1,052,570	30.9	2,242,237	49.2
Hot and cold running water	"	1,939,770	56.9	3,650,115	80.1
Bath or shower	"	2,072,975	60.8	3,659,520	80.3
Flush toilet	"	2,328,855	68.3	3,880,512	85.2
Mechanical refrigerator	"	1,594,980	46.8	4,145,086	91.0
Passenger automobile	"	1,442,595	42.3	3,114,677	68.4

[1] Exclusive of the Yukon and Northwest Territories. [2] Dwellings in which the number of persons exceeded the number of rooms. [3] Figures relate to owner-occupied, single detached, non-farm dwellings only. [4] Figures relate to non-farm dwellings only.

Table 19 gives certain 1961 housing characteristics by province and by metropolitan area. Among the provinces, Alberta had the largest proportionate gain over 1951, recording an increase of 39.5 p.c. and 99,059 dwellings; Ontario was first numerically with 459,625 more dwellings in 1961 than in 1951, an increase of 38.9 p.c. Saskatchewan had the largest proportion of the single detached type in 1961, 85.7 p.c. of its occupied dwellings being in that category. On the other hand, 49 p.c. of Quebec's dwellings were apartments or flats, the highest among the provinces. The largest homes were in Prince Edward Island where they had an average of 6.4 rooms and 3.3 bedrooms. The smallest were in British Columbia and the Prairie Provinces where they averaged 4.9 rooms and 2.4 bedrooms (2.5 bedrooms in Saskatchewan). Crowded homes (those in which the number of persons exceeded the

number of rooms) were most in evidence in Newfoundland where about three out of ten were thus classified. The proportion of such homes was lowest in Ontario at 11.8 p.c.

Among the metropolitan areas, Vancouver, Victoria and Windsor had the largest proportion of single detached type dwellings in 1961, with 75.0 p.c. of their homes in that category, 69.8 p.c. of Montreal's dwellings were apartments or flats, the highest proportion for this group. Largest homes, on the average, were found in St. John's, Nfld., where they averaged 5.7 rooms and 3.0 bedrooms, and the smallest were in Sudbury, Ont., where they had an average of 4.6 rooms and 2.3 bedrooms.

19.—Housing Characteristics, by Province and Metropolitan Area, Census 1961

Province or Territory and Metropolitan Area	Total Occupied Dwellings	Type of Dwelling		Period of Construction		In Need of Major Repair	Average Rooms	Average Bedrooms	Crowded Dwellings[1]
		Single Detached	Apartments, Flats	Before 1920	Since 1945				
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	87,940	73,738	5,170	21,168	42,853	4,783	5.9	3.2	26,254
P. E. Island	23,942	19,427	2,259	13,867	5,117	1,357	6.4	3.3	4,080
Nova Scotia	175,340	134,715	25,187	83,465	53,858	15,158	5.8	3.0	31,832
New Brunswick	132,714	95,772	25,906	57,822	44,439	15,977	5.9	3.0	27,836
Quebec	1,191,368	467,716	583,983	357,568	531,863	49,392	5.3	2.8	259,985
Ontario	1,640,750	1,140,653	324,859	573,071	705,528	74,127	5.5	2.7	194,343
Manitoba	239,754	190,171	37,115	75,417	98,039	18,505	4.9	2.4	40,261
Saskatchewan	245,424	210,253	22,390	69,260	97,071	22,117	4.9	2.5	45,967
Alberta	349,809	272,069	54,919	64,979	192,635	27,116	4.9	2.4	61,308
British Columbia	459,532	367,663	68,632	74,740	236,865	25,309	4.9	2.4	55,484
Yukon and N.W.T.	7,920	6,324	678	362	6,117	1,573	3.4	1.5	3,592
Canada	**4,554,493**	**2,978,501**	**1,151,098**	**1,391,719**	**2,014,385**	**255,414**	**5.3**	**2.7**	**750,942**
Calgary	78,396	50,802	22,132	15,364	50,654	2,774	5.0	2.4	8,189
Edmonton	89,003	61,800	21,692	11,788	59,015	4,000	5.0	2.5	12,892
Halifax	42,366	23,450	14,880	13,338	18,182	2,661	5.1	2.5	8,520
Hamilton	105,240	76,869	21,966	34,722	47,179	3,305	5.4	2.6	11,059
Kitchener	42,174	29,688	10,038	14,229	19,656	1,807	5.4	2.6	3,950
London	50,494	33,824	14,088	18,522	22,763	1,559	5.3	2.5	4,624
Montreal	549,652	106,969	383,735	140,083	278,639	15,401	4.9	2.3	90,908
Ottawa	107,570	51,914	40,196	32,958	53,852	3,892	5.3	2.6	16,493
Quebec	79,140	23,127	45,356	25,914	32,813	2,475	5.3	2.6	16,239
Regina	30,123	21,544	6,771	5,627	16,057	1,446	4.8	2.3	4,456
Saint John	24,143	8,854	13,345	13,756	6,486	2,887	5.4	2.6	3,842
St. John's	17,917	9,537	3,484	5,342	8,157	1,152	5.7	3.0	5,115
Saskatoon	25,910	19,193	5,134	4,716	13,704	1,160	5.0	2.4	3,555
Sudbury	26,255	15,182	8,363	3,271	13,439	1,371	4.6	2.3	7,402
Toronto	482,490	268,984	128,680	115,868	248,985	10,747	5.5	2.6	47,311
Vancouver	228,596	171,620	47,630	36,920	113,479	8,510	5.0	2.4	18,977
Victoria	47,485	35,747	9,295	11,907	21,623	1,372	5.0	2.3	3,229
Windsor	53,315	40,102	9,877	12,911	19,420	2,379	5.4	2.6	5,979
Winnipeg	128,530	90,412	31,666	40,733	55,079	6,421	4.9	2.4	15,654

[1] Dwellings in which the number of persons exceeded the number of rooms.

As shown in Table **20**, Newfoundland had the largest proportion of owner-occupied dwellings in 1961 with 87.2 p.c., followed by Prince Edward Island with 79.2 p.c.; Quebec had the smallest proportion with 49.0 p.c. However, of owner-occupied, single detached, non-farm dwellings with mortgage, Ontario had the highest percentage (53.5) and Newfoundland the lowest (7.9). The median value of homes ranged from $4,311 in Newfoundland to $12,952 in Ontario and the average cash rent from $48 in Prince Edward Island and New Brunswick to $76 in Ontario. Average gross rent, including amounts paid monthly for services such as water, electricity, gas or fuel, ranged from $66 in New Brunswick to $87 in Ontario.

Among the metropolitan areas, Hamilton had the largest proportion of owner-occupied dwellings (73.5 p.c.) in 1961. Montreal ranked first among the tenant-occupied with 67.4 p.c. The median value of owner-occupied, single homes ranged from $17,301 in Toronto to $9,899 in Saint John, N.B. Average cash rents were highest in Toronto at $101 and lowest in Saint John at $48, and average gross rents ranged from a high of $109 in Toronto to $64 in Quebec.

20.—Tenure of Occupied Dwellings, Value and Rent, by Province and Metropolitan Area, Census 1961

Province or Territory and Metropolitan Area	Owned Dwellings			Rented Dwellings		
	Total	Median Value[1]	Dwellings with Mortgage[1]	Total	Average Cash Rent[2]	Average Gross Rent[2]
	No.	$	No.	No.	$	$
Newfoundland	76,691	4,311	5,313	11,249	55	77
Prince Edward Island	18,958	5,310	2,786	4,984	48	67
Nova Scotia	131,405	5,873	27,322	43,935	57	74
New Brunswick	94,022	5,382	16,860	38,692	48	66
Quebec	583,981	10,004	158,518	607,387	59	72
Ontario	1,157,229	12,952	472,959	483,521	76	87
Manitoba	176,156	10,396	53,341	63,598	64	74
Saskatchewan	188,226	7,396	30,543	57,198	55	69
Alberta	248,537	12,116	80,732	101,272	65	75
British Columbia	326,090	11,744	131,321	133,442	65	78
Yukon and Northwest Territories	4,292	−3,000	271	3,628	61	77
Canada	**3,005,587**	**11,021**	**979,966**	**1,548,906**	**65**	**77**
Calgary	49,623	14,850	28,796	28,773	77	85
Edmonton	57,916	14,517	34,687	31,087	72	80
Halifax	23,234	14,716	11,688	19,132	78	95
Hamilton	77,367	14,078	42,479	27,873	73	83
Kitchener	30,479	12,396	15,980	11,695	61	71
London	33,695	13,128	17,446	16,799	77	85
Montreal	179,083	15,305	65,829	370,569	67	80
Ottawa	55,569	16,433	30,038	52,001	84	94
Quebec	33,458	13,673	13,665	45,682	54	64
Regina	20,048	12,190	9,894	10,075	76	89
Saint John	10,682	9,899	3,352	13,461	48	67
St. John's	12,454	12,704	3,076	5,463	62	83
Saskatoon	18,363	11,752	8,757	7,547	69	80
Sudbury	14,807	13,269	6,466	11,448	65	78
Toronto	325,435	17,301	167,605	157,055	101	109
Vancouver	159,414	13,932	81,188	69,182	75	86
Victoria	33,893	11,656	15,471	13,592	65	77
Windsor	38,620	10,349	17,549	14,695	56	69
Winnipeg	85,831	12,999	44,515	42,699	71	79

[1] Figures relate to owner-occupied, single detached, non-farm dwellings only. [2] Figures relate to non-farm dwellings only, regardless of type.

CHAPTER XVIII.—LABOUR*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—The Government in Relation to Labour

Subsection 1.—The Federal Department of Labour and Federal Labour Legislation

The Department of Labour.—The federal Department of Labour was established in 1900 under the Conciliation Act which provided machinery to aid in preventing and settling labour disputes and required the Department to collect, compile and publish statistical and other relevant information. The Department also assumed the administration of the Fair Wages Policy adopted in the same year for the protection of workmen employed in the execution of Federal Government contracts and on works aided by grants from public funds. Since that time the Department has been charged with the administration of new legislation and has taken on new functions. Its work today falls very broadly into two main areas—industrial relations and manpower supply.

The legislation it administers in the industrial relations area applies to employers, workers and trade unions under federal jurisdiction. The Department is responsible for conciliation procedures in industrial disputes, the investigation of complaints of unfair labour practices, refusals to bargain and violations of legislation, the processing of applications for the certification and decertification of trade unions and the conducting of representation votes. It determines wage rates and hours of work in Federal Government contracts for construction or supplies, and promotes joint labour-management consultation. It also administers legislation to prevent discrimination in employment based on race, religion, colour or national origin, to provide for equal pay for female employees and to provide for annual vacations with pay.

In the manpower supply area the Department has been increasingly concerned with promoting the best use of all available manpower resources. Under federal-provincial agreements, assistance is provided to the provinces for the construction and equipping of

* Except as otherwise noted, this Chapter has been revised under the direction of the Deputy Minister of the Department of Labour, Ottawa.

technical and vocational schools and for the operation of a variety of training programs, including training for the unemployed in provincially organized courses. The Department is responsible for the co-ordination of the national program for the vocational rehabilitation of the civilian disabled, and provides financial assistance, also under federal-provincial agreements, to provincial rehabilitation programs.* The new Manpower Consultative Service went into operation in 1964 to assist management and unions to carry on advance planning to meet the manpower effect of automation and other technical changes and so to reduce hardship and unemployment.

To stimulate winter activity and so increase winter employment, the Department organizes, in co-operation with the National Employment Service, the annual nation-wide "Do It Now" winter employment campaign to persuade home and business owners to plan inside renovation and repair work for the cold months. It is also responsible for the municipal winter works incentive program, through which the Federal Government contributes toward winter works projects undertaken by municipalities. As a further stimulus to winter employment, a winter house-building incentive program was introduced in 1963-64 (see p. 704) and continued in 1964-65.

Research, involving regular surveys and analyses of economic and social trends affecting the labour force, is an important part of its work. It studies wages and working conditions, employment and unemployment, particular occupations, the training and utilization of manpower, union organization and collective bargaining.

Through the Women's Bureau and the Division on Older Workers, it investigates the problems of women and of older persons in the labour force. It assists in the movement of farm workers between provinces and between Canada and the United States, under federal-provincial agreements. It operates a plan of workmen's compensation for seamen on Canadian ships, and arranges workmen's compensation for Federal Government employees.

The Department publishes the monthly *Labour Gazette*, maintains records of labour legislation in the provinces and in other countries and operates a labour lending library. It provides liaison between the International Labour Organization and the federal and provincial governments, and is responsible for the sale and administration of Canadian Government annuities.

Federal Labour Legislation.—*Fair Wages Policy.*—The Fair Wages Policy applying to all Federal Government contracts was first set forth in a Resolution of the House of Commons (1900) and later incorporated in an Order in Council and amended from time to time. Wages and hours on contracts for construction are now regulated by the Fair Wages and Hours of Labour Act and Order in Council PC 1954-2029 of Dec. 22, 1954. Hours of work on construction contracts are limited to eight per day and 44 per week, except in an emergency or in special circumstances where exemption is granted by Order in Council; wages to be paid are those current for the type of work in the district or, if there are no current rates, fair and reasonable rates as determined by the Minister of Labour.

Wages and hours of work on contracts for equipment and supplies are also regulated by Order in Council PC 1954-2029. The hours of such work must be those fixed by the custom of the trade in the district where the work is performed, or fair and reasonable hours. The wages must be current or fair and reasonable but in no event shall they be less than those established by statute or regulation of the province in which the work is being performed. This Order in Council contains a clause prohibiting discrimination against any person in matters of employment because of that person's race, national origin, colour or religion, or because he has made a complaint or given information with respect to such alleged discrimination.

* This subject is covered in more detail in the Education Chapter, at pp. 335-336.

*Government Prevailing Rate Employees.**—Many departments and agencies of government employ non-office workers in public buildings, defence establishments, parks and forests, experimental farms, canal operation, airports and government vessels, survey parties, special projects, etc. Such positions are exempt from the operations of the Civil Service Act and rates of pay are fixed by the Treasury Board in consultation with the Department of Labour on the basis of prevailing private industry rates for comparable work in the appropriate area. Data used in the determination of these pay rates are secured from wage surveys made by Industrial Relations Officers of the Department of Labour, from wage research conducted by the Economics and Research Branch, and from collective agreements and wage rates established under the legislation of some provinces.

The Fair Wages and Prevailing Rates Division of the Industrial Relations Branch also recommends rates of pay for 4,000 commissionaires employed by various government departments and agencies throughout Canada, provides wage data to assist certain Crown corporations in the preparation of their wage schedules, and gives assistance in the establishment of class titles, job descriptions and the application of job evaluation techniques.

Three sets of comprehensive Regulations have been established by the Treasury Board governing hours of work, overtime, vacations, statutory holidays, sick leave, pensions, etc., for (1) prevailing rate workers generally employed, (2) ships' officers and (3) ships' crews.

The Industrial Relations and Disputes Investigation Act.—This legislation came into effect by proclamation on Sept. 1, 1948, revoking the Wartime Labour Relations Regulations in effect since March 1944 and repealing the Industrial Disputes Investigation Act which had been in force from 1907 until suspended by the Wartime Regulations in 1944. The Act protects proceedings commenced and decisions, orders and certifications made under the wartime legislation in so far as these involve services authorized by the Act.

The Act applies only to industries within federal jurisdiction, viz., navigation, shipping, interprovincial railways, canals, telegraphs, steamship lines and ferries, both international and interprovincial, aerodromes and air transportation, radio broadcasting stations, and works declared by Parliament to be for the general advantage of Canada or of two or more provinces. However, the Act provides that provincial authorities if they so desire may enact similar legislation for application to employees within provincial jurisdiction and make mutually satisfactory arrangements with the Federal Government for the administration of such legislation by the federal authorities.

In general, the Act in its important features provides that employees and employers shall have the right to organize and bargain collectively and that trade unions may be certified as bargaining agents for employee groups. Trade unions and employers are required, upon notice, to bargain collectively in good faith. The Act provides for invoking collective bargaining negotiations and for the mediation of conciliation officers and conciliation boards in reaching collective agreements. Employees may change bargaining agents at times under conditions specified in the Act, which also prescribes conditions affecting the duration and renewal of collective agreements. Collective agreements are required to contain provision for the arbitration of disputes concerning the meaning or violation of such agreements and where such provision is lacking application may be made for its establishment. The Act prohibits unfair labour practices, i.e., the interference with or domination of trade unions by employers or interference, discrimination and coercion in trade union activity. The conditions that must be observed prior to strike and lockout action are set down in the Act. Industrial inquiry commissions may be appointed to investigate industrial matters or disputes.

The Minister of Labour is charged with the administration of the Act and is directly responsible for the provisions affecting the appointment of conciliation officers, conciliation boards, industrial inquiry commissions, consent to prosecute, and complaints that the Act has been violated or that a party has failed to bargain in good faith.

* Statistics on numbers and earnings of prevailing rate and other groups of federal employees exempt from the Civil Service Act are given at pp. 132-141.

The Canada Labour Relations Board administers provisions concerning the certification of bargaining agents, the writing of a procedure into a collective agreement for the final settlement of disputes concerning the meaning or violation of such agreement, and the investigation of complaints made to the Minister that a party has failed to bargain collectively.

Detailed statistics concerning activities under the Act may be found in the Annual Report of the Department of Labour. In brief, from Sept. 1, 1948 to Dec. 31, 1963, the Canada Labour Relations Board received 1,481 applications for certification, 859 of which were granted, 302 rejected, 292 withdrawn and 28 were pending at the end of the period. Of the 955 industrial disputes dealt with under the conciliation provisions of the Act, 849 were settled by conciliation officers and conciliation boards, 68 were not settled, 29 lapsed and nine were pending at Dec. 31, 1963.

Labour-Management Co-operation Service.—During World War II, production committees based on the principle of joint consultation between labour and management were established in many vital industries. Since 1947 the establishment of labour-management committees in industry has been encouraged and assisted by the Labour-Management Co-operation Service, a division of the Industrial Relations Branch of the Department of Labour. There are now more than 1,800 active committees whose efforts are directed toward such objects as better understanding between management and labour, improved production efficiency, improved quality, reduction of waste, accident prevention, good housekeeping and reduction of absenteeism.

Reinstatement in Civil Employment Act.—This Act provides for the reinstatement in their civil employment of discharged members of the Armed Forces and other designated persons. It was originally passed in 1942, revised in 1946, and broadened in its application in 1954. The Act is administered by the Minister of Labour through the National Employment Service (see p. 744).

Canada Fair Employment Practices Act.—This Act, which came into effect on July 1, 1953, prohibits discrimination in employment based on race, colour, religion or national origin. It applies only to industries within federal jurisdiction—those covered by the Industrial Relations and Disputes Investigation Act (see p. 714). This law prohibits acts of discrimination by employers; discrimination by trade unions in regard to membership or employment; the use by employers of employment agencies that practise discrimination; and the use of advertisements or inquiries in connection with employment that express, directly or indirectly, any limitation, specification or preference as to race, colour, religion or national origin.

Female Employees Equal Pay Act.—This Act came into effect on Oct. 1, 1956 and applies to employers and employees engaged in works, undertakings or businesses coming within federal jurisdiction. The Act, in its principal provision, prohibits an employer from employing a female for any work at a rate of pay that is less than the rate at which a male is employed by that employer for identical or substantially identical work.

Annual Vacations Act.—This Act was passed in January 1958 and became effective by proclamation on Oct. 1, 1958. It provides a one-week vacation with pay for the first year of employment and a two-week vacation for subsequent years. Vacation pay is computed at 2 p.c. of wages, as defined in the Act, for a vacation of one week and 4 p.c. for a vacation of two weeks.

Subsection 2.—Provincial Labour Legislation

Because of the authority given by the British North America Act to the provincial legislatures to make laws in relation to local works and undertakings and in relation to property and civil rights in the province, power to enact labour legislation is largely the prerogative of the provinces. Since it imposes conditions on the rights of the employer

and employee to enter into a contract of employment, labour legislation is, generally speaking, law in relation to civil rights. Under this authority, the provincial legislatures have enacted a large body of legislation affecting the employment relationship in such fields as working hours, minimum wages, the physical conditions of workplaces, apprenticeship and training, wage payment and wage collection, labour-management relations, workmen's compensation and other matters. In each province a Department of Labour is charged with the administration of labour laws. Legislation for the protection of miners is administered by departments dealing with mines. The workmen's compensation law in each province is administered by a Workmen's Compensation Board appointed by the Lieutenant-Governor in Council.

As a means of ensuring adequate living standards for workers, all provinces have enacted minimum wage legislation. These laws vest in a minimum-wage-fixing board authority to set minimum wages for employees. Five provinces have general hours-of-work laws, which either limit daily and weekly working hours or require the payment of an overtime rate if work is continued beyond specified daily and weekly hours.

Hours of work are also restricted and minimum wages established for certain types of employment under industrial standards legislation in Nova Scotia, New Brunswick, Ontario, Saskatchewan and Alberta, under the Manitoba Fair Wage Act and under the Quebec Collective Agreement Act (see p. 720).

Eight provinces have passed annual vacations laws (see pp. 718-719) and in most provinces there is legislation setting a minimum age for the employment of young workers in various industries and occupations. A weekly day of rest is provided for by law in most provinces. In two provinces there are statutory requirements regarding the observance of certain public holidays.

Factory or industrial safety Acts in most provinces establish safeguards for the protection of the health and safety of workers in factories and other workplaces with respect to such matters as sanitation, heating, lighting, ventilation and the guarding of dangerous machinery. Long-established laws regulating the design, construction, installation and operation of mechanical equipment such as boilers and pressure vessels, elevators and lifts and electrical installations, have been revised in recent years in line with technological changes, and legal standards have been set in new fields involving hazards to workers and the public, such as the use of gas- and oil-burning equipment. This legislation also prescribes standards of qualification for workers who install, operate or service such equipment. Laws requiring measures to be taken to eliminate accidents in construction and excavation work are in force in a number of jurisdictions.

All provinces have apprenticeship laws providing for an organized procedure of on-the-job training and school instruction in designated skilled trades, and statutory provision is made in most provinces for the issue of certificates of qualification, on application, to qualified tradesmen in certain trades. In some provinces legislation is in effect making it mandatory for certain classes of tradesmen to hold a certificate of competency.

In all provinces there is legislation similar in principle to the federal Industrial Relations and Disputes Investigation Act, designed to establish equitable relations between employers and employees and to facilitate the settlement of industrial disputes. These laws guarantee freedom of association and the right to organize, establish machinery (labour relations boards) for the certification of a trade union as the exclusive bargaining agent of an appropriate unit of employees, and make compulsory collective bargaining between an employer and the certified trade union representing his employees. Except in Saskatchewan, they provide for compulsory conciliation, that is, they require the parties to comply with the conciliation procedures laid down in the Act before a strike or lockout may legally take place. A two-stage conciliation process is provided for—the intervention of a conciliation officer at the first stage of a dispute and, failing settlement, the establishment of a conciliation board. The Acts also provide for the compulsory settlement of any dispute that arises out of a collective agreement, and prohibit strike action while an agreement is in force. All prescribe and provide penalties for unfair labour practices.

In some provinces certain classes of employees who are engaged in essential services, such as policemen and firemen, are forbidden to strike and, in lieu of the right to strike, have recourse to final and binding arbitration.

Six provinces have adopted fair employment practices laws forbidding discrimination in hiring and conditions of employment and in trade union membership on grounds of race, colour, religion or national origin. The same six provinces have laws providing that places to which the public is customarily admitted must be open to all without regard to race, colour, religion or national origin. Eight provinces have equal pay laws, which forbid discrimination in rates of pay solely on the basis of sex. In Ontario and Nova Scotia, fair employment practices, fair accommodation practices and equal pay laws have been combined in one statute (the Ontario Human Rights Code and the Nova Scotia Human Rights Act).

Workmen's compensation legislation providing a system of collective liability on the part of employers for accidents occurring to employees in the course of their employment are in force in all provinces. Workmen's compensation laws are described in greater detail on pp. 745-746.

Changes in 1963.—In 1963 a number of important changes were made in provincial labour laws.

The Newfoundland Legislature passed an Industrial Standards Act similar to the legislation in force in five other provinces. It also enacted an Hours of Work Act applying specifically to shop employees throughout the province. This Act limits working hours to eight in a day and 40 in a week unless time and one half the regular rate is paid, provides for a weekly rest and, subject to certain exceptions, requires shops to remain closed on specified public holidays.

The Ontario Minimum Wage Act was amended to provide that tips are not to be counted as wages for purposes of the Act and to give authority to the Industry and Labour Board to fix minimum wages on an hourly rather than a weekly basis. Under this authority new hourly minimum wage rates have been established for workers of both sexes. The rates for male workers were the first to be set for men in the province. As a result of an amendment to the Ontario Wages Act, it is now obligatory for employers to give their employees a pay statement on each regular pay day.

In Prince Edward Island, a new Apprenticeship and Tradesmen's Qualification Act was passed, making provision for the setting up of an organized system of apprenticeship training and for the voluntary certification of tradesmen. The British Columbia Apprenticeship and Tradesmen's Qualification Act was amended to provide for the compulsory certification of tradesmen. In Ontario, an amendment to the Apprenticeship Act removed the upper age limit of 21 years for persons desiring to become apprentices in any of the designated trades.

Changes were made in the labour relations laws of several provinces. The principal amendment in British Columbia was one permitting the parties to a collective agreement to refer a grievance to the Labour Relations Board as a speedier and less expensive alternative to private arbitration. The Newfoundland amendments introduced new emergency procedures for hospital disputes. Amendments to the Ontario Labour Relations Act provided for the continuation of the bargaining rights of a trade union when a business changes hands. The Public Service Act was amended to establish negotiating machinery for provincial civil servants. Ontario thus became the second province to give its civil servants negotiating rights.

Industrial safety continued to be a matter of concern and a number of special measures for the protection of workmen in hazardous employments were adopted. A new Loggers'

Safety Act was passed in Ontario, the first safety legislation to be enacted for the logging industry in the province. New foundry regulations, and regulations designed to safeguard workmen against accidents in hazardous underground projects, and particularly work in compressed air, were also issued in Ontario. Legislation governing elevators and hoists was revised in Manitoba. The Ontario Boilers and Pressure Vessels Act was rewritten to bring its safety requirements into line with modern technology and practice. A new Act governing electrical installations was passed in New Brunswick.

Workmen's compensation laws were amended in five provinces. The Quebec Legislature made provision for a much wider coverage of the Act. In Ontario, the maximum annual earnings on which compensation may be paid were increased from $5,000 to $6,000. In Quebec, the minimum payment for total disability was fixed at $25 a week instead of $15. Of special importance were changes with regard to the age to which children's allowances are payable. In Quebec, a child is now eligible for an allowance as long as he is in regular attendance at school and, in Prince Edward Island, payment of compensation may be continued to the age of 21, at the discretion of the Workmen's Compensation Board, in respect of a child who is furthering his education. Greater expenditures for rehabilitation services were authorized in Manitoba and Quebec. Both Ontario and Quebec reduced the waiting period to three days.

Further information about legislative changes in 1963 may be found in the *Labour Gazette*, September-December 1963 issues.

Regulation of Hours and Annual Vacations.—Ontario, Manitoba, Saskatchewan, Alberta and British Columbia have statutes of general application limiting working hours. The Acts are of two types. Those of Ontario, Alberta and British Columbia set actual limits on daily and weekly hours, and provide that work may not be carried on beyond those limits except with the permission of the administrative authority. The Manitoba and Saskatchewan Acts regulate hours through the requirement that one and one half times the regular rate must be paid if work is continued after specified limits. Hours are also regulated under the Industrial Standards Acts, the Manitoba Fair Wage Act and the Quebec Collective Agreement Act (see p. 720) and there is, in addition, some regulation of hours under other legislation, such as factories Acts, mines Acts and, in Newfoundland, legislation governing shops.

In Ontario, working hours are limited to eight in a day and 48 in a week. In Alberta, the maximum daily and weekly hours permitted to be worked in all centres with a population of over 5,000 are eight and 44, and in the remainder of the province they are eight and 48. In British Columbia, hours are limited to eight in a day and 44 in a week. Under the Saskatchewan law, one and one half times the regular rate must be paid for work done after eight hours in a day and 44 hours in a week, except in workplaces (other than factories) in the smaller centres, where the overtime rate must be paid after a 48-hour week. In addition to the above, the Lieutenant-Governor in Council has authority to limit daily hours in any class of employment in order to prevent the working of excessive hours; this authority has been used to limit daily hours to 12 in highway construction and maintenance. The Manitoba Act, which applies to the chief industrial areas of the province, requires one and one half times the regular rate to be paid after eight hours in a day and after 48 hours in a week for men and 44 hours for women. The Manitoba and British Columbia Acts cover specified industries but the other three Acts apply to most industries in the province concerned.

Seven provinces—Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia—have annual vacations legislation applicable to most industries,

and the New Brunswick Vacation Pay Act (as amended in 1964) covers all employees except those in domestic service or agriculture, employees of the Crown and certain part-time workers. In Nova Scotia, New Brunswick, Quebec and Ontario, workers are entitled to a vacation with pay of one week after a year of service; in the four western provinces, a vacation of two weeks with pay must be granted after a year of employment. In Saskatchewan, a worker becomes eligible for a vacation of three weeks after five years of service with the same employer. A worker employed for less than a year is entitled, in Quebec, to a half-day for each month of employment and, in Saskatchewan, to one day for every month. Coal miners in Alberta are entitled to a vacation of one day for every 20 days worked in a month but not more than two weeks in a year.

A stamp system of vacation pay credits is in effect for the construction industry in Alberta and Nova Scotia. In Ontario, the stamp system is used in any industry (including construction) in which employment is terminated during a working year. In Manitoba, vacation pay of transitory construction workers in Greater Winnipeg is deposited by employers with the Department of Labour and disbursed to employees by cheque after the first day of July in each year.

Farm workers are excluded from the vacation provisions in all provinces, and domestic servants in all but Manitoba and Saskatchewan. In addition, Quebec exempts employees of municipal and school corporations, janitors and caretakers, salesmen with less than three months experience and certain part-time workers; Ontario exempts professional workers, salesmen, flower, fruit and vegetable growers, and funeral directors and embalmers; Nova Scotia excludes workers engaged in lumbering and commercial fishing; Alberta exempts salesmen; Manitoba and Saskatchewan exclude ranch and market garden employees; and British Columbia exempts professional workers and horticultural workers. Workers covered by decrees under the Quebec Collective Agreement Act are excluded from the vacation order and are subject to the annual vacation provided for in the decree concerned.

Minimum Wage Regulations.—All provinces have minimum wage legislation under which minimum rates are fixed by a government board. The British Columbia board makes a separate order for each industry or occupation. In the other provinces general orders are issued setting rates which apply to most industries and occupations. Except in three provinces, the general orders apply to both sexes.* In Nova Scotia, minimum rates have been set for women only.† In New Brunswick, there is a general minimum wage order for women; minimum rates have been set for male workers in certain industries only—logging, sawmilling, the garment industry and the canning or processing of fish, vegetables or fruit. In Prince Edward Island, a general minimum wage order for male workers is in effect; the only rates set for women are for restaurant workers in Charlottetown and Summerside and for laundry workers throughout the province. Nova Scotia, Ontario and Quebec are divided into zones for minimum wage purposes and rates are set according to zone. In the three Prairie Provinces rates vary between rural and urban areas. Elsewhere minimum rates apply throughout the province. Weekly rates are set in some provinces, hourly rates in others.

Table 1 shows the minimum rates in effect on Jan. 1, 1964 for several classes of establishment in the principal cities.

* In Ontario, the general order issued in 1963 covering both male and female workers applied only to the Toronto-Hamilton-Oshawa zone; province-wide minimum rates went into effect on June 29, 1964.

† A new Minimum Wage Act passed in 1964 gives authority to set rates for both sexes.

1.—Minimum Wage Rates for Experienced Workers in Certain Cities, by Sex, Jan. 1, 1964

Item, Type of Establishment and Sex		St. John's, Nfld.	Charlottetown, P.E.I.	Halifax, N.S.	Saint John, N.B.	Montreal, Que.	Toronto, Ont.	Winnipeg, Man.	Regina, Sask.	Edmonton, Alta.	Vancouver, B.C.
Maximum hours per week to which the rates apply.	M.	48	—	—	—	48[1]	48	48	44	44	44
	F.	48	48	48	48	48[1]	48	44	44	44	44
		cts. per hour	cts. per hour	$ per week	cts. per hour	cts. per hour	$ per hour	cts. per hour	$ per week	$ per week	$ per hour
Factories	M.	70	95[2]	—	65[3]	70	1.00	75	34	34	1.00
	F.	50	—	21.60	60	70	0.95	75	34	34	1.00
Laundries, etc.	M.	70	95	—	—	70	1.00	75	34	34	1.00
	F.	50	55	21.60	60	70	0.95	75	34	34	1.00
Shops	M.	70	95	—	—	70	1.00	75	34	34	1.00
	F.	50	—	21.60	60	70	0.95	75	34	34	1.00
Hotels, restaurants, etc.	M.	70	95	—	—	64[4]	1.00	75	34	34	1.00
	F.	50	21[5]	21.60	55	64	0.95	75	34	34	1.00
Beauty parlours	M.	70	95	—	—	70	1.00	75	34	34	35.00[6]
	F.	50	—	21.60	60	70	0.95	75	34	34	35.00[6]
Theatres and amusement places.	M.	70	95	—	—	70	1.00	75	34	34	0.75
	F.	50	—	21.60	60	70	0.95	75	34	34	0.75
Offices	M.	70	95	—	—	70	1.00	75	34	34	1.00
	F.	50	—	21.60	60	70	0.95	75	34	34	1.00

[1] In hotels and restaurants the rates apply to a maximum of 54 hours per week. [2] 80 cents per hour for male workers in food processing plants. [3] Applies only to canning or processing of fish, vegetables or fruit; 60 cents in the garment industry for 48 hours or less in a week. [4] Chauffeurs, watchmen, stationary enginemen and firemen 70 cents; bell boys 56 cents. [5] Dollars per week for waitresses; $16 for other restaurant workers. [6] Dollars per week.

Regulation of Wages and Hours of Work under Industrial Standards Legislation and the Quebec Collective Agreement Act.—Industrial Standards Acts are in effect in Nova Scotia, New Brunswick, Ontario and Saskatchewan and there are similar provisions in the Alberta Labour Act (Part IV). These provide that a schedule of wage rates and hours of work agreed upon by a representative group of employees and employers in an industry may, upon approval by the government, be given statutory effect by Order in Council, to become the minimum terms of employment for the entire industry in the area. This legislation applies only to certain trades and areas in the province concerned. It has been used fairly extensively in the building trades, the clothing industries, barbering and a few other industries. An advisory committee, usually equally representative of employers and employees, is established to assist in enforcing a schedule.

The Nova Scotia Act applies only to construction work in Halifax, Dartmouth and Sydney; 12 schedules of wages and hours for individual building trades were in force during the year ended Mar. 31, 1963. In New Brunswick, five schedules covering an individual building trade or group of such trades were in effect in the same period.

At the end of March 1963, there were 152 schedules in force under the Ontario Industrial Standards Act. Of these, 73 applied to the building trades, 68 to barbering, and four to the retail gasoline service industry. Five schedules for the garment industries, one for the fur industry and one for hard furniture applied throughout the province.

In Saskatchewan, 17 schedules were in effect on Mar. 31, 1963, covering barbering, beauty culture, baking, carpentry, painting and the electrical trade. The schedule for barbering covered the whole province except the cities of Regina, Saskatoon and Prince Albert, for each of which a separate schedule was in effect. Each of the other schedules

applied to a zone consisting of a city and its environs. In Alberta, 15 schedules were in force at the end of the year 1963. These governed, in one or more areas, certain building trades, dairy employees, garage and service station workers, and bakers and bakery salesmen. In Manitoba, the Fair Wage Schedule issued annually under the Fair Wage Act for the construction industry sets a regular work week and hourly rates of wages for various classifications of workers. The schedule applies to private construction work in the larger centres of population as well as to public constructon work throughout the province.

In the Province of Quebec, 105 decrees under the Collective Agreement Act were in force on Mar. 31, 1963, governing 36,317 employers and 248,768 employees. Of these, 18 applied to barbers and hairdressers, 21 to commercial establishments, 17 to the construction industry, 24 to manufacturing, and 25 to other industries and services. Fourteen of the decrees had province-wide jurisdiction, governing the manufacture of women's coats and suits, dresses, hats and handbags, men's and boys' clothing, hats and caps and shirts, the manufacture of shoes, leather gloves, furniture, corrugated paper boxes and caskets, the tanning industry and the building materials industry. The remaining decrees regulated an industry in a particular urban centre or region of the province. Each decree is enforced by a parity committee which has power to levy an assessment on employers and employees to obtain funds for the enforcement of the decree.

Section 2.—The Labour Force*

A current and periodic analysis of the state of employment in Canada was organized in 1945 to provide up-to-date and reliable information concerning the Canadian labour force. A labour force survey, on a sample basis, was conducted in November 1945 and quarterly surveys were carried out thereafter until November 1952, when the survey was placed on a monthly basis. A multi-stage area sample was used involving the selection of progressively smaller sample areas and ultimately of households. Random methods of choice were used at every stage of selection so that all members of the population had an equal chance of inclusion. The present sample covers more than 30,000 households throughout Canada. The estimates of the labour force are restricted to the civilian labour force. In addition to members of the Armed Forces, inmates of institutions and Indians living on reservations are excluded.

The labour force surveys provide a classification of persons 14 years of age or over on the basis of their activity during the week preceding the beginning of interviewing for the survey. The main divisions of the population are defined as follows:—

Labour Force.—The civilian labour force is composed of that portion of the civilian non-institutional population 14 years of age or over who, during the survey week, were employed or unemployed.

Employed.—The employed include all persons who, during the survey week: (a) did any work for pay or profit; (b) did any work which contributed to the running of a farm or business operated by a related member of the household; or (c) had a job but were not at work because of bad weather, illness, industrial dispute, or vacation, or because they were taking time off for other reasons. Persons who had jobs but did not work during the survey week and who also looked for work are included in the unemployed as persons without work and seeking work.

Unemployed.—The unemployed include all persons who, through the survey week: (a) were without work and seeking work, i.e., did no work during the survey week and were looking for work; or would have been looking for work except that they were temporarily ill, were on indefinite or prolonged layoff, or believed no suitable work was available in the community; or (b) were temporarily laid off for the full week, i.e., were waiting to be called back to a job from which they had been laid off for less than 30 days.

Not in the Labour Force.—Those not in the labour force include all civilians 14 years of age or over (exclusive of institutional population) who are not classified as employed or unemployed. This category includes those going to school, keeping house, too old or otherwise unable to work, and voluntarily idle or retired. Housewives, students and others who worked part time are classified as employed. If they looked for work they are classified as unemployed.

*Prepared in the Special Surveys Division, Dominion Bureau of Statistics.

The estimates derived from the labour force surveys are subject to sampling error. In general, the percentage of error tends to decrease as the size of the estimate increases. The chances are about 19 out of 20 that the difference between the estimate and the figure which would have been obtained from a complete count is less than shown below. The sampling variabilities indicated are averages, since sampling error differs from characteristic to characteristic; in particular, for the unemployed the sampling variability is about 40 p.c. higher than the general average.

Size of Estimate	*Sampling Variability*
10,000	3,500
50,000	8,000
100,000	11,000
500,000	24,000
1,000,000	33,000
5,000,000	58,000
6,000,000	60,000

2.—Estimates of the Civilian Labour Force and its Main Components, Annual Averages, 1946 and 1954-63

NOTE.—Comparable figures for 1947-53 are given in the 1962 Year Book, p. 708. Figures do not include inmates of institutions and Indians on reservations.

Year	Civilian Population (14 years of age or over)	Civilian Labour Force (14 years of age or over)							Persons not in the Labour Force (14 years of age or over)
		Employed					Unemployed	Total Labour Force	
		Non-agriculture			Agriculture	Total (employed)			
		Paid Workers	Other	Total (non-agriculture)					
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946[1]	8,779	2,990	490	3,480	1,186	4,666	163	4,829	3,950
1954	10,391	3,840	525	4,365	878	5,243	250	5,493	4,898
1955	10,597	4,027	519	4,546	819	5,364	245	5,610	4,987
1956	10,805	4,286	523	4,809	776	5,585	197	5,782	5,023
1957	11,108	4,440	542	4,981	744	5,725	278	6,003	5,105
1958	11,357	4,454	529	4,983	712	5,695	432	6,127	5,230
1959	11,562	4,615	548	5,163	692	5,856	373	6,228	5,334
1960	11,789	4,727	553	5,280	675	5,955	448	6,403	5,386
1961	12,010	4,798	577	5,375	674	6,049	469	6,518	5,492
1962	12,224	4,978	587	5,564	653	6,217	391	6,608	5,616
1963	12,466	5,133	589	5,723	641	6,364	373	6,737	5,730

[1] Excludes Newfoundland.

Characteristics of the Civilian Labour Force, 1946-63.—The civilian non-institutional population averaged 12,466,000 in 1963 compared with 8,779,000 in 1946, an increase of 42.0 p.c., and during the same period the labour force rose by only 39.5 p.c. to 6,737,000. Thus, the proportion of the population 14 years of age or over in the labour force, which was 55.0 p.c. in 1946, dropped to 54.0 p.c. in 1963. Contributing to this decrease were such factors as shifts in the age composition of the population, the tendency for young people to remain in school until they are a little older and the tendency for older persons to retire at an earlier age. The effect of these factors was greater among men, whose rate of labour force participation dropped from 85.2 p.c. in 1946 to 78.8 p.c. in 1963. Although the growth in the female labour force was also affected by these factors, there was an offsetting development. From 1953 there was a rapid increase in job opportunities for women, particularly married women. The female participation rate dropped slightly from 24.7 p.c. in 1946 to 23.4 p.c. in 1953 and then rose to 29.6 p.c. in 1963. During the 1953-63 period, the participation rate for the female group 25-44 years of age rose from 23.1 p.c. to 30.4 p.c. and for the 45-64 age group from 17.2 p.c. to 30.6 p.c. In 1963, women

in the labour force numbered 1,858,000, about half of whom were married (excluding widowed, divorced and separated). Total employment in that year averaged 6,364,000, an increase of 36.4 p.c. over 1946. The number of men employed (4,567,000) was 26.5 p.c. higher and the number of women employed (1,797,000) was 70.0 p.c. higher.

Between 1946 and 1963, employment in agriculture dropped from 1,186,000 to 641,000, a decline of 46.0 p.c. On the other hand, employment in non-agricultural industries increased by 64.5 p.c. from 3,480,000 to 5,723,000 and the number of paid workers employed in non-agricultural industries rose by 71.7 p.c. from 2,990,000 to 5,133,000. Important changes also occurred in the distribution of employment among industries. In 1963, the goods-producing industries accounted for 45 p.c. and the service-producing industries for 55 p.c. of total employment compared with 60 p.c. and 40 p.c., respectively, in 1946. The most notable shift was in agriculture. In 1946, about one in four employed persons worked in agriculture whereas in 1963 the proportion was one in ten. In other primary industries the proportion employed also declined substantially but in manufacturing and in transportation and other utilities it remained about the same. In all other industry groups the proportion employed was higher in 1963 than in 1946. In the later year, almost one out of every two employed women worked in service industries as compared with one out of every three in 1946.

On an annual average basis, unemployment as a percentage of the labour force fluctuated widely during the period, ranging between 2.2 p.c. in 1947 and 7.2 p.c. in 1961; it averaged 5.5 p.c. in 1963. Throughout the period, unemployment rates were substantially lower for women than for men.

The number of persons 14 years of age or over not in the labour force averaged 5,730,000 in 1963 compared with 3,950,000 in 1946, an increase of 45 p.c. Housewives and students together constituted more than 80 p.c. of the total in the later year; the number of women keeping house increased by almost one third during the period and the number of students more than doubled.

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946 and 1954-63

NOTE.—Comparable figures for 1947-53 are given in the 1962 Year Book, pp. 710-711.

Year	Population (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Unemployed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agriculture	Non-agriculture						
	MALES								
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946[1]	4,400	23.4	58.7	3.1	85.2	...	5.5	9.3	14.8
1954	5,188	16.2	61.8	4.2	82.2	...	5.8	12.0	17.8
1955	5,290	14.8	63.3	4.0	82.1	...	6.0	11.9	17.9
1956	5,397	13.6	65.4	3.2	82.2	...	6.2	11.6	17.8
1957	5,552	12.7	65.2	4.4	82.3	...	6.3	11.4	17.7
1958	5,671	11.6	63.4	6.7	81.7	...	6.8	11.5	18.3
1959	5,767	11.2	64.3	5.6	81.1	...	7.3	11.6	18.9
1960	5,876	10.6	63.6	6.6	80.8	...	7.6	11.6	19.2
1961	5,980	10.3	62.9	6.8	80.0	...	8.1	11.9	20.0
1962	6,078	9.7	64.1	5.5	79.3	...	8.6	12.1	20.7
1963	6,192	9.3	64.5	5.0	78.8	...	9.0	12.2	21.2

[1] Excludes Newfoundland.

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946 and 1954-63—concluded

Year	Population (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Unemployed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agriculture	Non-agriculture						
	FEMALES								
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946[1]	4,379	3.6	20.5	0.6	24.7	63.2	5.1	7.0	75.3
1954	5,203	0.8	22.3	0.6	23.7	66.5	5.3	4.5	76.3
1955	5,306	0.7	22.6	0.6	23.9	66.0	5.5	4.6	76.1
1956	5,408	0.7	23.7	0.5	24.9	64.9	5.5	4.7	75.1
1957	5,555	0.7	24.5	0.6	25.8	63.9	5.7	4.6	74.2
1958	5,686	0.9	24.4	1.0	26.3	63.2	6.1	4.4	73.7
1959	5,795	0.8	25.1	0.8	26.7	62.3	6.4	4.6	73.3
1960	5,914	0.9	26.1	1.0	28.0	60.9	6.6	4.5	72.0
1961	6,030	0.9	26.8	1.1	28.8	59.8	7.0	4.4	71.2
1962	6,147	1.0	27.1	1.0	29.1	59.0	7.4	4.5	70.9
1963	6,274	1.1	27.5	1.0	29.6	58.2	7.8	4.4	70.4

[1] Excludes Newfoundland.

4.—Percentage Distribution of the Employed by Industrial Group, 1946 and 1954-63

NOTE.—Comparable figures for 1947-53 are given in the 1962 Year Book, p. 711.

Year	Total Employed	Percentage Distribution							
		Agriculture	Other Primary Industries	Manufacturing	Construction	Transportation and Other Utilities	Trade	Finance, Insurance and Real Estate	Service
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946[1]	4,666	25.4	4.0	26.0	4.8	8.1	12.3	2.6	16.8
1954	5,243	16.8	4.1	25.3	6.4	8.7	15.8	3.2	19.7
1955	5,364	15.3	4.5	25.6	6.9	8.7	15.7	3.3	20.0
1956	5,585	13.9	4.6	25.7	7.4	8.9	15.8	3.5	20.2
1957	5,725	13.0	4.3	26.1	7.6	8.9	15.7	3.6	20.8
1958	5,695	12.5	3.7	25.6	7.5	8.9	16.0	3.7	22.1
1959	5,856	11.8	3.4	25.5	7.5	8.9	16.2	3.7	23.0
1960	5,955	11.3	3.5	24.7	7.0	8.6	16.5	3.8	24.6
1961	6,049	11.1	3.0	25.0	6.7	8.4	16.3	4.0	25.5
1962	6,217	10.5	2.8	25.2	6.9	8.5	16.1	4.0	26.0
1963	6,364	10.1	2.8	25.3	7.1	8.5	16.0	4.0	26.2

[1] Excludes Newfoundland.

Employment was substantially higher in 1963 than in 1946 in all regions. British Columbia experienced the largest increase of 47.9 p.c. followed by Ontario with 43.3 p.c., Quebec with 36.6 p.c., the Prairie region with 18.4 p.c. and the Atlantic region (excl. Newfoundland) with 9.4 p.c. In all regions, however, the increase in employment was not as great as the growth of the labour force and, as a consequence, there was a rise in unemployment. Unemployment in Canada averaged 373,000 in 1963, 5.5 p.c. of the labour force. The unemployed were distributed regionally as follows: Quebec 37.8 p.c., Ontario 24.9 p.c., Atlantic 15.3 p.c., Prairie 11.5 p.c. and British Columbia 10.5 p.c. In 1946, the unemployed were distributed among the regions in just about the same proportions.

Similarly, unemployment rates were higher in 1963 than in 1946. In the later year the unemployed as a percentage of the labour force in each of the five regions was as follows: Atlantic 9.5 p.c., Quebec 7.5 p.c., Ontario 3.8 p.c., Prairie 3.7 p.c. and British Columbia 6.3 p.c. From 1946 on, unemployment rates for the Atlantic region and Quebec were consistently higher than the national average and for Ontario and the Prairie region they were consistently lower. The British Columbia rate was above the national average in every year except 1955 and 1956.

5.—Estimates of Employment and Unemployment, by Region, 1946 and 1954-63

NOTE.—Comparable figures for 1947-53 are given in the 1962 Year Book, p. 712.

Year	Atlantic		Quebec		Ontario		Prairie		British Columbia	
	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946[1]	392	23	1,283	54	1,654	48	947	21	390	16
1954	468	33	1,470	92	1,945	77	925	24	437	24
1955	478	33	1,493	98	1,993	66	939	30	462	18
1956	489	31	1,535	80	2,096	51	975	22	490	14
1957	496	45	1,574	101	2,157	77	988	27	511	27
1958	476	68	1,577	153	2,133	122	1,004	43	504	47
1959	493	60	1,613	138	2,187	103	1,036	35	526	36
1960	507	60	1,632	164	2,239	128	1,053	46	524	50
1961	526	66	1,644	168	2,261	132	1,083	52	536	50
1962	536	64	1,703	138	2,308	104	1,111	45	558	40
1963	544	57	1,752	141	2,370	93	1,121	43	577	39

[1] Excludes Newfoundland.

Section 3.—Employment, Earnings and Hours*

Monthly records of employment have been collected from larger business establishments since 1921. At that time a survey was instituted to provide employment index numbers which would serve as current economic indicators. In 1941 the survey was extended to provide information on payrolls and per capita wages and salaries and in 1944 it was further extended to provide data on hours of work and hourly and weekly wages. During the war period also, separate records for men and women employees were established.

The survey covers firms that usually employ 15 or more persons in all sectors of the following major industrial divisions: forestry; mining; manufacturing; construction; transportation, storage and communication; public utility operation; trade; and finance, insurance and real estate. Also included are certain branches of the service industry, mainly hotels and restaurants, laundries and dry-cleaning plants, and recreational and business services. The survey excludes agriculture, public administration and community services such as health and education. The coverage corresponds closely, therefore, to the business sector of the economy. Since the survey does not cover small firms and excludes several industries, the employment records are published in the form of index numbers (1949 = 100).

The monthly employment statistics relate to the number of employees drawing pay in the last pay period in the month. Data are requested for all classes of employees with the exception of homeworkers and casual employees working less than one day in the pay period. Owners and firm members are also excluded. The respondents report the gross wages and salaries paid in the last pay period in the month, before deductions are made for income tax, unemployment insurance, etc. The reported payrolls represent

* Prepared in the Employment Section, Labour Division, Dominion Bureau of Statistics.

gross remuneration for services rendered and paid absences in the period specified, including salaries, commissions, piecework and time work payments, and such items as shift premiums, and regularly paid production, incentive and cost-of-living bonuses. The statistics on hours relate to the straight and overtime hours worked by those wage-earners for whom records of hours are maintained, and also to hours credited to wage-earners absent on paid leave during the reported period. If the reported period exceeds one week, the payroll and hours data are reduced to weekly equivalents.

Subsection 1.—Employment and Weekly Wages and Salaries

Following the end of the War, the composite index of employment (1949=100) showed successive gains each year, except for 1954, until 1957 when a peak of 122.6 was reached. During the next four years the index did not vary greatly but fluctuated at levels some 3 p.c. to 4 p.c. below the 1957 point. However, in 1962 the index again approached the 1957 level and in 1963, at 124.6, greatly exceeded it.

A general recovery in employment commenced in the second quarter of 1961 and continued through 1963. Employment rose substantially in all the goods-producing industries and in the service-producing industrial divisions. Construction, which was at a fairly low level in early 1961, began an upward trend in the second quarter of that year which continued into 1962 but was reversed slightly in 1963. In both forestry and mining, however, the long-term trend toward reduced levels of employment in particular areas or segments within the division continued in 1963.

6.—Annual Average Index Numbers of Employment by Industrial Division, 1954-63, and Monthly Indexes 1963

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1921-53 are given in the 1963-64 Year Book, p. 717.

Year and Month	Forestry (chiefly logging)	Mining	Manufacturing	Construction	Transportation, Storage and Communication	Public Utility Operation	Trade	Finance, Insurance and Real Estate	Service[1]	Industrial Composite
Averages—										
1954	96.3	110.4	107.3	110.6	109.0	116.1	114.8	128.0	111.7	109.9
1955	102.9	113.7	109.8	115.0	110.8	119.2	118.7	132.1	115.0	112.9
1956	113.2	122.7	115.8	131.8	118.3	126.3	126.3	137.1	125.1	120.7
1957	99.3	127.2	115.8	135.7	120.4	133.6	131.8	145.0	131.9	122.6
1958	75.9	123.5	109.8	126.2	115.5	137.6	131.6	149.3	135.1	117.9
1959	78.9	123.4	111.1	130.3	114.3	138.7	135.3	153.2	139.3	119.7
1960	84.0	120.1	109.5	125.7	111.1	137.8	136.7	156.7	143.2	118.7
1961	71.5	116.5	108.9	121.7	108.6	138.3	137.8	163.1	148.9	118.1
1962	70.9	116.4	113.3	124.3	108.3	141.6	140.6	170.1	156.5	121.5
1963	69.7	114.4	116.4	124.0	109.2	144.0	146.0	178.9	166.7	124.6
1963—										
January	66.6	112.7	111.6	103.3	103.7	138.1	139.9	175.1	152.7	117.9
February	57.0	112.5	112.2	100.5	103.3	137.6	138.0	175.2	153.5	117.3
March	44.1	111.9	112.8	103.7	103.6	137.6	139.3	175.4	155.4	117.8
April	34.3	109.9	113.7	112.4	106.4	141.1	141.1	175.4	158.8	119.5
May	51.8	113.7	116.3	126 7	109.5	145.6	142.3	176.5	165.1	123.7
June	77.1	117.3	118.9	133.7	112.0	148.7	146.1	178.1	173.7	127.7
July	79.5	118.0	116.9	138.8	113.9	151.7	145.1	179.5	176.6	127.8
August	84.5	118.0	120.0	144.4	113.9	151.0	146.2	181.8	180.8	130.3
September	88.5	116.7	120.3	143.2	112.8	147.0	149.5	181.5	175.2	130.3
October	89.2	115.4	119.3	138.3	111.9	145.0	151.0	182.4	172.0	129.4
November	86.9	113.7	118.6	131.1	110.6	144.2	155.5	182.7	169.7	128.6
December	74.5	112.4	115.9	111.6	108.7	141.0	157.5	183.1	166.9	125.1

[1] Consists mainly of hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1958-63

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Industry	1958	1959	1960	1961	1962	1963
Forestry (chiefly logging)	**75.9**	**78.9**	**84.0**	**71.5**[r]	**70.9**	**69.7**
Mining	**123.5**	**123.4**	**120.1**	**116.5**	**116.4**	**114.4**
Metal mining	135.7	140.8	137.3	131.9	131.0	127.6
Gold	75.0	73.6	73.2	70.8	68.9	66.2
Other metal	192.4	203.5	197.0	188.8	188.8	184.7
Iron	221.5	236.8	268.9	254.5	278.6	285.3
Fuels	102.9	93.9	89.5	84.6	84.5	82.7
Coal	56.4	48.6	45.7	40.7	38.8	38.9
Oil and natural gas	282.8	278.8	277.8	273.5	272.7	261.1
Non-metal	129.6	131.9	132.2	139.7	144.1	147.5
Asbestos	..	166.1	173.8	179.9	183.5	181.4
Manufacturing	**109.8**	**111.1**	**109.5**	**108.9**	**113.3**	**116.4**
Durable goods	114.8	115.5	112.6	110.6	117.0	121.5
Non-durable goods	105.6	107.3	106.8	107.5	110.2	112.1
Foods and beverages	112.3	114.6	114.4	114.2	116.3	116.7
Meat products	130.0	139.3	136.0	134.4	133.3	134.1
Dairy products	121.9	125.4	124.2	124.7	123.9	125.9
Canned and cured fish	113.9	113.1	109.7	114.8	124.4	125.1
Canned and preserved fruits and vegetables	109.8	110.3	112.4	109.4	120.7	120.4
Grain mill products	104.3	103.8	102.9	101.1	98.5	94.5
Bread and other bakery products	109.4	109.9	111.2	110.4	111.5	111.8
Biscuits and crackers	92.2	91.2	90.7	92.6	94.9	93.1
Distilled and malt liquors	105.8	106.0	101.9	99.0	95.7	95.0
Other beverages	130.3	137.8	143.5	146.0	149.0	153.6
Confectionery	89.2	88.7	89.0	86.1	89.1	92.2
Tobacco and tobacco products	99.1	96.2	90.2	89.7	94.8	94.8
Rubber products	99.5	106.2	101.0	98.9	105.8	110.3
Leather products	86.0	88.2	83.8	87.6	89.2	89.0
Boots and shoes (except rubber)	91.4	94.8	91.2	94.6	96.4	94.9
Other leather products	76.2	76.3	71.0	75.1	76.3	78.3
Textile products (except clothing)	77.5	78.8	77.1	78.3	81.4	85.1
Cotton yarn and broad woven goods	75.6	72.4	68.2	72.0	74.2	74.1
Woollen goods	58.8	60.6	62.3	61.1	61.9	64.6
Synthetic textiles and silk	79.8	82.7	83.8	83.9	89.2	98.2
Clothing (textile and fur)	90.7	92.4	89.9	90.5	92.7	95.4
Men's clothing	93.1	93.0	90.3	91.8	96.1	99.8
Women's clothing	95.8	97.2	96.4	99.1	99.7	103.4
Knit goods	76.3	78.4	73.1	72.0	73.8	74.2
Fur goods	67.8	70.0	66.2	64.8	62.0	60.5
Wood products	102.6	103.5	103.2	102.9	107.4	110.9
Saw and planing mills	103.5	103.6	104.4	105.2	109.3	113.7
Furniture	109.2	112.6	110.7	109.5	115.9	120.1
Other wood products	85.7	85.6	82.9	78.9	80.9	79.0
Paper products	121.1	123.2	124.0	123.7	125.9	127.4
Pulp and paper mills	120.9	124.2	125.3	124.7	125.9	127.4
Other paper products	121.4	121.0	120.8	121.4	125.8	127.3
Printing, publishing and allied industries	119.1	121.3	123.8	124.1	126.0	126.2
Iron and steel products	102.6	109.7	106.1	102.9	109.2	114.4
Agricultural implements	63.8	78.2	69.1	62.8	62.0	70.2
Boilers and plate work	115.8	117.4	114.5	110.5	119.7	122.6
Fabricated and structural steel	159.2	163.0	153.3	148.4	155.3	148.2
Hardware and tools	91.5	99.5	100.0	100.4	108.1	115.5
Heating and cooking appliances	99.1	106.1	96.7	95.9	104.3	104.5
Iron castings	95.6	99.8	91.8	90.1	94.6	101.0
Machinery manufactures	107.1	107.1	105.8	104.2	111.3	117.2
Industrial machinery	113.2	116.6	116.1	114.8	126.1	134.7
Primary iron and steel	103.8	119.8	120.3	116.6	124.0	131.0
Sheet metal products	102.1	110.3	107.8	104.6	114.8	117.7
Wire and wire products	111.2	118.3	116.3	109.9	111.3	116.8
Transportation equipment	123.8	112.3	106.8	105.0	111.1	115.5
Aircraft and parts	366.0	263.6	243.4	258.9	251.4	232.1
Motor vehicles	102.0	106.0	104.3	99.7	107.5	122.6
Motor vehicle parts and accessories	100.4	107.1	103.6	102.8	113.0	131.5
Railway and rolling-stock equipment	75.2	68.5	61.6	55.4	56.4	54.2
Shipbuilding and repairing	136.9	128.3	126.1	126.1	144.8	146.9
Non-ferrous metal products	122.3	126.3	129.2	124.3	124.8	126.3
Aluminum products	129.3	139.4	142.5	138.7	140.4	142.5
Brass and copper products	103.5	110.4	103.0	102.7	103.7	108.2
Smelting and refining	142.2	141.6	151.6	142.2	138.6	136.8

7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1958-63—concluded

Industry	1958	1959	1960	1961	1962	1963
Manufacturing—concluded						
Electrical apparatus and supplies	135.7	135.8	133.1	132.9	148.1	154.7
Heavy electrical machinery	121.6	111.8	105.4	99.4	109.0	115.6
Telecommunication equipment	211.7	210.5	214.3	228.1	268.7	280.8
Non-metallic mineral products	133.2	143.1	140.0	138.2	146.7	150.6
Clay products	102.1	101.8	89.8	85.8	90.0	86.3
Glass and glass products	133.5	149.3	151.0	155.3	158.3	172.6
Concrete products	..	..	249.2	232.9	256.5	271.9
Products of petroleum and coal	139.7	138.5	137.5	137.0	139.3	139.9
Petroleum refining	141.8	140.7	140.3	139.9	141.8	142.4
Chemical products	131.2	129.4	132.3	131.4	132.6	135.4
Medicinal and pharmaceutical preparations	119.0	119.2	118.0	119.2	122.6	124.6
Acids, alkalies and salts	148.1	145.5	155.3	154.9	152.4	157.2
Other chemical products	130.7	128.4	130.8	129.3	130.7	132.9
Miscellaneous manufacturing industries	119.9	126.5	130.3	137.8	145.2	152.9
Construction	**126.2**	**130.3**	**125.7**	**121.7**	**124.3**	**124.0**
Building and general engineering	127.6	129.0	121.9	117.7	121.8	123.0
Building	130.1	136.5	128.6	122.4	127.9	129.4
General engineering	117.1	98.0	94.0	97.9	97.3	97.5
Highways, bridges and streets	124.2	132.3	132.0	128.5	128.6	125.7
Transportation, Storage and Communication	**115.5**	**114.3**	**111.1**	**108.6**	**108.4**	**109.2**
Transportation	105.0	104.5	101.4	99.2	98.8	98.7
Air transport and airports	187.3	192.9	211.4	219.5	221.8	217.7
Steam railways	97.7	95.6	89.5	85.0	83.2	81.1
Maintenance of equipment	92.6	87.0	77.8	74.8	73.9	70.7
Maintenance of ways and structures	93.5	93.9	84.8	79.1	74.2	72.7
Transportation—steam railways	98.5	96.0	91.7	87.3	86.3	84.3
Telegraphs	122.3	121.9	117.9	114.1	115.6	112.9
Water transportation	96.9	94.6	92.7	90.2	90.5	90.7
Electric and motor transportation	124.1	129.3	132.3	135.6	137.9	144.6
Urban and interurban transportation	84.4	82.3	82.0	80.9	79.1	80.5
Truck transportation	191.5	211.6	216.9	220.8	222.1	234.8
Storage	115.3	114.4	108.6	106.3	102.4	106.0
Grain elevators	104.9	103.2	100.1	97.5	92.4	95.8
Storage and warehouses	145.9	147.0	133.4	132.3	131.9	134.9
Communication	171.0	166.5	163.8	160.1	162.0	166.8
Radio broadcasting	307.1	319.6	339.6	357.1	372.7	392.6
Telephone	154.2	148.3	143.6	138.5	139.5	143.4
Public Utility Operation	**137.6**	**138.7**	**137.8**	**138.3**	**141.6**	**144.0**
Electric light and power	136.2	135.5	134.9	136.1	138.2	139.8
Other public utilities	143.8	152.0	149.3	146.5	154.0	160.1
Trade	**131.6**	**135.3**	**136.7**	**137.8**	**140.6**	**146.0**
Wholesale	131.8	134.8	136.1	136.1	139.5	144.2
Retail	131.6	135.6	137.1	138.7	141.3	147.1
Food	171.9	178.8	189.1	194.7	197.4	204.4
Department stores	113.9	117.4	118.8	121.4	122.9	127.8
Variety stores	125.9	129.2	129.7	131.2	128.8	130.8
Automotive products	160.8	164.9	166.1	163.1	170.9	185.2
Finance, Insurance and Real Estate	**149.3**	**153.2**	**156.7**	**163.1**	**170.1**	**178.9**
Banking, investment and loan	150.1	153.6	157.5	164.1	171.6	181.5
Insurance	145.1	149.7	152.4	157.3	162.3	168.3
Service	**135.1**	**139.3**	**143.2**	**148.9**	**156.5**	**166.7**
Hotels and restaurants	125.6	128.6	130.1	129.9	135.0	143.7
Laundries and dry-cleaning plants	115.0	113.3	114.1	122.0	130.3	138.2
Business service	..	245.9	246.1	263.9	282.8	305.5
Industrial Composite	**117.9**	**119.7**	**118.7**	**118.1**	**121.5**[r]	**124.6**

8.—Annual Average Index Numbers of Employment, by Province, 1954-63, and Monthly Indexes 1963

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1939-53 are given in the 1963-64 Year Book, p. 720.

Year and Month	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
Averages—											
1954	128.0	109.9	97.6	98.0	109.2	110.6	104.7	118.0	128.0	106.3	109.9
1955	131.1	114.2	97.1	103.5	112.5	113.5	105.2	117.0	133.0	111.9	112.9
1956	136.9	117.4	101.7	110.1	120.1	121.4	108.6	121.1	148.5	121.5	120.7
1957	130.1	115.2	100.2	103.8	121.5	124.3	110.9	125.3	152.2	123.9	122.6
1958	122.6	114.9	95.5	98.0	117.0	119.6	108.7	126.6	150.5	114.7	117.9
1959	125.8	126.3	96.3	101.7	118.5	121.3	112.2	130.0	155.0	115.1	119.7
1960	129.7	128.5	95.5	103.4	118.6	119.2	111.0	126.0	153.3	114.7	118.7
1961	131.7	130.7	94.0	103.9	118.3	118.7	110.0	123.1	154.2	112.3	118.1
1962	133.2	135.8	94.4	103.8	121.6	123.0	111.1	124.6	158.1	115.7	121.4
1963	135.9	132.1	95.3	104.9	124.4	126.9	112.9	127.9	160.3	119.9	124.6
1963—											
January	119.0	106.2	90.1	100.0	117.6	121.1	106.1	113.8	152.3	111.7	117.9
February	113.6	103.6	89.2	98.8	116.3	121.1	105.2	114.0	151.8	112.1	117.3
March	114.4	104.8	88.3	98.6	116.3	121.8	106.1	115.9	152.1	113.9	117.8
April	117.8	112.3	88.9	92.8	118.7	123.7	108.0	120.8	149.8	115.1	119.5
May	132.8	137.1	94.0	101.4	122.7	126.5	112.2	129.3	160.2	119.4	123.7
June	149.9	142.8	97.2	108.1	127.6	129.2	115.4	132.9	165.9	123.2	127.7
July	155.4	153.5	99.6	109.8	128.4	127.3	118.0	136.3	168.0	124.1	127.8
August	149.7	151.6	100.1	113.0	130.8	130.4	118.9	137.8	170.1	127.4	130.3
September	151.0	146.5	101.0	111.3	130.3	131.5	118.9	136.5	168.8	126.0	130.3
October	150.4	153.3	100.4	109.9	129.8	130.9	117.3	135.9	163.8	123.5	129.4
November	145.1	149.4	98.2	108.6	129.3	130.9	115.6	133.1	161.9	122.3	128.6
December	131.6	123.2	96.6	106.4	124.5	128.2	113.3	127.9	158.9	119.5	125.1

9.—Annual Average Index Numbers of Employment, by Metropolitan Area, 1954-63, and Monthly Indexes 1963

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1939-53 are given in the 1963-64 Year Book, p. 720.

Year and Month	Montreal	Quebec	Toronto	Ottawa-Hull	Hamilton	Windsor	Winnipeg	Vancouver[1]
Averages—								
1954	110.7	110.5	120.1	109.9	103.6	91.5	103.4	102.6
1955	113.4	108.0	121.6	114.0	106.4	103.4	104.6	107.9
1956	120.2	111.0	128.3	119.6	113.8	104.9	106.8	117.4
1957	124.6	110.8	132.1	120.3	114.4	95.9	107.7	120.4
1958	121.5	108.1	131.0	121.2	105.0	78.6	107.5	114.8
1959	123.3	110.4	131.3	124.9	112.0	79.3	111.3	116.0
1960	123.1	110.4	129.9	124.2	111.3	76.2	111.4	113.8
1961	123.3	113.3	131.8	127.9	108.1	72.8	110.3	111.3
1962	126.9	120.0	137.3	133.8	113.2	72.1	110.6	114.2
1963	129.4	125.6	142.0	136.8	118.0	77.3	113.5	119.3
1963—								
January	123.9	117.4	136.5	129.9	112.9	73.2	108.3	112.2
February	124.0	118.3	136.3	128.5	112.4	73.2	107.5	112.5
March	124.8	120.2	137.3	129.5	113.3	73.9	108.0	115.1
April	127.2	124.1	139.1	132.8	115.8	76.0	109.6	116.2
May	128.7	127.6	141.2	137.6	117.8	77.7	112.1	119.1
June	131.2	130.0	143.4	139.4	120.0	79.4	114.9	121.9
July	130.6	130.6	142.2	141.2	119.1	65.4	116.5	121.7
August	132.3	129.7	144.5	143.2	121.1	79.8	117.4	124.2
September	133.5	129.6	146.1	140.7	121.7	81.9	117.9	123.8
October	133.5	129.8	146.6	140.9	120.7	82.0	117.2	121.8
November	133.7	128.5	147.3	140.6	121.8	82.8	117.0	122.3
December	129.8	121.8	143.8	137.7	119.0	81.8	115.1	120.9

[1] Includes New Westminster from 1956.

Average weekly wages and salaries have increased substantially in the years for which current payroll statistics have been collected, rising from $23.44 in 1939 to $83.41 in 1963. Following the relaxation of wartime wage restrictions in December 1949 and the progressive lifting of price controls, the upward movement in per capita earnings gained momentum and average annual increases from 1947 to 1962 were more than twice as great as those between 1939 and 1945. Variations over the years in the occupational and industry mix within the heterogeneous group of industries covered have had, on the whole, a buoyant effect on the per capita earning figures. More recently, year-to-year percentage changes have tended to level, those for 1961, 1962 and 1963 amounting to about 3 p.c.

10.—Annual Index Numbers of Employment and Payrolls, with Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1961-63

Industry, Province and Urban Area	Employment (1949=100)			Payrolls (1949=100)			Average Weekly Wages and Salaries		
	1961	1962	1963	1961	1962	1963	1961	1962	1963
							$	$	$
Industry									
Forestry (chiefly logging)[r]	71.5	70.9	69.7	138.4	145.7	148.8	80.43	83.45	88.67
Mining	116.5	116.4	114.4	216.9	223.1	227.0	95.90	98.82	102.37
Manufacturing	108.9	113.3	116.4	202.8	217.4	231.4	80.73	83.17	86.24
Durable goods[1]	110.6	117.0	121.5	206.0	225.0	242.2	87.08	89.80	93.20
Non-durable goods[1]	107.5	110.2	112.1	199.6	210.2	221.0	75.25	77.28	79.93
Construction	121.7	124.3	124.0	242.2	257.5	269.4	82.57	85.90	90.32
Transportation, storage and communication	108.6	108.4	109.2	194.2	200.8	209.9	85.87	88.98	92.29
Public utility operation	138.3	141.6	144.0	276.4	292.2	312.1	94.52	97.49	102.26
Trade	137.8	140.6	146.0	246.2	258.9	277.3	67.05	69.18	71.38
Finance, insurance and real estate	163.1	170.1	178.9	282.0	303.1	328.1	73.92	76.37	78.66
Service	148.9	156.5	166.7	274.2	297.7	325.8	55.38	57.23	58.88
Industrial Composite	**118.1**	**121.5**	**124.6**	**216.5**	**229.8**	**243.8**	**78.17**	**80.59**	**83.41**
Province									
Newfoundland	131.7	133.2	135.9	249.8	258.5	272.3	71.41	73.19	75.78
Prince Edward Island	130.7	135.8	132.1	231.5	246.6	252.6	57.03	58.10	60.07
Nova Scotia	94.0	94.4	95.3	161.4	166.7	175.5	63.98	65.73	68.46
New Brunswick	103.9	103.8	104.9	175.0	181.1	190.4	63.55	65.72	68.45
Quebec[r]	118.4	121.7	124.4	218.1	232.5	246.0	75.54	78.14	81.03
Ontario	118.7	123.0	126.9	218.3	233.2	248.9	81.14	83.66	86.59
Manitoba	110.0	111.1	112.9	192.1	199.7	208.4	73.45	75.52	77.56
Saskatchewan	123.1	124.6	127.9	219.4	230.7	243.7	74.19	77.01	79.38
Alberta (including Northwest Territories)	154.2	158.1	160.3	280.5	292.9	304.0	80.45	82.01	84.12
British Columbia (including Yukon Territory)	112.3	115.7	119.9	211.0	223.2	239.4	85.20	87.44	90.52
Urban Area									
St. John's, Nfld	134.0	141.2	147.0	241.7	267.1	291.3	57.71	60.48	63.46
Sydney, N.S.	78.6	76.5	80.9	128.0	129.8	143.2	75.70	78.81	82.32
Halifax, N.S.	122.6	124.9	124.3	221.6	235.3	245.2	64.78	67.46	70.48
Moncton, N.B.	104.7	107.6	104.7	175.1	183.8	184.0	60.56	61.96	63.84
Saint John, N.B.	108.2	109.6	110.4	190.7	202.0	214.7	62.62	65.59	69.13
Chicoutimi-Jonquière, Que.	108.8	107.7	110.4	211.5	215.1	224.3	96.72	99.23	100.95
Quebec, Que.	113.3	120.0	125.6	213.3	233.8	255.5	66.47	68.94	72.09
Sherbrooke, Que.	104.1	108.9	112.9	186.0	202.5	218.4	64.69	67.37	70.21
Shawinigan, Que.	103.6	94.8	98.8	192.7	181.1	196.5	85.47	87.74	91.32
Trois Rivières, Que.	110.5	115.1	117.7	196.9	209.5	219.9	72.77	74.35	76.39
Drummondville, Que.	77.9	78.3	87.3	130.2	137.6	158.3	62.92	66.08	68.15
Montreal, Que.	123.3	126.9	129.4	227.6	242.7	255.6	77.06	79.82	82.45
Ottawa, Ont.-Hull, Que.	127.9	133.8	136.8	237.2	256.2	269.4	72.85	75.18	77.20
Kingston, Ont.	117.9	116.8	123.5	227.9	232.4	255.0	76.62	78.69	81.81
Peterborough, Ont.	89.9	95.1	100.2	174.2	192.3	208.9	86.10	89.78	92.54
Oshawa, Ont.	163.6	178.8	196.9	300.6	355.4	411.1	91.74	99.01	104.50

For footnote, see end of table.

10.—Annual Index Numbers of Employment and Payrolls, with Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1961-63—concluded

Urban Area	Employment (1949=100)			Payrolls (1949=100)			Average Weekly Wages and Salaries		
	1961	1962	1963	1961	1962	1963	1961	1962	1963
							$	$	$
Urban Area—concluded									
Toronto, Ont.	131.8	137.3	142.0	243.2	261.4	280.0	81.59	84.10	87.14
Hamilton, Ont.	108.1	113.2	118.0	202.5	219.1	233.0	86.84	89.68	91.55
St. Catharines, Ont.	108.3	111.1	114.6	196.4	211.0	225.3	88.46	92.60	95.83
Niagara Falls, Ont.	97.9	100.0	101.8	177.6	185.2	191.9	81.33	81.93	82.38
Brantford, Ont.	81.6	83.5	89.1	137.6	143.9	162.3	73.80	75.46	79.96
Guelph, Ont.	120.1	124.4	130.4	216.1	232.1	248.9	72.43	75.08	76.97
Galt, Ont.	106.7	114.5	122.0	192.7	213.4	235.9	70.33	72.20	74.68
Kitchener, Ont.	121.8	130.9	141.0	221.6	245.2	268.6	73.85	75.99	77.28
Sudbury, Ont.	147.4	140.0	125.7	258.1	246.0	225.5	92.32	92.43	94.35
Timmins, Ont.	91.3	89.0	88.3	138.2	139.2	140.4	71.15	73.40	74.55
London, Ont.	129.5	135.9	141.8	238.8	258.0	277.6	74.38	76.46	78.85
Sarnia, Ont.	126.5	128.9	133.3	266.7	279.8	298.4	101.28	104.28	107.74
Windsor, Ont.	72.8	72.1	77.3	126.8	130.3	147.0	87.29	90.44	95.12
Sault Ste. Marie, Ont.	139.2	145.4	150.0	275.1	293.3	337.1	99.65	101.50	112.99
Fort William-Port Arthur, Ont.	107.3	105.6	109.1	192.9	192.7	203.8	80.13	81.31	83.45
Winnipeg, Man.	110.3	110.6	113.5	197.1	203.1	213.9	70.42	72.25	74.11
Regina, Sask.	135.2	139.9	146.7	254.4	273.5	295.5	72.80	75.90	78.03
Saskatoon, Sask.	138.7	138.2	143.3	257.3	265.7	281.8	69.67	71.89	73.42
Edmonton, Alta.	189.0	201.6	205.5	347.3	379.5	396.5	74.79	76.71	78.73
Calgary, Alta.	172.3	178.6	180.1	313.9	339.9	351.7	76.58	80.77	82.98
Vancouver, B.C.	111.3	114.2	119.3	214.0	225.0	243.5	83.82	85.80	88.86
Victoria, B.C.	109.0	116.7	119.7	202.5	224.0	237.4	77.00	79.68	82.32

[1] The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

11.—Annual Average Weekly Wages and Salaries, by Industrial Division, 1954-63, and Monthly Averages 1963

NOTE.—Comparable averages for significant years 1939-53 are given in the 1963-64 Year Book, p. 722.

Year and Month	Forestry (chiefly logging)	Mining	Manufacturing	Construction	Transportation, Storage and Communication	Public Utility Operation	Trade	Finance, Insurance and Real Estate	Service[1]	Industrial Composite
	$	$	$	$	$	$	$	$	$	$
Averages—										
1954	59.89	70.67	61.15	61.15	62.76	67.87	50.73	53.93	38.91	59.04
1955	60.62	73.53	63.48	62.11	64.56	70.80	52.42	56.79	40.71	61.05
1956	65.40	78.01	66.71	68.58	67.29	74.39	54.64	60.29	42.93	64.44
1957	69.38	82.89	69.94	73.63	71.20	78.99	57.51	63.36	45.77	67.93
1958	71.74	86.60	72.67	74.54	74.72	83.85	60.20	66.40	48.23	70.43
1959	71.63	90.76	75.84	76.55	79.65	88.08	63.12	68.82	50.27	73.47
1960	74.85	93.80	78.19	80.46	82.32	91.52	65.19	70.83	53.08	75.83
1961	80.43r	95.90	80.73	82.57	85.87	94.52	67.05	73.92	55.38	78.17r
1962	83.85r	98.82	83.17	85.90	88.98	97.49	69.18	76.37	57.23	80.59r
1963	86.53	102.37	86.24	90.32	92.29	102.26	71.38	78.66	58.88	83.41
1963—										
January	80.26	102.22	85.12	87.53	89.56	100.54	70.81	77.06	58.44	82.01
February	89.09	102.81	85.41	89.74	91.96	101.91	71.31	77.25	59.03	82.91
March	91.47	101.46	85.86	90.06	91.41	102.03	70.96	77.32	58.90	82.94
April	93.84	102.48	86.72	89.05	91.77	101.66	71.41	79.22	59.16	83.53
May	84.93	101.92	86.73	90.55	92.01	101.10	71.68	79.31	59.06	83.69
June	89.06	101.39	86.29	90.63	92.42	102.31	72.23	79.33	58.49	83.70
July	89.05	102.25	85.30	91.43	92.17	101.11	72.27	79.09	58.34	83.35
August	86.34	101.80	85.47	91.80	92.73	101.06	71.77	78.94	58.34	83.36
September	90.63	103.21	86.71	94.48	92.76	102.85	71.08	79.14	58.87	84.22
October	91.43	103.59	87.43	94.22	93.81	103.36	71.29	78.96	59.36	84.65
November	91.30	104.15	88.24	91.47	94.24	104.42	70.78	79.01	59.44	84.61
December	86.87	101.34	84.67	79.42	92.37	104.77	71.04	79.16	59.24	81.64

[1] Mainly hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

Subsection 2.—Hours and Earnings of Hourly Rated Wage-Earners

Since 1945, the monthly survey of employment and payrolls has covered statistics of hours of work and paid absence of those wage-earners for whom records of hours are maintained, together with the corresponding totals of gross wages paid. These wage-earners are mainly hourly rated production workers; information on hours is frequently not kept by employers for ancillary workers, nor in many industries and establishments, for any wage-earners. Salaried employees are excluded by definition from the series. As a result of these exclusions, data are available for fewer industries and workers than are covered in the employment and average weekly wage and salary statistics.

During the ten-year period 1954-63, there has been little change in the standard work week but average hourly and weekly wages have risen substantially. Upward wage-rate revisions have been the main cause of these advances but other factors have contributed, such as the employment of more highly skilled workers in the face of technological changes and the relatively greater expansion taking place in industries that pay rates higher than the general level. From 1954 to 1963, average weekly wages rose 38.3 p.c. in manufacturing, 40.2 p.c. in mining and 46.1 p.c. in construction. Average hourly earnings increased 38.3 p.c. in manufacturing, 41.8 p.c. in mining and 45.3 p.c. in construction. In manufacturing the 1963 average hourly earnings stood at $1.95 and the average weekly wage at $79.40, both 3.7 p.c. higher than in 1962.

12.—Annual Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries, 1954-63, and Monthly Averages 1963

Year	All Manufactures			Mining			Building and Structures		
	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages
	No.	$	$	No.	$	$	No.	$	$
Averages—									
1954	40.7	1.41	57.43	42.6	1.58	67.14	39.9	1.61	64.08
1955	41.0	1.45	59.45	43.2	1.61	69.68	39.5	1.63	64.46
1956	41.0	1.52	62.40	42.8	1.73	73.92	41.0	1.77	72.73
1957	40.4	1.61	64.96	42.3	1.88	79.35	41.3	1.90	78.47
1958	40.2	1.66	66.77	41.5	1.96	81.30	40.5	1.94	78.37
1959	40.7	1.72	70.16	41.5	2.04	84.80	39.6	2.01	79.59
1960	40.4	1.78	71.96	41.7	2.09	87.26	40.1	2.12	84.85
1961	40.6	1.83	74.27	41.8	2.13	89.08	39.9	2.17	86.39
1962	40.7	1.88	76.55	41.7	2.18	91.22	39.7	2.25	89.37
1963	40.8	1.95	79.40	42.0	2.24	94.12	40.0	2.34	93.64
1963—									
January	40.7	1.92	78.26	42.6	2.21	94.16	38.6	2.32	89.66
February	40.7	1.93	78.45	42.4	2.23	94.59	39.5	2.34	92.59
March	40.9	1.93	79.01	41.1	2.24	92.32	40.0	2.34	93.62
April	41.0	1.95	80.05	42.2	2.23	93.90	39.9	2.34	93.32
May	41.2	1.95	80.25	42.2	2.22	93.83	40.7	2.32	94.49
June	40.9	1.94	79.64	41.7	2.24	93.22	40.4	2.32	93.68
July	40.7	1.93	78.38	42.4	2.24	94.91	41.3	2.30	95.20
August	40.9	1.93	78.82	41.9	2.24	93.70	41.5	2.33	96.70
September	41.3	1.94	80.29	42.6	2.24	95.45	42.3	2.36	99.73
October	41.4	1.96	80.93	42.6	2.25	95.65	42.0	2.36	99.08
November	41.5	1.98	81.91	42.6	2.25	95.94	40.8	2.36	96.07
December	38.0	2.02	76.53	40.2	2.28	91.67	30.6	2.40	73.29

13.—Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries and Urban Areas, 1961-63

Industry, Province and Urban Area	Average Weekly Hours			Average Hourly Earnings			Average Weekly Wages		
	1961	1962	1963	1961	1962	1963	1961	1962	1963
	No.	No.	No.	$	$	$	$	$	$
Industry									
Mining	**41.8**	**41.7**	**42.0**	**2.13**	**2.18**	**2.24**	**89.08**	**91.22**	**94.12**
Metal mining	42.2	41.9	41.9	2.20	2.26	2.31	92.83	94.43	96.92
Coal mining	39.7	40.3	42.6	1.77	1.83	1.86	70.36	73.82	79.26
Manufacturing	**40.6**	**40.7**	**40.8**	**1.83**	**1.88**	**1.95**	**74.27**	**76.55**	**79.40**
Durable goods[1]	40.9	41.2	41.3	1.99	2.04	2.11	81.36	84.02	87.25
Non-durable goods[1]	40.3	40.2	40.3	1.69	1.73	1.79	67.87	69.55	71.90
Construction	**40.3**	**40.3**	**40.8**	**1.98**	**2.06**	**2.14**	**79.93**	**83.16**	**87.51**
Buildings and structures	39.9	39.7	40.0	2.17	2.25	2.34	86.39	89.37	93.64
Highways, bridges and streets	40.9	41.5	42.3	1.67	1.73	1.79	68.37	71.65	75.80
Service	**38.7**	**38.1**	**37.7**	**1.07**	**1.10**	**1.15**	**41.27**	**42.02**	**43.21**
Hotels and restaurants	38.7	38.0	37.4	1.04	1.06	1.11	40.09	40.41	41.53
Laundries and dry-cleaning plants	39.7	39.9	39.9	1.03	1.05	1.08	40.96	41.95	43.27
Province									
Newfoundland	40.1	39.8	40.4	1.71	1.69	1.69	68.39	67.77	68.19
Nova Scotia	40.4	40.4	40.5	1.60	1.64	1.69	64.48	66.20	68.30
New Brunswick	40.8	40.9	41.0	1.58	1.62	1.65	64.56	66.09	67.65
Quebec	41.5	41.5	41.5	1.65	1.70	1.75	68.25	70.39	72.69
Ontario	40.5	40.8	40.9	1.93	1.98	2.05	78.09	80.62	83.84
Manitoba	39.8	39.8	40.0	1.72	1.76	1.80	68.43	70.01	72.23
Saskatchewan	38.9	38.8	38.8	1.97	2.00	2.04	76.67	77.70	78.99
Alberta	39.7	39.8	39.7	1.96	1.99	2.02	77.90	79.29	80.28
British Columbia	37.7	37.7	37.8	2.23	2.28	2.37	84.17	86.04	89.69
Urban Area									
Montreal	40.7	40.7	40.6	1.70	1.75	1.81	69.04	71.35	73.33
Toronto	40.4	40.5	40.6	1.85	1.89	1.96	74.67	76.65	79.60
Hamilton	40.3	40.3	40.2	2.22	2.27	2.32	89.41	91.29	93.22
Windsor	40.0	41.2	42.6	2.21	2.29	2.39	88.38	94.14	102.04
Winnipeg	39.8	39.7	39.9	1.72	1.76	1.80	68.36	69.79	71.73
Vancouver	37.4	37.4	37.7	2.17	2.23	2.31	81.30	83.31	87.28

[1] The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

Section 4.—Wage Rates, Hours of Labour and Other Working Conditions

Statistics on occupational wage rates by industry and locality, with standard weekly hours of labour, are compiled by the federal Department of Labour and published in the annual report *Wage Rates, Salaries and Hours of Labour*.

The statistics published are based on an annual survey covering some 27,500 establishments in most industries and apply to the last normal pay period preceding Oct. 1. Average wage rates of time workers and average straight-time earnings of piece workers and other incentive workers in a given occupation are given separately in the report but are combined in the calculation of industry index numbers shown in Table 14. Predominant ranges of rates for each occupation used are also given; overtime pay is excluded.

The index numbers of Table 14 measure changes in wage rates for non-office employees below the rank of foreman. They do not, however, provide a basis for comparing the level of wages in one industry with that in another. Information on concepts and methods of developing these statistics is given in the annual report.

14.—Index Numbers of Average Wage Rates for Certain Main Industrial Groups, 1954-63

(1949=100)

NOTE.—Indexes back to 1901 may be obtained from the Department of Labour publication *Wage Rates, Salaries and Hours of Labour 1962.*

Year	Logging	Coal Mining	Metal Mining	Manufacturing			Construction	Railways	Telephone	Personal Service	General Average
				Durable Goods	Non-durable Goods	All Manufacturing					
1954	138.0	123.5	136.7	140.0	136.9	138.5	140.0	137.8	147.6	128.6	137.9
1955	138.2	122.8	140.3	143.7	140.7	142.2	145.4	137.8	152.8	132.3	141.7
1956	160.8	123.6	150.8	151.2	148.3	149.8	150.7	146.8	157.6	136.1	148.7
1957	168.4	137.4	156.2	160.7	156.3	158.6	160.7	153.3	165.9	138.9	156.5
1958	172.0	147.6	160.8	166.1	162.2	164.2	171.0	153.3	175.4	143.5	162.5
1959	176.2	147.3	164.3	170.8	167.0	168.9	180.7	165.7	175.3	146.1	168.8
1960	184.3	148.2	169.4	176.6	173.2	175.0	192.6	166.4	178.0	156.8	175.5
1961	190.8	154.5	173.9	180.3	178.7	179.5	196.3	176.5	188.0	158.8	180.0
1962	199.4	161.1	177.2	184.7	184.3	184.5	206.2	180.5	195.3r	162.2	185.9
1963	208.2	155.6	192.3	190.6	190.4	190.5	214.1	185.9	200.2	171.1	192.5

15.—Average Wage and Salary Rates for Selected Occupations in Certain Cities Across Canada, Oct. 1, 1963

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sherbrooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	$ per hr.	$ per hr.	$ per hr.	$ per hr.	$ per hr.	$ per hr.
Construction (building and structures only)–						
Bricklayer and mason	2.49	2.35	2.45	2.80	3.35	3.20
Carpenter	2.22	2.09	2.25	2.60	3.25	2.98
Electrician	2.43	2.20	2.20	2.70	3.78	3.60
Painter	1.96	1.85	2.15	2.50	2.90	2.60
Plasterer	2.50	2.20	2.45	2.80	3.25	3.05
Plumber	2.46	2.15	2.30	2.87	3.59	3.30
Sheet metal worker	2.20	1.70	2.30	2.60	3.64	3.25
Labourer	1.65	1.15	1.85	2.00	2.25	2.10
Truck driver	1.65	1.20	1.85	2.00	2.25	2.10
Manufacturing and Other Industries—[1]						
General labourer, male	1.54	1.55	1.51	1.64	1.78	1.89
Maintenance Trades—						
Carpenter	2.09	1.95	1.76	2.19	2.33	2.51
Electrician	2.18	2.11	1.87	2.36	2.53	2.75
Machinist	2.19	2.04	1.86	2.35	2.47	2.79
Mechanic	1.99	2.02	1.95	2.27	2.40	2.64
Millwright	—	2.12	1.81	2.35	2.41	2.44
Pipefitter	2.43	2.08	1.75	2.40	2.44	2.62
Tool and die maker	2.26	2.06	—	2.47	2.59	2.58
Welder	2.19	2.03	1.80	2.27	2.31	2.63
Service Occupations—						
Truck driver, light and heavy	1.58	1.48	1.62	1.81	1.95	1.94
Trucker, power	1.55	1.76	1.36	1.96	2.04	2.14
Office Occupations, Male—	per wk.	per wk.	per wk.	per wk.	per wk.	per wk.
Bookkeeper, senior	90.69	87.73	92.85	103.54	105.79	105.11
Clerk, intermediate	62.38	69.08	70.79	73.42	74.90	83.98
Clerk, senior	89.54	93.85	100.28	99.41	98.60	107.36
Order clerk	71.06	72.77	67.69	83.08	85.86	93.49
Draughtsman, intermediate	81.35	96.16	79.24	100.39	94.33	98.09
Draughtsman, senior	101.81	122.18	120.93	121.60	114.36	117.69
Office Occupations, Female—						
Clerk, intermediate	48.27	51.85	49.08	60.35	63.76	60.01
Machine Operator—						
Bookkeeping	47.97	45.79	43.75	55.03	58.38	54.53
Calculating	51.50	42.96	40.80	61.16	61.73	60.63

For footnote, see end of table.

15.—Average Wage and Salary Rates for Selected Occupations in Certain Cities Across Canada, Oct. 1, 1963—concluded

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sherbrooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	$ per wk.	$ per wk.	$ per wk.	$ per wk.	$ per wk.	$ per wk.
Office Occupations, Female—concluded						
Payroll clerk	54.43	54.93	47.81	65.24	68.62	62.31
Secretary, senior	68.25	66.33	62.64	84.07	82.38	80.27
Stenographer, junior	47.79	46.42	46.20	57.33	59.88	56.42
Stenographer, senior	58.80	60.37	58.92	69.72	68.51	69.46
Switchboard operator and receptionist	49.62	47.45	49.93	58.13	61.32	57.64
Typist, junior	45.26	41.16	39.13	49.28	52.27	52.37
Typist, senior	50.00	52.07	53.26	60.28	63.28	61.00
	Winnipeg, Man.	Regina, Sask.	Saskatoon, Sask.	Calgary, Alta.	Edmonton, Alta.	Vancouver, B.C.
	$ per hr.	$ per hr.	$ per hr.	$ per hr.	$ per hr.	$ per hr.
Construction (building and structures only)–						
Bricklayer and mason	2.80	2.68	2.68	2.95	3.00	3.17
Carpenter	2.60	2.36	2.36	2.75	2.75	3.14
Electrician	2.90	2.62	2.58	2.95	3.05	3.53
Painter	2.30	2.13	2.22	2.35	2.30	2.96
Plasterer	2.80	2.55	2.55	2.80	2.90	3.15
Plumber	2.95	2.65	2.65	2.85	2.90	3.39
Sheet metal worker	2.60	2.52	2.40	2.80	2.95	3.17
Labourer	1.65	1.67	1.73	2.05	2.05	2.37
Truck driver	1.75	1.70	1.75	2.05	2.05	2.41
Manufacturing and Other Industries—[1]						
General labourer, male	1.70	1.66	1.65	1.84	1.68	2.03
Maintenance Trades—						
Carpenter	2.32	2.18	2.22	2.40	2.32	2.60
Electrician	2.44	2.59	2.51	2.67	2.63	2.74
Machinist	2.34	2.46	2.57	2.33	2.55	2.63
Mechanic	2.25	2.30	2.20	2.43	2.31	2.65
Millwright	2.34	—	2.22	2.39	2.53	2.64
Pipefitter	2.29	2.76	2.44	2.60	2.76	2.56
Tool and die maker	2.22	—	—	—	—	2.74
Welder	2.30	2.47	2.40	2.47	2.43	2.63
Service Occupations—						
Truck driver, light and heavy	1.60	1.79	1.67	1.93	2.32	2.32
Trucker, power	1.79	1.79	—	1.95	2.35	2.35
	per wk.	per wk.	per wk.	per wk.	per wk.	per wk.
Office Occupations, Male—						
Bookkeeper, senior	90.19	96.48	97.48	101.41	93.94	104.68
Clerk, intermediate	67.39	72.88	68.24	81.81	78.77	77.32
Clerk, senior	88.00	94.36	89.83	103.16	99.27	101.84
Order clerk	68.34	72.10	69.15	79.87	76.84	88.99
Draughtsman, intermediate	89.73	85.97	80.82	94.11	87.66	99.01
Draughtsman, senior	101.75	101.64	106.54	114.13	107.83	119.12
Office Occupations, Female—						
Clerk, intermediate	54.20	61.26	60.82	59.76	57.90	66.20
Machine Operator—						
Bookkeeping	51.95	54.61	53.41	53.46	51.76	55.30
Calculating	55.61	59.23	55.44	57.84	56.59	64.43
Payroll clerk	61.31	67.88	60.77	68.90	62.63	67.37
Secretary, senior	74.65	78.90	72.93	82.75	72.62	79.35
Stenographer, junior	51.72	57.89	52.56	56.33	53.60	54.92
Stenographer, senior	62.15	64.96	63.94	66.93	63.39	66.35
Switchboard operator and receptionist	50.31	55.19	52.60	57.13	52.69	58.28
Typist, junior	45.42	47.54	48.81	49.35	48.08	49.13
Typist, senior	55.05	63.40	57.30	59.50	58.48	60.38

[1] "Other Industries" consists of logging; mining; transportation (all sectors including air transportation), storage and communication (including radio and TV); public utilities; trade; finance; and government and personal service.

Table 16 gives summary data on working conditions of plant and office employees in manufacturing industries for the years 1959 to 1963 and also for all industries in 1963. The percentages in this table denote the proportions that employees—plant or office—of establishments reporting specific items bear to the total number of all such employees in all establishments replying to the survey; they are not necessarily the proportions of employees actually covered by the various items.

Further details and additional information may be seen in the annual report *Working Conditions in Canadian Industry*, compiled and published by the Department of Labour and based on a survey at May 1 each year of some 30,000 establishments.

16.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing Industries, 1959-63 and All Industries 1963

Item		1959	1960	1961	1962	1963	
						Manufacturing Industries	All Industries[1]
		COVERAGE					
Non-office Employees—							
Reporting establishments	No.	7,902	8,028	8,320	8,618	8,494	19,830
Employees	"	819,401	809,736	778,475	822,623	853,647	1,541,163
Office Employees—							
Reporting establishments	No.	7,658	7,732	8,012	8,338	8,213	18,176
Employees	"	229,233	234,618	242,360	252,546	263,814	681,658
		PERCENTAGES OF NON-OFFICE EMPLOYEES					
Standard Weekly Hours—							
40 and under		70	70	72	73	75	71
Over 40 and under 44		9	10	8	8	8	7
44		5	4	4	4	3	6
45		8	8	8	7	7	5
Over 45 and under 48		1	1	1	1	1	1
48		4	4	4	4	3	5
Over 48		3	3	3	3	3	3
Employees on a five-day week		89	90	90	90	91	83
Vacations with Pay—							
Two weeks		94	86	88	88	88	86
After: 1 year or less		*23*	*20*	*23*	*24*	*26*	*35*
2 years		*14*	*14*	*13*	*12*	*11*	*18*
3 years		*28*	*26*	*26*	*26*	*27*	*17*
4–5 years		*26*	*25*	*25*	*25*	*24*	*16*
Other periods		*3*	*1*	*1*	*1*	*1*	—
Three weeks		71	72	72	73	74	74
After: Less than 10 years		*5*	*6*	*7*	*7*	*8*	*14*
10 years		*8*	*11*	*19*	*21*	*22*	*20*
11–14 years		*4*	*4*	*6*	*7*	*10*	*7*
15 years		*47*	*45*	*35*	*34*	*31*	*30*
20 years		*3*	*2*	*2*	*3*	*2*	*2*
Other periods		*4*	*4*	*3*	*1*	*1*	*1*
Four weeks		26	31	33	36	40	47
After: Less than 25 years		*22*	*4*	*4*	*9*	*15*	*16*
25 years		*4*	*25*	*27*	*25*	*23*	*28*
More than 25 years		..	*2*	*2*	*2*	*2*	*3*
Vacations that do not increase with length of service		..	12	11	11	11	11
1 week		..	*5*	*5*	*5*	*6*	*5*
2 weeks		..	*7*	*6*	*5*	*5*	*6*

[1] Available for the first time in 1963.

16.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing Industries, 1959-63 and All Industries 1963—concluded

Item	1959	1960	1961	1962	1963	
					Manufacturing Industries	All Industries[1]
	PERCENTAGES OF NON-OFFICE EMPLOYEES—concluded					
Paid Statutory Holidays	95	96	96	95	95	93
1-5	10	10	9	8	6	6
6	7	5	6	5	5	5
7	9	8	8	8	10	14
8	52	53	53	52	53	40
9	14	15	16	18	18	20
More than 9	3	3	3	3	3	8
	PERCENTAGES OF OFFICE EMPLOYEES					
Standard Weekly Hours—						
Under 37½	27	27	27	29	29	34
37½	42	43	43	42	43	35
Over 37½ and under 40	9	8	8	7	6	5
40	18	18	18	19	19	22
Over 40	4	4	4	3	3	4
Employees on a five-day week	95	95	96	97	97	95
Vacations with Pay—						
Two weeks	98	90	91	92	93	92
After: 1 year or less	89	79	82	85	85	86
2 years	6	7	7	5	5	4
3 years	2	1	1	1	1	1
5 years	1	2	1	1	1	1
Other periods	..	1	..	..	1	—
Three weeks	82	83	83	84	85	87
After: Less than 10 years	6	7	7	8	9	24
10 years	17	22	28	33	35	28
11-14 years	6	4	7	9	13	7
15 years	49	46	38	31	26	26
20 years	2	2	2	2	1	1
Other periods	2	2	1	1	1	—
Four weeks	32	37	41	47	50	59
After: Less than 25 years	25	5	7	13	16	16
25 years	7	28	31	31	31	38
More than 25 years	..	4	3	3	3	5
Vacations that do not increase with length of service	..	10	7	7	6	6
1 week	..	1	1	1	1	—
2 weeks	..	9	6	6	5	5
3 weeks		—	—	—	—	1
Paid Statutory Holidays	99	99	99	99	99	99
1-6	6	4	5	4	4	3
7	8	7	6	7	7	12
8	58	60	58	58	59	40
9	23	22	23	24	24	26
More than 9	5	5	6	5	5	18

[1] Available for the first time in 1963.

Wages of Farm Labour.—The information on farm wages is provided by volunteer farm correspondents located in all provinces except Newfoundland. The rates presented in Table **17** are average wages paid to all farm help regardless of age and skill. Because the rates reported may cover a wide range of skills, of types of work and of ages of hired workers,

the value of the resulting data is considered to be an indicator of trends rather than a measure of absolute wage levels. No attempt has been made to have the wage rates reflect such perquisites as separate housing accommodation, fuel, electricity and food which, under some conditions of hiring, are supplied by employers to their hired farm help.

17.—Average Daily and Monthly Wages of Male Farm Help as at Jan. 15, May 15 and Aug. 15, 1962-64

NOTE.—Figures from 1940 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Province and Year	January 15				May 15				August 15			
	Daily		Monthly		Daily		Monthly		Daily		Monthly	
	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board
	$	$	$	$	$	$	$	$	$	$	$	$
Maritime Provinces—												
1962	5.00	6.30	106.00	134.00	5.10	6.40	107.00	142.00	5.10	6.30	107.00	139.00
1963	5.20	6.40	108.00	141.00	5.40	6.60	109.00	145.00	5.40	6.60	109.00	140.00
1964	5.30	6.50	116.00	145.00	5.50	6.70	111.00	151.00	5.60	6.80	115.00	145.00
Quebec—												
1962	5.90	7.10	114.00	155.00	6.00	7.30	113.00	154.00	6.40	7.70	124.00	165.00
1963	6.20	7.50	119.00	160.00	6.40	8.00	117.00	160.00	6.60	7.80	125.00	172.00
1964	6.30	8.00	125.00	167.00	6.40	8.30	124.00	169.00	6.60	8.30	125.00	173.00
Ontario—												
1962	6.40	8.10	117.00	161.00	6.70	8.20	120.00	165.00	6.70	8.50	122.00	165.00
1963	6.40	8.30	127.00	171.00	6.80	8.30	126.00	174.00	7.00	8.70	127.00	172.00
1964	6.60	8.60	132.00	175.00	7.00	8.60	133.00	179.00	7.40	8.90	136.00	185.00
Manitoba—												
1962	5.70	7.40	104.00	142.00	6.50	8.20	136.00	166.00	6.90	8.60	140.00	170.00
1963	5.90	7.70	114.00	152.00	6.80	8.20	140.00	172.00	7.10	8.80	142.00	175.00
1964	6.20	8.10	120.00	159.00	7.10	8.90	148.00	189.00	7.70	9.40	149.00	188.00
Saskatchewan—												
1962	6.00	7.50	107.00	141.00	7.00	9.10	147.00	184.00	7.30	9.50	152.00	187.00
1963	6.10	7.60	110.00	146.00	7.20	9.10	153.00	188.00	7.50	9.50	156.00	190.00
1964	6.40	8.00	118.00	156.00	7.60	9.90	158.00	200.00	8.20	10.00	162.00	196.00
Alberta—												
1962	6.10	8.10	123.00	169.00	7.10	8.80	145.00	186.00	7.40	9.30	152.00	189.00
1963	6.40	8.30	129.00	176.00	7.20	8.90	152.00	190.00	7.40	9.30	152.00	196.00
1964	6.40	8.40	129.00	177.00	7.70	9.80	159.00	202.00	7.70	9.70	160.00	205.00
British Columbia—												
1962	7.70	9.40	144.00	210.00	7.80	9.90	147.00	208.00	8.00	9.90	151.00	218.00
1963	7.90	9.80	149.00	212.00	7.90	10.00	157.00	217.00	8.10	10.10	158.00	223.00
1964	7.90	9.80	149.00	213.00	8.20	10.00	164.00	236.00	8.10	10.00	161.00	230.00
Totals—												
1962	**5.80**	**7.30**	**117.00**	**159.00**	**6.30**	**7.80**	**133.00**	**175.00**	**6.50**	**8.10**	**138.00**	**178.00**
1963	**6.10**	**7.60**	**124.00**	**167.00**	**6.50**	**8.10**	**137.00**	**179.00**	**6.80**	**8.30**	**140.00**	**183.00**
1964	**6.20**	**8.00**	**128.00**	**171.00**	**6.80**	**8.50**	**143.00**	**188.00**	**7.00**	**8.70**	**145.00**	**190.00**

Section 5.—Unemployment Insurance*

During the depression of the 1930's the need for a nation-wide unemployment insurance program became recognized. In 1935 the Employment and Social Insurance Act was passed by the Federal Parliament but was subsequently declared invalid by the Privy Council. Later, by consent of the provinces, an amendment to the British North America Act was obtained empowering the Federal Parliament to legislate on unemployment insurance and in 1940 the Unemployment Insurance Act was passed, making provision for a compulsory contributory unemployment insurance program at the national level and also for the establishment of a national employment service to operate in conjunction with and ancillary to the unemployment insurance operations. The Act came into effect on July 1, 1941; amended on several occasions, it was replaced by a new Unemployment Insurance Act, effective Oct. 2, 1955.†

Legislation provides for compulsory coverage of some four fifths of all non-agricultural employees under an insurance program administered by the Federal Government, and requires employers to join with their insurable employees and the Government in building up a fund. This fund is held in trust by the Unemployment Insurance Commission for the payment of benefit to eligible unemployed persons. The Act is administered by a Commission of three persons appointed by the Governor in Council, of whom one is the Chief Commissioner; one Commissioner, other than the Chief Commissioner, is appointed after consultation with employer organizations and the other after consultation with employee organizations.

The Unemployment Insurance Act applies to all persons employed under a contract of service,‡ except the following: employment in specified industries or occupations such as agriculture, horticulture and forestry (effective Jan. 1, 1956, coverage was also extended to certain employments in these three industries); the Canadian Armed Forces; the permanent public service of the Federal Government; provincial government employees except where insured with the concurrence of the government of the province; certified permanent employees of municipal or public authorities; private domestic service; private-duty nursing; teaching; certain director-officers of corporations; workers on other than an hourly, daily or piece rate earning more than $5,460 a year effective Sept. 27, 1959, unless they elect to continue as insured persons; employees in a charitable institution or in a hospital not carried on for purpose of gain except where the institution or hospital consents to insure certain groups or classes of persons with the concurrence of the Commission. All persons paid by the hour, day, or at a piece rate (including a milage rate) are insured regardless of amount of earnings.

The amount of the employee contribution is determined by the employee's weekly earnings; an equal contribution is required from the employer. The Federal Government contributes one fifth of the aggregate employer-employee contribution and defrays administrative expenses. Contributions became payable on July 1, 1941. Benefit became payable on Jan. 27, 1942 and by Mar. 31, 1963 a total of $4,109,000,000 had been paid, leaving a balance in the fund of $9,700,000.

The following statement shows the current weekly rates of contribution and benefit effective Sept. 27, 1959. The weekly contribution is based on actual earnings in the

* Prepared by the Unemployment Insurance and Pensions Section, Labour Division, Dominion Bureau of Statistics; statistics of unemployment insurance are compiled and published by the DBS from material supplied by the Unemployment Insurance Commission.

† Copies of the 1955 Act incorporating subsequent amendments are available from the Queen's Printer, Ottawa. (Catalogue No. LU2-359.)

‡ Commencing Apr. 1, 1957, coverage was extended to persons engaged in fishing, notwithstanding the fact that such persons are not employees of any other person.

week, irrespective of the number of days worked. The benefit rates are calculated on the average weekly contributions for the last 30 weeks in the 104 weeks preceding claim. In order to qualify for regular benefit, a claimant must have at least 30 weekly contributions in the last 104 weeks prior to claim, eight weekly contributions since the start of the last preceding regular benefit period or in the last year prior to claim, whichever is the shorter period, and 24 weekly contributions since the start of the last preceding benefit period, or in the year prior to the claim, whichever is the longer period.

WEEKLY RATES OF CONTRIBUTION AND BENEFIT UNDER THE UNEMPLOYMENT INSURANCE ACT, IN EFFECT FROM SEPT. 27, 1959

NOTE.—Weekly rates in effect from Oct. 2, 1955 to Sept. 26, 1959 are given in the 1962 Year Book, p. 738.

Range of Weekly Earnings	Weekly Employee Contribution	Range of Average Weekly Contributions	Weekly Rates of Benefit		Earnings not Deducted	
			Person Without Dependant	Person With Dependant	Person Without Dependant	Person With Dependant
	cts.	cts.	$	$	$	$
Under $9	10[1]	Under 25	6	8	3	4
$ 9 and under $15	20	25 and under 34	9	12	5	6
15 " " 21	30	34 " " 42	11	15	6	8
21 " " 27	38	42 " " 50	13	18	7	9
27 " " 33	46	50 " " 57	15	21	8	11
33 " " 39	54	57 " " 63	17	24	9	12
39 " " 45	60	63 " " 69	19	26	10	13
45 " " 51	66	69 " " 75	21	28	11	14
51 " " 57	72	75 " " 82	23	30	12	15
57 " " 63	78	82 " " 90	25	33	13	17
63 " " 69	86	90 or over	27	36	14	18
69 or over	94					

[1] A half stamp.

The Act contains a special provision whereby the regular contribution requirements are relaxed somewhat during a 5½-month period commencing with the first week of December each year. Under this provision, claimants unable to fulfil the contribution requirements for regular benefit may draw "seasonal benefit" if they have at least 15 contribution weeks during the fiscal year or, failing this, if they terminated regular benefit since the previous mid-May.

Statistics on the Operation of the Act.—In order to assess the impact of changing economic conditions on the insurance program, provision is made for collection of current operational data, such as claims filed and processed and payments made. This information is published monthly in the *Statistical Report on the Operation of the Unemployment Insurance Act* (Catalogue No. 73-001). Current claims and payment data are useful for administrative purposes and are also a source of information to the public regarding financial and other aspects of the program.

Persons wishing to draw benefit must file either an initial or a renewal claim. Where it is necessary to compute entitlement to benefit, an initial claim is taken, otherwise a renewal. In the main, initial and renewal claims combined are an approximation of recorded separations from employment during a month. However, if a claimant exhausts his benefit and wishes to be reconsidered for further benefit, an initial claim is required. Such claims, accounting for approximately 15 p.c. of the monthly volume in 1963, are not new cases of disemployment. The count of claimants at the month-end indicates the extent to which claimants maintain contact with local offices of the Commission.

18.—Claims Filed, Claimants and Amount Paid, by Month, 1962 and 1963

Month	1962			1963		
	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid
	'000	'000	$'000	'000	'000	$'000
January	320	699	57,799	319	704	58,560
February	206	719	57,988	189	720	58,742
March	226	687	68,827	196	685	61,287
April	181	564	51,647	176	566	57,583
May	138	264	45,409	123	271	41,147
June	93	214	18,709	83	220	15,987
July	112	212	14,511	113	219	15,506
August	99	199	15,878	86	193	14,007
September	98	198	12,664	93	186	12,528
October	150	244	15,754	126	219	13,989
November	244	374	18,934	189	303	14,467
December	324	592	31,087	345	532	29,361
Totals	**2,192**	**414**[1]	**409,208**	**2,038**	**402**[1]	**394,163**

[1] Average of month-end data.

In addition to the monthly data published on the operation of the Unemployment Insurance Act, annual tabulations are compiled regarding persons employed in insurable employment and benefit periods established and terminated. These data are published in the annual report *Benefit Periods Established and Terminated under the Unemployment Insurance Act* (Catalogue No. 73-201). Data on persons insured under the Act are obtained from a 10-p.c. sample of insurance books and contribution cards renewed at June 1 each year. Included are persons engaged in insurable employment as well as persons on claim at that date.

19.—Persons Insured under the Unemployment Insurance Act, by Industrial Group and Sex, 1962 and 1963

NOTE.—Based on a 10-p.c. sample of contributors and claimants at June 1.

Industry	1962		1963	
	Males	Females	Males	Females
	No.	No.	No.	No.
Agriculture	8,630	1,720	9,480	1,920
Forestry	42,980	1,240	43,930	1,300
Fishing and trapping	8,670	130	15,700	210
Mines, quarries, oil wells	89,300	4,060	96,720	3,930
Manufacturing	1,012,620	331,690	1,021,780	344,880
Construction	252,600	8,760	260,440	8,950
Transportation, communication and other utilities	386,020	67,300	376,390	67,470
Trade	433,340	257,540	440,870	262,900
Finance, insurance, real estate	62,080	109,370	62,710	114,920
Community, business and personal service	189,700	212,420	200,090	228,430
Public administration and defence	125,570	30,750	120,320	26,660
Unspecified employment	13,500	3,310	14,850	3,930
Claimants	311,750	119,000	277,060	107,530
Totals, All Industries	**2,936,760**	**1,147,290**	**2,940,340**	**1,173,030**

Benefit.—The duration of regular benefit is related to the contribution history—one week's benefit for every two weeks' contributions in the past 104 weeks with a maximum of 52 weeks. However, contributions more than one year old cannot be used if they have already been taken into account in computing previous rights. Disqualifications for benefit include: loss of work owing to a labour dispute in which the contributor is participating or directly interested; unwillingness to accept suitable employment; being an inmate of any prison or any institution supported out of public funds; refusal to attend a course of instruction or training if directed to do so; residence outside Canada unless otherwise prescribed. Disqualification of a claimant for a period not exceeding six weeks may be imposed if an employee is discharged by reason of his own misconduct or leaves the employment voluntarily without just cause or refuses suitable employment.*

Table **20** distributes by province regular benefit periods terminated, average weeks paid and average dollar benefit paid on these terminations. A claimant establishes a *regular benefit period* when he submits his claim in the prescribed manner and proves he has fulfilled the minimum contribution requirements. The duration of benefit and the weekly rate authorized, comprising total entitlement, are then calculated and the claimant's benefit may be drawn upon during successive intervals of unemployment. His benefit period terminates either when he has exhausted the amount authorized or when 12 months have elapsed since he established, whichever comes first.

* This list should not be considered as exhaustive; more detail may be obtained from the Unemployment Insurance Act and Regulations.

20.—Regular Benefit Periods Terminated, Duration and Average Amount of Benefit Paid, by Province, 1962 and 1963

NOTE.—Based on a 20-p.c. sample.

Province	1962			1963		
	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination
	No.	No.	$	No.	No.	$
Newfoundland	23,120	15.1	398	25,410	14.8	390
Prince Edward Island	4,070	15.4	334	4,670	15.1	329
Nova Scotia	43,785	13.8	336	41,815	13.6	325
New Brunswick	34,620	14.5	342	36,385	14.4	340
Quebec	289,110	13.1	328	291,405	12.8	328
Ontario	318,230	12.2	308	313,700	11.8	298
Manitoba	47,015	14.0	354	38,470	14.0	346
Saskatchewan	24,385	14.7	366	25,000	14.4	361
Alberta	43,415	13.4	341	52,675	12.7	331
British Columbia	100,770	12.9	339	94,215	12.5	327
Totals	**928,520**	**13.0**	**328**	**923,745**	**12.7**	**322**

Table 21 gives regular benefit periods terminated and average weeks paid, classified by age and occupation of claimant.

21.—Regular Benefit Periods Terminated and Duration of Benefit Paid, classified by Age and Occupation of Claimant, 1962 and 1963

NOTE.—Based on a 20-p.c. sample.

Age Group and Occupation	1962		1963	
	Benefit Periods Terminated	Average Weeks Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination
	No.	No.	No.	No.
Age Group				
Under 20 years	29,965	11.0	28,515	10.7
20 — 24 "	158,500	12.2	162,435	11.7
25 — 34 "	261,900	12.0	257,105	11.5
35 — 44 "	202,290	11.9	196,610	11.7
45 — 54 "	144,540	13.1	145,170	12.7
55 — 64 "	86,690	15.0	88,080	14.8
65 years or over	39,630	25.5	40,190	25.2
Unspecified	5,005	13.5	5,640	12.4
Totals	**928,520**	**13.0**	**923,745**	**12.7**
Occupation				
Managerial	8,475	15.5	9,735	15.5
Professional and technical	10,585	13.5	9,040	13.1
Clerical	91,895	16.6	96,645	15.6
Sales	43,455	14.9	42,145	14.1
Service and recreation	81,905	16.1	83,005	14.8
Transportation and communications	80,035	13.3	71,840	13.0
Transportation	*73,155*	*12.8*	*65,380*	*12.3*
Communications	*6,880*	*18.5*	*6,460*	*19.4*
Farmers and farm workers	8,550	14.0	9,440	13.5
Loggers, etc.	37,700	12.4	38,550	12.5
Fishermen, trappers and hunters	820	11.6	1,600	12.8
Miners, quarrymen, etc.	18,970	12.5	18,495	12.1
Craftsmen, production process, etc.	351,825	11.3	359,270	11.1
Labourers, *n.e.s.*	180,120	12.7	169,195	12.6
Not stated	14,185	12.4	14,785	12.8

Table 22 gives provincial distributions of seasonal benefit periods in 1962 and 1963, average weeks paid and average benefit paid.

22.—Seasonal Benefit Periods, Duration of Benefit and Amount Paid, by Province, 1962 and 1963

NOTE.—Based on a 10-p.c. sample.

Province	1962			1963		
	Benefit Periods	Average Weeks Paid	Average Amount Paid	Benefit Periods	Average Weeks Paid	Average Amount Paid
	No.	No.	$	No.	No.	$
Newfoundland	27,410	12.9	291	27,625	13.1	304
Prince Edward Island	5,480	12.5	269	5,960	12.5	273
Nova Scotia	23,525	11.3	259	24,315	11.3	258
New Brunswick	28,050	11.1	248	27,725	11.5	256
Quebec	113,700	9.6	229	108,125	9.7	234
Ontario	93,460	9.4	217	84,600	9.4	216
Manitoba	16,975	9.8	236	17,025	9.8	235
Saskatchewan	11,715	8.9	212	12,785	9.7	229
Alberta	15,190	8.5	209	16,990	9.2	227
British Columbia	39,900	10.2	260	35,425	10.0	258
Totals	**375,405**	**10.1**	**237**	**360,575**	**10.2**	**241**

Employment Service.—The Unemployment Insurance Commission operates a free employment service under authority of the Unemployment Insurance Act. The public employment offices, which had functioned under a joint federal-provincial arrangement for more than two decades, were taken over by the Commission on Aug. 1, 1941 and additional offices were established in all provinces except Quebec. The Commission established its own offices in Quebec and the provincial government thereupon reduced the number of its offices.

23.—Applications for Employment, Vacancies Notified and Placements Effected by Employment Offices, by Province, 1962 and 1963

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1926 edition.

Province and Year	Applications Registered		Vacancies Notified		Placements Effected	
	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.
Newfoundland 1962	75,181	6,941	9,793	1,974	9,224	1,324
1963	69,847	6,858	9,154	1,855	7,900	1,278
Prince Edward Island 1962	19,241	7,368	8,743	3,915	7,054	3,559
1963	17,197	6,878	7,695	3,965	6,044	3,470
Nova Scotia 1962	119,136	35,760	27,938	14,803	26,172	11,709
1963	99,842	36,062	22,142	13,007	19,696	9,969
New Brunswick 1962	121,598	35,805	29,042	12,939	28,960	10,989
1963	105,713	34,753	26,846	12,002	25,441	10,284
Quebec 1962	911,693	273,694	302,279	136,798	266,472	106,576
1963	855,819	270,075	291,234	125,864	246,121	95,356
Ontario 1962	1,062,398	462,203	381,196	208,950	331,570	165,490
1963	992,890	447,245	339,905	198,467	277,601	146,919
Manitoba 1962	141,019	64,111	52,627	31,624	46,292	26,411
1963	130,691	59,165	51,598	30,696	42,699	23,231
Saskatchewan 1962	103,287	39,444	36,325	16,545	33,930	13,581
1963	94,188	38,068	32,447	16,157	27,877	11,577
Alberta 1962	194,023	78,485	76,109	39,534	68,118	29,670
1963	182,352	75,737	64,231	38,508	53,213	27,563
British Columbia 1962	429,847	167,300	86,313	77,713	79,493	69,162
1963	363,972	155,698	92,800	67,389	83,789	58,081
Totals 1962	**3,177,423**	**1,171,111**	**1,010,365**	**544,795**	**897,285**	**438,471**
1963	**2,912,511**	**1,130,539**	**938,052**	**507,910**	**790,381**	**387,728**

Section 6.—Industrial Accidents and Workmen's Compensation

Fatal Industrial Accidents.—Data on fatal industrial accidents, compiled by the federal Department of Labour, are obtained from provincial Workmen's Compensation Boards, from the Board of Transport Commissioners and other government authorities, and from press reports.

Of the 1,147 fatal accidents to industrial workers that occurred during 1963, 263 were the result of the victims being struck by objects—55 by falling trees or limbs, 41 by landslides or cave-ins, 39 by materials falling from stockpiles or loads, 18 by automobiles or trucks, and the remainder by other falling or flying objects. Collisions, derailments, wrecks, etc., were responsible for 252 fatalities, falls and slips for 240, and 152 fatalities were included in the classification "caught in, on or between objects, vehicles, etc.". Exposure to dust, poisonous gases and poisonous substances caused 96 deaths, contact with

electric current caused 63, conflagrations, explosions and exposure to hot substances caused 59 deaths, and 10 were the result of over-exertion, strain, etc. Ten were caused by miscellaneous accident types.

24.—Fatal Industrial Accidents, by Industry, 1960-63

Industry	Numbers				Percentages of Total			
	1960	1961	1962	1963p	1960	1961	1962	1963p
Agriculture	69	68	62	49	6.1	6.3	5.4	4.3
Logging	131	99	127	118	11.6	9.1	11.2	10.3
Fishing and trapping	27	40	12	34	2.4	3.7	1.1	3.0
Mining and quarrying	180	135	151	151	15.9	12.4	13.3	13.2
Manufacturing	186	178	216	200	16.4	16.4	19.0	17.4
Construction	199	238	204	221	17.4	21.9	18.0	19.3
Public utilities	36	36	46	27	3.2	3.3	4.0	2.3
Transportation, storage and communications	154	152	163	168	13.6	14.0	14.4	14.6
Trade	51	52	58	55	4.5	4.8	5.1	4.8
Finance	2	1	2	1	0.2	0.1	0.2	0.1
Service	99	87	94	123	8.7	8.0	8.3	10.7
Totals	**1,134**	**1,086**	**1,135**	**1,147**	**100.0**	**100.0**	**100.0**	**100.0**

Workmen's Compensation.*—In all provinces legislation is in force providing for compensation for injury to a workman by accident arising out of and in the course of employment, or for disablement caused by a specified industrial disease, except where the workman is disabled for fewer than a stated number of days. The Acts of all provinces provide for a compulsory system of collective liability on the part of employers. To ensure payment of compensation, each Act provides for an accident fund, administered by the province, to which employers are required to contribute at a rate determined by the Workmen's Compensation Board in accordance with the hazards of the industry. A workman to whom these provisions apply has no right of action against his employer for injury from an accident during employment. The Acts vary in scope but in general they cover construction, mining, manufacturing, lumbering, transportation and communications and the operation of public utilities. The Acts also cover various types of commercial establishments. Undertakings in which not more than a stated number of workmen are usually employed are excluded in some provinces. In Ontario and Quebec, public authorities, railway and shipping companies, and telephone and telegraph companies are individually liable for compensation as determined by the Board and pay a proportion of the expenses of administration. A federal Act provides for compensation for accidents to Federal Government employees according to the scale of benefits provided by the Act of the province in which the employee is usually employed. Seamen who are not under a provincial Workmen's Compensation Act are entitled to compensation under the Merchant Seamen Compensation Act.

Benefits in case of disability include all necessary medical care and hospitalization, cash payments during the period of temporary disability to indemnify the injured workman for loss of wages, a life pension for any resulting permanent disability, and rehabilitation services. In the case of the death of the workman, a widow is granted a monthly pension, a special lump sum payment, an allowance for funeral expenses and a monthly payment for each child under the age limit provided by the law. When there is no dependent widow or children and there are other dependants such as a parent or parents, an award is made which, in the judgment of the Board concerned, is proportionate to the pecuniary loss sustained.

Table 25 gives the number of industrial accidents reported by each of the provinces and the amount of compensation paid by Workmen's Compensation Boards in the years 1961 and 1962.

* More detailed information is given in the Department of Labour publication *Workmen's Compensation in Canada, A Comparison of Provincial Laws.*

25.—Industrial Accidents Reported and Compensation Paid by Workmen's Compensation Boards, 1961 and 1962

Year and Province	Industrial Accidents Reported					Compensation Paid[2]
	Medical Aid Only[1]	Temporary Disability	Permanent Disability	Fatal	Total	
	No.	No.	No.	No.	No.	$
1961						
Newfoundland	5,317	3,495	41	11	8,864	1,994,016
Prince Edward Island	1,053	732	21	3	1,809	347,915
Nova Scotia	9,687	6,166	362	33	16,248	4,710,954
New Brunswick	9,097	7,421	223	23	16,764	2,387,292
Quebec	..	..	..	204	99,502	24,860,223[3]
Ontario	175,876	61,148	2,593	273	239,890	51,463,457[3]
Manitoba	12,375	9,019	415	28	21,837	4,065,252
Saskatchewan	12,210	9,976	81	35	22,302	5,315,217
Alberta	29,062	18,976	738	107	48,883	9,735,805
British Columbia	41,556	20,201	1,097	139	62,993	21,207,124
Totals, 1961	..	..	..	**856**	**539,092**	**126,087,255**
1962						
Newfoundland	5,997	3,590	42	13	9,642	2,017,009
Prince Edward Island	948	841	33	4	1,826	448,962
Nova Scotia	11,732	7,123	285	37	19,177	4,932,672
New Brunswick	10,578	8,419	144	26	19,167	2,645,535
Quebec	..	..	..	160	115,243	27,180,347
Ontario	184,903	62,319	2,728	242	250,192	58,223,557
Manitoba	12,713	9,467	378	31	22,589	4,340,981
Saskatchewan	11,878	9,263	43	26	21,210	5,625,062
Alberta	27,844	20,795	796	131	49,566	10,497,922
British Columbia	41,684	21,636	1,210	164	64,694	21,934,467
Totals, 1962	..	..	..	**834**	**573,306**	**137,846,514**

[1] Accidents requiring medical treatment but not causing disability for a sufficient period to qualify for compensation; the period varies in the several provinces. [2] Includes, except where noted otherwise, payments to compensate loss of earnings, medical aid payments, cost of rehabilitation and hospitalization (not including capital expenditures) and pensions paid (not pensions awarded) for temporary and permanent disabilities. [3] Excludes payments by employers who make direct compensation to their employees; such employees come under Schedule II of the Ontario and Quebec Workmen's Compensation Acts.

Section 7.—Organized Labour in Canada

At the beginning of 1964, membership of labour organizations active in Canada totalled approximately 1,493,000. This amounted to 29.4 p.c. of the estimated total number of non-agricultural paid workers in Canada. Three quarters of the union members were in unions affiliated with the Canadian Labour Congress (CLC) and of these, a large group belonged also to the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) in the United States. Affiliates of the Confederation of National Trade Unions accounted for more than 8 p.c. of the union membership in 1964, a slightly higher proportion than in the previous year. Members of unaffiliated national, international and independent local organizations made up 16 p.c., and the membership of unions affiliated only with the AFL-CIO constituted 2 p.c. of the total.

The 1964 membership total of 1,493,000 was 44,000 higher than in 1963. Of this increase, approximately 37,000 was a net membership gain and the remainder was the result of improved coverage of District 50, United Mine Workers of America. International unions reported 30,000 more members than in 1963 and national unions, mostly CNTU affiliates, gained about 15,000 members. Directly chartered unions experienced a decrease in membership, and that reported by independent local organizations remained virtually unchanged.

26.—Union Membership in Canada, 1936-64

Year	Members	Year	Members	Year	Members	Year	Members
	'000		'000		'000		'000
1936	323	1943	665	1951 [1]	1,029	1958	1,454
1937	383	1944	724	1952	1,146	1959	1,459 [3]
1938	382	1945	711	1953	1,220	1960	1,459
1939	359	1946	832	1954	1,268	1961	1,447
1940	362	1947	912	1955	1,268	1962	1,423
1941	462	1948	978	1956	1,352	1963	1,449
1942	578	1949 [1,2]	1,006	1957	1,386	1964	1,493 [4]

[1] Figures for years up to and including 1949 are as at Dec. 31; figures from 1951 are as at Jan. 1. [2] Newfoundland included from 1949. [3] Adjustment in coverage resulted in a net addition of approximately 23,000 members. [4] Includes an addition of approximately 7,000 members resulting from improved coverage.

Among international unions, the Steelworkers, with a gain of 12,000 members, showed the largest increase. The National Federation of Services (Fédération Nationale des Services) and the Building Workers' Federation (La Fédération des travailleurs du bâtiment du Canada, Inc.) registered gains of 4,000 and 3,800 members, respectively, and the Canadian Federation of Public Service Employees (Fédération Canadienne des Employés de Services Publics) reported an increase of 3,000. Other unions experiencing notable increases over 1963 were: the International Hod Carriers, Building and Common Laborers' Union of America (2,900); the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (2,500); the International Woodworkers of America (1,300); the International Union of Electrical, Radio and Machine Workers (1,100); the International Ladies' Garment Workers' Union (1,000); and the American Federation of Musicians of the United States and Canada (1,000). All were AFL-CIO / CLC affiliates. The largest decrease in membership was recorded by the International Union of Mine, Mill and Smelter Workers (Canada)—Ind., which reported 20,000 members in 52 locals in 1964 compared with 25,000 members in 46 locals in 1963.

At the beginning of 1964, the CLC had in affiliation 108 national and international unions and 174 directly chartered local unions. The total membership of 1,106,000 represented an increase of 26,100 over 1963. Within the CLC, international unions continued to make up more than four fifths of the membership, national unions affiliated with the CLC comprised almost 15 p.c., and directly chartered locals just under 2 p.c.

The Confederation of National Trade Unions, with a membership of 121,540, comprised 13 federations with 573 locals and 50 local unions not belonging to any of the federations. This was an increase of 82 locals and 11,000 members in the past year, resulting mainly from organizational activity in the service sector of Quebec's economy.

Of the 1,493,173 union members in Canada reported in the 1964 survey, 1,062,054 were in international unions having branches both in Canada and the United States, and in most cases affiliated with central labour bodies in both countries. Of the 111 international unions active in Canada, 88 were affiliated with the AFL-CIO as well as the CLC, nine were affiliated with the AFL-CIO only and three with the CLC only; the remaining 11 had no affiliation.

National unions at the beginning of 1964 had 363,526 members, about one quarter of the over-all union membership. Among this group, 17 unions with 164,156 members were affiliated with the CLC, 13 unions with 115,796 members belonged to the CNTU, and 22 unions with 85,584 members had no link with a central labour congress.

Taken together, international and national unions had 1,427,580 members distributed among 163 unions whose membership in Canada ranged in size from fewer than 10 members to the 102,000 reported by the Steelworkers. One third of the total membership was in

the ten largest unions, listed below in order of their membership, with bracketed figures showing their relative position in the previous year.

Union	1964 Membership
1. United Steelworkers of America (AFL-CIO/CLC) (1)	102,000
2. Canadian Union of Public Employees (CLC)*	86,100
3. International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (AFL-CIO/CLC) (2)	63,600
4. United Brotherhood of Carpenters and Joiners of America (AFL-CIO/CLC) (3)	57,100
5. International Association of Machinists (AFL-CIO/CLC) (5)	39,800
6. International Woodworkers of America (AFL-CIO/CLC) (6)	39,200
7. International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America (Ind.) (7)	38,200
8. International Brotherhood of Electrical Workers (AFL-CIO/CLC) (9)	36,600
9. International Brotherhood of Pulp, Sulphite and Paper Mill Workers (AFL-CIO/-CLC) (8)	36,100
10. Canadian Brotherhood of Railway, Transport and General Workers (CLC) (10)	35,800

* Formed by the merger of the National Union of Public Employees and the National Union of Public Service Employees.

The 174 locals chartered directly by the CLC had a membership of 20,236, the 50 non-federated locals in the CNTU had 5,744 members and the 124 independent local organizations covered by the survey had 39,603 members.

27.—Union Membership, by Type of Union and Affiliation, as at January 1964

Type and Affiliation	Unions	Locals	Membership
International Unions	**111**	**4,613**	**1,062,051**
AFL - CIO/CLC	88	4,110	908,948
CLC only	3	45	12,680
AFL - CIO only	9	46	31,282
Unaffiliated railway brotherhoods	2	123	9,224
Other unaffiliated unions	9	289	99,920
National Unions	**52**	**2,441**	**365,536**
CLC	17	1,489	164,156
CNTU	13	573	115,796
Unaffiliated unions	22	379	85,584
Directly Chartered Local Unions	**224**	**224**	**25,980**
CLC	174	174	20,236
CNTU	50	50	5,744
Independent Local Organizations	**124**	**124**	**39,603**
Grand Totals	**511**	**7,402**	**1,493,173**

A complete list of the individual international and national unions, with number of locals and membership in Canada, is carried in the annual Department of Labour publication *Labour Organizations in Canada*, available from the Queen's Printer, Ottawa, price 50 cents.

Section 8.—Strikes and Lockouts

Statistical information on strikes and lockouts in Canada is compiled by the Economics and Research Branch of the Department of Labour on the basis of reports from the Unemployment Insurance Commission. Table **28** covers strikes and lockouts involving six or more workers and lasting at least one working day, and strikes and lockouts lasting less than one day or involving fewer than six workers but exceeding a total of nine man-days. The developments leading to work stoppages are often too complex to make it practicable to distinguish statistically between strikes on the one hand and lockouts on the other. However, a work stoppage that is clearly a lockout is not often encountered.

The number of workers involved includes all workers reported on strike or locked out, whether or not they all belonged to the unions directly involved in the disputes leading to work stoppages. Workers indirectly affected, such as those laid off as a result of a work stoppage, are not included. Duration of strikes and lockouts in terms of man-days is calculated by multiplying the number of workers involved in each work stoppage by the number of working days the stoppage was in progress. The duration in man-days of all work stoppages in a year is also shown as a percentage of estimated working time, based on the annual average of all non-agricultural paid workers in Canada. The data on duration of work stoppages in man-days are provided to facilitate comparison of work stoppages in terms of a common denominator. They are not intended as a measure of the loss of productive time to the economy.

28.—Strikes and Lockouts, by Industry, 1963 with Totals for 1959-63

NOTE.—Comparable statistics, except for 1961, are given in the corresponding table of previous Year Books; the latter are available in the Department of Labour annual publication *Strikes and Lockouts in Canada*.

Industry	Strikes and Lockouts Beginning during Year	Strikes and Lockouts in Existence during Year		
		Strikes and Lockouts	Workers Involved	Duration in Man-Days
	No.	No.	No.	No.
Forestry	**4**	**4**	**1,975**	**49,710**
Mines	**17**	**17**	**6,210**	**53,980**
Metal	8	8	1,789	45,540
Mineral fuels	7	7	4,199	6,210
Non-metal	1	1	160	340
Incidental services	1	1	62	1,890
Manufacturing	**140**	**148**	**38,502**	**498,730**
Food and beverages	22	23	6,979	128,400
Rubber	4	4	3,678	57,590
Leather	3	3	232	8,370
Textiles	8	8	1,113	8,270
Knitting mills	3	3	747	36,190
Clothing	9	9	1,067	2,520
Wood	8	8	868	20,440
Furniture and fixtures	6	6	964	8,300
Paper	9	9	1,816	24,900
Printing and publishing	6	7	218	12,950
Primary metals	9	11	3,480	67,680
Metal fabricating	14	14	1,971	14,190
Machinery	3	3	99	3,060
Transportation equipment	13	13	12,435	29,620
Electrical products	7	9	643	9,370
Non-metallic mineral products	6	7	406	6,560
Petroleum and coal products	1	1	156	11,020
Chemical products	4	5	1,364	42,560
Miscellaneous manufacturing	5	5	266	6,740
Construction	**81**	**82**	**17,015**	**192,330**
Transportation and Utilities	**25**	**25**	**15,615**	**58,050**
Transportation	20	20	15,266	56,700
Communication	1	1	4	200
Power, gas and water	4	4	345	1,150
Trade	**27**	**30**	**896**	**44,780**
Service	**24**	**24**	**3,161**	**19,120**
Education	14	14	2,419	8,340
Health and welfare	3	3	388	9,050
Recreational services	2	2	8	50
Personal services	5	5	349	1,680
Public Administration (local)	—	**2**	**51**	**410**
Totals 1963	**318**	**332**	**83,428**	**917,140**
1962	**290**	**311**	**74,332**	**1,417,900**
1961	**272**	**287**	**97,959**	**1,335,080**
1960	**268**	**274**	**49,408**	**738,700**
1959	**201**	**216**	**95,120**	**2,226,890**

Section 9.—Canada and the International Labour Organization

The Department of Labour is the officially designated liaison between the Government of Canada and the International Labour Organization. The ILO was established in 1919, in association with the League of Nations under the Treaties of Peace, with the object of improving labour and social conditions throughout the world by international negotiations, legislative action and other means. Under an agreement approved by the General Conference of the International Labour Organization and by the United Nations General Assembly in 1946, the Organization became a specialized agency of the United Nations, although it retained its autonomy.

The ILO is an association of 110 Member States, financed by their governments and democratically controlled by representatives of those governments and of their organized employers and workers. It is comprised of three main organs—the Governing Body, the International Labour Conference, and the International Labour Office.

The Governing Body consists of 48 members—24 government representatives, 12 employers' representatives and 12 workers' representatives. Of the government seats, each of the 10 Member States of chief industrial importance (of which Canada is one) holds a permanent place and the other 14 government representatives are elected triennially by the Conference. The worker and employer members are elected by their groups every three years at the same Conference. The Governing Body, which usually meets three times a year, supervises the work of the International Labour Office and co-ordinates the programs of the various Conferences and Committees, in addition to framing the budget and approving the agendas of the Conferences and meetings. Canada's government representative on the Governing Body is the Deputy Minister of Labour for Canada; there are also elected employer and worker representatives from Canada on the Governing Body.

The International Labour Conference is a world assembly for the discussion of labour and social problems. It meets annually and is attended by four delegates from each Member State (two representing the government, one representing the employers and one representing the workers) accompanied by technical advisers. The Conference formulates international standards concerning working and living conditions in the form of Conventions (which are subject to ratification by the Member States concerned) and Recommendations (which are guides for framing legislation and regulations).

There have been 47 sessions of the International Labour Conference, at which 119 Conventions and 119 Recommendations have been adopted. Canada has ratified 20 of these Conventions, of which 12 concern maritime and dock labour. The Department of Labour is responsible for forwarding to the ILO annual reports on ratified Conventions as well as periodic reports on many other industrial and social matters. Canada is represented at each annual Conference and most of the special meetings, and accounts of the discussions and decisions are regularly published in the *Labour Gazette*.

The International Labour Office acts as the permanent secretariat of the ILO, and as a world research and information centre and publishing house on subjects concerned with working and living conditions. In the operational field it assists Member States by furnishing experts on manpower training and other types of technical assistance. The ILO maintains branch offices in all parts of the world; the Canada Branch is located at 202 Queen Street, Ottawa.

Ten tripartite industrial committees have been established to deal with problems of important world industries. By the holding of regional and special technical conferences, and by technical assistance to aid under-developed countries in such fields as co-operatives, social security, vocational training, productivity techniques and employment service organization, the ILO aids in the development of improved economic and social conditions in these areas. The ILO also administers numerous technical aid projects in developing countries on behalf of the United Nations Special Fund and the Expanded Program of Technical Assistance.

CHAPTER XIX.—TRANSPORTATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The physiographic and population characteristics of Canada present unusual difficulties from the standpoint of transportation. The country extends 4,000 miles from east to west and its main topographic barriers run in a north-south direction, so that sections of the country are cut off from one another by such water barriers as Cabot Strait and the Strait of Belle Isle separating the Island of Newfoundland from the mainland; by rough, rocky forest terrain such as the New Brunswick–Quebec border region and the areas north of Lakes Huron and Superior dividing the industrial region of Ontario and Quebec from the agricultural areas of the Prairie Provinces; and by the mountain barriers between the prairies and the Pacific Coast. Unevenly distributed along a narrow southern strip of Canada's vast area is its relatively small population of 19,237,000 (estimate of June 1, 1964). To such a country, with a population so dispersed and producing for export as well as for consumption in distant parts of the country itself, efficient and economical transportation facilities are necessities of existence.

A special article giving some idea of the competitive problems that have faced the major agencies of transport during recent years of economic and technological change appears in the 1962 Year Book at pp. 753-758.

PART I.—GOVERNMENT CONTROL OVER AGENCIES OF TRANSPORTATION

The Federal Government's control and regulation of transportation reflect to a considerable extent conditions that date back to the period when the railways possessed a virtual monopoly of transportation within the country. Although federal regulation was a direct outcome of such particular matters as the prevention of unjust discrimination in

rates and charges resulting from monopoly conditions in the industry and the safety of transportation facilities and operating practices, yet the railways have been so involved in the public interest that their regulation has been extended to become the most comprehensive of any industry in Canada.

In the meantime, conditions in the transportation industry have been drastically altered by the increasing competition arising from the advance of highway, air and pipeline transportation and a large part of the present competition between common carriers has become a permanent feature of the transportation industry. In these circumstances, it is not surprising that regulations, which under monopoly conditions were not onerous to the railways or were purely nominal in their effect, are now alleged to have become increasingly restrictive and hampering under highly competitive conditions. Regulatory authorities are therefore faced with the problem of piecemeal revision of their regulations—retaining those where railway monopoly or near-monopoly conditions still make them necessary in the public interest, and relaxing those where competition can be relied on to protect the public in order to enable the railways to meet this competition more effectively. The emphasis has shifted from the regulation of monopoly to maintaining a balance between the several competing modes of transport.

The federal Department of Transport and the Crown agencies reporting to Parliament through the Minister of Transport have jurisdiction over railways, canals, harbours, shipping and civil aviation (see p. 114). Road and highway development is mainly under provincial or municipal control or supervision. Jurisdiction over interprovincial and international highway transport rests with the Federal Government, but the Motor Vehicle Transport Act, 1954 gives to all provinces, at their option, the authority to apply to interprovincial and international highway transport the same regulations respecting certificates of public convenience and necessity and rates as they apply to undertakings operating entirely within the province. This Act has since been proclaimed in seven provinces.

The Board of Transport Commissioners for Canada.—The Board of Transport Commissioners for Canada was created and initially named the Board of Railway Commissioners for Canada by the Railway Act, 1903, and was given its present name by the Transport Act, 1938. It was organized on Feb. 1, 1904 and succeeded to all the powers and duties of its predecessor, the Railway Committee of the Privy Council. The Board, now consisting of a Chief Commissioner, a Deputy Chief Commissioner, an Assistant Chief Commissioner and three Commissioners, has extensive regulative and administrative powers and is also a statutory court of record, so constituted by the Railway Act and recognized as such by other courts. The finding or determination of the Board upon any question of fact within its jurisdiction is binding and conclusive and no order or decision may be questioned or reviewed except on appeal to the Supreme Court of Canada upon a question of law or a question of jurisdiction with leave of a judge of that Court, or by the Governor in Council.*

The Board has jurisdiction under more than a score of Acts of Parliament, including jurisdiction, under the Railway Act and the Transport Act, over transportation by railway and by inland water, and over communication by telephone and telegraph.

Under the Railway Act its jurisdiction is, stated generally, in respect of construction, maintenance and operation of railways that are subject to the legislative authority of the Parliament of Canada, including matters of engineering, location of lines, crossings and crossing protection, safety of train operation, operating rules, investigation of accidents, accommodation for traffic and facilities for service, abandonment of operation, freight and passenger rates, and uniformity of railway accounting. The Board also has certain jurisdiction over telephones and telegraphs, including regulation of the telephone tolls of The Bell Telephone Company of Canada, the British Columbia Telephone Company,

* The Board's judgments are reported in *Canadian Railway Cases* and *Canadian Railway and Transport Cases*, and its judgments, orders, rulings and regulations are published by the Queen's Printer, Ottawa, in what is known as *J.O.R. & R.*

the Bonaventure and Gaspe Telephone Company and the Yellowknife Telephone Company, over tolls for express traffic and tolls for the use of international bridges and tunnels.

Regulation of railway freight and passenger rates is one of the Board's principal tasks. Except for certain statutory rates, it has power "to fix, determine and enforce just and reasonable rates, and to change and alter rates as changing conditions or cost of transportation may from time to time require"; it may disallow any tariff that it considers to be unjust or unreasonable or contrary to any provision of the Railway Act; it may prescribe other tolls in lieu of the tolls disallowed, or require the railway company to substitute a tariff satisfactory to the Board. During the past decade there has been a succession of applications for authority to make general freight rate increases and general telephone rate increases.

Under the Transport Act, the Board entertains applications for licences for ships to transport goods or passengers for hire or reward between places in Canada on the Great Lakes and the Mackenzie and Yukon Rivers, except goods in bulk on waters other than the Mackenzie River. Before granting a licence, the Board must be satisfied that public convenience and necessity require such transport. The Board also has regulative powers over tolls for such transport.

A review of transport regulation was undertaken by the Royal Commission on Transportation, under the chairmanship of the Hon. W. F. A. Turgeon, which held extensive hearings in 1949-50 and issued its Report in 1951 (see 1952-53 Year Book, p. 741). Certain of its recommendations were incorporated into the Railway Act by amendments made in 1951 (see 1962 Year Book, p. 760).

A Royal Commission was appointed May 13, 1959 with the Hon. C. P. McTague named as chairman (later succeeded by M. A. MacPherson) to inquire into the railway rate structure and other matters affecting transportation. Its findings were published in three volumes, which appeared between March 1961 and July 1962. Pending the results of this inquiry, the enactment of the Freight Rates Reduction Act, 1959 and later amendments gave some relief to shippers by providing the finances necessary to permit the reduction of freight rates and the payment of compensation to the railways for maintenance of their rates on freight traffic at the reduced levels (see 1963-64 Year Book, pp. 752-753). Legislation based on the findings of the MacPherson Royal Commission was before the House of Commons when it adjourned in December 1964.

The Air Transport Board.—The Air Transport Board was established in September 1944 by amendment to the Aeronautics Act. Subsequent amendments to the Act were made in 1945, 1950 and 1952. The Board has three members including the Chairman and the staff is comprised of a Senior Adviser; a Legal Branch; an Operations Branch which includes the Traffic Division, Operations Analyst, Special Traffic Adviser, International Relations Division, and the Licensing and Inspection Division; an Economics and Accounting Branch which includes the Economics Division, Audit Division and Financial Analyst; and a Secretary's Branch which includes the Administrative Division. In addition, a small staff is located in Montreal to serve the Senior Canadian Representative on the Council of the International Civil Aviation Organization.

The Board is responsible for the economic regulation of commercial air services in Canada and is also required to advise the Minister of Transport in the exercise of his duties and powers in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad and to foreign air services operating into and out of Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. As provided by the Act, the Board issues Regulations, approved by the Governor in Council, dealing with the classification of air carriers and commercial air services, applications for licences to operate commercial air services, accounts, records and

reports, ownership, transfers, consolidations, mergers and leases of commercial air services, traffic tolls and tariffs, and other related matters. Detailed regulatory instructions are issued by the Board in the form of General Orders and Rules, relating to all air services, or groups of air services; Board Orders relating to individual air services; and Circulars for general guidance and information.

The Board is continuing its study of the potential for and requirements of increased and improved air services into the Canadian North as well as the consolidation of its over-all regulations. The procedures governing applications for licence are being examined for improved processing methods.

The Board continues to take an active part in the work of the International Civil Aviation Organization and to undertake bilateral negotiations for the exchange of traffic rights when appropriate. At present, Air Canada, Canadian Pacific Air Lines Limited and TransAir Limited are Canada's designated international scheduled carriers.

The Canadian Maritime Commission.—The Canadian Maritime Commission was established by Act of Parliament in 1947 (RSC 1952, c. 38) as a separate department of the Government reporting to Parliament through the Minister of Transport. It is the function of the Commission to "consider and recommend to the Minister from time to time such policies and measures as it considers necessary for the operation, maintenance, manning and development of a merchant marine and a ship-building and ship-repairing industry commensurate with Canadian maritime needs" The Commission is authorized to examine into, ascertain and keep records of all phases of ship operation and to "administer, in accordance with regulations of the Governor in Council, any steamship subventions voted by Parliament"

The Commission administers the Ship Construction Assistance Regulations enacted by Order in Council PC 1961-1290 of Sept. 8, 1961, as amended. The Regulations authorize the payment of direct subsidies for the construction of commercial ships and fishing vessels in Canadian shipyards.

Subsidies are paid by the Federal Government for the maintenance of essential steamship services; the services and the amounts paid for the years ended Mar. 31, 1963 and 1964 are given on p. 807.

The National Energy Board.—The National Energy Act (SC 1959, c. 46) proclaimed Nov. 1, 1959, provided for the establishment of a five-member Board charged with the duty of assuring the best use of energy resources in Canada. In the performance of this function, the Board is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipeline, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The functions and operations of the Board are covered in the Domestic Trade and Prices Chapter of this volume, Part II, Section 4.

PART II.—RAIL TRANSPORT*

Section 1.—Railways

Since Confederation the railways of Canada have been the principal transport facility throughout, and beyond, the nation. The two great transcontinental systems, supplemented by a major north-south line on the West Coast and a number of regional independent railways, are the only carriers able to transport large volumes of freight at low cost in all weather by continuous passage over Canadian transcontinental routes.

* The statistical data in this Part have been revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics; more detailed information is given in the annual reports of the Division.

The two national railway companies control a wide variety of Canadian and international transport and communications services. The government-owned Canadian National Railway System is the country's largest public utility and operates the greatest length of trackage in Canada. It is the only railway serving all ten provinces and is completing a branch line to serve the Great Slave Lake area of the Northwest Territories. In addition, it operates a highway service, a fleet of coastal steamships, an extensive express service, a chain of large hotels and resorts, and a scheduled air service connecting all major cities across the country and Canadian with other North American and European points. The Canadian National, jointly with the Canadian Pacific Railway Company, operates a national telecommunications system that employs modern microwave, high-speed teletype and private wire networks, telex, data and weather facsimile transmission and movement of telegrams to any point in the world. The Canadian Pacific Railway Company is a joint-stock corporation also operating a transcontinental railway, an express service, a domestic truck and bus network, a fleet of inland, coastal and ocean-going vessels, a chain of year-round and resort hotels, a domestic airline servicing points in British Columbia, Alberta and Yukon Territory, a transpacific airline service to the Orient and the Antipodes, air services to Mexico, Peru, Chile and Argentina, a transpolar air route connecting Vancouver and Amsterdam, a transatlantic service to Portugal, Spain and Italy, and a limited (one flight daily) transcontinental air service between Vancouver and Montreal.

The Pacific Great Eastern Railway, owned by the British Columbia Government, operates over a 789.5-mile route from North Vancouver to Fort St. John in the Peace River area of northeastern British Columbia, with a branch line from Chetwynd to Dawson Creek. The completion in 1958 of the northern section of this line opened up to development the vast interior of the province and brought to an end the largest railway construction job undertaken in North America for two decades. With the completion in 1959 of the last link in the microwave system, the PGE became the first railway on the Continent to be operated entirely by means of radio communication.

OPERATIONAL AND TECHNOLOGICAL CHANGES IN RAIL TRANSPORT

In recent years, the railways have been strongly affected both by the emergence of competition and by the great advances of science and technology. The former has posed a threat to the supremacy of the railway in the field of freight and passenger movement but the railway companies' awareness of the need to innovate, experiment and market their services aggressively has enabled them to retain their pre-eminence, particularly in the area of freight transportation. The following sections give some idea of the changes that have been made by the two transcontinental railway systems to keep their services in line with the requirements of individuals and of industry.

Canadian National Railways*

A new concept of rail transportation that combines lower customer costs with improved service and greater efficiency is being aggressively applied by Canadian National to both passenger and freight operations, with marked success. During 1963, CN handled the second highest volume of railway business in its history and gross revenues from all services reached an all-time high of $800,000,000.

In the field of passenger transportation, a recently introduced market-oriented fare scheme brought about reduction of more than 50 p.c. in some fares. Application of the service concept to freight operations has resulted in the introduction of fast freight trains, incentive freight rates and a customer research service available to users and potential users of freight and express-freight facilities. During the past three years, a system-wide re-organization of administrative procedures has been carried out, the main purpose of which is to give regional and local officials more authority to make decisions and solve local transportation problems with greater speed and satisfaction to the customer. End-to-end

* Prepared by the Public Relations Department, Canadian National Railways, Montreal.

and train-to-wayside radio communications have been in use for the past several years. Direct radio communication between locomotive and caboose has reduced the frequency of stops, reduced accidents and eliminated the possibility of errors caused by communication difficulties.

One of the most important and extensive of recent CN modernization projects is its program of visual re-design. Starting with a new company symbol, a new colour scheme is being applied progressively to every item of equipment and every building used by the railway. In addition, the new design is being applied to forms, letterheads, time-tables, tickets, signs, printed advertisements and even to uniforms for employees who meet the public.

The program of redevelopment of CN real estate holdings, of which the *Place Ville Marie* complex in the Central Station area in Montreal is a prime example, is continuing to many parts of the country. The first commercial office tower building in the master plan for downtown Edmonton redevelopment is under construction and is scheduled for completion in 1966. CN facilities in downtown Saskatoon are being re-located on the outskirts of the city. *Place Bonaventure*, an imaginative trade, exhibition and convention centre, will be built over the railway tracks into Central Station in Montreal.

The CN work force numbers 92,000 and the total labour cost in 1963 was $519,000,000. The labour relations department negotiates 178 contracts with 35 separate unions which bargain for 85,000 employees.

In all, the company maintains and operates more than 34,000 miles of railway track, over 1,100 miles of which are in the United States. It operates approximately 2,100 diesel-electric locomotives, 27 electric locomotives, 107,000 units of freight equipment and 3,000 passenger cars. In addition, it operates six car ferries on Canada's East Coast, 13 coastal steamers operating around the coasts of Newfoundland and Labrador, a luxury cruise ship, *Prince George*, that plies the inland passage from Vancouver to Alaska, and train ferries across the Great Lakes.

Passenger Services.—The CN has declared that it is in the passenger business to stay and the company accordingly is actively seeking passenger business with service, speed, comfort, convenience and low fares.

Public acceptance of the Red, White and Blue fare plan, introduced on an experimental basis in the Maritime Provinces in 1962 and later extended to every area of Canada, was reflected in a 9.3-p.c. increase in the number of passengers in 1963 over the previous year. Fifty-nine days of the year are standard fare days during which Blue tickets are used; these are peak travel times, holidays and weekends when space is at a premium. Economy fares, issued on White tickets, are used for trips beginning on Mondays, Tuesdays, Wednesdays, Thursdays and Saturdays from June 1 to Sept. 30, and for trips beginning Fridays and Sundays between Oct. 1 and Apr. 30, for a total of 144 days. The Red bargain fare is the cheapest and is in effect for 163 days of the year during the months of October to May, except on Fridays, Sundays and holidays. With Red, White and Blue fares, passengers occupying sleeping or parlour car space are provided with complimentary meals.

To meet the increasing demand for meal service, nine buffet-sleeper-lounge cars were converted in 1964 to modern dining cars. In addition, the railway began testing microwave cooking and the results may influence the type of meals and service on a number of short intercity runs across Canada. Meals for passengers are pre-cooked and refrigerated. With microwave energy, the oven on the train brings the food to serving temperature within a matter of seconds.

The increased passenger load has created a demand for additional railway service and prompted inauguration of the *Panorama*, the first new Montreal/Toronto–Vancouver train to be introduced into service in more than ten years. By 1964, the running time between Montreal/Toronto and Vancouver had been reduced by seven hours. In addition, passenger train schedules have been integrated in many parts of Canada to ensure convenient connections at main terminals. A summer train, the *Chaleur*, was brought into service,

taking over from the *Ocean Limited* the over-night coach and sleeping car service between Montreal and Campbellton, N.B., and providing direct connections to Gaspe. A five-car stainless steel streamliner, the *Champlain*, was placed in operation between Montreal and Quebec City; this train, operating in CN-CP pool service, covers the distance between the two cities in just three hours and 15 minutes. It comprises two parlour cars, one diner-lounge and two coaches. Ten glass-topped passenger lounge cars have been acquired, six of them combining sleeping accommodation and a lounge section with a partially glassed roof at the rear; they will go into service on the *Ocean Limited* and the *Scotian*, which operate between Montreal and Halifax. The other four *Sceneramic* cars are double-decked with glass roofs over the entire length, accommodating 68 seats and a downstairs lounge with facilities for light meals and refreshments; they are in service through the Rocky Mountains territory on *Super Continental* and *Panorama* trains.

Today's lounge cars on long-distance trains provide a cruise atmosphere with ultra-modern decor, separate refreshment areas and dining car service catering to all tastes. Coach seats, on certain trains, are reserved without charge, special attendants are on duty to serve the passengers and coach lounges have been introduced.

Tickets can be sent to passengers by mail in response to telephoned requests and, as a result of *Charge-a-trip* and *Go-now-pay-later* schemes and CN–Air Canada credit cards, ready cash is not a requirement. Large groups, such as clubs and lodges, may charter coaches or sleeping cars, receiving not only the advantages of reduced fares but also privacy. Package tours, ranging from a week end special to deluxe 21-day vacations, are available and in 1963 a *Car-go-Rail* scheme was introduced allowing passengers to ship their personal automobiles for use at destination.

To provide speedier ticketing for travellers, faster handling by ticket sellers, easier ticket collection and improved accounting procedures, more than 200 separate ticket forms have been retired and replaced with nine consolidated forms.

All passenger reservation bureaux across Canada are connected by fast telecommunications networks.

Freight Services.—The CN railway system has been completely dieselized; main transcontinental trackage is almost completely under Centralized Traffic Control signalling. With the construction of electronic hump classification yards to replace flat yards, major strides have been made toward solving problems of freight delays in terminals. Four hump yards have been constructed at strategic points across Canada—Moncton, N.B., Winnipeg, Man., Montreal, Que., and Toronto, Ont. A coast-to-coast data processing network and increased use of computers and allied electronic equipment provides for internal efficiency.

The railway, through a broad research and development program, is in constant search for improved methods of transportation and endeavours to keep abreast of new technical developments, such as transportation of solids by pipeline, new forms of motive power and developments in cybernetics, with a view to their application to the railway wherever considered advantageous Long-range planning is an essential part of this process. This program, although directed primarily toward improving the efficiency and competitive position of the CN itself, at the same time makes a substantial contribution to the country's transportation industry generally. One example is the development, by company engineers, of an electronic scale for weighing moving freight cars. This scale has a high degree of accuracy, meets all government regulations and can calculate within three seconds the weight of a car travelling between 10 and 12 miles an hour and weighing up to 250 tons. British and United States companies are seeking the manufacturing rights.

Railway specialists have worked closely with industrial traffic executives in many fields of planning, design and acquisition of special equipment. This Customer Research Service makes available to customers the fund of technical 'know-how' and skills available within the railway organization. It deals with total distribution problems; to fit the right type of equipment to the particular service required may merely result in the better use of existing equipment or it may require the provision of a completely new kind of

equipment. The box-car continues to be the backbone of the railway freight car fleet but there is a growing trend toward the provision of specialized equipment to meet the requirements of many Canadian industries. During 1963 many freight cars were converted for greater efficiency or specialized service: 100 gondola cars were equipped with raised sides to give increased capacity when hauling woodchips; roofs were removed from 50 box-cars to make them suitable for woodchip traffic; end stakes were added to 100 gondola cars for pulpwood movements; bulkheads were installed on 130 flat cars assigned to lumber or pulpwood traffic; 100 ice-actuated refrigerator cars were converted to mechanically controlled refrigeration systems; nine-foot doors were installed on 500 box-cars; a number of 52-foot gondola cars were equipped with canvas coverings to protect cargoes; and hopper cars and extra-wide-door box-cars were adapted to make them suitable for the movement of grain. In addition, 100 steel box-cars assigned to newsprint service are being equipped with special under-frame cushioning devices to protect the load from damage.

Shippers of bulk products have helped with design, installation and operation of pneumatic outlets on covered hopper cars. The CN worked closely with the aluminum industry on the design and construction of aluminum tank-design covered hopper cars, widely used today for the movement of potash from Saskatchewan. CN has pioneered in the development and in the promotion of the use of containers in Canada—a method of shipment that is going through a series of important changes. Joint effort by railway researchers and the meat packing industry resulted in the development of refrigerated walk-in containers for handling fresh meat and other perishable traffic from the Canadian mainland to Newfoundland. In 1963 the company manufactured 127 such containers in its shops at Point St. Charles, Montreal. There is also frequent consultation with the automobile industry on the provision of special equipment for handling shipments of automobiles to markets and of parts and components to assembly plants.

During 1964, a wide variety of freight equipment was purchased, including an additional 50 tri-level and 75 bi-level transporters for the movement of automobiles and trucks; 500 70-ton steel box-cars, 10 feet longer than the standard car; 100 specially designed flat cars for handling pulpwood and lumber traffic; four diesel-electric locomotives; and 500 steel hopper cars.

For the movement of express freight, the CN maintains a large truck fleet and a piggyback fleet of tractor-trailers which together provide door-to-door pickup and delivery service for most types of traffic. These services have enabled the company to recover much of the freight traffic lost in earlier years to other transport services, and also to participate in the movement of trailers of for-hire carriers and some of private ownership. Piggyback tonnage carried by CN increased by 5.9 p.c. in 1963 over the previous year.

Recently, the company has been implementing the Master Agency concept of express-freight handling, which requires the co-ordination of road and rail services to provide customers in outlying, off rail-line points with the advantages of modern, centralized facilities, backed up by fast pickup and delivery. This concept integrates express and less-than-carload freight operations—a process that has been extended to various points across Canada—at main railheads that incorporate centralized, direct telephone line customer services. These have been established at Charlottetown, Halifax, Quebec City, Montreal, Toronto, Ottawa, Winnipeg, Edmonton and Vancouver, and at 13 other points where density of traffic requires them. Master Agency facilities feature the latest in materials-handling equipment—high speed conveyor belts, tape recorders and electronic billing aids; the larger centres can handle as many as 9,000 parcels an hour.

Co-ordination of road-rail operations also included the introduction of fast merchandise trains whose primary function is moving express and less-than-carload freight at high speed. These trains handle all package traffic to the railheads where it is sorted and immediately distributed to waiting trucks. Also, the removal of express and mail service from passenger trains has resulted in faster and more dependable passenger service and enabled the company to time express services to better suit the needs of shippers and industry.

Modernization has included visual re-design of equipment. A CN Montreal-Vancouver Super Continental, in its new dress, rolls through the Rocky Mountains.

Three mobile radio systems permit communication from train to train, from train to wayside and from head-end to tail-end.

Specially designed lumber-carrying flatcars permit speedy mechanical unloading.

Moulded plastic, temperature controlled containers move easily from loading area to destination by rail, highway or ship.

Passenger's car may travel with him to be available at destination.

Trainload of tri-level and bi-level automobile and truck carrying rail cars moving westward along Lake Superior.

The new CP Merchandise Services terminal at Winnipeg where 66 highway and city trucks and 24 freight cars can be loaded or unloaded at the same time.

Electronics plays a vital role in many phases of railroading, particularly in dealing with the complicated processing operations necessitated by the vast quantity of freight in continual movement.

Tie-down device for securing highway trailers to piggyback flatcars.

RAILWAY INNOVATIONS

Canada's railways have entered a new cycle in which continuous and rapid change is necessary to keep them abreast of the requirements of a dynamic and competitive economy. To share in the country's progress, they strive to provide the most efficient means of transport for a tremendous and growing variety of goods in large or small quantities, as well as the most pleasant and comfortable service for the travelling public.

Freight accounts for most of the railway traffic and the greatest recent advances in railroading technology have undoubtedly been those related to the sorting and segregating of freight cars. The modern "hump yard" uses radar computers and closed-circuit television and is heavily automated. The new CN yard at Toronto covers 1,000 acres, has 156 miles of track and can process 6,000 freight cars daily.

Photos:

Canadian National Railways
Canadian Pacific Railway Company
Hawker Siddeley Canada, Ltd.

In recent years, fast freight trains have been introduced in transcontinental service. The first of these was the *Highballer* that went into service in 1961 between Montreal/Toronto and the West Coast. A similar east-bound freight train was inaugurated in 1962 which improved the Vancouver-to-Montreal/Toronto schedule by 24 hours. Incentive freight rates, designed to encourage full-carload traffic, were introduced in 1961 in the central provinces of Quebec and Ontario on all classes of goods except those not suitable for pickup and delivery, and were later extended to the Maritimes and then to Western Canada.

Since the end of World War II, CN has constructed some 1,500 miles of branch lines, more than any other railway in North America; most of the new line is in the northern part of the country, primarily to serve mineral extraction developments. The largest current project is the 430-mile Great Slave Lake Railway being built from Roma in Alberta to Hay River in the Northwest Territories to provide market access for the zinc and lead resources of the Pine Point mine. Steel was being laid across the Alberta-Northwest Territories border during the summer of 1964 and the railway is scheduled for completion in 1965.

A rail-car-barge service from Prince Rupert, B.C., to southwestern Alaska, connecting at Whittier with the Alaska Railroad, has been in operation for two years. The trip from Prince Rupert to Whittier is one of the world's longest regularly scheduled barge tows.

Canadian Pacific Railway Company*

To meet the challenge of today's fast-changing transportation markets, few industries have had to refine their methods to the same degree as Canada's railways, and few have been as successful.

In the realm of passenger service, Canadian Pacific's stainless steel, scenic dome streamliner *The Canadian* is one of the most advanced types of railway passenger equipment in North America. With its appearance in 1955 came the first extensive use on the Continent of plastic panelling on the interiors of passenger equipment; it was the first passenger train in Canada to feature stainless steel exteriors. Canadian Pacific is now one of the world's largest operators of stainless steel, self-propelled rail diesel passenger cars—rapid, smooth-riding vehicles, specifically tailored for the transport of passengers in lower density areas.

Although the railway completed its tremendous dieselization program only four years ago, it has already begun to renew the older elements of its diesel fleet by re-equipping with locomotives of more advanced design, greater reliability, greatly increased horsepower and lower maintenance costs per horsepower. It is the first railway in Canada to implement a major up-grading program in this area of operations.

Throughout its vast transportation system, Canadian Pacific has made many advances, taking immediate advantage of progressive electronic technological innovations. Electronic controls now govern the movement of trains across the country and through the newer terminal freight yards; computers facilitate research, operating, costing and marketing procedures; and an intricate telecommunications network speeds service.

To implement the new and faster handling methods available, additional customer services have been introduced, such as the freight movement concept by which package freight is handled by rail, road, water and air through the same organization (Merchandise Services), using the most economical mode or combination of modes of transport. Also, an aggressive sales approach takes the railway to the customer through industry service representatives who know transportation problems and how to alleviate them.

Freight Services.—Canadian Pacific has made many contributions to the development and expediting of freight-handling methods in Canada. Since the beginning of 1964, technological achievements have been recorded in almost every segment of the system through the co-operation of transportation suppliers, co-ordinated teamwork within the corporation and, in some instances, the National Research Council.

* Prepared in the Canadian Pacific Public Relations and Advertising Department, Montreal, Que.

While it is difficult to place emphasis on a particular development, one innovation—a versatile plastic temperature-controlled container—has been received with such enthusiasm both in Canada and abroad that its distinctive Canadian character is noteworthy. The idea for such a container arose out of the need for a method of shipping perishable commodities at temperatures adhering to quality control codes both in Canada and abroad, expediting movement of such commodities in transit and, ultimately, reducing handling procedures and costs.

Railway researchers assessed and decided to use a design of the English firm, Mickleover Transport Ltd.—a frameless all-plastic insulated container, the largest one-piece reinforced plastic moulding ever produced, made of a rigid foam core (Polyurethane) sandwiched between an inner and outer skin of polyester resin-bounded fibreglass laminate, in which a series of stiffening webs bonded to the core blocks and the inner and outer skin are incorporated. Production techniques and structural properties of the container provide great rigidity and high impact resistance. It is immune to corrosion and its plastic panelling is contamination-proof. This container, therefore, was considered to be the most suitable replacement for traditional materials (such as steel) for equipment in intermodal transportation subject to stress, vibration and rust.

The refrigeration power pack includes evaporator, condenser, compressor, air-cooled diesel-electric generator, sea water heat exchanger, fuel tank and all automatic controls. It uses the air-cooled diesel-electric generator when operating over the highway, on piggyback, or on the deck of a ship. It is also capable of running off a ship's electric power and when below deck the condenser can be cooled by means of the sea water heat exchanger. These arrangements permit perishable traffic to be handled from origin to destination by highway, rail or ship, at evenly maintained specified temperatures.

Exterior hardware adds flexibility to the container: a highway bogie may be attached to the bottom of a container for road or piggyback movement; a fifth wheel assembly permits hook-up and movement of container by road tractor; the coupling feature permits two similar containers to form a 40-foot trailer; lifting lugs permit the wheel assembly to be removed at the wharf and the container to be loaded into a ship's hold; and securing and stacking arrangements permit the container to be locked to a ship's deck and to containers loaded on top of each other.

The system of reverse airflow envelope cooling installed in the container was perfected at the request of the Department of Fisheries by the Division of Applied Biology of the National Research Council for use in highway transport refrigerated trailers. It is considered to be the only sure method of maintaining proper temperatures for frozen foods as prescribed by the Canadian Food Processors' Association voluntary code for handling frozen foods as well as the ARDOFS code of the United States which is now mandatory in certain States.

The highway transport refrigerated trailers were introduced by Canadian Pacific in 1963. Initially, 25 were placed in service, carrying fresh meat and meat products by highway or rail piggyback between the meat processing centres of Alberta and Winnipeg, Toronto and Montreal. These trailers proved so efficient that Canadian Pacific ordered an additional 28 and extended the service to Vancouver. Each trailer is capable of handling between 30,000 and 40,000 lb. of meat. They are operated by a relatively new traffic department of the Canadian Pacific called Merchandise Services (CPMS). This department has taken over and consolidated the functions in Western Canada of less-than-carload (l.c.l.) freight, express and Canadian Pacific Transport. It serves from Victoria to Port Arthur, linking with piggyback throughout the system and with Canadian Pacific Express, l.c.l. freight and Smith Transport in Eastern Canada.

CPMS operates several large terminals, the largest of which was completed late in 1963 at Winnipeg at a cost in excess of $1,000,000. It is possibly the most modern package freight terminal in the world. Operating methods in these terminals are fascinating as well as functional. So efficiently have they been designed that a package can be unloaded from

a pickup truck, passed through a sorting centre and loaded into the proper railway car or trailer to be rushed to its destination in a fraction of the time formerly required under the manual method.

In Eastern Canada, where the density of package freight, l.c.l. and transport traffic is even greater, separate departments continue to make use of more efficient operating methods. Canadian Pacific Express, for instance, recently placed in service one of the latest methods of containerization. The first two of a potential fleet of standard-sized aluminum insulated containers are in service between Montreal, Toronto and points in southwestern Ontario. Perishable express freight is picked up anywhere by one of the containers which is carried on a transfer device pulled by a highway tractor. At railhead, the container is transferred onto a specially constructed flat car, the transfer taking two minutes. At destination the container is hauled to a terminal point for distribution or directly to the consignee's facilities. Another form of containerization—a relatively small wire cage type container—is being used by the Express company between Montreal and Maritime points. One of these cages, destined for a particular city or area, is loaded with express parcels at Montreal, fork-lifted into an express car on a passenger train and sped to destination with a minimum of handling.

There are a great many commodities to be moved that cannot be containerized. Most of Canada's foreign dollar-earning power comes from the export of raw materials in the form of minerals, forest products and grain, for the movement of which Canadian Pacific provides the most up-to-date freight-car facilities. For some products, it has been necessary to make substantial investments for specialized equipment: pneumatically operated drop-bottom gondola cars are used to haul gypsum in Nova Scotia; aluminum tank-type hopper cars are in service carrying potash from Saskatchewan to tidewater and world markets; tri-level cars transport automobiles from the manufacturing areas of Ontario to all parts of Canada; bi-level cars serve much the same purpose but are used mainly to carry trucks; bulkhead-end flat cars, originally conceived to carry forest products, have been put into service carrying great quantities of shingles and piping; longer, more elaborate box-cars have been introduced for the newsprint industry; and damage-dunnage free bulkhead box-cars, which are also insulated, are being used to carry canned goods, electrical appliances and bottled goods, or almost anything normally shipped in cartons.

Specialization of freight equipment includes the modifying of freight cars already in use as well as the designing of new cars. On Canadian Pacific drafting boards are many new designs—all of which are the product of the current upsurge in railway research. And coincident with the advances in freight equipment has been the need for increased motive power capacity. Several locomotives have recently been upgraded to produce greater power output and incorporate other design changes: the locomotive bodies were pressurized to keep out dirt and moisture and thereby secure from electrical and diesel engine components a longer working life and better performance; running gears were improved; fuel capacity was improved without increasing total weight; new transistorized electrical apparatus was installed; and brake capacity was increased. In 1964, Canadian Pacific took delivery of twelve 2,500-hp. diesel units—the most powerful in use in Canada today.

At one time or another, most Canadian Pacific freight equipment passes through the railway's new Toronto freight yard—the most advanced automated freight classification operation in Canada and perhaps the world. The $15,000,000 yard, which cuts in half the handling time for freight cars passing through the Toronto area, was completed in June 1964. It makes use of radar, television, an electronic computer, radio, integrated data processing, microwave, automatic switching devices and several remote-control systems to sort freight cars and group them into trains bound for common destinations. The Toronto yard is the fifth push-button type of classification yard put into operation by Canada's railways, but surpasses the others in the degree of efficiency of its automatic features. It incorporates the first transistorized centralized traffic control system in Canada, which allows one man to control the more than 1,000 train movements made each day over the rail approaches to the yard.

Subsection 1.—Milage and Equipment

Construction was begun in 1835 on the first railway in Canada—the short link of 14.5 miles between Laprairie and St. Johns, Que.—but only 66 miles were in operation by 1850. The first great period of construction was in the 1850's when the Grand Trunk and the Great Western Railways were built as well as numerous smaller lines. The building of the Intercolonial and the Canadian Pacific railways contributed to another period of rapid expansion in the 1870's and 1880's. In the last period of extensive railway building (1900-17), the Grand Trunk Pacific, National Transcontinental and Canadian Northern Railways were constructed.

There has been little change in total track milage since the late 1920's, although in recent years the development of a number of large projects in districts far removed from transport facilities and the opening up of the Northwest Territories has necessitated the building of branch lines. Those completed up to 1956 are listed in the 1957-58 Year Book, p. 815, and those completed from that year to 1962 are mentioned in subsequent editions. In 1963, work continued on the 430-mile Great Slave Railway being built by the CNR for the Federal Government. At year-end, 226 miles of track had been completed and clearing, grading, bridge and trestle work progressed on the remaining portion; the right-of-way is being opened for service as construction proceeds. Other new line completions during 1963 included a 61-mile extension by the CNR in the Mattagami Lake region of northwestern Quebec; a 15-mile branch line from Nepisiguit Junction in New Brunswick to a zinc-copper mining property; and an eight-mile extension from Chisel Lake to Staff Lake in northern Manitoba. A branch line extending some 16 miles south from Bredenbury, Sask., was completed by the CPR. In 1963, the PGE began construction of a 100-mile extension from Summit Lake, 35 miles north of Prince George, to Fort St. James; it is scheduled for completion in 1965.

1.—Railway Track Milage Operated, 1900-63

NOTE.—Figures of total milage of first main track operated for 1835-1909 are given in the 1941 Year Book, p. 546; for 1911-14 in the 1954 edition, p. 786; for 1916-24 in the 1955 edition, p. 830; and for 1926-49 in the 1956 edition, p. 792.

FIRST MAIN TRACK MILAGE		TRACK MILAGE BY AREA AND TYPE				
Year	Miles in Operation	Area and Type of Track	1960	1961	1962	1963
	No.		No.	No.	No.	No.
		First Main—				
1900	17,657	Newfoundland	934	933	935	934
1905	20,487	Prince Edward Island	284	279	279	279
1910	24,731	Nova Scotia	1,316	1,298	1,270	1,315
1915	34,882	New Brunswick	1,783	1,783	1,782	1,771
1920	38,805	Quebec	5,228	5,224	5,349	5,361
1925	40,350	Ontario	10,245	10,188	10,137	10,117
1930	42,047	Manitoba	5,056	4,954	4,897	4,860
1935	42,916	Saskatchewan	8,721	8,606	8,588	8,577
1940	42,565	Alberta	5,679	5,689	5,683	5,683
1945	42,352	British Columbia	4,386	4,338	4,337	4,329
1950[1]	42,979	Yukon Territory	58	58	58	58
1951	42,956	United States	339	339	339	339
1952	42,953					
1953	43,163	Totals, First Main	44,029	43,689	43,654	43,623
1954	43,132					
1955	43,444					
1956	43,652					
1957	43,890	Second main	2,243	2,150	2,081	2,016
1958	44,125	Other main	45	48	48	56
1959	44,209	Industrial	1,248	1,262	1,266	1,265
1960	44,029	Yard and sidings	11,628	11,633	11,710	11,551
1961	43,689					
1962	43,654					
1963	43,623	**Grand Totals**[2]	**59,193**	**58,782**	**58,759**	**58,511**

[1] Newfoundland included from 1950. [2] Excludes joint track amounting to 52 miles in 1960, 53 miles in 1961, 55 miles in 1962 and 61 miles in 1963.

Rolling-Stock.—Table 2 shows the numbers of the various types of freight and passenger equipment in operation in 1959 and in 1963, revealing a generally downward trend during the period; however, these figures do not reflect the trend toward larger, more efficient cars and locomotives. Each year hundreds of units, particularly freight cars, are converted and modified to make them suitable for specific types of traffic or replaced by special-purpose equipment designed for distinctive hauling jobs. The average capacity of all freight cars was 52.4 tons in 1963 compared with 51.1 tons in 1959. There were 3,385 locomotives in service at the end of 1963 as against 4,720 in 1959. Diesel-electric locomotives increased 6.1 p.c. in number during the period but coal- and oil-burning steam engines all but vanished from the rails. In addition to the reduced maintenance costs characteristic of diesel motive power, these units, in comparison with steam locomotives, are able to haul heavier trains over longer distances at increased speeds.

2.—Railway Rolling-Stock in Operation as at Dec. 31, 1959 and 1963

Type	1959	1963	Type	1959	1963
	No.	No.		No.	No.
Locomotives	**4,720**	**3,385**	**Freight Cars**	**194,512**	**181,719**
Steam—			Automobile	7,270	7,113
Coal-burning	1,143	1	Ballast	3,140	3,009
Oil-burning	371	6	Box	114,181	104,593
Diesel-electric	3,155	3,347	Flat	12,270	12,420
Electric	51	31	Gondola	20,428	19,323
			Hopper	15,601	16,031
Passenger Cars	**5,456**	**4,172**	Ore	5,964	6,337
Coach	1,409	1,054	Refrigerator	10,155	7,806
Combination	182	135	Stock	5,025	3,952
Colonist	96	50	Tank	455	546
Dining	159	131	Other	23	579
Parlour	143	129			
Sleeping	919	676			
Baggage, express and postal	2,353	1,866	**Privately Owned Cars**[1]	**4,853**	**5,404**
Self-propelled	128	98	Tank	4,809	5,255
Other	67	33	Other	44	149

[1] Includes those of non-rail industrial firms such as oil, chemical and railway car leasing companies which furnish freight cars to, or on behalf of, any railway line.

Subsection 2.—Finances

The tables in this Subsection give information on capital liability and capital investment, earnings, operating expenses, employees and their earnings and government aid to all railways.* Financial statistics of government-owned railways are given separately and in detail in Subsection 4. A Uniform Classification of Accounts for common carriers became effective for the Canadian National and the Canadian Pacific Railways on Jan. 1, 1956, and for all other common carrier railways on Jan. 1, 1957. In transportation statistics a distinction is made between expenditures and expenses. In this Subsection, the term 'expenses' is used as defined in the Uniform Classification of Accounts and refers to the expenses of furnishing rail transportation service and of operations incident thereto, including maintenance and depreciation of the plant used in such service.

Capital Liability and Investment.—The capital liability of railways operating in Canada for the years 1954 to 1963 is shown in Table 3. The decrease of $39,740,408 in 1963 over 1962 compares with an increase in investment in road and equipment property of $15,572,931 as shown in Table 4.

* Statistics for individual railways are given in DBS annual report *Railway Transport*, published in six parts (Catalogue Nos. 52-207—52-212).

3.—Capital Liability of Railways, 1954-63

NOTE.—Figures for 1876-1925 are given in the 1927-28 Year Book, p. 649; those for 1926-41 in the 1947 edition, p. 662; and those for 1942-53 in the 1963-64 edition, p. 758.

(Exclusive of Canadian railway capital owned by Canadian railways)

Year	Stocks	Funded Debt	Total[1]	Year	Stocks	Funded Debt	Total[1]
	$	$	$		$	$	$
1954	2,499,778,848	1,475,815,267	3,975,594,115	1959	2,669,062,269	2,122,675,213	4,791,737,482
1955	2,543,465,586	1,565,109,030	4,108,574,616	1960	2,725,827,684	2,244,571,812	4,970,399,496
1955	2,572,487,313	1,612,706,551	4,185,193,864	1961	2,748,537,919	2,234,316,735	4,982,854,654
1957	2,565,559,683	1,764,660,210	4,330,219,893	1962	2,769,152,492	2,245,189,028	5,014,341,520
1958	2,646,659,697	1,953,111,826	4,599,774,523	1963	2,791,044,973	2,183,556,139	4,974,601,112

[1] Exclusive of approximately $40,000,000 railway debt in Newfoundland.

4.—Capital Invested in Railway Road and Equipment Property, 1959-63

Investment	1959	1960	1961	1962	1963
	$	$	$	$	$
Road	134,823,880	113,587,736	72,244,687	70,674,769	125,463,519
Equipment	78,487,442	Cr. 12,920,826	Cr. 30,683,878	7,258,657	Cr. 16,753,029
General	Cr. 816,428	Cr. 35,546	3,152,244	Cr. 243,729	84,786
Undistributed	42,668,998	6,742,707	40,971,544	12,905,861	Cr. 2,626,787
CNR non-rail property	*1,861,030*	*6,538,741*	*15,506,157*	*10,513,908*	*3,771,974*
CPR " "	*36,878,761*	*122,830*	*25,492,752*	*2,581,950*	Cr. *8,845,548*
Other " "	*3,929,207*	*81,136*	Cr. *27,365*	Cr. *189,997*	*2,446,787*
Totals	**255,163,892**	**107,374,071**	**85,684,597**	**90,595,558**	**106,168,489**
Cumulative Investment to Dec. 31	6,637,332,271	6,744,706,342	6,830,390,939	6,920,986,497	7,027,154,986

Revenues and Expenses.—The ratio of operating expenses to revenues of railways operating in Canada was 94.99 p.c. in 1963 compared with 93.07 p.c. in 1954; the high for the period 1954-63 was 97.30 p.c. recorded in 1958. Operating revenues, which reached an all-time high in 1956, increased 10.5 p.c. over the ten years. Operating expenses increased 12.8 p.c. during the same period. Because outlay increased more rapidly than income, the net operating revenue per mile of line dropped from $1,760 in 1954 to $1,356 in 1963, although the lowest figure during the period was recorded in 1958 at $696.

5.—Operating Revenues and Expenses of Railways, 1954-63

NOTE.—Operating revenues and expenses from 1875 are given in previous editions of the Year Book beginning with the 1916-17 edition.

Year	Total Operating Revenues	Total Operating Expenses	Ratio of Operating Expenses to Operating Revenues	Per Mile of Line			Freight-Train Revenue per Freight-Train Mile	Passenger-Train Revenue per Passenger-Train Mile
				Operating Revenues	Operating Expenses	Net Operating Revenues		
	$	$	p.c.	$	$	$	$	$
1954	1,095,440,918	1,019,534,989[1]	93.07	25,402	23,642	1,760	11.58	3.44
1955	1,198,351,601	1,048,564,681[1]	87.50	26,876	23,517	3,359	12.21	3.60
1956	1,300,623,923	1,171,338,574	90.06	29,047	26,159	2,888	12.75	3.16
1957	1,263,147,930	1,202,530,146	95.28	28,171	26,841	1,330	13.85	3.30
1958	1,163,735,417	1,132,277,504	97.30	25,766	25,070	696	14.51	3.11
1959	1,224,567,928	1,166,306,724	95.24	27,093	25,804	1,289	15.48	3.29
1960	1,151,655,456	1,109,470,426	96.34	25,544	24,608	936	15.54	3.46
1961	1,156,480,700	1,114,432,525	96.36	25,736	24,800	936	16.72	3.32
1962	1,165,296,722	1,119,662,072	96.08	26,002	24,984	1,018	16.91	3.56
1963	1,210,209,799	1,149,530,526	94.99	27,051	25,695	1,356	17.04	3.51

[1] Excludes equipment rents, joint facility rents and tax accruals.

Of the total operating expenses in 1963, amounting to $1,149,530,526, those connected with the transporting of persons and property, such as station, yard and terminal services and employees, wharves, fuel, etc., accounted for 37.2 p.c.; equipment maintenance accounted for 22.6 p.c.; road maintenance for 21.1 p.c.; rents and taxes for 5.9 p.c.; expenses connected with traffic soliciting, such as advertising and information, ticket and freight offices, etc., for 2.7 p.c.; and miscellaneous expenses, including incidentals, dining and buffet services, grain elevators, etc., for the remaining 10.5 p.c. These proportions have remained fairly constant in recent years.

Employment, Salaries and Wages.—Rail employment in 1963 declined 3.9 p.c. from the preceding year; it was 27.3 p.c. lower than the 1956 high and 15.9 p.c. lower than the ten-year average, 1954-63. Compared with 1954, total compensation increased 14.4 p.c. and the average annual salary for the industry increased 43.4 p.c. Rail employment decreases, which have been continuous since 1956, are attributable in part to business losses but to a greater extent to technological and organizational changes.

6.—Railway Employees and Their Earnings, 1954-63

NOTE.—Figures include employees and wages for 'outside' operations amounting to from 3 to 6 p.c. of total employees and from 2 to 5 p.c. of total salaries and wages. Figures for 1912-39 are given in the 1941 Year Book, p. 551; for 1940-49 in the 1951 edition, p. 723; and for 1950-53 in the 1961 edition, p. 785.

Year	Employees	Total Salaries and Wages	Average Salaries and Wages	Ratio of Total Payroll (charged to operating expenses) to—	
				Operating Revenues	Operating Expenses
	No.	$	$	p.c.	p.c.
1954	196,307	661,829,774	3,371	54.3	58.3
1955	195,459	674,875,767	3,453	50.2	57.4
1956	215,324[1]	780,135,918	3,623	50.6	55.9
1957	212,426[1]	791,529,117	3,726	51.4	53.9
1958	192,809[2]	757,907,896	3,931	52.7	54.3
1959	187,981[1]	780,031,534	4,150	51.5	54.2
1960	175,537[1]	740,475,804	4,218	52.0	54.2
1961	166,081[1]	748,097,831	4,504	52.7	54.9
1962	162,861[1]	747,301,214	4,589	51.4	53.7
1963	156,527[1]	756,862,741	4,835	50.4	53.1

[1] Includes employees engaged in communications, express cartage, highway transport (rail) and outside operations.

Government Aid to Railways.—In order that the private railways of Canada might be constructed in advance of settlement as colonization roads or through sparsely settled districts where little traffic was available, it was necessary for federal and provincial governments and even for municipalities to extend some form of assistance. The form of aid was usually a bonus of a fixed amount for each mile of railway constructed and, in the early days, grants of land were also made other than for right-of-way. As the country developed, objections to the land-grant method became increasingly apparent and aid was given more frequently in the form of a cash subsidy for each mile of line, a loan or a subscription to the shares of the railway. Guarantees of debenture issues were given in a later period and, since the formation of the Canadian National Railways, all debenture issues of that System, except those for rolling-stock, have been guaranteed by the Federal Government.

During the era of railway expansion before 1918, provincial governments guaranteed the bonds of some railway lines that afterwards were incorporated in the Canadian National Railway System. These bonds as they mature or are called are paid off by the Canadian National Railways, in large measure through funds raised by the issue of new bonds with Federal Government guarantee. Railway bonds guaranteed by the Government of Canada at Dec. 31, 1963 amounted to $1,378,875,000.

For some years the Federal Government has been assisting shippers by bearing a portion of rail transportation costs on certain types of traffic moving between and within specific areas of Canada. Reimbursement to the railways for diminution of revenue resulting from these reductions has been provided through four principal plans: the Freight Rates Reduction Act (SC 1959, c. 27), which reduces for shippers, on certain classes of traffic, the full effect of the last freight rate increase authorized by the Board of Transport Commissioners for Canada in 1958; the East-West Bridge Subsidy, which provides reduced rates to shippers on certain traffic moving between Eastern and Western Canada; the Maritime Freight Rates Act (RSC 1952, c. 174), which reduces rates to shippers on traffic moving within and out of the Atlantic Provinces; and interim payments related to recommendations of the MacPherson Royal Commission. (See also p. 753.)

Subsection 3.—Passenger and Freight Traffic

Tables 7 and 8 show passenger and freight statistics for all railways for the years 1959-63. A separate analysis of the operations and traffic of the Canadian National Railways is given at pp. 769-772.

7.—Statistics of Passenger Service and Revenue, 1959-63

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books.

Item		1959	1960	1961	1962	1963
Revenue passenger-train miles[1]	'000	38,212	34,493	31,131	29,217	28,239
Passenger-train car miles[1]	"	367,551	344,996	311,912	296,950	285,942
Passengers carried[2]	"	20,940	19,497	18,784	19,258	20,636
Passenger-miles	"	2,445,654	2,263,795	1,960,591	2,018,842	2,069,565
Passenger-miles per mile of line	No.	54,109	50,212	43,631	45,048	46,760
Average receipts per passenger-mile	cts.	3.01	3.05	3.12	3.00	2.88
Average receipts per passenger	$	3.51	3.55	3.26	3.15	2.89
Average passenger journey	miles	117	116	104	105	100
Average passengers per train	No.	64	66	63	69	73
Passenger-train revenue per passenger-train mile	$	3.29	3.46	3.32	3.56	3.51

[1] Includes express, baggage, mail and other cars. [2] Duplications included.

8.—Statistics of Freight Service and Revenue, 1959-63

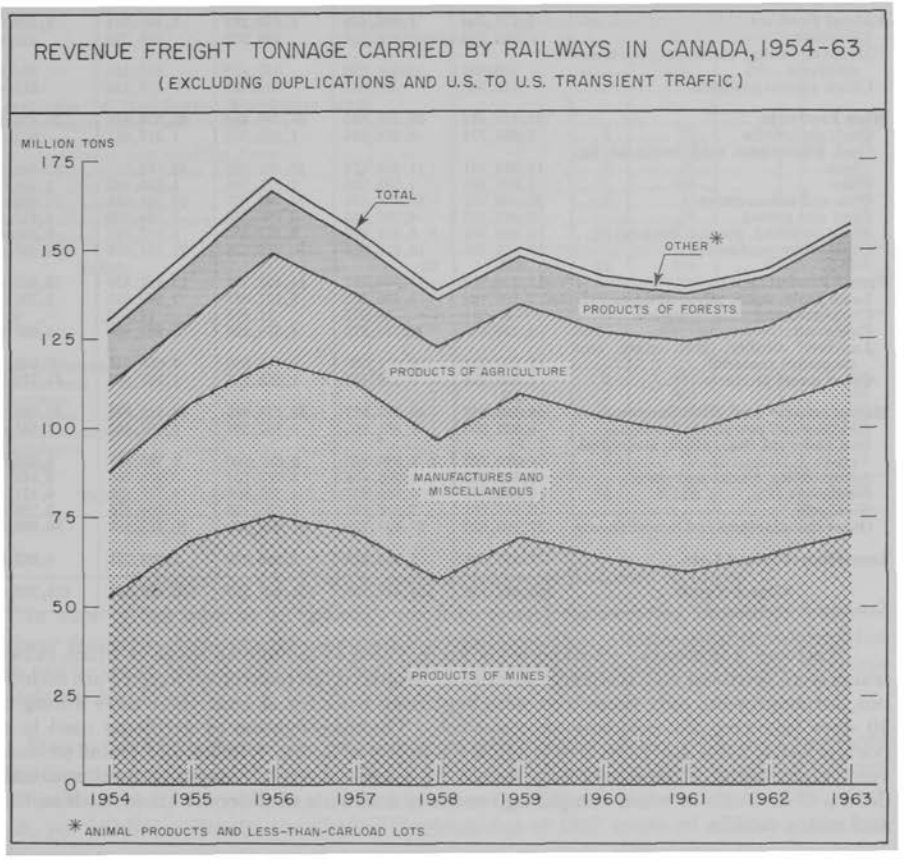
NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books.

Item		1959	1960	1961	1962	1963
Revenue freight-train miles	'000	68,351	63,887	60,593	60,308	62,639
Revenue freight-train car miles[1]	"	3,322,167	3,249,824	3,234,586	3,256,175	3,465,076
Freight carried[2]	'000 tons	166,186	158,466	153,202	164,112	172,897
Freight ton-miles	'000	67,956,540	65,444,784	65,828,403	67,937,162	75,796,023
Freight ton-miles per mile of line	"	1,503	1,451	1,464	1,516	1,694
Freight receipts per ton per mile	cts.	1.56	1.52	1.54	1.50	1.41
Receipts per ton hauled	$	6.37	6.26	6.62	6.34	6.21
Average length of freight haul	miles	409	413	430	422	441
Average train load, revenue tons	No.	994	1,024	1,086	1,127	1,210
Average load per loaded car mile	tons	33.31	33.11	33.79	34.71	36.81
Revenue per freight-train mile	$	15.48	15.54	16.72	16.91	17.04

[1] Includes caboose miles but excludes miles made in passenger and non-revenue trains. [2] Excludes traffic handled by more than one railway; see Table 9 for details of freight carried.

The total tonnage of revenue freight carried (including national loadings and receipts from United States rail connections) was 6.7 p.c. higher in 1963 than in 1962. All the main commodity groups showed increases over the previous year. Of the 171,735,626 tons

carried in 1963 (excluding freight handled by more than one railway and in intermediate switching), mine products accounted for 41.8 p.c., manufactures and miscellaneous products for 30.3 p.c., agricultural products 17.1 p.c., forest products 9.3 p.c., animal products 0.9 p.c., and less-than-carload freight for 0.6 p.c.



9.—Commodities Hauled as Freight by Railways, 1959-63

NOTE.—In this table duplications are eliminated, i.e., the same freight handled by two or more railways is counted only once. The statistics do not include the United States lines of the Canadian National Railways, but the link of the Canadian Pacific Railway line across Maine, U.S.A., is included, as are the Canadian sections of United States railways.

Commodity	1959	1960	1961	1962	1963
	tons	tons	tons	tons	tons
Agricultural Products	**27,988,690**	**26,666,459**	**28,012,441**	**25,177,337**	**29,303,974**
Wheat	13,794,365	13,293,302	15,155,289	13,403,510	16,311,535
Oats	1,372,154	1,186,626	982,668	935,985	1,556,288
Other grain	4,906,172	4,292,962	4,308,562	3,600,003	3,833,293
Flour, wheat	1,689,048	1,639,965	1,480,964	1,504,838	1,545,738
Other mill products	1,708,274	1,659,275	1,697,726	1,489,866	1,593,722
Other agricultural products	4,518,677	4,594,329	4,387,262	4,243,135	4,463,398

9.—Commodities Hauled as Freight by Railways, 1959-63—concluded

Commodity	1959	1960	1961	1962	1963
	tons	tons	tons	tons	tons
Animal Products	**1,571,388**	**1,695,451**	**1,619,212**	**1,508,284**	**1,529,037**
Livestock	507,389	420,234	442,932	376,700	321,688
Meats and other edible packing-house products	550,999	781,520	643,429	616,458	694,946
Other animal products	513,000	483,697	532,851	515,126	512,403
Mine Products	**71,178,434**	**65,541,195**	**61,388,644**	**68,236,842**	**71,828,970**
Coal, anthracite	1,555,774	1,378,104	1,148,868	1,011,993	962,083
Coal, bituminous, subbituminous, lignite	11,949,461	11,259,474	10,461,389	10,184,111	10,002,904
Coke	1,581,553	1,582,395	1,571,791	1,356,092	1,394,295
Ores and concentrates	30,840,791	28,386,836	26,287,337	32,251,656	35,062,361
Sand and gravel	6,442,813	6,308,623	5,793,376	6,258,480	6,513,801
Stone (crushed, ground, broken)	6,694,809	5,952,700	5,237,255	5,017,049	5,430,004
Other mine products	12,113,233	10,673,063	10,888,628	12,157,461	12,463,522
Forest Products	**14,736,118**	**14,960,197**	**14,491,704**	**15,441,325**	**15,927,443**
Logs, posts, poles, piling and ties	2,105,792	2,592,553	2,127,041	2,660,613	2,701,234
Cordwood and other firewood	27,651	16,077	11,595	11,855	9,165
Pulpwood	4,121,483	4,794,373	4,574,296	4,867,930	4,857,912
Lumber, timber, box, crate and cooperage material	7,282,234	6,411,739	6,443,645	6,653,521	6,982,751
Other forest products	1,198,958	1,145,455	1,335,127	1,247,406	1,376,381
Manufactures and Miscellaneous	**49,162,943**	**48,285,917**	**46,378,066**	**49,342,838**	**52,062,773**
Gasoline and petroleum products	8,325,030	7,851,365	6,887,884	6,962,657	7,647,090
Iron and steel (bar, sheet, structural, pipe)	4,234,303	3,986,862	3,637,000	3,709,838	4,056,599
Automobiles, trucks and parts	1,809,106	1,998,474	1,673,124	2,003,748	2,142,845
Newsprint	4,256,951	4,236,852	4,397,864	4,232,493	4,121,218
Woodpulp	2,547,531	2,518,188	2,688,225	3,048,415	3,186,693
Other manufactures and miscellaneous	27,990,022	27,694,176	27,093,969	29,385,687	30,908,328
Less-than-Carload Lots	**1,457,576**	**1,312,915**	**1,190,250**	**1,223,715**	**1,083,429**
Grand Totals	**166,095,149**	**158,462,134**	**153,080,317**	**160,930,341**	**171,735,626**

Railway Accidents.—Accidents shown in Table **10** include all those in which railway trains were involved and accidents on railway property; all passengers injured are included but, for employees, only those who were kept from work for at least three days during the 10 days following the accident are recorded. The classification of accidents used in reporting other DBS statistics treats collisions between motor vehicles and trains as motor vehicle accidents. Therefore, care should be exercised when compiling total accidental deaths of all kinds or when comparing results of accidents of different kinds, such as train and motor vehicle.

10.—Persons Killed or Injured on Railways, by Specified Cause, 1961-63

Class of Person and Description of Accident	1961		1962		1963	
	Killed	Injured	Killed	Injured	Killed	Injured
	Accidents Resulting from Movement of Trains, Locomotives or Cars					
	No.	No.	No.	No.	No.	No.
Class of Person—						
Passengers	1	73	—	106	2	157
Employees	22	881	19	877	23	853
Trespassers	46	67	72	57	43	45
Non-trespassers	159	419	161	414	158	517
Postal clerks, expressmen, etc.	—	11	1	11	—	15
Totals	**228**	**1,451**	**253**	**1,465**	**226**	**1,587**
Description of Accidents (Employees and Passengers only)—						
Coupling and uncoupling	2	55	1	50	—	40
Collisions	4	87	—	83	4	50

10.—Persons Killed or Injured on Railways, by Specified Cause, 1961-63—concluded

Class of Person and Description of Accident	1961		1962		1963	
	Killed	Injured	Killed	Injured	Killed	Injured
	Accidents Resulting from Movement of Trains, Locomotives or Cars—concluded					
	No.	No.	No.	No.	No.	No.
Description of Accidents (Employees and Passengers only)—concluded						
Derailments	—	19	1	30	3	82
Locomotives or cars breaking down	—	2	1	7	—	—
Falling from trains or cars	1	46	2	37	4	41
Getting on or off trains	2	245	1	211	7	231
Struck by trains, etc.	6	9	3	11	6	14
Overhead and other obstruction	—	14	—	18	—	16
Other causes	8	477	10	536	1	536
Totals	**23**	**954**	**19**	**983**	**25**	**1,010**
	All Other Accidents					
	No.	No.	No.	No.	No.	No.
Class of Person—						
Stationmen	3	320	2	431	2	514
Shopmen	7	590	2	558	1	457
Trackmen	7	693	6	642	4	680
Other employees	1	336	4	359	3	261
Passengers	—	55	—	64	—	55
Others	3	59	6	62	1	39
Totals	**21**	**2,053**	**20**	**2,116**	**11**	**2,006**

Subsection 4.—The Canadian National Railway System*

In view of the interest in Canada's publicly owned railway, the Canadian National Railway System is given separate treatment in this Subsection. More detailed information than can be given here is obtainable from DBS annual report *Canadian National Railways* (Catalogue No. 52-201).

Financial Statistics.—The original financial structure of the CNR and the steps taken through the Capital Revision Acts of 1937 and 1952 to alleviate the burden of interest debt undertaken by the company on its formation in 1923 are described in the 1955 Year Book, pp. 840-847. Briefly, the Capital Revision Act of 1937 wrote off all loans that had been made to cover deficits and also unpaid interest on loans, and certain loans made for the purpose of additions and betterments were converted to equity capital, relieving the CNR from paying fixed charges on this amount. Under the 1952 Capital Revision Act, 50 p.c. of the company's interest-bearing debt was changed to preferred stock on which, after settling income taxes, a dividend of 4 p.c. is paid on earnings. Also, for a term of ten years ended Jan. 1, 1962, the Railway was not obliged to pay interest on $100,000,000 of its long-term debt. The Government is authorized to buy additional preferred stock annually in amounts related to the company's gross revenues. As a consequence, the proportion of total capitalization represented by equity capital in shareholders' account was raised from 34.5 p.c. at Dec. 31, 1951 to 67.2 p.c. at Jan. 1, 1952, and the proportion of borrowed capital was correspondingly reduced. By the end of 1963, the proportion represented by equity capital in shareholders' account was just under 50 p.c.

* The Hudson Bay Railway, formerly managed and operated for the Federal Government by the CNR, was absorbed into the Canadian National Railway System on Jan. 1, 1958, to be operated in the same manner as other Canadian Government railway lines. Statistics of the Hudson Bay Railway are therefore included with CNR data for 1958 and subsequent years.

11.—Capital Structure of the Canadian National Railway System as at Dec. 31, 1954-63

At Dec. 31—	Shareholders' Capital		Funded Debt Held by Public		Government Loans and Appropriations—Active Assets in Public Accounts	Total
	Government of Canada Shareholders' Account	Capital Stock Held by Public	Guaranteed by Federal and Provincial Governments	Other		
	$	$	$	$	$	$
1954	1,571,393,181	4,514,490	910,422,885	62,546,711	126,771,981	2,675,649,248
1955	1,591,902,624	4,511,150	861,870,899	34,493,192	199,444,622	2,692,222,487
1956	1,616,270,966	4,508,670	794,482,906	25,086,606	353,664,828	2,794,013,976
1957	1,639,451,306	4,505,870	730,346,711	17,978,788	623,967,851	3,016,250,526
1958	1,704,387,845	4,504,203	1,024,710,205	9,098,765	484,791,699	3,227,492,717
1959	1,723,909,722	4,503,549	1,335,510,205	5,548,765	345,684,052	3,415,156,293
1960	1,721,143,162	4,499,284	1,677,209,478	3,098,765	148,021,700	3,553,972,389
1961	1,744,673,266	4,499,273	1,670,653,176	2,423,765	164,593,150	3,586,842,630
1962	1,767,976,925	4,499,261	1,630,895,308	2,423,765	209,026,793	3,614,822,052
1963	1,792,380,188	4,485,785	1,378,875,000	2,023,764	410,354,762	3,588,119,499

In Table 12 the assets of the Canadian National Railway System as at Dec. 31, 1962 and 1963 are shown.

12.—Assets of the Canadian National Railway System as at Dec. 31, 1962 and 1963

NOTE.—Assets as at the time of consolidation of the system (Dec. 31, 1922) are given in the 1963-64 Year Book, p. 764.

Account	Dec. 31, 1962	Dec. 31, 1963	Account	Dec. 31, 1962	Dec. 31, 1963
	$	$		$	$
Current Assets	**225,004,113**	**211,534,650**	**Investments**—concl.		
Cash	50,063,093	32,707,012	Improvements on leased property	1,369,336	1,381,965
Special deposits	44,294	26,277	Non-rail property	131,678,351	135,450,325
Traffic accounts receivable	4,215,344	3,863,192	Investments in affiliated companies	291,162,893	291,010,703
Agent and conductor balances	34,568,900	41,970,274	Other investments	3,603,608	3,576,549
Other accounts receivable	37,636,727	38,557,253	**Deferred Assets**	**43,611,559**	**28,252,767**
Government of Canada due on deficit account	9,335,454	8,513,517	Working fund advances	743,812	763,244
Material and supplies	70,424,977	62,990,782	Insurance and other funds	15,000,000	17,500,000
Interest and dividends receivable	3,741,449	3,420,813	Other deferred assets	27,867,747	9,989,523
Other current assets	14,973,875	19,485,530	**Unadjusted Debits**	**38,174,686**	**32,532,487**
Investments	**4,212,610,502**	**4,294,232,739**	Prepayments	2,508,520	2,464,684
Road and equipment property	3,784,796,314	3,862,813,197	Discount on funded debt	21,665,337	19,489,453
			Other unadjusted debits	14,000,829	10,578,350
			Totals	**4,519,400,860**	**4,566,552,643**

The financial details presented in Table 13 are those of the entire Canadian National Railway System, including both Canadian and United States operations. Revenues and expenses include those of express and commercial communications throughout, and highway transport (rail) operations from 1956. In conformity with the requirements of the Uniform Classification of Accounts, tax accruals and rents have been charged to operating expenses since Jan. 1, 1956.

13.—Total Revenue, Operating Expenses, Net Revenue, Fixed Charges and Deficits of the Canadian National Railway System (Canadian and United States Operations), 1954-63

NOTE.—Figures for 1911-53 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Year	Total Operating Revenue	Total Operating Expenses	Income Available for Fixed Charges	Total Fixed Charges	Net Income or Deficit[1]	Cash Deficit or Surplus[2]
	$	$	$	$	$	$
1954	640,637,280	626,465,374	7,574,821	32,527,264	Dr. 24,952,443	Dr. 28,758,098
1955	683,088,794	629,013,125	43,478,955	33,004,300	Cr. 10,474,655	Cr. 10,717,689[3]
1956	774,800,647	728,008,837	57,623,710	31,782,991	" 25,840,719	" 26,076,951[3]
1957	753,165,964	755,214,378	6,913,660	36,971,680	Dr. 30,058,020	Dr. 29,572,541
1958	704,947,410	719,211,865	Dr. 4,779,895	46,521,236	" 51,301,131	" 51,591,424
1959	740,165,041	741,852,260	8,416,237	52,918,886	" 44,502,649	" 43,588,290
1960	693,141,106	705,818,310	1,504,828	69,469,961	" 67,965,133	" 67,496,777
1961	710,305,173	722,117,583	5,539,970	73,404,523	" 67,864,553	" 67,307,772
1962	738,324,754	738,882,680	23,308,683	74,443,482	" 51,134,799	" 48,919,454
1963	762,350,334	752,829,782	36,622,626	76,252,867	" 39,630,241	" 43,013,517

[1] Includes appropriations for insurance fund. [2] Contributed by or paid to the Government of Canada.
[3] Paid to the Government of Canada as a dividend on 4-p.c. preferred stock.

Milage and Traffic.—At Dec. 31, 1963, the length of first main track owned by the Canadian National Railways (including electric lines and lines in the United States but excluding lines of the Northern Alberta Railways and Toronto Terminals Railway controlled jointly by the Canadian National and the Canadian Pacific Railways) was 24,422 miles.

14.—Train Traffic Statistics of the Canadian National Railways (Canadian and United States Lines), 1960-63

NOTE.—Includes electric lines.

Milage and Traffic		1960	1961	1962[1]	1963[1]
Train Milage	miles	**57,525,935**	**55,180,447**	**54,014,281**	**54,679,182**
Passenger service	"	21,292,408	19,576,875	18,096,980	17,079,631
Freight service	"	34,379,411	34,041,907	34,283,043	35,796,950
Work service	"	1,854,116	1,561,665	1,634,258	1,802,601
Passenger-Train Car Milage	miles	**211,939,049**	**199,177,610**	**188,256,798**	**177,379,077**
Coaches and combination (excl. work service)	"	49,618,353	45,084,676	42,510,131	41,268,166
Motor unit cars	"	3,913,225	3,782,495	3,806,184	3,876,828
Parlour, sleeping and dining cars	"	57,198,952	51,081,594	48,550,070	48,816,559
Baggage, mail, express, etc.	"	101,208,519	99,228,845	93,390,413	83,417,524
Freight-Train Car Milage	miles	**1,774,972,100**	**1,795,163,443**	**1,827,465,682**	**1,965,475,814**
Loaded freight	"	1,099,465,199	1,095,441,528	1,111,533,850	1,181,953,889
Empty freight	"	640,812,172	665,300,974	680,796,324	746,854,265
Caboose	"	34,694,729	34,420,941	35,075,508	36,667,660
Work-Train Car Milage	miles	**4,391,784**	**3,302,287**	**2,804,515**	**2,869,321**
Passenger Traffic—					
Passengers carried (earning revenue)	No.	13,307,901	12,104,791	12,443,945[r]	13,598,961
Passengers carried (earning revenue) one mile	"	1,208,382,297	1,075,770,694	1,044,192,458[r]	1,189,051,239
Passenger-miles per mile of road	"	48,443	43,283	42,184[r]	48,121
Average passenger journey	miles	100.0	88.9	83.9[r]	87.4
Average amount received per passenger	$	3.19	2.87	2.76[r]	2.54
Average amount received per passenger-mile	$	0.03171	0.03234	0.03288[r]	0.02901

For footnote, see end of table, p. 772.

14.—Train Traffic Statistics of the Canadian National Railways (Canadian and United States Lines), 1960-63—concluded

Milage and Traffic		1960	1961	1962[1]	1963[1]
Freight Traffic—					
Revenue freight carried	tons	77,688,926	76,022,886	78,384,773	84,078,393
Revenue freight carried one mile	"	34,011,491,932	34,723,214,717	35,595,425,349	40,171,173,489
Revenue freight carried one mile per mile of road	"	1,358,680	1,397,069	1,438,003	1,625,733
Total (all classes) freight carried one mile per mile of road	"	1,400,758	1,419,496	1,458,828	1,649,226
Average hauls, revenue freight	miles	437.8	456.7	454.1	477.8
Gross ton miles per freight train hour	No.	46,628	50,172	52,085	56,561
Freight revenue per ton	$	6.77	6.76	6.75	6.57
Freight revenue per ton-mile	$	0.01547	0.01480	0.01487	0.01375

[1] Because of a change in the method of compiling passenger traffic statistics, the figures for 1962 and 1963 are not comparable with those for the earlier years shown.

Section 2.—Express Companies

There are five express organizations operating in Canada. The Canadian Pacific Express exists as a subsidiary of the Canadian Pacific Railway Company, and the express business of the Algoma Central and Hudson Bay Railway, the Canadian National Railway System and the Northern Alberta Railways Company is handled by departments of the respective railways. The Railway Express Agency Incorporated of the United States operates mainly over the Canadian sections of U.S. rail lines.

Express companies are organized under federal legislative authority. They are primarily engaged in the rapid transportation of package freight but their services also include custom brokerage, money orders, travellers cheques and other financial paper transactions. Recently, the major railways have introduced a unified service for handling small package express freight and less-than-carload-lot shipments, using the efficient facilities of their rail, piggyback and highway transport services to provide fast and competitive movement of goods.

No statistics are available on the volume of express freight handled because much of it consists of parcels and small lots which cannot be classified. Table **15** shows the milages operated by and the financial statistics of the express agencies for 1959-63, with figures by company for 1963.

15.—Summary Statistics of Express Companies, 1959-63

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

Year or Company	Milages Operated in Canada[1]	Gross Earnings	Operating Expenses[2]	Express Privileges[3]	Net Operating Revenue
	No.	$	$	$	$
1959	67,523	88,834,704	63,194,957	25,061,221	578,526
1960	62,154	84,986,847	61,123,020	23,242,445	621,372
1961	65,523	81,093,805	62,674,794	17,875,713	548,298
1962	70,985	83,877,337	64,086,906	19,041,953	748,478
1963	74,293[4]	79,031,998	62,127,111	16,167,030	737,857
1963					
Algoma Central and Hudson Bay Rly.	322	69,831	52,035	22,800	Dr. 5,004
Canadian National Express	54,455	45,489,006	36,624,628	8,290,976	573,402
Canadian Pacific Express	17,272	27,866,444	21,231,948	6,487,196	147,300
Northern Alberta Railways	928	224,532	188,803	135,729	—
Railway Express Agency, Inc.	1,316[4]	5,282,185	4,029,697	1,230,329	22,159

[1] Over railways, boat lines, motor carrier and aircraft routes. [2] Includes tax accruals from 1956 in accordance with the Uniform Classification of Accounts adopted Jan. 1, 1956. [3] Amounts paid by express companies to the carriers, i.e., railways, steamship lines, etc., for transporting express matter. [4] Excludes an estimated 10,040 airline miles over which express services are provided.

Business transacted by express companies in financial paper is showing a downward trend, declining from $155,035,926 in 1959 to $135,523,112 in 1963. The 1963 total was made up of: domestic and foreign money orders, $107,414,528; C.O.D. cheques, $18,089,947; travellers cheques, $9,979,934; and telegraphic transfers, $38,703. The major decrease was shown in the amount of money orders issued.

The number of persons employed by express companies has also decreased over the five-year period. Employment (full-time and part-time) was provided for 8,282 persons in 1963, to whom $35,386,525 was paid in salaries and wages; this compared with 11,411 employees in 1959, receiving $42,673,976 in salaries and wages. Commissions paid dropped from $2,985,627 to $2,316,610 over the same period.

PART III.—ROAD TRANSPORT*

Highways and motor vehicles are herein treated as related features of transportation. An introductory Section summarizes provincial regulations regarding motor vehicles and motor traffic.

Section 1.—Provincial Motor Vehicle and Traffic Regulations†

NOTE.—It is obviously impossible to include here the great mass of detailed regulations in force in each province and territory; only the more important general information is given. The source of information for detailed regulations for each province and territory is given at pp. 775-776.

The registration of motor vehicles and the regulation of motor vehicle traffic lies within the legislative jurisdiction of the provincial and territorial governments. Regulations common to all provinces and territories are summarized as follows.

Operators' Licences.—The operator of a motor vehicle must be over a specified age, usually 16 years (17 in Newfoundland and 18 for class A licence in Alberta), and must carry a licence, obtainable in most provinces only after prescribed qualification tests. Such licence is renewable annually, except in Alberta and British Columbia where it is renewable every five years, in New Brunswick and Manitoba where it is renewable every two years and in Ontario where a licence is issued on a three-year basis and expires on the licensee's birth date. Special licences are required for chauffeurs in all provinces except Newfoundland and in some jurisdictions special licences may be granted to those who have not reached the specified age.

Motor Vehicle Regulations.—All motor vehicles and trailers must be registered annually, with the payment of specified fees, and must carry two registration plates, one on the front and one on the back of the vehicle (one only for the back of trailers); in New Brunswick one licence plate is issued to be attached to the front of truck tractors and to the rear of all other vehicles. In most provinces, in event of sale the registration plates stay with the vehicle but in Quebec, Manitoba, Saskatchewan and Alberta the plates are retained by the owner. In Nova Scotia, vehicles pass from owner to owner by due process of law and title must be secured before issue of plates and permit. A change of ownership of the vehicle must be recorded with the registration authority. However, exemption from registration is granted for a specified period (usually at least 90 days, except in Quebec where the maximum is 90 days, in British Columbia where it is six months and in Ontario where it is six months for vehicles from other provinces and three months for vehicles registered outside Canada) in any year to visitors' private vehicles registered in another province or a state that grants reciprocal treatment. Regulations require a safe standard of efficiency in the mechanism of the vehicle and of its brakes and stipulate that equipment include non-glare headlights, a proper rear light, a muffler, a windshield wiper, a rear-vision mirror, and a warning device.

* Except as otherwise indicated, the material in this Part has been revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

† Revised according to information received from the respective provincial authorities concerned.

Traffic Regulations.—In all provinces and territories, vehicles keep to the right-hand side of the road. Everywhere motorists are required to observe traffic signs, lights, etc., placed at strategic points on highways and roads. The speed limit in Prince Edward Island, Quebec and New Brunswick is 60 miles an hour in daytime and 55 at night; in Manitoba and Alberta it is 60 in daytime and 50 at night, with the exception of a few selected sections of four-lane highway in Alberta where maximum speeds in excess of the foregoing may be authorized and posted. In Nova Scotia the limit is a "reasonable and prudent" speed, with a maximum of 60 miles an hour except where 65 miles an hour is authorized. In Ontario maximum speeds vary from 50 to 60 miles an hour, depending on type of highway. In the other provinces the maximum speed permitted is normally 50 miles an hour; in Saskatchewan where higher speed limits are in effect they are posted. Slower speeds are always required in cities, towns and villages, when passing schools and public playgrounds, at road intersections, railway crossings or at other places or times where the view of the highway for a safe distance ahead is in any way obscured. In almost all provinces, truck speed limits are at least five miles an hour below automobile speed limits. In all provinces and territories, accidents resulting in personal injury or property damage of $100 or more must be reported to a police officer (in Quebec to the Motor Vehicle Bureau) and a driver involved must not leave the scene of an accident until he has rendered all possible aid and disclosed his name to the injured party.

Driver Licensing Controls.—All provinces impose penalties for infractions of driving regulations, ranging from fines for minor infractions to suspension of the operator's driving permit, impounding of the car, or imprisonment for more serious infractions. In most provinces penalties have been linked to a driver-improvement program, the aim of which is to correct faulty driving habits, not to take drivers off the road. The most common driver-improvement program includes the demerit-point-system.

Safety Responsibility Legislation.—Each province has enacted legislation under this heading (sometimes referred to as financial responsibility legislation). In general, these laws provide for the automatic suspension of the driver's licence and motor vehicle permit of a person convicted of a serious offence (impaired driving, driving under suspension, etc.) or a person involved directly or indirectly in an accident who is not covered for third-party insurance at the time of the accident. The suspension remains effective until any penalty or judgment has been satisfied and proof of financial responsibility for the future is filed. In Quebec, Saskatchewan, Alberta, British Columbia and the Yukon Territory, uninsured motor vehicles may be impounded following an accident of any consequence, i.e., an accident resulting in personal injury or death, or property damage in excess of $100 ($200 in Saskatchewan and $250 in British Columbia).

Although safety responsibility legislation has not been enacted in the Northwest Territories, under present requirements the owner of a motor vehicle resident in the Mackenzie Highway region must submit evidence of stipulated insurance coverage on such vehicle before he can obtain registration. In the Yukon Territory, proof of insurance must be supplied before vehicle licence is issued. When the insurance expires or is cancelled, vehicle licence plates must be returned to the Registrar of Motor Vehicles.

Unsatisfied Judgment Fund.—Legislation has been enacted in all provinces except Saskatchewan and in the territories, usually in the form of an amendment to the motor vehicle laws of the province or territory, providing for the establishment of a fund, frequently called an Unsatisfied Judgment Fund, out of which are paid judgments awarded for damages arising out of motor vehicle accidents in the province which cannot be collected in the ordinary process of law. In Newfoundland, Prince Edward Island, Nova Scotia, Quebec and British Columbia the fund is maintained by insurance companies. In all the other provinces, except Saskatchewan where insurance is compulsory, the funds are obtained by the annual collection of a fee from the registered owner of every motor vehicle or from every person to whom a driver's licence is issued. The fee does not exceed $1 per

annum except that Ontario and Alberta collect $20 from each uninsured owner of a motor vehicle at the time of registration or transfer and Manitoba (effective Mar. 1, 1965) collects an additional $25 from each uninsured owner at the time of registration. A feature of this legislation, which is contained in some provincial statutes, is the provision for the payment of judgments in 'hit-and-run' accidents. When these occur, if neither the owner nor the driver can be identified, action may be taken against the Registrar of Motor Vehicles (the Minister of Finance in Newfoundland); any judgment secured against the responsible authority is paid out of the Fund. All of these laws contain a provision limiting the amount that can be paid out of the Fund on one judgment. In Newfoundland and Nova Scotia, the limits are $10,000 for one person, $20,000 for two or more persons injured in one accident and $5,000 for property damage. In Nova Scotia and New Brunswick (effective May 1, 1965) the limit is $35,000 in respect of any one accident. In Quebec the limit is $35,000 for all damages in the same accident, subject to a deduction of $200 from all damage to the property of others; damages resulting in bodily injury or death are, up to $30,000, payable by priority over damages to property and the latter are, up to $5,000, payable by priority over the former out of the amount of any insurance or other guarantee of indemnity. In British Columbia, the limit is based on the single amount of $35,000, respectively, for any one accident with the proviso that not more than $5,000 may be paid on a property damage claim until injury claims up to $20,000 and $30,000, respectively, have been satisfied; the $30,000 limit exists in British Columbia for hit-and-run accidents but does not apply to payments for property damage. In Ontario and Alberta, the limits are $35,000 for death or personal injury to one or more persons and $5,000 for damage to property, subject to a limit of $35,000 in any one accident. In Manitoba, the limit based on one accident is $35,000 for claims for injury or property damage with the stipulation that not more than $5,000 may be allocated to property damage until injury claims up to $30,000 have been satisfied. In other provinces, lower limits of $5,000, $10,000 and $1,000 are retained. For hit-and-run accidents payments are made for personal injuries only.

Sources of information on provincial motor vehicle and traffic regulations:—

Newfoundland

Administration.—The Minister of Finance, St. John's.
Legislation.—The Highway Traffic Act, 1962.

Prince Edward Island

Administration.—The Provincial Secretary, Charlottetown.
Legislation.—The Highway Traffic Act (RSPEI 1951, c. 73).

Nova Scotia

Administration.—Registry of Motor Vehicles, Department of Highways, Halifax.
Legislation.—The Motor Vehicle Act (1954, c. 184, as amended) and the Motor Carrier Act (1958, c. 7, as amended).

New Brunswick

Administration.—Motor Vehicle Branch, Provincial Tax Branch, Department of Provincial Secretary, Fredericton.
Legislation.—The Motor Vehicle Act (RSNB 1955, as amended).

Quebec

Administration.—Motor Vehicle Bureau, Department of Transportation and Communications, Parliament Bldgs., Quebec.
Legislation.—The Highway Code (RSQ 1941, c. 142 and 142A, as amended).

Ontario

Administration.—Ontario Department of Transport, Toronto.
Legislation.—The Highway Traffic Act (RSO 1960, c. 172, as amended), the Public Vehicles Act (RSO 1960, c. 337, as amended), the Public Commercial Vehicles Act (RSO 1960, c. 319, as amended) and the Motor Vehicle Accident Claims Act (1961-62, c. 84, as amended).

Manitoba

Administration.—Minister of Public Utilities, Winnipeg.
Legislation.—The Highway Traffic Act (RSM 1954, c. 112, as amended).

Saskatchewan

Administration.—Treasury Department, Highway Traffic Board, Revenue Building, Regina.
Legislation.—The Vehicles Act, 1957.

Alberta

Administration and Legislation.—The Vehicles and Highway Traffic Act (RSA 1955, c. 356) and the Motor Vehicles Accident Indemnity Act (RSA 1955, c. 209) are administered by the Motor Vehicle Branch, Department of Highways, Edmonton. The Public Service Vehicles Act (RSA 1955, c. 265) and the Rules and Regulations are administered by virtue of authority vested in the Highway Traffic Board, Department of Highways, Edmonton.

British Columbia

Administration and Legislation.—Enforcement of the Motor Vehicle Act, the Commercial Transport Act and the Motor Carrier Act is vested in the Royal Canadian Mounted Police and the various municipal police forces. The Motor Carrier Act is administered by the Public Utilities Commission, the Motor Vehicle Act by the Superintendent of Motor Vehicles and the Commercial Transport Act by the Minister of Commercial Transport, Victoria, B.C.

Yukon Territory

Administration.—Commissioner of the Yukon Territory, Whitehorse, Y.T. Information regarding regulations may also be obtained from the Registrar of Motor Vehicles, Government of the Yukon Territory, Whitehorse, Y.T.

Legislation.—The Motor Vehicles Ordinance (Revised Ordinances 1958, c. 77, as amended).

Northwest Territories

Administration.—Commissioner of the Northwest Territories. Address communications to the Deputy Commissioner of the Northwest Territories, 150 Kent St., Ottawa.

Legislation.—The Motor Vehicles Ordinance (Revised Ordinances of the Northwest Territories, 1956, c. 72, as amended).

Section 2.—Highways, Roads and Streets

Highways and Roads.—The populated sections of Canada are well supplied with highways and roads. Access to outlying settlements is provided to some extent by roads built by logging, pulp and paper, and mining companies, although these are not generally available for public travel. At the same time, great areas of Newfoundland, Quebec, Ontario, the Prairie Provinces, British Columbia and the Territories are very sparsely settled and are virtually without roads of any kind.

At the end of 1962, the milage of highways and rural roads in Canada was 437,137, an increase of 7,133 miles over the 430,004 reported in 1961. The 437,137 miles include all roads under provincial jurisdiction, federal roads, and local roads under municipal jurisdiction other than the milages in census metropolitan areas and urban centres of more than 1,000 population. The latter are given separately under the heading of "Urban Streets", p. 779.

1.—Highway and Rural Road Milage classified by Type and by Province, 1962 with Totals for 1958-62

NOTE.—Excludes urban streets but includes milages under jurisdiction of rural and small urban municipalities; excludes milages of all roads on Indian reservations except those of flexible pavement.

Classification	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles
Surfaced	4,275	2,509	10,127	13,738	39,574	73,163	26,643	44,899	53,532	20,416	2,427	291,303
Rigid pavement	—	15	7	—	276	1,401	217	—	68	42	—	2,026
Flexible pavement	514	984	3,511	3,890	12,990	18,914	2,520	3,184	4,257	5,572	17	56,363
Gravel	3,761	1,510	6,609	9,848	26,308	52,848	23,896	41,715	49,207	14,802	2,410	232,914
Earth	3,016	756	5,247	—	14,903	3,980	15,377	79,167	16,913	6,459	16	145,834
Totals, 1962	7,291	3,265	15,374	13,738	54,477	77,143	42,020	124,066	70,445	26,875	2,443	437,137
1961	7,137	3,278	15,347	13,670	53,572	76,061	36,870	123,908	70,613	27,297	2,251	430,004
1960	6,988	3,238	15,648	13,424	53,804	74,586	35,613	120,060	69,069	26,729	2,298	421,448
1959	6,873	3,250	15,374	13,198	52,588	72,821	39,410	118,934	67,647	30,825	2,115	423,035
1958	6,609	3,199	15,338	13,168	50,518	72,016	21,038	120,998	64,077	28,425	1,995	397,381

Expenditure on highways and rural roads in the year ended Mar. 31, 1963 totalled $777,432,000, an amount 3.2 p.c. higher than that for the previous fiscal year; construction expenditures increased by 1.3 p.c. and maintenance costs by 9.1 p.c.

2.—Construction, Maintenance and General Expenditure on Highways, Rural Roads, Bridges and Ferries, by Province, Years Ended Mar. 31, 1962 and 1963

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books.

Item and Province or Territory	1962	1963	Item and Province or Territory	1962	1963
	$'000	$'000		$'000	$'000
Construction	**505,393**	**511,674**	**Administration and General**[1]	**32,733**	**30,645**
Newfoundland	8,133	10,527	Newfoundland	480	578
Prince Edward Island	5,633	6,145	Prince Edward Island	79	76
Nova Scotia	18,010	15,885	Nova Scotia	1,905	1,605
New Brunswick	20,037	17,102	New Brunswick	1,322	1,398
Quebec	80,869	110,507	Quebec	7,008	5,492
Ontario	167,907	166,718	Ontario	12,646	13,074
Manitoba	24,307	25,218	Manitoba	2,502	2,428
Saskatchewan	31,738	30,159	Saskatchewan	1,353	903
Alberta	51,088	46,858	Alberta	1,016	875
British Columbia	89,788	76,242	British Columbia	3,831	3,717
Yukon and N.W.T.	7,793	6,313	Yukon and N.W.T.	392	299
Maintenance	**215,480**	**235,113**	**Totals**	**753,516**	**777,432**
Newfoundland	8,422	9,838			
Prince Edward Island	2,316	2,818			
Nova Scotia	12,217	12,196	**Distribution of All Expenditure-**		
New Brunswick	14,425	14,179			
Quebec	61,583	69,434	**Federal**	**91,294**	**71,848**
Ontario	57,367	60,865			
Manitoba	7,633	7,167	**Provincial**	**596,414**	**632,146**
Saskatchewan	11,438	13,902			
Alberta	19,325	20,769	**Municipal**	**62,433**	**71,725**
British Columbia	18,840	22,254			
Yukon and N.W.T.	1,914	1,691	**Other**	**3,374**	**1,713**

[1] Includes federal administrative costs *re* Trans-Canada Highway amounting to $198,500 in 1961-62 and $201,000 in 1962-63.

The Trans-Canada Highway.—The original federal-provincial agreement for construction of the Trans-Canada Highway is given in outline, together with data on specifications and route across the participating provinces, in the 1951 Year Book, pp. 631-634. Construction progress and changes in legislation are reported in subsequent editions.

Under the Act, which became effective Dec. 10, 1949, agreements covering the Federal Government's participation in the cost of construction were entered into with each of the provinces. Construction standards were set and the date of completion fixed. The shortest practicable east-west route was to be designated by each province within its own borders, in agreement on terminal points with adjoining provinces, and those sections within the National Parks were to be the responsibility of the Federal Government. Later amendments to the Act increased the extent of federal financial participation and extended the period in which construction costs might be incurred under the Act to Dec. 31, 1967.

Although construction was still going on in a number of sections, the closing in 1962 of the last major gap—in the Rocky Mountains—made it possible for the first time to drive the entire length of the 4,860-mile route. The Trans-Canada Highway was officially opened on Sept. 3, 1962.

Provincial milages are approximately as follows: Newfoundland, 540; Prince Edward Island, 71; Nova Scotia, 318; New Brunswick, 390; Quebec, 399; Ontario, 1,453; Manitoba, 309; Saskatchewan, 406; Alberta, 282; and British Columbia, 552. Length through the National Parks totals 140 miles.

Up to Mar. 31, 1964, contractual commitments for new construction on the Highway amounted to $806,308,072, of which the federal share was $492,764,659. Federal payments to the provinces for prior, interim and new construction totalled $413,741,225. Paving to

specified standards had been completed over a distance of 3,414 miles and 699 bridges, overpasses and other structures of more than 20-foot span had been or were being constructed.

Roads to Resources and Roads in the North.—The *Roads to Resources Program* is a national undertaking designed to provide access to areas potentially rich in natural resources. Negotiations commenced in 1958 led to agreements being signed with all ten provinces that will eventually result in the construction or reconstruction of more than 4,700 miles of road. Progress of the program to June 30, 1964 was as follows:—

Province	Estimated Total Cost	Value of Approved Contracts	Provincial Expenditure[1]	Federal Contribution	Total Milage	Milage Completed
	$	$	$	$	No.	No.
Nfld.	16,058,800	18,897,800	8,217,358	4,108,679	319	242.9
P. E. I.	15,000,000	15,917,223	10,944,029	5,472,006	447	336.9
N. S.	16,880,437	14,547,718	13,462,608	6,731,304	489	359.6
N. B.	20,562,000	15,187,532	11,370,212	5,249,999	426	152.5
Que.	13,435,000[2]	11,753,886	9,211,138	4,425,307	248	123.0
Ont.	21,668,765	16,062,953	12,619,167	6,309,588	562	263.0
Man.	19,370,000	15,263,350	11,654,399	5,162,925	693	322.4
Sask.	22,950,000	11,941,689	10,706,389	5,353,194	811	357.9
Alta.	20,380,000	14,804,879	13,634,438	6,817,219	416	296.0
B. C.	20,500,000	14,305,000	12,373,267	6,186,813	321	170.9
TOTALS	186,805,002	148,592,030	114,193,005	55,817,034	4,732	2,625.1

[1] Includes only the amounts reported by the provinces to the Federal Government. [2] The Agreement with Quebec provides for additional projects to be included at a later date to bring the total to $15,000,000.

As shown above, the total estimated cost in several provinces exceeds $15,000,000, the amount shareable under the agreement, but the federal contribution to each province will remain at $7,500,000. Private industry has shared in the cost of certain roads where construction has been of most direct benefit to the company concerned.

In any province the program may consist of as many projects as can qualify for inclusion and for which funds are available. At mid-1964 there were approximately 100 roads completed or under way, varying considerably among the provinces in number, milage and purpose. In Prince Edward Island, 30 comparatively small projects had been undertaken, but the one project under way in British Columbia was a 321-mile road being constructed over very difficult terrain to a mining area in the northern interior. In most provinces, the majority of the roads being built under the program are intended for the purpose of opening up regions to primary resource development and exploration. In Prince Edward Island and Nova Scotia, on the other hand, a number of routes have been chosen for their tourist potential.

The *Development Road Program* in the Yukon Territory and the Mackenzie District of the Northwest Territories is distinct from the Roads to Resources Program in that the Federal Government is responsible for construction; in the Roads to Resources Program, the contribution of the Federal Government is wholly financial. Maintenance costs of Roads to Resources are borne by the provinces but Northern Roads costs are shared by the Federal and Territorial Governments on an 85-15 basis.

In the Yukon Territory about 900 miles of road will be built at an estimated cost of $36,000,000, the largest projects under way being the construction of the Watson Lake–Ross River road and the reconstruction of 16 miles of the Whitehorse–Keno road. In the Northwest Territories, more than 1,300 miles of road will be built at a cost of $64,000,000; the largest single project under construction is the Hay River–Fort Smith highway with its branch road to Pine Point.

Federal assistance to mining companies for exploration and development work in the territories includes road construction. Where two or more companies are developing a mineralized region, a mine development road may be built and paid for by the Federal Government. Also, two thirds of the cost of a mine-access road may be paid by the Federal Government, and one half the cost of a basic tote-trail may be contributed by the Territorial Government concerned. Tote-trail assistance will be financed from a $50,000 fund provided to each Territorial Government by the Federal Government.

Urban Streets.—Information on urban streets is obtained from the local administrations of all areas with populations over 1,000, all areas located within census metropolitan areas, improvement districts over 1,000 population and rural municipalities over 15,000 population. Brief statistical data are given in Table 3; more detail may be obtained from DBS annual report *Road and Street Mileage and Expenditure* (Catalogue No. 53–201).

3.—Statistics of Urban Streets, 1958-62

Item		1958	1959	1960	1961	1962
Total Expenditure Reported[1]	$'000	**164,310**	**191,950**	**272,388**	**235,533**	**254,053**
New construction	$'000	72,085	93,884	166,324	123,350	129,185
Reconstruction, repair, cleaning, sanding, snow removal, administration, etc.	$'000	92,225	98,066	106,064	112,183	124,868
Total Urban Milage	No.	**25,652**	**37,614**	**37,769**	**37,102**	**41,225**
Rigid pavement	"	5,659	6,072	6,448	6,281	6,862
Flexible pavement	"	8,504	13,173	13,395	15,214	16,815
Gravel and other surfaces	"	9,741	15,165	15,012	13,735	15,560
Earth	"	1,748	3,204	2,914	1,872	1,988

[1] Includes expenditures on sidewalks, footpaths, bridges and ferries.

Section 3.—Motor Vehicles

Motor Vehicle Registrations.—Registrations continue to increase year by year, a record of 6,074,655 being reached in 1963. Of that total, 4,788,896 were passenger cars—one for every 3.9 persons. Registrations by province are given in Table 4 and types of vehicles registered by province in Table 5.

4.—Motor Vehicles Registered, by Province, 1954-63

NOTE.—Registrations given here include passenger cars, trucks, buses, motorcycles, service cars, etc., but not trailers or dealer licences. Figures for 1904-53 are given in the corresponding table of previous Year Books beginning with the 1937 edition.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total[1]
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1954	34,423	20,848	133,087	99,058	674,114	1,489,980	210,471	267,373	338,541	371,711	3,644,589
1955	39,766	22,145	149,841	105,648	743,682	1,617,853	222,474	274,950	356,839	409,343	3,948,652
1956	45,997	23,373	157,544	111,315	844,827	1,710,240	240,008	291,265	381,153	454,217	4,265,437
1957	47,982	23,725	164,286	116,712	901,065	1,793,499	246,188	300,326	405,229	491,884	4,497,091
1958	51,575	25,504	164,954	121,715	968,058	1,868,922	256,064	314,423	430,081	515,244	4,723,825
1959	51,145	27,502	189,435	129,629	1,040,366	1,973,737	269,974	326,690	456,458	545,491	5,017,686
1960	61,952	30,147	187,065	138,469	1,096,053	2,062,484	285,689	335,148	486,370	564,351	5,256,341
1961	65,270	32,166	205,691	145,951	1,183,978	2,126,270	299,998	349,817	509,298	588,280	5,517,023
1962	74,119	33,888	206,370	151,360	1,281,180	2,177,148	312,272	372,219	535,459	620,426	5,774,810
1963	79,422	35,314	212,034	156,768	1,381,801	2,268,320	324,806	382,190	560,490	662,453	6,074,655

[1] Includes registrations in the Yukon and Northwest Territories; in 1963, they numbered 6,734 and 4,323, respectively.

5.—Types of Motor Vehicles Registered, by Province, 1962 and 1963

Year and Province or Territory	Passenger Cars[1]	Commercial Cars, Trucks, etc.[2]	Buses	Motor-cycles	Total
	No.	No.	No.	No.	No.
1962					
Newfoundland	54,373	19,174	270	302	74,119
Prince Edward Island	22,092	11,651	8	137	33,888
Nova Scotia	153,595	50,810	1,152	813	206,370
New Brunswick	118,483	31,399	666	812	151,360
Quebec	986,457	274,334	8,161	12,228	1,281,180
Ontario	1,840,119	322,888	6,818	7,323	2,177,148
Manitoba	236,737	73,978	189	1,368	312,272
Saskatchewan	242,271	128,894	234	820	372,219
Alberta	376,095	150,727	3,758	4,879	535,459
British Columbia	495,308	120,729	[3]	4,389	620,426
Yukon and Northwest Territories	5,854	4,440	45	30	10,369
Canada, 1962	**4,531,384**	**1,189,024**	**21,301**	**33,101**	**5,774,810**
1963					
Newfoundland	58,912	19,994	290	226	79,422
Prince Edward Island	23,328	11,858	11	117	35,314
Nova Scotia	160,482	49,640	1,136	776	212,034
New Brunswick	123,035	32,224	710	799	156,768
Quebec	1,068,291	290,439	8,897	14,174	1,381,801
Ontario	1,926,878	326,556	7,145	7,741	2,268,320
Manitoba	247,105	76,023	174	1,504	324,806
Saskatchewan	250,183	130,948	243	816	382,190
Alberta	393,422	157,420	3,936	5,712	560,490
British Columbia	531,116	126,058	[3]	5,279	662,453
Yukon and Northwest Territories	6,144	4,821	50	42	11,057
Canada, 1963	**4,788,896**	**1,225,981**	**22,592**	**37,186**	**6,074,655**

[1] Includes taxis. [2] Includes service cars, road tractors, etc. [3] Included with trucks.

Apparent Supply of Automobiles.—The apparent supply of automobiles in Canada in any year is computed by deducting the number exported from the sum of the production and imports. Statistics regarding retail sales and the financing of motor vehicle sales are given in Chapter XXI on Domestic Trade and Prices.

6.—Apparent Supply of New Automobiles, 1953-62

Year	Cars Made for Sale in Canada		Car Imports		Re-exports of Imported Cars		Apparent Supply	
	Pas-senger	Com-mercial[1]	Pas-senger	Com-mercial	Pas-senger	Com-mercial	Pas-senger	Com-mercial[1]
	No.	No.	No.	No.	No.	No.	No.	No.
1953	319,937	100,772	53,179	5,296	44	3	373,072	106,065
1954	267,452	59,666	38,509	4,973	84	25	305,877	64,614
1955	349,305	69,186	48,546	9,403	22	24	397,830	78,565
1956	349,809	85,094	76,200	13,032	45	42	425,964	98,084
1957	318,416	64,857	70,796	9,215	65	39	389,147	74,033
1958	280,677	55,908	104,195	9,182	190	8	384,682	65,082
1959	285,841	63,429	153,932	11,632	549	6	439,224	75,055
1960	307,499	66,293	170,653	9,376	179	56	477,973	75,613
1961	312,599	60,270	105,865	9,487	700	35	418,764	69,722
1962	412,120	77,888	94,655	4,413	194	67	506,581	82,234

[1] Includes Armed Forces vehicles.

Provincial Government Revenue from Motor Vehicles.—The taxation of motive fuels, motor vehicles, garages, drivers, chauffeurs, etc., is an important source of provincial government income. In every province licences or permits duly issued by the provincial authorities are required for motor vehicles of all kinds, trailers, operators or drivers, paid chauffeurs, dealers, garages and gasoline and service stations. In 1963 the average cost per motor vehicle for operating taxes and licences was about $122.

The more important sources from which provincial revenue from motor vehicles is derived are shown in Table 7. Motive fuel tax rates are given in the Public Finance Chapter, Section 2, Subsection 2 on Provincial Taxes; Federal Government revenue from import duties, excise and sales taxes is given in the same chapter, Section 3, Subsection 3 on Revenue from Taxation.

7.—Provincial Revenue from the Registration and Operation of Motor Vehicles, by Province, Years Ended Mar. 31, 1963 and 1964

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences	Public Service Vehicle Tax	Motive Fuel Taxes	Total[1]
	$	$	$	$	$	$	$
1962-63							
Newfoundland	948,998	1,144,221	2,190	325,092	500	7,292,248	9,987,976
Prince Edward Island	375,433	335,651	498	49,715	1,282	2,726,208	3,503,430
Nova Scotia	2,950,597	2,566,771	[2]	425,634	83,399	19,421,662	25,832,192
New Brunswick	2,377,907	2,140,090	4,160	374,363	..	15,837,815	21,029,684
Quebec	22,959,523	20,241,906	48,912	3,654,770	1,344,679	119,459,877	169,016,539
Ontario	30,881,264	29,201,684	69,280	3,303,522	3,948,858	181,290,545	252,304,606
Manitoba	3,853,814	3,400,044	5,705	120,661	56,319	23,329,481	31,315,480
Saskatchewan	3,505,089	3,973,808	[3]	457,245	—	27,548,242	36,420,702
Alberta	5,429,967	7,730,409	[4]	1,631,636	184,441	35,395,074	51,572,826
British Columbia	9,839,431	9,012,696	19,603	938,502	307,760	42,892,419	63,776,722
Yukon and N.W.T.	71,954	95,158	110	27,671	70,877	346,309	643,801
Canada, 1962-63	**83,193,977**	**79,842,438**	**150,458**[5]	**11,308,811**	**5,998,115**	**475,539,880**	**665,403,958**
1963-64							
Newfoundland	1,065,654	1,537,943	2,954	383,926	570	8,761,882	12,062,808
Prince Edward Island	394,526	364,626	426	83,828	811	3,165,048	4,025,551
Nova Scotia	3,128,454	2,700,980	[2]	443,638	100,442	20,468,094	27,254,932
New Brunswick	2,884,100	2,209,992	3,994	377,147	..	16,902,607	22,696,814
Quebec	23,893,692	21,499,157	56,696	3,829,435	1,419,915	149,659,230	202,097,851
Ontario	38,324,060	32,568,269	76,468	5,623,502	3,602,741	193,029,163	276,918,967
Manitoba	4,029,050	3,523,912	6,343	1,675,980	1,189,217	24,528,368	35,562,251
Saskatchewan	3,064,028	4,230,449	[3]	479,160	—	29,672,244	39,084,006
Alberta	5,658,003	8,050,185	[4]	471,663	181,785	37,478,536	53,110,330
British Columbia	10,456,597	9,081,443	23,228	954,683	327,818	46,109,258	67,808,651
Yukon and N.W.T.	77,670	94,397	137	29,725	61,301	561,084	873,855
Canada, 1963-64	**93,575,834**	**85,861,353**	**170,246**[5]	**14,352,687**	**6,884,600**	**530,335,514**	**741,496,016**

[1] Includes other items not shown such as transfer of motor vehicles, garage and service station licences, and fines for infractions of motor vehicle laws. [2] Included with other motor vehicles. [3] Included with miscellaneous revenues and therefore in total. [4] Included with passenger automobiles. [5] Not complete.

Sales of Motive Fuels.—In order to estimate the total amount of motive fuel purchased in Canada for use in motor vehicles on public streets and highways, it has been necessary to eliminate from the total the amount of motive fuel used for other purposes. Thus, from the total or gross sales, including imports and exports, the following are subtracted to obtain net sales: tax exempt sales to the Federal Government and other consumers, exports, and sales on which refunds were paid. Net sales are thus defined as sales on which a tax or taxes have been paid in full and are considered to approximate the actual amount of motive fuel purchased in Canada for use on public streets and highways.

As shown in Table 8, consumption of taxable gasoline, which is used almost entirely for automotive purposes, rose 6.2 p.c. in 1963 and net sales of diesel oil 25.8 p.c.

8.—Sales of Motive Fuels, by Province, 1959-63

Province or Territory	1959	1960	1961	1962	1963
	Gasoline and Liquefied Petroleum Gases				
	gal.	gal.	gal.	gal.	gal.
Newfoundland	30,443,029	35,550,628	38,929,496	42,326,939	46,158,513
Prince Edward Island	17,854,271	17,872,406	18,098,741	18,964,066	19,687,378
Nova Scotia	104,250,854	108,488,604	111,462,514	117,994,058	122,355,774
New Brunswick	101,261,096	105,835,219	96,715,991	100,120,363	101,467,069
Quebec	755,247,641	819,390,839	869,222,682	928,964,847	987,710,127
Ontario	1,340,853,693	1,402,538,126	1,446,057,743	1,511,424,379	1,602,319,487
Manitoba	225,912,673	239,928,353	237,235,972	248,787,711	260,735,739
Saskatchewan	283,963,876	298,209,628	278,414,495	301,427,372	319,170,150
Alberta	474,001,753	515,417,285	552,879,855	599,470,079	457,384,992[1]
British Columbia	345,370,730	368,535,669	378,376,267	389,114,360	409,922,756
Yukon and N.W.T.	11,518,629	9,756,248	10,591,858	11,416,688	11,329,469
Totals, Gross Sales	**3,690,678,245**	**3,921,523,905**	**4,037,985,614**	**4,270,010,862**	**4,338,241,454**
Refunds and exemptions	826,000,245	904,702,945	897,788,029	955,100,531	818,746,912
Totals, Net Sales	**2,864,678,000**	**3,016,820,960**	**3,140,197,585**	**3,314,910,331**	**3,519,494,542**
	Diesel Oil				
	gal.	gal.	gal.	gal.	gal.
Totals, Net Sales	**120,129,508**	**128,954,900**	**143,042,427**	**153,570,626**	**193,180,457**

[1] The marked decrease in this figure is attributable to the elimination of 125,000,000 gal. of liquefied petroleum gases used for domestic and industrial heating and power. Net sales are not affected by this change.

Motor Carriers—Freight.*—Statistics of the common carrier segment of the intercity and rural motor carrier industry have been collected on a continuing basis since 1941. However, as little capital is required to enter the trucking business, many marginal operators are associated with the industry and the large turnover and numerous changes each year have created many problems in the collection of statistics, although these are gradually being overcome. Statistics of contract carriers are available from 1958.

* Statistics are given in more detail in DBS annual report *Motor Carriers—Freight*, Part I (Catalogue No. 53-222) and Part II (Catalogue No. 53-223).

9.—Summary Statistics of Motor Carriers—Freight, 1961 and 1962

Item		Common		Contract	
		1961	1962	1961	1962
Carriers Reporting	**No.**	**3,396**	**3,282**	**1,643**	**1,601**
Property Account—Fixed Assets (motor carrier business)	**$**	**283,544,999**	**298,775,060**	**62,774,541**	**71,617,051**
Operating Revenues	**$**	**369,956,818**	**373,625,674**	**73,589,340**	**84,800,217**
Freight—					
Intercity and rural	$	358,905,926	361,595,208	70,149,694	80,544,843
Local	$	4,637,476	4,817,178	1,329,950	1,699,600
Other	$	6,413,416	7,213,288	2,109,696	2,555,774
Operating Expenses	**$**	**349,397,130**	**356,818,736**	**66,248,095**	**76,173,469**
Maintenance	$	48,949,584	49,031,364	11,168,507	13,346,027
Wages of drivers and helpers	$	74,022,863	73,818,658	15,017,785	18,313,590
Other (fuel, fuel taxes, rents and depreciation)	$	139,089,164	97,409,465	28,177,188	19,827,827
Licence expense	$	12,608,094	12,957,558	2,541,370	3,027,002
Administration and general	$	74,727,425	123,601,691	9,343,245	21,659,023

9.—Summary Statistics of Motor Carriers—Freight, 1961 and 1962—concluded

Item		Common		Contract	
		1961	1962	1961	1962
Net Operating Revenues	$	**20,559,688**	**16,806,938**	**7,341,245**	**8,626,748**
Fuel Consumed—					
Gasoline	'000 gal.	84,358	81,336	22,303	24,793
Diesel oil	"	29,474	31,100	4,417	6,153
Liquefied petroleum gases	"	1	2	69	23
Employees—					
Average employed during year	No.	29,135	29,407	4,895	5,752
Total salaries and wages	$	128,473,330	129,832,813	20,967,925	25,288,003
Working proprietors	No.	2,819	2,579	1,341	1,238
Withdrawals of working proprietors	$	8,136,704	7,928,338	4,652,327	4,411,213
Equipment—					
Trucks with gasoline engines	No.	11,162	10,267	3,852	3,849
Trucks with diesel engines	"	191	311	153	171
Road tractors with gasoline engines	"	7,601	7,579	1,431	1,722
Road tractors with diesel engines	"	2,709	3,159	445	575
Semi-trailers	"	16,488	16,202	2,275	2,731
Trailers	"	565	1,400	284	346

Household Goods Movers and Storage Operators.*—Statistics of household goods movers and storage operators, summarized in Table **10**, were first presented separately in 1960; before that date, they were included with either motor carriers—freight or warehousing, depending upon the predominant source of operating revenues of the companies concerned.

* Statistics are given in more detail in DBS annual report *Moving and Storage, Household Goods* (Catalogue No. 53-221).

10.—Summary Statistics of Household Goods Movers and Storage Operators, 1960-62

Item		1960	1961	1962
Companies Reporting	No.	**163**	**192**	**193**
Investment in Land, Warehouses, Vehicles, etc.	$	**18,016,538**	**24,506,043**	**28,861,344**
Revenues	$	**30,962,777**	**34,315,516**	**38,482,035**
Cartage	$	21,882,082	24,329,327	25,980,439
Storage	$	4,374,983	4,758,767	5,816,373
Packing	$	3,116,592	3,605,636	3,546,449
Other	$	1,589,120	1,621,786	3,138,774
Operating Expenses	$	**30,324,049**	**33,547,487**	**36,526,348**
Maintenance	$	2,226,563	2,426,787	2,835,251
Salaries and wages (charged to operations)	$	9,925,366	10,692,026	10,917,519
Cartage expenses	$	1,884,625	2,269,976	2,607,760
Storage expenses	$	2,384,414	2,505,279	2,378,406
Other operating expenses	$	13,903,081	15,653,419	17,787,412
Net Operating Revenues	$	**638,728**	**768,029**	**1,955,687**
Employees—				
Average employed during year	No.	3,658	3,906	4,064
Salaries and wages	$	13,701,905	14,937,657	16,220,976
Storage Capacity—				
Household goods	cu. ft.	27,372,708	30,235,601	31,217,234
Other	"	1,793,310	4,049,382	5,345,366
Vehicles—				
Trucks	No.	1,302	1,437	1,578
Tractors	"	650	672	741
Semi-trailers	"	647	711	780
Trailers	"	40	39	59

Passenger Buses.*—The operations of companies predominantly engaged in passenger bus service are summarized in Table 11. Data refer to the for-hire segment of the industry and only those firms engaged in intercity and rural operations and having an annual gross revenue of $6,000 or over are covered. Operators predominantly involved in the provision of school bus service are not included nor are airport servicing and urban transit bus operators.

11.—Summary Statistics of Intercity and Rural Passenger Bus Companies, 1959-63

NOTE.—Only carriers with an annual gross revenue of $6,000 or over are included.

Item		1959	1960	1961	1962	1963
Carriers Reporting	No.	**162**	**162**	**161**	**159**	**166**
Property Account—Fixed Assets	$	**66,083,872**	**65,351,765**	**66,489,620**	**70,436,779**	**76,252,205**
Revenues	$	**49,131,642**	**51,076,097**	**53,122,514**	**57,057,805**	**61,236,860**
Regular Passenger Service—						
Intercity and rural	$	40,275,902	41,773,022	42,969,210	45,051,213	47,960,347
Urban and suburban	$	983,739	895,396	743,846	686,019	879,221
Chartered service	$	3,966,249	4,202,019	4,722,831	6,125,050	6,597,127
Other transportation revenue	$	3,905,752	4,205,660	4,686,627	5,195,523	5,800,165
Operating Expenses	$	**44,945,424**	**46,624,230**	**49,060,235**	**51,845,161**	**55,725,517**
Maintenance	$	8,979,538	9,300,151	9,208,151	10,927,855	11,212,351
Wages and bonuses of drivers and helpers	$	11,246,010	11,791,201	12,321,120	13,388,754	14,624,686
Other transportation expenses	$	10,634,177	10,510,437	10,318,002	10,677,733	11,675,266
Operating taxes and licences	$	3,934,147	4,175,011	4,322,054	4,237,632	4,496,626
Other operating expenses	$	10,151,552	10,847,430	12,890,908	12,613,187	13,716,588
Net Operating Revenues	$	**4,186,218**	**4,451,867**	**4,062,279**	**5,212,644**	**5,511,343**
Traffic and Employees—						
Passengers—						
Regular Routes—						
Intercity and rural	No.	53,807,135	55,592,546	54,052,706	50,591,146	48,638,373
Urban and suburban	"	6,910,905	7,201,426	5,401,687	4,756,342	5,019,002
Special and chartered service	"	4,788,193	5,786,121	4,834,020	5,347,173	6,382,415
Bus Miles—						
Regular Routes—						
Intercity and rural	No.	86,694,483	87,880,424	88,424,751	90,753,096	93,443,880
Urban and suburban	"	2,405,350	2,401,113	1,642,072	1,664,367	1,881,933
Special and chartered service	"	6,297,288	7,024,473	8,128,267	10,049,231	11,385,383
Gasoline consumed	gal.	6,028,607	5,740,358	5,090,177	4,501,251	4,134,529
Diesel oil consumed	"	7,892,289	8,579,945	9,118,152	9,908,848	10,328,872
Employees—						
Average employed during year	No.	5,062	5,110	5,049	4,662	4,724
Total salaries and wages	$	21,329,084	22,043,886	22,891,346	22,197,171	23,736,153
Working proprietors	No.	66	74	57	58	59
Withdrawals of working proprietors	$	215,256	209,737	173,681	150,308	140,663
Equipment—						
Buses	No.	2,367	2,388	2,340	2,393	2,457
Gasoline	"	*1,389*	*1,347*	*1,495*	*1,191*	*1,144*
Diesel	"	*978*	*1,041*	*845*	*1,202*	*1,313*

Motor Transport Traffic.†—Surveys of motor transport traffic in all provinces were placed on a continuing basis in 1957. Approximately 3 p.c. of total registrations were sampled for surveys of truck operations during each quarter of 1961. Each quarterly sample was spread over three survey weeks with one third of the sample being used for a seven-day period (Sunday through Saturday) per month.

Excluding vehicles that do not perform normal transportation services, such as cranes, tow trucks, road building equipment, etc., the average number of trucks licensed in Canada during the year 1962 was 975,000. Of these, 6.2 p.c. were for-hire carriers, 19.9 p.c. were

* Statistics are given in more detail in DBS annual report *Passenger Bus Statistics* (Catalogue No. 53-215).
† Statistics are given in more detail in DBS annual reports *Motor Transport Traffic* for Canada and the provinces (Catalogue Nos. 53-207—53-214).

private intercity trucks, 40.6 p.c. were private trucks operated predominantly within urban areas, and 33.3 p.c. were farm trucks. Almost one third of the total number were registered in Ontario and one half were registered in the two provinces of Ontario and Quebec.

For-hire trucks averaged 198,900 net ton-miles per vehicle and, although amounting to only 6.2 p.c. of total registrations, they accounted for 65 p.c. of the total net ton-miles performed by all commercial trucks in Canada, a result of the comparatively high average yearly milage of for-hire trucks and also of the heavier average load carried (11.0 tons as compared with an average of 5.3 tons for all trucks). The predominance of heavier vehicles in the for-hire group also explains the low milage per gallon of gasoline of 5.8 as compared with an average of 9.3 for all vehicles.

12.—Summary Statistics of Truck Population and Traffic, by Type of Operation, 1961 and 1962

Year and Item		For-Hire	Private			Total
			Intercity	Urban	Farm	
1961						
Average Truck Population	No.	58,306	198,804	370,942	314,848	942,900
Atlantic Provinces	"	*2,001*	*37,013*	*22,326*	*11,360*	*72,700*
Quebec	"	*14,800*	*34,684*	*87,816*	*40,400*	*177,700*
Ontario	"	*21,305*	*69,283*	*139,398*	*62,314*	*292,300*
Manitoba	"	*1,600*	*2,900*	*25,700*	*33,300*	*63,500*
Saskatchewan	"	*1,700*	*9,542*	*12,558*	*83,900*	*107,700*
Alberta	"	*10,700*	*19,664*	*24,536*	*72,200*	*127,100*
British Columbia	"	*6,200*	*25,718*	*58,608*	*11,374*	*101,900*
Miles Travelled	'000,000	1,486.2	2,126.4	2,224.0	923.9	6,760.5
Atlantic Provinces	"	*30.2*	*293.5*	*121.7*	*45.0*	*490.4*
Quebec	"	*501.1*	*468.9*	*657.2*	*123.6*	*1,550.8*
Ontario	"	*587.9*	*785.2*	*797.5*	*186.7*	*2,357.3*
Manitoba	"	*84.4*	*46.0*	*173.8*	*78.4*	*382.6*
Saskatchewan	"	*79.2*	*111.4*	*64.4*	*200.1*	*455.1*
Alberta	"	*273.5*	*207.8*	*140.3*	*251.6*	*873.2*
British Columbia	"	*129.9*	*213.6*	*269.1*	*38.5*	*651.1*
Miles per gallon of gasoline	No.	6.0	9.6	10.7	12.7	9.3
Average weight of goods carried	ton	10.8	4.2	1.8	1.3	5.2
Average net ton-miles per truck	No.	200,900	19,800	5,100	1,400	19,100
Capacity utilized	p.c.	57.0	40.2	34.4	26.6	48.0
Average gross ton-miles per truck	No.	449,900	59,200	20,600	7,900	51,000
1962						
Average Truck Population	No.	60,527	193,568	396,055	324,850	975,000
Atlantic Provinces	"	*1,727*	*36,896*	*25,073*	*12,104*	*75,800*
Quebec	"	*16,700*	*38,379*	*96,721*	*39,200*	*191,000*
Ontario	"	*21,600*	*64,258*	*144,143*	*66,499*	*296,500*
Manitoba	"	*1,600*	*3,400*	*28,600*	*33,700*	*67,300*
Saskatchewan	"	*1,800*	*9,020*	*13,880*	*85,600*	*110,300*
Alberta	"	*10,500*	*17,472*	*27,628*	*76,200*	*131,800*
British Columbia	"	*6,600*	*24,143*	*60,010*	*11,547*	*102,300*
Miles Travelled	'000,000	1,506.7	2,066.6	2,371.9	975.4	6,920.6
Atlantic Provinces	"	*30.6*	*319.0*	*123.5*	*45.4*	*518.5*
Quebec	"	*525.7*	*524.8*	*738.5*	*117.4*	*1,706.4*
Ontario	"	*554.6*	*688.7*	*800.6*	*196.7*	*2,240.6*
Manitoba	"	*92.8*	*40.8*	*184.4*	*79.7*	*397.7*
Saskatchewan	"	*83.8*	*110.3*	*72.5*	*221.2*	*487.8*
Alberta	"	*274.4*	*171.5*	*165.5*	*274.0*	*885.4*
British Columbia	"	*144.8*	*211.5*	*286.9*	*41.0*	*684.2*
Miles per gallon of gasoline	No.	5.8	9.5	10.6	12.5	9.3
Average weight of goods carried	ton	11.0	4.6	1.7	1.4	5.3
Average net ton-miles per truck	No.	198,900	20,900	4,700	1,600	18,900
Capacity utilized	p.c.	56.3	39.3	30.4	28.9	46.6
Average gross ton-miles per truck	No.	449,900	62,600	20,700	8,100	51,500

Urban Transit Systems.—The collection of statistical information on urban transit systems has been extensively reorganized in recent years because of major changes made in the types of vehicles used for mass passenger movement in urban centres. The current series, which was started in 1956, includes operations of motor buses, trolley coaches, streetcars and subway cars carrying passengers in urban and suburban service.

13.—Summary Statistics of Urban Transit Systems, 1959-63

Item		1959	1960	1961	1962	1963
Passenger Fares[1]	No.	**1,056,812,775**	**1,029,305,402**	**987,319,165**	**995,169,878**	**988,147,638**
Motor bus	"	637,996,304	645,353,267	631,202,683	643,307,389	665,481,904
Trolley coach	"	201,388,376	191,202,462	175,491,968	172,487,505	149,996,752
Streetcar	"	173,224,683	148,863,223	138,585,305	136,550,346	125,937,437
Subway car	"	35,869,394	34,663,146	32,993,117	32,874,696	36,491,918
Chartered	"	8,334,018	9,223,304	9,046,092	9,949,942	9,168,657
Intercity and rural services (all types of vehicles)	"	[2]	[2]	[2]	[2]	1,070,970
Vehicle-Miles Run	No.	**200,085,927**	**200,099,078**	**198,537,833**	**202,445,806**	**208,121,107**
Motor bus	"	130,122,179	133,179,494	134,363,690	138,252,679	142,779,355
Trolley coach	"	35,874,081	35,136,724	32,899,859	32,862,744	32,390,625
Streetcar	"	24,676,511	22,093,057	21,441,041	21,240,370	20,302,402
Subway car	"	6,969,728	7,053,302	7,018,476	6,951,856	8,967,566
Chartered	"	2,443,428	2,636,501	2,814,767	3,138,157	2,935,243
Intercity and rural services (all types of vehicles)	"	[2]	[2]	[2]	[2]	745,916
Fuel Consumed—						
Diesel oil	gal.	15,071,113	16,847,010	17,266,159	18,385,972	19,820,960
Gasoline	"	11,083,205	9,939,892	9,108,194	9,096,746	9,388,808
Liquid petroleum gases	"	290,166	272,157	334,170	188,000	313,302
Passenger Vehicles in Service	No.	**7,268**	**7,180**	**7,228**	**7,386**	**7,509**
Motor bus	"	5,030	4,998	5,081	5,267	5,432
Trolley coach	"	1,221	1,175	1,174	1,170	1,167
Streetcar	"	877	867	833	791	740
Subway car	"	140	140	140	158	170
Finances—						
Total assets	$	463,001,240	475,888,063	285,697,114[3]	292,158,071[3]	298,479,381[3]
Long-term debt	$	287,927,330	286,602,882	176,600,938[3]	179,674,576[3]	188,892,505[3]
Capital stock and surplus	$	102,552,156	116,934,953	74,209,868[3]	74,991,464[3]	75,679,476[3]
Operating revenues	$	140,195,856	140,848,593	138,440,041	141,608,500	142,451,128
Operating expenses	$	134,917,105	135,980,728	137,257,702	141,620,749	146,280,067
Ratio of expenses to revenues	p.c.	96.23	96.54	99.14	100.01	102.7
Employees	No.	18,892	18,549	18,100	18,157	18,182
Salaries and wages	$	82,209,754	84,697,981	85,008,940	88,145,609	90,839,804

[1] Initial revenue passenger fares, excluding transfers. [2] Breakdown not available; included in other items.
[3] Excludes British Columbia Electric Railway Company (British Columbia Hydro and Power Authority in 1962).

Motor Vehicle Traffic Accidents.—There were 336,255 motor vehicle traffic accidents reported in 1963 compared with 310,745 in the previous year. Deaths from such accidents continue their upward trend, numbering 3,883 in 1962 and 4,210 in 1963 as against 2,715 in 1954. Statistics for 1963 are given by province in Table 14, but it should be noted that, although motorists are required by law to report accidents, complete statistics of these accidents are not available for all provinces. Vital Statistics 1963 data show 4,444 deaths from Motor Vehicle Accidents; of these, 84 occurred in non-traffic motor vehicle accidents on private property.

14.—Motor Vehicle Traffic Accidents, by Province, 1963

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Accidents Reported	**5,339**	**1,432**	**10,918**	**8,596**	**115,005**	**104,919**	**14,639**	**15,842**	**28,256**	**30,924**	**385**	**336,255**
Fatal	69	28	146	131	1,128	1,222	140	166	228	309	11	3,578
Non-fatal	1,316	327	2,107	2,098	22,277	32,718	4,759	3,782	5,337	9,470	91	84,282
Property damage[1]	3,954	1,077	8,665	6,367	91,600	70,979	9,740	11,894	22,691	21,145	283	248,395
Persons Killed	**76**	**33**	**161**	**162**	**1,315**	**1,421**	**168**	**200**	**302**	**360**	**12**	**4,210**
Drivers	16	14	63	54	432	590	58	95	137	143	5	1,607
Passengers	22	10	40	50	389	420	60	74	115	116	6	1,302
Pedestrians	33	9	52	54	422	355	46	28	40	92	1	1,132
Bicyclists	2	—	4	4	62	42	3	2	4	8	—	131
Motorcyclists and passengers	—	—	1	[2]	10	10	1	—	2	1	—	25[2]
Others	3	—	1	—	—	4	—	1	4	—	—	13
Persons Injured	**1,769**	**464**	**2,924**	**3,130**	**33,885**	**47,801**	**6,867**	**6,052**	**8,456**	**14,585**	**153**	**126,086**
Drivers	405	206	974	1,152	9,286	19,961	2,927	2,549	3,408	5,772	71	46,711
Passengers	640	188	1,211	1,374	15,762	19,813	2,983	2,993	3,945	7,012	75	55,996
Pedestrians	652	66	653	486	7,074	6,073	685	399	763	1,226	3	18,080
Bicyclists	42	4	70	101	1,363	1,306	171	90	167	348	2	3,664
Motorcyclists and passengers	5	—	13	[2]	400	560	38	9	141	165	1	1,332[2]
Others	25	—	3	17	—	88	63	12	32	62	1	303
Total Property Damage $'000	**2,256**	**635**	**4,593**	**3,998**	**..**	**49,500**	**5,938**	**7,091**	**13,086**	**15,743**	**437**	**103,277[3]**

[1] All reported accidents are those resulting in property damage estimated at $100 or over. [2] Included with bicyclists in New Brunswick. [3] Excludes Quebec.

PART IV.—WATER TRANSPORT*

The Canada Shipping Act.—Legislation regarding all phases of shipping is consolidated in the Canada Shipping Act (RSC 1952, c. 29). Under the Act and its amendments the Parliament of Canada accepts full responsibility for the regulation of Canadian shipping.

Section 1.—Shipping Facilities and Traffic

Subsection 1.—Shipping

All Canadian waterways including canals, lakes and rivers are open on equal terms, except in the case of the coasting trade, to the shipping of all countries of the world so that Canadian shipping must compete with foreign flag shipping.

Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships enjoy equal privileges with Canadian ships in the carriage of goods and passengers from one port in Canada to another port in Canada, commonly known as the coasting trade. Prior to the completion of the St. Lawrence Seaway most of the domestic Great Lakes traffic was moved in Canadian-registered ships and the rights of other Commonwealth ships in this trade were largely theoretical. After the Seaway was finished the intrusion of other Commonwealth ships, particularly United Kingdom ships, became a reality.

* Information and statistics dealing with this subject have been supplied as follows: aids to navigation, canals, harbours, administrative services, and marine services by the Department of Transport and the National Harbours Board; the St. Lawrence Seaway by the St. Lawrence Seaway Authority; part of the financial statistics by the Department of Public Works; shipping subsidies by the Director of Subsidized Steamship Services, Canadian Maritime Commission; and canal traffic and statistics of shipping by the Public Finance and Transportation Division, Dominion Bureau of Statistics.

Canadian Registry.—Under Part I of the Canada Shipping Act, ships in excess of 15 tons net register and pleasure yachts in excess of 20 tons net are required to be registered; ships of lower tonnage may be registered voluntarily, otherwise they are required to be operated under a Vessel Licence if powered by a motor of 10 hp. or more. Sect. 6 of the Act restricts ownership to British subjects or bodies corporate incorporated under the law of a country of the Commonwealth or of the Republic of Ireland, and having their principal place of business in those countries. Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships are given the general designation 'British Ship', and a ship that should be but is not registered is not entitled to the privileges accorded to British ships. Ships in the planning stage or in course of construction may be recorded before registry by a Registrar of Shipping at one of the 73 Ports of Registry in Canada.

1.—Vessels on the Canadian Shipping Registry, by Province, as at Dec. 31, 1961-63

NOTE.—Figures from 1935 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Province or Territory	1961		1962		1963	
	Ships	Gross Tonnage	Ships	Gross Tonnage	Ships	Gross Tonnage
	No.	No.	No.	No.	No.	No.
Newfoundland	808	73,034	809	77,194	810	82,784
Prince Edward Island	668	17,376	752	20,250	779	20,219
Nova Scotia	6,055	123,386	6,326	148,198	6,600	155,388
New Brunswick	1,983	74,188	2,126	78,856	2,232	91,936
Quebec	2,546	816,325	2,678	814,444	2,780	892,466
Ontario	2,376	890,574	2,425	888,440	2,462	917,653
Manitoba	107	16,761	105	16,808	109	17,586
Alberta	11	531	12	681	12	681
British Columbia	6,499	617,330	6,755	653,433	7,006	678,598
Yukon Territory	6	1,435	6	1,435	6	1,435
Totals	**21,059**	**2,630,940**	**21,994**	**2,699,739**	**22,796**	**2,858,746**

Shipping Traffic.—Before 1952 the only information available on shipping activity in Canada was the number and registered net tonnage of vessels operating in and out of Canadian customs ports and the tonnage of cargoes loaded and unloaded at these ports destined for or arriving from foreign countries. In 1952 the coastwise movement of cargo in and out of customs ports was reported for the first time and in January 1957 the coverage was extended to include tonnage of vessels and tons of cargo in and out of non-customs ports. Reports are not required for vessels of less than 15 registered net tons, for naval vessels, or (commencing with 1962) for fishing vessels.

2.—Vessels Entered at Canadian Ports, 1953-62

NOTE.—Figures from 1929 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	In Foreign Service[1]		In Coasting Service		Totals	
	Vessels	Net Tons Registered	Vessels	Net Tons Registered	Vessels	Net Tons Registered
	No.	No.	No.	No.	No.	No.
1953	34,400	56,589,078	88,675	67,417,391	123,075	124,006,469
1954	34,079	54,767,687	84,890	64,291,085	118,969	119,058,772
1955	34,432	58,018,365	86,010	67,228,840	120,442	125,247,205
1956	35,315	63,105,100	88,640	75,220,366	123,955	138,325,466
1957	35,352	66,149,552	104,079	76,535,160	139,431	142,684,712
1958	30,710	57,738,034	100,234	76,197,625	130,944	133,935,659
1959	33,251	67,526,464	110,702	85,536,408	143,953	153,062,872
1960	33,397	74,805,002	120,125	88,493,116	153,522	163,298,118
1961	31,832	77,140,524	115,339	91,157,708	147,171	168,298,232
1962	30,269	81,942,501	112,325	87,767,018	142,594	169,709,519

[1] Sea-going and inland international.

3.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1961 and 1962

Province or Territory and Port	1961			1962		
	Loaded	Unloaded	Total	Loaded	Unloaded	Total
	tons	tons	tons	tons	tons	tons
Newfoundland[1]	**4,905,463**	**2,709,526**	**7,614,989**	**3,926,202**	**2,830,750**	**6,756,952**
Bell Island	2,592,900	21,074	2,613,974	1,443,823	13,920	1,457,743
Corner Brook	451,390	910,906	1,362,296	427,775	837,886	1,265,661
St. John's	127,990	619,369	747,359	131,369	749,848	881,217
Botwood	340,527	175,378	515,905	313,343	165,028	478,371
Port aux Basques	34,029	305,569	339,598	41,048	309,709	350,757
Prince Edward Island[1]	**201,293**	**544,773**	**746,066**	**198,011**	**393,933**	**591,944**
Charlottetown	142,034	381,665	523,696	120,325	349,976	470,301
Nova Scotia[1]	**9,779,861**	**5,347,052**	**15,126,913**	**10,043,654**	**5,552,388**	**15,596,042**
Halifax	3,842,247	3,663,062	7,505,309	4,385,000	3,801,658	8,186,658
Sydney	2,007,876	1,321,364	3,329,240	1,887,557	1,399,543	3,287,100
Hantsport	2,153,845	503	2,154,348	2,028,465	1,351	2,029,816
Baddeck	410,814	115	410,929	413,784	98	413,882
North Sydney	267,433	22,011	289,444	290,186	26,652	316,838
New Brunswick[1]	**2,870,964**	**3,614,072**	**6,485,036**	**2,587,340**	**3,441,149**	**6,028,489**
Saint John	2,253,386	2,964,526	5,217,912	1,947,823	2,659,675	4,607,498
Bathurst	22,973	259,114	282,087	39,838	278,331	318,169
Dalhousie	214,037	13,059	227,096	221,405	4,017	225,422
Quebec[1]	**29,396,837**	**27,870,915**	**57,267,752**	**34,219,109**	**26,273,624**	**60,492,733**
Montreal	8,461,781	12,511,582	20,973,363	7,799,484	11,985,979	19,785,463
Sept Îles	8,463,919	357,439	8,821,358	11,929,346	504,651	12,433,997
Quebec	1,169,007	3,571,751	4,740,758	1,145,031	3,434,740	4,579,771
Sorel	1,651,261	2,694,209	4,345,470	1,122,431	1,731,135	2,853,566
Trois Rivières	1,344,998	2,666,219	4,011,217	1,108,798	2,240,201	3,348,999
Baie Comeau	1,580,217	1,844,574	3,424,791	1,970,700	2,020,676	3,991,376
Port Alfred	464,007	2,477,456	2,941,463	431,920	2,294,886	2,726,806
Port Cartier	1,334,202	22,221	1,356,423	5,132,523	76,809	5,209,332
Ontario[1]	**26,407,891**	**31,628,314**	**58,036,205**	**24,580,102**	**31,206,362**	**55,786,464**
Port Arthur-Fort William	12,242,140	1,191,691	13,433,831	10,833,036	1,079,637	11,912,673
Hamilton	495,505	7,292,390	7,787,895	564,658	7,664,154	8,228,812
Sault Ste. Marie	874,357	4,877,612	5,751,969	791,686	4,439,687	5,231,373
Toronto	924,807	4,154,626	5,079,433	694,780	4,617,558	5,312,338
Sarnia	1,958,876	1,203,640	3,162,516	2,143,500	1,227,264	3,370,764
Port Colborne	1,652,811	1,311,818	2,964,629	1,691,715	1,165,621	2,857,336
Prescott	700,008	1,133,947	1,833,955	458,947	885,097	1,344,044
Clarkson	601,328	1,016,355	1,617,683	597,597	1,202,728	1,800,325
Kingston	466,316	898,766	1,365,082	407,014	694,532	1,101,546
Picton	1,290,131	74,689	1,364,820	1,032,815	68,200	1,101,015
Windsor	330,618	783,526	1,114,144	513,498	1,114,527	1,628,025
Midland	16,250	927,448	943,698	177	644,978	645,155
Goderich	331,468	510,203	841,671	445,885	345,232	791,117
Michipicoten Harbour	682,486	57,344	739,830	541,326	97,216	638,542
Thorold	220,738	490,372	711,110	214,066	575,197	789,263
Little Current	233,669	469,645	703,314	246,894	306,535	553,429
Manitoba[1]	**612,081**	**53,747**	**665,828**	**671,755**	**65,723**	**737,478**
Churchill	612,081	52,924	665,005	671,738	65,722	737,460
British Columbia[1]	**25,710,072**	**13,790,103**	**39,500,175**	**27,861,239**	**15,840,198**	**43,701,437**
Vancouver	10,614,223	4,419,347	15,033,570	10,967,491	4,690,546	15,658,037
New Westminster	2,449,818	1,503,188	3,953,006	2,097,881	1,330,482	3,428,363
Victoria	1,206,604	903,638	2,110,242	1,246,694	898,926	2,145,620
Powell River	504,368	961,680	1,466,048	474,961	943,827	1,418,788
Nanaimo	597,978	750,494	1,348,472	596,688	545,451	1,142,139
Port Alberni	593,145	414,278	1,007,423	944,059	590,639	1,534,698
Prince Rupert	459,240	505,943	965,183	354,089	614,844	968,933
Ocean Falls	351,809	574,387	926,196	394,809	680,702	1,075,511
Chemainus	685,938	38,704	724,642	670,811	35,277	706,088
Duncan Bay	226,064	452,566	678,630	259,816	524,647	784,463
Britannia Beach	507,462	157,152	664,614	481,160	439,509	920,669
Quatsino	505,751	129,911	635,662	277,564	196,274	473,838
Crofton	206,994	403,870	610,864	192,785	505,504	698,289
Kitimat	111,239	405,203	516,442	121,718	395,585	517,303
Northwest Territories	**19,885**	**45,371**	**65,256**	**13,907**	**50,612**	**64,519**
Totals	**99,904,347**	**85,603,873**	**185,508,220**	**104,101,319**	**85,654,739**	**189,756,058**

[1] Includes smaller ports not shown separately.

The freight movement through a large port takes a number of different forms. These include cargoes loaded for and unloaded from foreign countries and cargoes loaded and unloaded in coastwise shipping, i.e., domestic freight moving between Canadian points. There is, as well, the in-transit movement in vessels that pass through the harbour without loading or unloading and the movement from one point to another within the harbour, which in many ports amounts to a large volume.

Shipping statistics covering traffic in and out of both customs and non-customs ports are available from 1957. These do not include freight in transit or freight moved from one point to another within the harbour. Table 4 shows the principal commodities loaded and unloaded in foreign and coastwise shipping at the ten ports handling the largest cargo volumes in 1962. These ports handled 59 p.c. of all Canada's international shipping and 41 p.c. of the coastwise trade. The specific commodities shown are those transported in volume and often in bulk form.

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1962

NOTE.—Only commodities totalling over 50,000 tons are listed.

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal	**3,403,001**	**7,481,355**	**4,396,483**	**4,504,624**	**19,785,463**
Crude petroleum	—	3,546,347	—	4,800	3,551,147
Wheat	1,351,909	173,494	—	1,720,102	3,245,505
Fuel oil	32,820	906,125	1,957,297	45,522	2,941,764
Coal, bituminous	—	416,885	488,096	1,050,911	1,955,892
Gasoline	—	47,698	1,018,268	35,010	1,100,976
Corn	125,266	322,295	—	17,974	465,535
Gypsum	—	7	1,889	381,406	383,302
Soybeans	154,241	150,304	—	68,047	372,592
Sugar	15	320,577	1,576	—	322,168
Flaxseed	132,883	21,729	—	162,709	317,321
Barley	80,993	26,347	100	172,856	280,296
Cement	—	3,043	184,846	—	187,889
Oats	16,875	3,024	—	126,436	146,335
Lubricating oils and greases	165	24,803	118,293	2,874	146,135
Salt	—	7,300	—	125,641	132,941
Wheat flour	124,680	—	2,209	2,648	129,537
Chemicals and related products	23,714	59,492	7,115	36,063	126,384
Iron and steel—castings, bar, sheet, structural, etc.	4,467	52,425	28,555	7,985	93,432
Rye	34,588	—	—	52,649	87,237
Molasses, crude	—	66,826	2,780	—	69,606
Copper, alloyed and unalloyed	60,829	33	—	6,203	67,065
Iron ore	11,290	48,241	3,415	—	62,946
Sulphur	25,102	37,474	—	—	62,576
Food preparations	1,529	9,224	26,045	24,930	61,728
Iron and steel scrap	53,370	—	10	4,380	57,760
Other commodities not listed	1,168,265	1,237,662	555,989	455,478	3,417,394
Vancouver	**7,240,366**	**1,124,214**	**3,727,125**	**3,566,332**	**15,658,037**
Wheat	3,744,597	2	—	—	3,744,599
Pulpwood	507,888	5,353	1,398,873	180,673	2,092,787
Sand and gravel	2,000	249,612	3,480	1,360,890	1,615,982
Logs, round timber	92,824	33,099	40,582	844,188	1,010,693
Lumber and timber	882,766	17,918	5,959	70,086	976,729
Hogged fuel	202,270	—	633,439	1,900	837,609
Fuel oil	18,553	63,949	751,851	2,397	836,750
Coal, bituminous	337,240	—	20	831	338,091
Gasoline	30,767	7,613	280,054	153	318,587
Woodpulp	88,273	1,006	2,022	165,994	257,295
Newsprint	4,637	44	8,781	207,320	220,782
Barley	217,605	—	—	—	217,605
Rapeseed	198,168	—	—	—	198,168
Chemicals and related products	93,568	12,589	59,634	3,300	169,091

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1962—continued

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Vancouver—concluded					
Flaxseed	138,823	—	—	—	138,823
Copper ore	114,817	—	—	10,950	125,767
Cement	3,215	1,639	9,288	111,438	125,580
Wheat flour	122,069	25	—	—	122,094
Iron and steel—castings, bar, sheet, structural, etc.	8,997	100,888	6,638	562	117,085
Sugar	559	111,581	—	—	112,140
Salt	83	105,769	679	50	106,581
Sulphur	68,040	—	33,118	216	101,374
Other commodities not listed	362,607	413,127	492,707	605,384	1,873,825
Sept Îles	**11,645,573**	**218,922**	**283,773**	**285,729**	**12,433,997**
Iron ore	11,595,859	—	274,936	—	11,870,795
Fuel oil	—	200,927	200	16,128	217,255
Other commodities not listed	49,714	17,995	8,637	269,601	345,947
Port Arthur-Fort William	**3,641,159**	**410,228**	**7,191,877**	**669,409**	**11,912,673**
Wheat	305,794	—	5,171,255	—	5,477,049
Iron ore	2,718,712	—	477,404	—	3,196,116
Barley	146,912	—	593,844	—	740,756
Oats	25,929	—	365,243	—	391,172
Flaxseed	44,514	—	191,289	—	235,803
Petroleum, crude, Canadian	—	193,200	—	—	193,200
Newsprint	175,203	—	2,741	—	177,944
Fuel oil	11,780	—	13,712	146,288	171,780
Rye	98,853	—	64,104	—	162,957
Other commodities not listed	113,462	217,028	312,285	523,121	1,165,896
Hamilton	**234,779**	**6,958,713**	**329,879**	**705,441**	**8,228,812**
Iron ore	15	3,755,304	—	216,204	3,971,523
Coal, bituminous	—	2,846,176	—	5,217	2,851,393
Fuel oil	—	71,777	8,700	285,174	365,651
Iron and steel—castings, bar, sheet, structural, etc.	144,887	13,096	5,802	—	163,785
Sand and gravel	—	—	27,404	60,275	87,679
Phosphate rock	—	32,613	—	51,416	84,029
Tar pitch and creosote	34,746	—	7,070	10,539	52,355
Other commodities not listed	55,131	239,747	280,903	76,616	652,397
Halifax	**2,544,529**	**3,300,578**	**1,840,471**	**501,080**	**8,186,658**
Petroleum, crude	—	2,533,934	—	—	2,533,934
Gypsum	1,746,206	—	137,366	—	1,883,572
Fuel oil	8,584	479,641	1,172,194	104,776	1,765,195
Gasoline	—	42,168	444,919	157,756	644,843
Wheat	308,907	—	15	109,649	418,571
Wheat flour	105,114	30	4,929	3,386	113,459
Cement	—	313	242	72,934	73,489
Other commodities not listed	375,718	244,492	80,806	52,579	753,595
Toronto	**298,267**	**2,780,927**	**396,513**	**1,836,631**	**5,312,338**
Coal, bituminous	—	1,692,465	—	201,462	1,893,927
Fuel oil	81,775	378,627	—	109,573	569,975
Soybeans	2,800	336,165	6,810	5,730	351,505
Cement	—	610	—	318,230	318,840
Limestone	—	—	—	264,438	264,438
Gasoline	—	—	154,616	16,977	171,593
Wheat	—	—	24,447	134,070	158,517
Barley	—	—	—	144,062	144,062
Sugar	—	132,082	—	28	132,110
Soybean oil cake, etc.	107,981	—	—	—	107,981
Iron and steel scrap	68,211	22,765	—	—	90,976
Salt	—	38,929	—	48,004	86,933
Sand and gravel	—	5,225	10	63,537	68,772
Other commodities not listed	37,500	174,059	210,630	530,520	952,709

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1962—concluded

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Sault Ste. Marie	**485,513**	**3,508,200**	**306,173**	**931,487**	**5,231,373**
Coal, bituminous	—	1,956,461	—	—	1,956,461
Iron ore and concentrates	—	1,124,836	—	357,704	1,482,540
Limestone	—	425,467	—	—	425,467
Pulpwood	—	—	134,100	175,250	309,350
Pig iron	229,470	—	57	4,511	234,038
Fuel oil	—	—	—	185,784	185,784
Iron and steel-castings, bar, sheet, structural, etc.	65,837	699	108,846	337	175,719
Iron and steel ingot, billet, etc.	162,853	—	7,043	—	169,896
Gasoline	—	—	—	79,499	79,499
Sand and gravel	5,475	—	—	70,471	75,946
Other commodities not listed	21,878	737	56,127	57,931	136,673
Saint John	**1,112,511**	**2,223,769**	**835,312**	**435,906**	**4,607,498**
Crude petroleum	—	1,701,504	—	—	1,701,504
Fuel oil	9,831	12,745	535,488	266,866	824,930
Gasoline	40,350	—	248,159	133,107	421,616
Wheat	298,994	—	—	—	298,994
Sugar	3,017	241,880	—	—	244,897
Potatoes	146,183	—	—	—	146,183
Other commodities not listed	614,136	267,640	51,665	35,933	969,374
Quebec	**942,794**	**765,563**	**202,237**	**2,669,177**	**4,579,771**
Fuel oil	—	495,357	102,408	642,254	1,240,019
Pulpwood	11,636	—	—	768,854	780,490
Wheat	260,845	—	—	302,617	563,462
Gasoline	—	3,660	37,388	473,212	514,260
Newsprint	294,122	25	—	—	294,147
Asbestos, unmilled	250,104	—	—	—	250,104
Coal, bituminous	—	15,841	—	188,740	204,581
Barley	—	—	—	121,824	121,824
Oats	1,600	3,035	2,380	94,172	101,187
Corn	2,800	68,064	—	20,570	91,434
Other commodities not listed	121,687	179,581	60,061	56,934	418,263

Subsection 2.—Harbours

Water transportation cannot be studied with any degree of completeness without taking into consideration the co-ordination of land and water transportation at many of the ports. Facilities provided to enable interchange movements include the necessary docks and wharves, some for passenger traffic but most of them for freight, warehouses for the handling of general cargo, and special equipment for such bulk freight as lumber, coal, oil and grain. Facilities may include cold storage warehouses, harbour railway and switching connections, grain elevators, coal bunkers, oil storage tanks and, in the chief harbours, vessel repair docks.

Eight of the principal harbours of Canada are administered by the National Harbours Board. Eleven other major harbours come under the supervision of the Department of Transport and are administered by harbour commissioners that include municipal as well as Federal Government appointees. In addition, there are about 300 public harbours under the direct supervision of the Department of Transport, administered under rules and regulations approved by the Governor General in Council. Harbour masters have been appointed by the Minister of Transport for 110 of these harbours, their remuneration being paid from fees levied on vessels under the terms of the Canada Shipping Act.

Throughout the country there are several thousand minor wharves and breakwaters administered by the Department of Transport under the Government Harbours and Piers Act. These facilities are for the accommodation of smaller freight vessels and commercial fishing craft and are generally under the direct supervision of wharfingers whose remuneration is determined as a percentage of wharfage fees collected. Small non-revenue wharves are under the general supervision of the Department of Transport District Marine Agents. At most ports, in addition to the public harbour facilities operated by the operating authorities, there are dock and handling facilities owned by private companies such as railway, pulp and paper, oil and sugar industries.

National Harbours Board.—The National Harbours Board, a Crown corporation established in 1936, is charged with the administration and operation of the following properties: port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, terminal railways, etc., at the harbours of Halifax, Saint John, Chicoutimi, Quebec, Trois Rivières, Montreal, Vancouver and Churchill; grain elevators at Prescott and Port Colborne; and the Jacques Cartier and Champlain Bridges at Montreal. Current operating revenues and expenditures are given in Table **21**, p. 806.

5.—Facilities of the Larger Harbours Administered by the National Harbours Board, as at Dec. 31, 1963

NOTE.—The facilities at these ports include those under the control of other agencies as well as those of the National Harbours Board.

Item	Halifax	Saint John	Quebec	Trois Rivières	Montreal	Vancouver
Minimum depth of approach channel..... ft.	51	30	40	35	35	39
Harbour railway..... miles	31	64	23	5	61.5	75
Piers, wharves, jetties, etc. .. No.	88	34	32	21	129	109
Length of berthing..... ft.	35,445	24,550	34,900	9,188	67,384	38,572
Transit-shed floor space.....sq. ft.	1,473,354	938,000	739,000	482,044	3,299,553	1,552,600
Cold storage warehouse capacity.....cu. ft.	1,719,000	900,000	500,000	—	2,900,000	3,633,297
Grain Elevators—						
Capacity..... bu.	4,152,500	3,000,000	8,000,000	9,300,000	22,262,000	21,775,500
Loading rate.....bu. per hr.	90,000	150,000	90,000	55,000	728,000	280,000
Floating crane capacity..... tons	100	65	75	—	90	35
Coal dock storage capacity.... "	32,000	—	215,000	300,000	275,000	—
Oil tank storage capacity..... gal.	247,480,000	41,346,500	150,949,000	28,829,467	1,125,642,275	234,589,277

Subsection 3.—Canals

The canals and canalized waters of Canada under the jurisdiction of the Department of Transport, together with those under the jurisdiction of the St. Lawrence Seaway Authority, comprise a series of waterways providing navigation for 1,875 miles inland from salt water.

Those included under the two classifications—Seaway canals and Department of Transport canals—are listed in Table 6 with their locations, lengths and lock complement. In addition to these, the federal Department of Public Works administers the St. Andrew's Lock (length, width and draught, respectively, 215, 45 and 17 feet) on the Red River at Selkirk, Man., and the lock at Poupore, Que. A few small locks are operated by provincial authorities.

During 1963, 74,585,427 tons of freight and 21,811 vessels passed through the canals as compared with 63,568,291 tons of freight and 22,836 vessels during 1962. In addition to freight and passenger vessels, thousands of pleasure craft are locked through the canals. Vessels locking at Sault Ste. Marie during 1963 carried 142,663 passengers as compared with 146,208 in 1962.

6.—Lengths of Channels and Dimensions of Locks under the Control of the St. Lawrence Seaway Authority or the Department of Transport

Name	Location	Length of Channel	Locks			
			No.	Minimum Dimensions		
				Length	Width	Depth
		miles		ft.	ft.	ft.
Seaway Canals[1]						
Main Route—						
South Shore	Montreal to Caughnawaga	20	2	766	80	30
Beauharnois	Melocheville to Lake St. Francis	15	2	766	80	30
Iroquois	Iroquois Point	1	1	766	80	30
Welland	Port Weller, Lake Ontario, to Port Colborne, Lake Erie	27.60	8	859	80	30
Non-toll—						
Lachine	Montreal to Lachine	8.74	5	270	45	14
Cornwall (not through canal)	Cornwall to closure dyke	3.50	4	270	43.67	14
Sault Ste. Marie	St. Mary's Rapids, Sault Ste. Marie	1.38	1	900	60	18.25
Department of Transport Canals						
Atlantic Area—						
Canso Canal	Canso Causeway, N.S.	0.78	1	820	80	32
St. Peter's	St. Peter's Bay to Bras d'Or Lakes, Cape Breton, N.S.	0.50	1	300	47.4	17
Richelieu River—						
St. Ours	St. Ours, Que.	0.12	1	339	45	12
Chambly	Chambly to St. Jean, Que.	11.76	9	125.11	23.3	6.5
Ottawa and Rideau Rivers—						
Ste. Anne	Junction of St. Lawrence and Ottawa Rivers	0.62	1	200	45	9
Carillon	Carillon Rapids, Ottawa River	0.50	1	200	45	9
Rideau	Ottawa to Kingston	123.53	47	134	33	5.5
	Rideau Lake to Perth (Tay Branch)	6.12	2	134	33	5.5
Lake Ontario to Georgian Bay—						
Trent	Trenton to Peterborough lock, Peterborough	88.74	18	175	33	8[2]
	Peterborough lock to Swift Rapids	135.71	24	134	33	6
	Swift Rapids to Big Chute	8.00	—	—	—	4
	Big Chute to Port Severn	8.11	1	100	25	6
	Sturgeon Lake to Lindsay (Scugog Branch)	10.00	1	142	33	6
	Lindsay to Port Perry (Scugog Branch)	25.00	—	—	—	4.5
Murray	Isthmus of Murray, Bay of Quinte	7.53	—	—	—	8.5[3]

[1] Minimum depth of Seaway canals is 27 feet and minimum width 200 feet. Wiley-Dondero canal and two locks near Massena, N.Y., are in United States territory; dimensions are approximately the same as those of Canadian facilities. [2] Notice must be given by vessels of more than six-foot draught. [3] With Lake Ontario at elevation of 243 feet.

7.—Traffic through Canadian Canals, by Nationality of Vessel, Navigation Seasons 1954-63

NOTE.—Figures include duplications where vessels pass through two or more canals. Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canadian		United States		United Kingdom		Other	
	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage
	No.	No.	No.	No.	No.	No.	No.	No.
1954	21,066	25,303,262	3,145	3,245,555	[1]	[1]	1,081	893,778
1955	22,758	27,709,232	3,950	3,798,290	200	132,858	1,264	1,044,774
1956	27,473	31,019,188	3,776	3,675,511	267	186,978	1,349	1,141,259
1957	24,191	27,726,358	3,324	3,802,909	332	221,254	1,589	1,364,205
1958	21,763	26,635,559	3,216	3,029,624	302	198,926	2,170	1,793,309
1959	21,363	28,706,462	4,819	4,233,936	1,125	3,130,140	3,252	7,321,449
1960	19,816	28,963,294	5,046	3,660,931	1,303	3,971,587	3,464	9,455,739
1961	17,332	32,531,256	3,307	2,515,262	1,845	6,294,753	3,496	10,065,901
1962	13,836	31,677,612	3,524	4,045,470	1,938	6,769,909	3,538	11,017,809
1963	13,821	38,040,238	3,106	4,016,111	1,637	6,932,454	3,247	10,248,060

[1] Included with Canadian vessels.

8.—Freight Traffic through Canadian Canals by Origin of Cargo, Navigation Seasons 1954-63

NOTE.—Figures include duplications where cargoes pass through two or more canals. Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canada		United States		Britain		Other		Total
	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons
1954	17,237,542	57.3	12,833,159	42.7	[1]	[1]	[1]	[1]	30,070,701
1955	20,002,540	57.4	14,177,878	40.7	120,827	0.3	572,953	1.6	34,874,198
1956	24,698,001	61.7	14,457,217	36.1	106,448	0.3	754,899	1.9	40,016,565
1957	21,459,552	57.6	15,021,930	40.3	151,550	0.4	597,317	1.6	37,230,349
1958	21,832,526	62.2	12,177,376	34.7	223,059	0.6	863,626	2.5	35,096,587
1959	30,829,746	60.4	17,134,694	33.5	326,992	0.6	2,784,700	5.5	51,076,132
1960	28,886,228	54.6	20,993,117	39.6	332,794	0.6	2,734,744	5.2	52,946,883
1961	31,487,898	55.1	23,175,964	40.5	315,991	0.5	2,242,843	3.9	57,222,696
1962	33,972,361	53.4	26,228,794	41.3	805,831	1.3	2,561,305	4.0	63,568,291
1963	41,976,843	56.3	28,431,960	38.1	1,054,929	1.4	3,121,695	4.2	74,585,427

[1] Included with United States.

9.—Tonnage of Products Carried by Canal, classified by Commodity Group,[1] Navigation Season 1962 and 1963

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Year and Canal	Food, Feed, Beverages and Tobacco	Crude Materials, Inedible	Fabricated Materials	End Products, Inedible	Miscellaneous Freight	Domestic Package Freight	Total
	tons	tons	tons	tons	tons	tons	tons
1962							
Sault Ste. Marie	226,890	185,405	561,462	—	13,287	120,085	1,107,129
Welland	11,551,102	19,201,303	3,943,223	230,403	123,045	461,533	35,510,609
St. Lawrence River	10,877,578	9,855,152	3,905,593	260,477	238,502	610,519	25,747,821
Richelieu River	—	—	84,893	—	3,254	—	88,147
St. Peter's	640	—	—	—	291	—	931
Murray	—	—	350	—	—	—	350
Ottawa River	—	—	—	300	—	—	300
Rideau	—	—	—	—	—	—	—
Trent	—	—	71	—	—	—	71
St. Andrew's	1,108	—	966	—	217	—	2,291
Canso	101,072	228,753	765,448	—	15,369	—	1,110,642
Totals, 1962	**22,758,390**	**29,470,613**	**9,262,006**	**491,180**	**393,965**	**1,192,137**	**63,568,291**
1963							
Sault Ste. Marie	156,450	133,147	425,102	—	8,045	87,261	810,005
Welland	14,713,784	21,716,203	4,144,803	243,006	78,804	428,929	41,325,529
St. Lawrence River	13,908,971	11,895,451	4,310,452	302,598	196,600	550,260	31,164,332
Richelieu River	—	—	67,687	—	857	—	68,544
St. Peter's	360	—	—	—	214	—	574
Murray	—	—	—	—	—	—	—
Ottawa River	—	—	5,641	2,390	—	—	8,031
Rideau	—	—	—	—	—	—	—
Trent	—	—	62	—	—	—	62
St. Andrew's	1,562	400	1,554	51	247	—	3,814
Canso	175,260	254,323	755,444	—	19,509	—	1,204,536
Totals, 1963	**28,956,387**	**33,999,524**	**9,710,745**	**548,045**	**304,276**	**1,066,450**	**74,585,427**

[1] Grouped according to the revised standard commodity classification.

10.—Freight Traffic through Canadian Canals, by Direction and Origin, Navigation Season 1962

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Canal	Traffic by Direction		Origins of Cargo			Total Cargo
	Up	Down	Canada	United States	Other Countries	
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie	357,232	749,897	1,010,109	89,780	7,240	1,107,129
Welland	10,916,370	24,594,239	16,391,475	17,845,278	1,273,856	35,510,609
St. Lawrence	10,948,669	14,799,152	15,447,697	8,242,824	2,057,300	25,747,821
Richelieu River	80,925	7,222	85,265	2,882	—	88,147
St. Peter's	271	660	931	—	—	931
Murray	350	—	350	—	—	350
Ottawa River	150	150	300	—	—	300
Rideau	—	—	—	—	—	—
Trent	13	58	71	—	—	71
St. Andrew's	797	1,494	2,291	—	—	2,291
Canso	747,530	363,112	1,062,612	48,030	—	1,110,642
Totals	**23,052,307**	**40,515,984**	**34,001,101**	**26,228,794**	**3,338,396**	**63,568,291**

11.—St. Lawrence-Great Lakes Traffic using St. Lawrence, Welland and Sault Ste. Marie Canals, 1962 and 1963

NOTE.—Duplications eliminated wherever possible.

Canals Used	1962			1963		
	Up-bound Freight	Down-bound Freight	Total	Up-bound Freight	Down-bound Freight	Total
	tons	tons	tons	tons	tons	tons
Traffic using Canadian St. Lawrence-Great Lakes System	**12,516,213**	**27,154,138**	**39,670,351**	**16,159,172**	**30,420,112**	**46,579,284**
St. Lawrence and Ottawa	—	—	—	1,957	—	1,957
St. Lawrence only	1,398,518	1,997,907	3,396,425	2,863,218	1,784,017	4,647,235
St. Lawrence and Welland	8,279,885	12,690,998	20,970,883	10,680,607	15,606,404	26,287,011
St. Lawrence, Welland and Sault Ste. Marie	29,354	98,289	127,643	8,923	63,573	72,496
Welland only	2,480,578	11,715,452	14,196,030	2,413,200	12,421,638	14,834,838
Welland and Sault Ste. Marie	66,496	41,799	108,295	36,002	22,587	58,589
Sault Ste. Marie only	261,382	609,693	871,075	155,265	521,893	677,158
Traffic using United States Locks at Sault Ste. Marie only	**9,557,192**	**69,726,041**	**79,283,233**	**10,675,828**	**74,575,468**	**85,251,296**
Totals	**22,073,405**	**96,880,179**	**118,953,584**	**26,835,000**	**104,995,580**	**131,830,580**

Traffic through the Sault Ste. Marie canal (Canadian lock and United States locks) fluctuated between a high of 128,489,000 tons in 1953 and a low of 70,906,000 tons in 1959; the volume in 1963 was 86,061,301 tons. The dominant traffic from a tonnage aspect continued to be iron ore, which also reached its highest point in 1953 at 98,658,000 tons, dropped to 47,214,000 tons in 1961 and stood at 58,569,070 tons in 1963. In the period 1958-63, wheat replaced soft coal in second place with tonnages increasing each year from 7,478,000 in 1958 to 10,177,000 in 1961 but dropping to 10,058,409 tons in 1963; other grains usually ranged between 40 p.c. and 60 p.c. of the wheat tonnage, although they were only 28 p.c. of that tonnage in 1961 and 37 p.c. in 1963. Soft coal tonnages in the 1958-63 period ranged from 6,389,000 in 1958 to 5,998,523 in 1963.

Canadian use of the Panama Canal.—The use of the Panama Canal as a transport facility for the movement of goods from one Canadian port to another is of relatively minor importance. Of the total of 4,067,000 long tons of cargo leaving the West Coast of Canada in the year ended June 30, 1963 and passing through the Panama Canal, only 23,000 long tons were destined for Eastern Canadian ports. Similarly, of the 712,000 long tons of cargo leaving Eastern Canadian ports and passing through the Panama Canal, 18,000 long tons were destined for Western Canadian ports. The total tonnage passing through the Panama Canal and arriving in Canadian West Coast ports from any origin, Canada or elsewhere, amounted to 539,088 long tons in the year ended June 30, 1963; the total from any origin arriving at Eastern Canadian ports after having passed through the Panama Canal was 617,399 long tons.

Subsection 4.—The St. Lawrence Seaway

Events leading up to the beginning of the St. Lawrence Seaway project and the progress made during the years of its construction are covered in the 1954 to 1959 Year Books. A special article carried in the 1956 edition (pp. 821-829) gives detailed information on Great Lakes–St. Lawrence waterway traffic immediately prior to the beginning of construction on the project and another special article carried in the 1960 Year Book (pp. 851-860) covers the story of the Seaway, its new facilities and services and the movement of freight during the second year of its operation.

The St. Lawrence Seaway Authority, constituted as a Corporation by Act of Parliament in 1951 (RSC 1952, c. 242), undertook the construction (and subsequent maintenance and operation) of Canadian facilities between Montreal and Lake Erie to allow 27-foot navigation, concurrently with the construction of similar facilities in the International Rapids Section of the St. Lawrence River by the Saint Lawrence Seaway Development Corporation of the United States. The Seaway was opened to commercial traffic on Apr. 1, 1959 and officially opened on June 26, 1959. With the opening of the Seaway, certain ancillary canals were transferred to the jurisdiction of the St. Lawrence Seaway Authority for operation and maintenance purposes. These include the Lachine, a section of the Cornwall Canal, a portion of the third Welland Canal and the Canadian locks at Sault Ste. Marie. Tolls are not assessed against vessel movements on these waterways and traffic data for them are not included in this Subsection.

Tables **12** and **13** give combined traffic statistics of the St. Lawrence and Welland Canals for the year 1963. Duplicate transits are eliminated so that the figures show the actual total movement of goods through the St. Lawrence Seaway. On this basis, 4,784 ships carrying more than 15,820,000 tons of cargo moved upbound through the Seaway in 1963 and 4,737 vessels carrying 29,750,000 tons moved downbound. Ocean-going ships carried 17.6 p.c. of the total cargoes, lakers 82.3 p.c. and other craft 0.1 p.c. There is still

evident an imbalance of loading, 46.7 p.c. of the gross registered tonnage of all vessels upbound being in ballast compared with only 14.0 p.c. of the vessels downbound. Of the total tonnage carried upbound in 1963, 13,301,000 tons were domestic cargo and 2,520,000 tons were foreign traffic; downbound, 24,369,000 tons were domestic freight and 5,381,000 tons were carried to and from foreign ports.

12.—Summary Statistics of St. Lawrence Seaway Traffic, 1963

(Combined traffic of the Montreal–Lake Ontario Section and the Welland Canal, with duplications eliminated)

Item	Upbound			Downbound		
	No. of Transits	Gross Tons	Cargo Tons	No. of Transits	Gross Tons	Cargo Tons
Type of Vessel						
Ocean—						
Cargo	977	5,545,032	2,117,203	958	5,430,540	5,120,011
Tanker	75	583,532	459,265	74	574,445	326,611
Laker—						
Cargo	2,645	19,293,696	11,299,784	2,630	19,336,160	23,437,830
Tug and barge	228	227,395	248,044	199	207,823	265,899
Tanker	540	1,467,171	1,695,656	543	1,461,304	558,208
Other craft[1]	319	102,155	480	333	143,559	41,216
Totals	**4,784**	**27,218,981**	**15,820,432**	**4,737**	**27,153,831**	**29,749,775**
Type of Cargo						
Bulk	1,679	9,835,222	13,511,089	2,832	20,037,511	27,123,210
General	491	2,227,932	1,106,265	89	412,886	228,694
Mixed	488	2,404,507	1,203,078	620	2,882,714	2,397,871
Passenger[2]	116	34,892	—	114	16,532	—
In Ballast—						
Ocean	203	1,650,463	—	52	380,222	—
Laker	1,604	10,972,527	—	815	3,315,518	—
Other	203	93,438	—	215	108,448	—
Type of Traffic						
Domestic—						
Canada to Canada	1,686	7,563,149	3,165,372	1,852	9,421,665	9,142,251
Canada to United States	1,748	13,471,142	9,755,902	15	65,041	32,145
United States to Canada	8	31,324	9,268	1,500	11,317,195	14,554,388
United States to United States	376	651,213	370,257	353	454,849	640,233
Foreign—						
Canada—						
Import	166	1,035,945	565,139	—	—	—
Export	—	—	—	184	1,141,967	843,987
United States—						
Import	800	4,466,208	1,954,494	—	—	—
Export	—	—	—	833	4,753,114	4,536,771

[1] Includes naval vessels. [2] Upbound passengers in all types of vessel numbered 3,096 and downbound 3,820.

13.—St. Lawrence Seaway Traffic classified by Type of Cargo, 1963

(Combined traffic of the Montreal–Lake Ontario Section and the Welland Canal, with duplications eliminated)

Commodity	Cargo Tons	P.C. of Total	Commodity	Cargo Tons	P.C. of Total
Agricultural Products	**16,023,362**	**35.2**	**Forest Products**	**369,244**	**0.8**
Wheat	8,400,418	18.5	Pulpwood	238,268	0.5
Corn	2,915,453	6.4	Other forest products	130,976	0.3
Barley	1,359,660	3.0			
Soybeans	1,061,075	2.3	**Manufactures and Miscellaneous**	**7,170,384**	**15.7**
Oats	602,983	1.3	Fuel oil	1,798,881	3.9
Rye	314,377	0.7	Iron and steel, manufactured	840,154	1.8
Flaxseed	304,747	0.7	Newsprint	460,050	1.0
Soybean oil cake and meal	263,011	0.6	Scrap iron and steel	411,469	0.9
Flour, wheat	234,595	0.5	Gasoline	222,979	0.5
Beans and peas	274,752	0.6	Lubricating oils and greases	310,680	0.7
Malt	60,390	0.1	Food products	306,823	0.7
Other agricultural products	231,901	0.5	Sugar	121,845	0.3
			Chemicals	174,523	0.4
Animal Products	**405,446**	**0.9**	Pig iron	133,403	0.3
Packing house products, edible	103,793	0.2	Cement	142,020	0.3
Hides, skins and pelts	60,341	0.1	Syrup and molasses	187,372	0.4
Other animal products	241,312	0.6	Sodium products	124,037	0.3
			Iron and steel, nails, wire	92,228	0.2
Mineral Products	**20,805,202**	**45.7**	Petroleum products, other	188,297	0.4
Iron ore	12,783,026	28.1	Tar, pitch and creosote	110,864	0.2
Bituminous coal	5,550,921	12.2	Rubber, crude, natural, synthetic	107,992	0.2
Stone, ground or crushed	966,495	2.2	Woodpulp	59,051	0.1
Salt	339,061	0.7	Machinery and machines	88,777	0.2
Coke	246,764	0.5	Other manufactures and miscellaneous	1,288,939	2.9
Gravel and sand	136,925	0.3			
Petroleum, crude	144,109	0.3	**Package Freight**	**796,569**	**1.7**
Clay and bentonite	152,412	0.3	Package freight—domestic	738,758	1.6
Phosphate rock	25,837	0.1	Package freight—foreign	57,811	1
Sulphur	74,485	0.2			
Aluminum ore and concentrates	94,287	0.2			
Other mineral products	290,880	0.6	**Totals**	**45,570,207**	**100.0**

On the Montreal–Lake Ontario Section, upbound traffic increased 24.4 p.c. in 1963 compared with 1962 and downbound traffic by 18.3 p.c. The increase in upbound traffic was accounted for almost entirely by the volume of iron ore shipped from St. Lawrence ports to Hamilton and Lake Erie, and downbound cargoes rose because of greater overseas sales of wheat. There were 18 fewer upbound transits and 48 fewer downbound transits in 1963 than in 1962, indicating a slight increase in the size of vessels using this portion of the Seaway and in the average tons of cargo carried. Bulk cargo comprised 90.2 p.c. of the total traffic through the Section in 1963, the principal commodities through the St. Lawrence canals being iron ore, wheat, corn, fuel oil, bituminous coal and barley. Traffic patterns show that 31.4 p.c. of the total movement was between two Canadian ports, 42.7 p.c. moved between Canadian and United States ports and 25.5 p.c. consisted of foreign trade to and from Canada and the United States. The small remainder was traffic between two points in the United States.

Through the Welland Canal there were 7,597 transits in 1963 with a cargo volume of 13,152,000 tons upbound and 28,151,000 tons downbound; bulk cargo accounted for 94.1 p.c. of the traffic. Although many vessels pass through both the St. Lawrence and the Welland Canals on 'through' trips, there is a substantial amount of local traffic between Great Lakes ports which involved only the Welland Canal. These movements are largely iron ore, grain and coal. The Welland Canal traffic was nearly 10,360,000 cargo tons greater than that reported for the Montreal–Lake Ontario Section.

Income of the St. Lawrence Seaway Authority for 1963 amounted to $12,045,224, comprising toll revenue of $10,730,418 assessed for transits through the Seaway locks between Montreal and Lake Ontario together with sundry revenues (rentals, wharfage, bridge revenue, etc.) amounting to $1,314,806. Operating and maintenance expenses amounted

to $6,231,213 and administrative expenses were $2,483,848, making a total of $8,715,061 excluding an amount of $461,986 for non-toll canals. Comparable figures for 1962 are shown in Section 2, p. 805.

Pleasure craft locked through the Montreal–Lake Ontario Section canals numbered 368 upbound and 477 downbound in 1963, and those locked through the Welland Canal numbered 126 upbound and 161 downbound.

Subsection 5.—Marine Services of the Federal Government

The services covered in this Subsection deal with the Canadian Coast Guard and aids to navigation, including the maintenance of the St. Lawrence River Ship Channel, steamship inspection and pilotage service.

Canadian Coast Guard.—The Canadian Coast Guard, known by that name only since January 1962, has played a vital part in Canada's maritime economic and industrial development since Confederation. At that time several previously established government marine organizations were brought together as a single marine service, founding the fleet that became the responsibility of the Department of Transport when it was established in 1936.

From a small beginning, the fleet has expanded into an organization consisting of more than 200 vessels of all types, of which nearly 50 are of a larger size. Of these, 31 measure more than 1,000 tons gross. They include 10 fully strengthened icebreakers and eight lighthouse supply-and-buoy ships with icebreaking capabilities. These vessels comprise in numbers the world's second largest icebreaking force. The greater part of the fleet's expansion has occurred within the past few years to meet a new and fast-growing requirement for icebreaker support of shipping activities in the Canadian Arctic during the summer and for commercial shipping in the Gulf of St. Lawrence in the winter.

The Department's concern with marine search-and-rescue activities has also increased, not only in the field of commercial shipping but also in connection with the mushrooming public interest in pleasure boating with its attendant safety problems.

The duties of the Canadian Coast Guard are civilian in nature and no armaments are carried on the ships. It maintains and supplies shore-based and floating aids to navigation in Canadian waters, including the Atlantic and Pacific coastal areas, the St. Lawrence River and Great Lakes, the channels of both the eastern and western Arctic, Hudson Bay, the Mackenzie River system and other inland waters. The territory covered is vast and the duties involved are extensive.

Since its beginning, the fleet has carried out icebreaking as one of its important undertakings. In its earliest years, such work was done mainly to aid shipping in eastern port areas and in the St. Lawrence for whatever winter period was allowed by weather conditions and the limitations of ships of that area. Icebreaking has also been carried out through the years at Montreal to prevent floods caused by ice jams in the river. When the development of the sea route from Churchill, Man., to Europe became a factor in the country's maritime economy, icebreaker assistance was extended to commercial shipping using that route. Since 1954, as a result of the opening up of the Canadian Arctic, the Department has handled all icebreaking requirements in these waters, extending to within a few hundred miles of the North Pole.

Arctic operations necessitate ice reconnaissance services, which are carried out by fixed wing aircraft flying out of such ports as Churchill, Man., and Frobisher Bay and Resolute Bay in the High Arctic. These flights are under the direction of the Department's Meteorological Branch and provide information on ice conditions in the sea lanes in all areas where the convoys operate. Helicopters, based aboard the icebreakers, are used for close-range reconnaissance. They carry trained observers provided by the Meteorological Branch and their ability to spot leads through the ice, which cannot be

seen from the ship, has resulted in tremendous savings in time for the convoys. The helicopters are also extremely useful in ship-to-shore personnel movements and for carrying light freight.

As an indication of the growth of Arctic re-supply operations handled by the Canadian Coast Guard, the cargo handled, which was approximately 8,000 tons in 1954, had increased to almost 100,000 tons in 1964.

Aids to Navigation.—The Canadian system of aids to navigation is similar to that of other North American countries. Such aids maintained by the Department of Transport for Canadian and contiguous waters consist of buoys, lightships, lighthouses, day beacons, radio beacons and two electronic networks operating on the hyperbolic principle—Loran and Decca. The numbers of danger signals maintained during the years ended Mar. 31, 1962 and 1963 were:—

Type of Signal	*1961-62*	*1962-63*	*Type of Signal*	*1961-62*	*1962-63*
	No.	No.		No.	No.
Lights	3,196	3,311	Hand fog horns and bells	84	69
Lightships	3	3	Lighted and combination lighted whistling and bell buoys	1,384	1,480
Light-keepers	953	948	Unlighted bell and whistling buoys	121	61
Fog whistles and sirens	46	53	Explosive signals	4	2
Diaphones and tyfons	277	264	Unlighted beacons and buoys	10,400	11,617
Mechanical bells and gongs	17	25			

All aids incorporating light or sound devices are listed in the Department of Transport annual publication *List of Lights and Fog Signals*. Information on the radio beacons and on Loran and Decca is published in *Radio Aids to Marine Navigation*.

Navigable waters have been improved greatly by dredging in channels and harbours, by the removal of obstructions, and by the building of remedial works to maintain or control water levels. Incidental to these developments of navigable waters are works to guard shorelines and prevent erosion, and for the control of roads and bridges that cross navigable channels. Icebreaking operations are continuous throughout the winter.

St. Lawrence Ship Channel.—This channel extends from about 40 miles below Quebec City to the foot of the Lachine Canal at Montreal, a distance of 200 miles. About 130 miles of this distance is dredged channel.

Above Quebec the channel has a limiting depth of 35 feet at extreme low water and a minimum width of 550 feet, with additional width up to 1,500 feet at all curves and difficult points, and additional anchorage and turning areas. Widening of the channel to a minimum width of 800 feet, commenced in 1952, is slightly more than half completed. This section comprises about 115 miles of dredged channel. Below Quebec the limiting depth of dredged channel, about 15 miles in length, is 30 feet at low tide, with a width of 1,000 feet. An average tidal range of 15 feet in this area provides ample depth for any vessel using the St. Lawrence route. Above Quebec, maintenance requirements as a result of silting in this dredged channel are relatively minor but below the city silting is more pronounced because of tidal action.

The ship channel is well defined by buoys and the centre marked by range lights, permitting uninterrupted day and night navigation throughout the open season from about mid-April to early December. The movements of all shipping, weather and ice conditions and obstructions to traffic throughout the St. Lawrence waterway from Fame Point, Que., to Kingston, Ont., are recorded and made available to all concerned through a series of reporting stations known as the Marine Reporting Service.

14.—Seasons of Open Navigation on the St. Lawrence Ship Channel, 1954-63

NOTE.—Figures from 1882 are given in the corresponding table of previous Year Books beginning with the 1934-35 edition.

Year	Channel Open, Quebec to Montreal[1]	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour	Year	Channel Open, Quebec to Montreal[1]	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour
1954	Apr. 15	Mar. 30	Dec. 15	1959	Apr. 13	Apr. 1	Dec. 20
1955	" 17	Apr. 5	" 16	1960	" 14	Mar. 21	" 16
1956	" 13	" 2	" 17	1961	" 11	" 27	" 22
1957	" 8	" 4	" 18	1962	" 15	" 12	" 19
1958	" 6	Mar. 30	" 23	1963	" 10	" 12	" 24

[1] "Channel Open" means the route can be navigated although there may be floating ice in the river.

Steamship Inspection.—The Steamship Inspection Service was established by authority of the Canada Shipping Act. Its functions include the formulation and subsequent enforcement of regulations concerned with the approval of design of hulls, machinery and equipment of ships; inspection during construction; periodic inspection and the issue of inspection certificates; the assignment of load lines; the conditions under which dangerous goods may be carried in ships; the protection against accident of workers employed in loading and unloading ships; the prevention from pollution of Canadian territorial waters by oil from ships; control of pollution of the atmosphere by smoke emitted by ships; control of the powering, equipment and load limits of small vessels; and the certification of marine engineers. The Board also looks after the interests of the Federal Government in schools for marine engineers.

The Chairman and the Board of Steamship Inspection are located at Ottawa and field offices are maintained in the principal ocean and inland ports. A total of 1,642 vessels of Canadian ownership or registry, which included 524 passenger ships, and 42 vessels registered or owned elsewhere were inspected during the year ended Mar. 31, 1963.

Pilotage.—Pilotage service functions under the provisions of Part VI and Part VIA of the Canada Shipping Act. Wherever a pilotage district has been created by the Governor in Council, qualified pilots are licensed by the pilotage authority of the district. There are in Canada 22 pilotage districts, in nine of which the Minister of Transport is the pilotage authority (see Table **15**); in each of the other districts the authority is a local body appointed by the Governor in Council. There are also three districts that are administered jointly by Canada and the United States.

15.—Pilotage Service, by Pilotage District, 1962 and 1963

District	1962		1963	
	Pilotage Trips	Net Registered Tonnage	Pilotage Trips	Net Registered Tonnage
	No.		No.	
Bras d'Or Lakes, N.S.	230	774,415	292	1,138,026
Sydney, N.S.	1,873	5,711,694	1,771	5,989,482
Halifax, N.S.	3,591	14,370,845	3,518	14,689,733
Saint John, N.B.	1,499	5,759,618	1,411	5,955,316
Quebec, Que.	7,538	33,239,991	7,455	35,838,124
Montreal, Que.	9,067	40,466,625	10,071	41,645,979
Cornwall, Ont.	2,646	8,800,086	2,388	7,844,392
Kingston, Ont.	3,193	20,272,318	[1]	—
Churchill, Man.	143	304,140	135	641,140
British Columbia	8,669	32,217,850	8,569	34,657,721
Totals	**38,449**	**161,917,582**	**35,610**	**148,399,913**

[1] No longer in operation.

In addition, there are known to be five districts in Newfoundland under the local pilotage authority. These districts continued to be administered under Newfoundland statutes after union with Canada (Mar. 31, 1949). Part VI of the Canada Shipping Act with respect to pilotage has not been proclaimed in force in Newfoundland.

Section 2.—Financial Statistics of Waterways

The principal statistics available on the cost of facilities for water-borne traffic consist of the record of public expenditure on waterways. Such expenditure may be classified as capital expenditure, or investment and expenditure for maintenance and operation. Revenue from operation is also recorded. The major part of the capital expenditure for the permanent improvement of waterways is provided by the Federal Government. Capital expenditure by municipalities and private capital expenditure are confined almost entirely to terminal or dockage facilities. On the other hand, most of the investment in shipping has come from private sources. No figures are available regarding private investment in shipping except those appearing in the reports of the operating companies that cover only a portion of the field. There are no statistics showing the revenue of ship operators from passenger and freight traffic.

Capital Expenditure.—The only figures available of federal capital expenditure on Canadian waterways are those contained in the *Public Accounts* and the annual reports of the Departments of Transport, Public Works and Finance and in the annual report of the St. Lawrence Seaway Authority. It must be realized that such expenditure cannot be regarded as an accurate indication of the present worth of the undertakings represented. The cost of building canals and other waterways and permanent works to facilitate water transportation in Canada is represented in such reports at their original book values, no deductions having been made from the cumulative totals for depreciation from year to year or for abandonment of works that have been superseded, such as, for example, the first Welland canals and the now flooded St. Lawrence River canals. To this extent, such figures are an over-statement of the present value of the works in use. The figures are further limited by the fact that they do not include the cost of maintenance and improvements or the operation of these works, such charges having been made to the consolidated deficit account as annual expenditure and not to capital account. Thus, such capital expenditure on waterways is not included in this publication, with the exception of that made by the National Harbours Board on facilities under its jurisdiction. Capital values of the fixed assets administered by the Board are shown as at Dec. 31, 1962 and 1963 in Table 16. These figures include all buildings, machinery and durable plant improvements and have been subject to deductions for depreciation and the scrapping or abandonment of plant, and therefore represent a fair approximation of the present value of the properties.

16.—Capital Values of Fixed Assets Administered by the National Harbours Board, as at Dec. 31, 1962 and 1963

NOTE.—Compiled from the annual reports of the National Harbours Board.

Item	1962	1963	Item	1962	1963
	$	$		$	$
Harbour dredging	22,479,039	22,862,747	Harbour buildings, service plants and equipment	10,427,200	10,381,288
Land and land improvements	16,834,978	17,840,204	Floating and shore equipment	5,263,366	5,203,512
Wharves and piers	145,980,838	146,269,413	Jacques Cartier Bridge	22,278,639	22,279,498
Permanent sheds	38,527,859	39,578,174	Champlain Bridge	31,872,634	34,616,821
Railway systems	6,639,753	6,654,763	Works under construction	13,197,964	4,422,326
Grain elevator systems	71,997,900	86,793,666			
Cold storage systems	6,714,210	6,813,943	**Totals**	**392,214,380**	**403,716,355**

The total amount advanced by the Federal Government to the National Harbours Board for capital expenditure during 1962 was $19,709,613, distributed as follows: Saint John, N.B., $3,344,844; Quebec, Que., $123,341; Montreal, Que., $8,757,431; Churchill, Man., $1,838,674; and Champlain Bridge (Montreal), $5,645,323. The total for 1963 was $7,325,025 distributed as follows: Saint John, $98,939; Montreal, $4,481,043; and Champlain Bridge (Montreal), $2,745,043.

Waterways Expenditure and Revenue.—Expenditure under this heading (Tables **17** to **19**) is mainly for the operation and maintenance of various facilities for water transport but, unfortunately, the line between operation and maintenance expenditure is not as finely drawn as is desirable. Revenue in connection with waterways of the Department of Transport, the Department of Public Works and the St. Lawrence Seaway Authority is shown in Table **20.**

To facilitate water transportation, the Federal Government expends annually, in addition to the recurrent expenditure shown here, a considerable amount to cover deficits of the National Harbours Board, and for mail subsidies and steamship subventions as shown in Table **22.** Operating revenue and expenditure of facilities administered by the National Harbours Board are shown separately in Table **21.**

17.—Department of Transport Expenditures on Marine Service, Years Ended Mar. 31, 1962 and 1963

Service	1962	1963
	$	$
Administration, including agencies	1,119,409	1,335,202
Marine Works Branch—		
Aids to Navigation Division—		
Administration, operation and maintenance	6,257,309	6,278,240
Construction	4,513,003	4,298,851
River St. Lawrence Ship Channel Division—		
Administration, operation and maintenance	948,353	783,288
Canals Division—		
Administration, operation and maintenance	2,311,914	2,372,295
Construction	1,200,978	1,228,935
Write-off of cost of land acquired for Cornwall Navigation System	—	1,710,567
Marine Regulations Branch—		
Steamship Inspection Division	1,115,769	1,236,428
Nautical and Pilotage Division—		
Nautical Services	471,409	496,319
Pilotage Services—		
Administration, operation and maintenance	1,624,693	1,522,521
Pensions to former pilots	1,200	1,200
Marine reporting service	136,472	127,997
Construction	480,456	587,931
Marine Operations Branch—		
Administration, operation and maintenance	20,261,693	21,525,216
St. Lawrence Seaway Authority—		
Operating deficit and capital requirements of canals and works entrusted to the St. Lawrence Seaway Authority	2,590,573	2,794,346
Totals	**43,033,231**	**46,299,336**

18.—Department of Public Works Expenditure on Waterways (Harbours, Rivers, Roads and Bridges), Years Ended Mar. 31, 1962 and 1963

NOTE.—Compiled from the annual reports of the Department concerned by the Comptroller of the Treasury, Department of Finance. Excludes expenditures on harbours administered by the National Harbours Board as shown in Table 21.

Year and Province or Territory	Dredging[1]	Construction	Improvements and Repairs	Staff and Sundries	Total
	$	$	$	$	$
1962					
Newfoundland	474,105	6,283,743	328,901	460,220	7,546,969
Prince Edward Island	408,758	570,964	185,043	77,853	1,242,618
Nova Scotia	651,682	2,471,847	535,753	6,576	3,665,858
New Brunswick	877,599	1,944,150	301,591	114,005	3,237,345
Quebec	770,971	4,080,036	948,519	380,161	6,179,687
Ontario	696,857	11,933,064	595,506	144,457	13,369,884
Manitoba	215,966	1,075,715	46,362	90,008	1,428,051
Saskatchewan	—	21,765	2,229	—	23,994
Alberta	295,729	17,635	33,330	272,970	619,664
British Columbia	1,226,647	1,228,413	482,239	1,262,314	4,199,613
Yukon and Northwest Territories	—	70,182	19,282	1,423	90,887
Canada, 1962	**5,618,314**	**29,697,514**	**3,478,755**	**2,809,987**	**41,604,570**
1963					
Newfoundland	673,534	5,127,548	547,414	118,614	6,467,110
Prince Edward Island	420,577	951,741	170,665	148,111	1,691,094
Nova Scotia	628,585	1,792,138	376,124	5,489	2,802,336
New Brunswick	1,032,491	728,778	160,137	61,052	1,982,458
Quebec	608,267	4,449,535	840,644	316,928	6,215,374
Ontario	395,172	6,530,451	338,727	88,257	7,352,607
Manitoba	238,346	66,710	69,956	30,123	405,135
Saskatchewan	—	570	72	—	642
Alberta	263,100	5,276	28,083	75,050	371,509
British Columbia	1,091,501	1,240,194	539,051	269,741	3,140,487
Yukon and Northwest Territories	—	276,170	24,738	47,327	348,235
Canada, 1963	**5,351,573**	**21,169,111**	**3,095,611**	**1,160,692**	**30,776,987**

[1] Includes expenditures for dredging plants.

19.—St. Lawrence Seaway Authority Expenditures, 1962 and 1963

NOTE.—Figures for 1962 and 1963 are not strictly comparable with those published for previous years because of a change in accounting methods.

Item	1962[r]	1963
	$	$
Administration—		
Headquarters	1,290,257	1,207,123
Regional	712,873	699,966
Engineering	557,573	576,759
Operation and Maintenance—		
Salaries and wages	3,524,746	3,837,642
Employee benefits	365,132	412,524
Maintenance materials and services	1,226,895	1,402,801
Grants in lieu of municipal taxes	360,374	382,767
Other operation and maintenance expenses	148,875	195,479
Totals	**8,186,725**	**8,715,061**

20.—Federal Government Revenue in connection with Waterways, Years Ended Mar. 31, 1962 and 1963

NOTE.—Compiled from annual reports of the Department of Transport, the *Public Accounts* and the annual reports of the St. Lawrence Seaway Authority.

Department and Item	1962	1963	Department and Item	1962	1963
	$	$		$	$
Department of Transport			**Department of Public Works**		
Marine Services	**5,172,578**	**7,040,948**	**Earnings of Dry Docks**	**389,499**	**400,316**
Canals	357,952	402,852	Champlain Dock, Lauzon	158,763	236,824
Fines and forfeitures	3,660	2,397	Lorne Dock, Lauzon	58,458	50,144
Steamship inspection	168,659	262,179	Esquimalt new dock	166,926	109,983
Wharf revenue	778,477	765,893	Selkirk repair slip	5,352	3,365
Harbour dues	203,321	231,749			
Measuring surveyor's fees	2,344	1,482			
Examinations—masters' and mates' fees	14,010	12,712	**Works and Plants Leased**	**35,908**	**33,513**
Pilots' licence fees (pilotage)	360	440	Kingston dry dock	12,100	12,100
Pilotage fees	650,063	580,828	Ferry privileges	681	281
Pilot boat fees	250,637	255,248	Dredges and plants	23,127	21,132
Shipping fees	15,169	13,005			
Marine steamer earnings	2,373,247	3,785,659	Rents from water lots, etc.	75,640	75,120
Rentals—water lots and lighthouse sites	42,751	37,276	Refunds of expenditure reported in previous years	449,873	621,530
River St. Lawrence Ship Channel Service	15,665	25	Sundry receipts, test borings, etc.	850	1,572
Sale of land, buildings, etc.	70,993	7,653	**Totals, Department of Public Works**	**951,770**	**1,132,051**
Merchant seamen's identity certificates	807	857			
Miscellaneous	111,898	103,706	**St. Lawrence Seaway Authority**		
Refunds previous year's expenditures	40,546	513,054			
Port Warden fees	72,019	63,933	Tolls assessed	9,555,641	10,730,418
Board of Transport Commissioners	**2,518**	**1,914**	Rentals	429,548[r]	453,947
			Wharfage	177,668	136,268
			Miscellaneous	552,844[r]	724,591
Totals, Department of Transport	**5,175,096**	**7,042,862**	**Totals, St. Lawrence Seaway Authority**	**10,715,701**[r]	**12,045,224**

21.—Operating Revenue and Expenditure of Harbours, Elevators and Bridges under the National Harbours Board, 1962 and 1963

Harbour and Year	Operating Revenue	Operating Expenditure	Net Operating Income	Harbour and Year	Operating Revenue	Operating Expenditure	Net Operating Income
	$	$	$		$	$	$
Halifax—				**Jacques Cartier Bridge (Montreal)—**			
1962	2,139,617	2,046,045	93,572	1962[1]	1,493,654	486,324	1,007,330
1963	2,313,292	1,908,181	405,111	1963	151,811	254,943	−103,132
Saint John—				**Champlain Bridge (Montreal)—**			
1962	928,052	940,511	−12,459	1962[2]	162,574	181,833	−19,259
1963	1,033,725	991,344	42,381	1963	448,326	426,351	21,975
Chicoutimi—				**Prescott Elevator—**			
1962	132,103	33,754	98,349	1962	928,272	475,313	452,959
1963	136,039	37,193	98,846	1963	924,532	487,462	437,070
Quebec—				**Port Colborne Elevator—**			
1962	2,575,449	2,058,405	517,044	1962	424,357	252,474	171,883
1963	2,983,906	2,032,054	951,852	1963	400,264	278,032	122,232
Trois Rivières—				**Churchill—**			
1962	699,366	118,022	581,344	1962	1,419,221	1,126,763	292,458
1963	768,894	131,119	637,775	1963	1,356,568	1,258,578	97,990
Montreal—				**Vancouver—**			
1962	11,285,893	7,971,152	3,314,741	1962	4,529,828	2,661,899	1,867,929
1963	12,567,151	8,299,401	4,267,750	1963	4,803,884	2,597,350	2,206,534

[1] Tolls removed June 1, 1962. [2] Commenced operations June 29, 1962.

Shipping Subsidies.—Table 22 shows the net amount of steamship subventions paid in connection with contracts made for the maintenance of essential coastal and inland water shipping services. The payment of these subventions is administered by the Canadian Maritime Commission under statutory authority.

22.—Steamship Subventions, Years Ended Mar. 31, 1963 and 1964

Services	1963	1964
	$	$
Western Local Services—		
Gold River and Zeballos, B.C.	12,000	12,000
Vancouver and Northern British Columbia ports, B.C.	300,000	300,000
Vancouver and West Coast of Vancouver Island, B.C.	88,000	88,000
Eastern Local Services—		
Baddeck and Iona, N.S.	17,500	13,125
Campobello, N.B., and Lubec, Maine, U.S.A.	5,950	—
Dalhousie, N.B., and Miguasha, Que.	27,500	37,500
Father Point and Baie Comeau, Que.	600,000	1,463,650
Grand Manan and the Mainland, N.B.	101,500	112,700
Halifax, Canso, Guysborough and Isle Madame, N.S.	30,000	—
Île aux Coudres and Les Éboulements, Que.	33,000	33,000
Île aux Grues and Montmagny, Que. (summer)	6,500	6,500
Île aux Grues and Montmagny, Que. (winter)	1,700	1,700
Magdalen Islands, Que., Cheticamp and Halifax, N.S.	23,000	35,000
Magdalen Islands and Montreal, Que.	—	100,000
Matane and Godbout, Que.	—	Recaptured
Mulgrave and Canso, N.S.	52,400	52,400
Mulgrave, Queensport and Isle Madame, N.S.	31,250	31,250
Murray Bay or Rimouski and North Shore of St. Lawrence River, Que.	35,000	35,000
Owen Sound and ports on Manitoulin Island and Georgian Bay, Ont.	100,000	100,000
Pelee Island and the Mainland, Ont.	80,352	76,540
Pictou, N.S., Charlottetown and Souris, P.E.I., and the Magdalen Islands, Que.	298,000	298,000
Portugal Cove and Bell Island, Nfld.	150,200	223,285
Prince Edward Island and Newfoundland	72,000	84,500
Prince Edward Island and Nova Scotia	617,000	620,998
Prince Edward Island and North Shore of St. Lawrence River, Que.	42,500	42,500
Quebec, Natashquan and Harrington, Que.	430,000	430,000
Rimouski, Matane and ports on North Shore of St. Lawrence River, Que.	161,500	229,000
Rivière du Loup and St. Siméon, Que.	21,000	21,000
St. Lawrence River and Gaspe ports to Chandler, Que.	45,000	34,042
Saint John, N.B., Tiverton, Freeport, Westport and Yarmouth, N.S.	38,000	38,000
Sorel and Île St. Ignace, Que.	43,000	43,000
Sydney and Bay St. Lawrence	42,500	42,500
Trois Pistoles and Les Escoumains, Que.	—	5,000
Yarmouth, N.S., and Rockland, Maine, U.S.A.	6,600	6,600
Newfoundland Coastal Steamship Services	4,751,788	4,752,104
Totals	**8,264,740**	**9,368,894**

PART V.—CIVIL AIR TRANSPORT

Administration.—Civil aviation in Canada is under the jurisdiction of the Federal Government and is administered under the authority of the Aeronautics Act, 1919 and amendments thereto. The Aeronautics Act is in three parts. Broadly speaking, Part I deals with the technical side of civil aviation comprising matters of registration of aircraft, licensing of airmen, the establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. This Part of the Act is administered by the Director of Civil Aviation under the supervision of the Assistant Deputy Minister, Air Services, Department of Transport. Part II of the Act deals with the social and economic aspects of commercial air services and assigns to the Air Transport Board certain regulatory functions of commercial air services (see pp. 753-754). Part III deals with matters of government internal administration in connection with the Act.

International Air Agreements.—The position of Canada in the field of aviation as well as its geographical location makes co-operation with other nations of the world engaged in international civil aviation imperative. Canada therefore took a major part in the original discussions that led to the establishment of the International Civil Aviation Organization (ICAO) which has headquarters at Montreal, Que. A special article on The International Civil Aviation Organization and Canada's Participation Therein appears in the 1952-53 Year Book, pp. 820-827. At present Canada has air agreements with 21 other countries.

Section 1.—Air Services

Air transport services may be grouped into two broad classes—Scheduled Services and Non-scheduled Services. Services in the first group are operated by air carriers that offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit. The second group includes the following:—

(1) Regular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.

(2) Irregular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft from a designated base, serving a defined area or a specific point or points, at a toll per unit.

(3) Charter Air Services—operated by air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft, or at such other tolls as may be permitted by the Air Transport Board.

(4) Contract Air Services—operated by air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.

(5) Flying Clubs—operated by air carriers incorporated as non-profit organizations for the purpose of furnishing flying training and recreational flying to club members.

(6) Specialty Services—operated by air carriers for purposes not provided for by any other class, such as flying training, recreational flying, aerial photography and survey, aerial pest control, aerial advertising, aerial patrol and inspection, etc.

Current operations of the two major airlines forming the nucleus of Canada's freight and passenger air service are outlined below.

Air Canada.—In 1963, its 26th year of operation, Air Canada (formerly Trans-Canada Air Lines) carried a record 3,883,590 passengers on scheduled flights and 82,957 on charter flights, a total of 3,966,547. This total was 3 p.c. above that for the previous year. The major growth was in Atlantic charter traffic which increased eightfold and represented one third of Air Canada's total Atlantic passenger travel. The high volume of transcontinental traffic recorded little change from 1962 but traffic on scheduled services to Bermuda and the Caribbean increased 31 p.c. Revenue passenger-miles totalled 2,887,239,000. Ton-miles of revenue commodity traffic, including air express, totalled 35,781,000 and ton-miles of air mail, 13,859,000. Income from operations amounted to $37,574,000, almost $7,000,000 more than the 1962 income.

At the end of the year, Air Canada was operating over 37,267 route miles, linking Canada, the United States, the British Isles, Continental Europe and the Caribbean. Its fleet consisted of 75 aircraft—13 DC-8's, 22 turbo-prop Vickers Vanguards and 40 turbo-prop Vickers Viscounts. Intensive evaluation of aircraft types to replace and complement the propeller-turbine aircraft now in service was completed by the end of 1963 and an initial order placed for six short-to-medium-range twin jet DC-9 aircraft, to be introduced into service in two years time. Continued improvement was made to ground services. Because of the major program of airport terminal building construction by the Department of Transport, Air Canada's airport passenger handling facilities have benefited tremendously at many points. The new electronic reservations system, known as ReserVec, went into full operation in 1963, enabling passengers to obtain almost instantaneous confirmation of

reservations requests. ReserVec, designed and manufactured in Canada, is the most modern system of its kind in the world. At the year-end, Air Canada employees numbered 11,330.

1.—Operating Statistics of Air Canada (formerly TCA), 1954-63

Year	Traffic				Operating Revenue			Operating Expenditure	Operating Surplus
	Revenue Passenger[1]		Revenue Commodity[2]	Mail	Passenger	Freight and Mail	Total[3]		
	No.	'000 passenger-miles	'000 ton-miles	'000 ton-miles	$'000	$'000	$'000	$'000	$'000
1954	1,438,349	852,476	10,193	6,942	53,124	13,077	68,764	67,732	+1,033
1955	1,682,195	969,392	12,175	7,704	61,105	14,314	77,428	76,771	+657
1956	2,072,912	1,191,784	14,476	8,613	74,479	15,639	91,306	89,197	+2,109
1957	2,392,713	1,385,777	15,478	9,855	86,524	16,055	104,996	96,680	+8,315
1958	2,785,523	1,625,689	15,395	10,386	101,553	17,407	120,555	108,130	+12,425
1959	3,209,197	1,828,902	17,753	10,905	114,339	18,293	134,679	120,120	+14,559
1960	3,440,303	2,050,600	20,868	11,593	127,596	19,307	148,987	134,263	+14,724
1961	3,712,068	2,481,122	24,091	11,934	143,301	19,466	165,436	143,370	+22,066
1962	3,865,408	2,659,578	29,827	12,862	158,792	21,914	183,473	152,821	+30,652
1963	3,966,547	2,887,239	35,781	13,859	167,653	24,088	199,390	161,816	+37,574

[1] Includes non-scheduled service. [2] Includes excess baggage and express. [3] Includes other revenue.

Canadian Pacific Air Lines Limited.—Canadian Pacific Air Lines operates a 45,287-mile route pattern linking five continents as well as major cities in Canada. This pattern comprises 6,900 domestic route miles, including 2,450 miles on Canadian mainline service.

In 1963, CPA carried 498,245 passengers, a greater number than in any other year since the company's inception in 1942. The increase in passenger load, on both domestic and international routes, amounted to 8.0 p.c. over 1962 and revenue passenger-miles on international routes showed a substantial advance.

CPA's international routes, 37,600 miles in extent, operate from Vancouver to Honolulu, Fiji, New Zealand and Australia on the South Pacific service; to Japan and Hong Kong via the Great Circle Route across the North Pacific; from Vancouver, Calgary and Edmonton to Amsterdam via the Polar Route; and across the Atlantic from Montreal to Portugal, Spain and Italy. A South American network serves Mexico City, Lima, Santiago and Buenos Aires. Three services link Mexico with Windsor, Toronto and Montreal in Eastern Canada and Vancouver in the West. In Canada, CPA operates a mainline transcontinental service linking Vancouver, Winnipeg, Toronto and Montreal and a domestic network of north-south routes in British Columbia, Alberta and the Yukon Territory.

CPA's fleet of aircraft consists of 22 aircraft, including five Douglas Super DC-8's, five Bristol Britannias, three Douglas DC-6B's, one Douglas DC-6AB, one Convair 240, three Douglas DC-3's and four other types. The international routes are served by the Super DC-8's and the Bristol Britannias, and the domestic routes are served by the other aircraft. The transcontinental route is served by Super DC-8's.

Independent Airlines.—In addition to the two major Canadian air carriers—Air Canada and Canadian Pacific Air Lines Limited—there are four domestic air carriers licensed to operate scheduled commercial air services in Canada, namely, Eastern Provincial Airways (1963) Limited, Gander, Nfld.; Quebecair, Rimouski, Que.; TransAir Limited, Winnipeg, Man.; and Pacific Western Airlines Limited, Vancouver, B.C.

Licensed Canadian air carriers operating in Canada as at Mar. 31, 1963 held valid operating certificates covering 41 scheduled, 155 flying training, and 1,594 other non-scheduled and specialty services. These non-scheduled services, in addition to providing effective access to sections of Canada that are inaccessible by other means of transportation,

act as feeder lines to the scheduled airlines. They also include such specialty services as recreational flying, aerial photography and surveying, aerial pest control, aerial advertising, aerial patrol and inspection.

Eastern Provincial Airways (1963) Limited.—This company (successor to Maritime Central Airways—purchased in 1963) operates throughout the Atlantic Provinces, eastern Quebec, Labrador and Greenland. It serves Charlottetown and Summerside in Prince Edward Island; Moncton and Dalhousie in New Brunswick; New Glasgow and Halifax in Nova Scotia; Stephenville, Corner Brook, Gander and St. John's in Newfoundland; Goose Bay and Saglek in Labrador; Sept Îles and the Magdalen Islands in Quebec; and the French Islands of St. Pierre–Miquelon.

The Airways fleet consists of four H.P. Dart Heralds, one DC-4, two C-46's, five DC-3's, five PBY Canso's, four Cessna 185's, five DH Beavers, two S-55 helicopters, two Super Cub's and one Beechcraft 18. The company carries on an extensive air freight service throughout the above areas and conducts many specialty services such as mineral exploration, the transporting of hunting and fishing parties, ambulance service and forestry, seal and ice patrol services.

Quebecair.—Quebecair, a privately owned commercial airline with headquarters at Rimouski, serves various points in the Province of Quebec including Montreal, Quebec, Saguenay, Rivière du Loup, Rimouski, Mont Joli, Sept Îles, Wabush, Schefferville, Gagnon, Baie Comeau, Forestville, Manicouagan and Murray Bay. No point served is more than five flying hours from Montreal.

The company began operations in 1946 under the name of Rimouski Aviation Syndicate and was incorporated under the name of Rimouski Airlines in 1947. At the beginning of 1954, the newly created Rimouski Airlines bought out Gulf Aviation and formed Quebecair. Since then, passenger service has multiplied six times, air mail carried fourteen times and freight carried sixteen times. The number of passengers flown in 1963 was 105,045 and the amount of freight carried totalled 1,825,823 lb.

The Quebecair fleet consists of four DC-3's, three F-27's, and one C-46 cargo aircraft.

TransAir Limited.—TransAir operates scheduled, charter, and sportsmen's flights in Manitoba, Saskatchewan, Ontario and the Northwest Territories. Thirty aircraft are in service from headquarters in Winnipeg and a major base in Churchill. Scheduled flights also originate from Pickle Lake and Sioux Lookout in Ontario, and Lac du Bonnet and Norway House in Manitoba. The airline has scheduled Viscount, DC-4 and DC-3 services over 7,107 unduplicated miles. Mainline stops are made at Winnipeg, Brandon, Dauphin, The Pas, Flin Flon, Lynn Lake, Thompson and Churchill in Manitoba; Red Lake, Winisk and Ottawa in Ontario; Montreal in Quebec; and Yorkton, Regina, Saskatoon and Prince Albert in Saskatchewan. TransAir also has regular flights between Churchill and Rankin Inlet, Baker Lake and Coral Harbour in the Northwest Territories. From its Winnipeg and Churchill bases, TransAir operates the vertical re-supply flights to the four main sites in the Canadian sector of the Distant Early Warning Line.

Pacific Western Airlines Limited.—Pacific Western Airlines Limited, with head office at Vancouver International Airport, is one of the largest independent air carriers in Canada. Route miles in the system total almost 7,200 and services operated include scheduled mainline, local regular unit toll and charter flights in Saskatchewan, Alberta, Yukon Territory, the Northwest Territories including the Arctic islands, and British Columbia.

Regularly scheduled mainline services are operated by Pacific Western northbound from Edmonton to Dawson Creek, Peace River, McMurray, Uranium City, Fort Smith, Pine Point, Fort Resolution, Hay River, Yellowknife, Fort Simpson, Wrigley, Norman Wells and Inuvik. Regular local services are flown from Yellowknife to Cambridge Bay and Resolute Bay; and from Inuvik to Aklavik to Fort McPherson to Arctic Red River. Local services also originate from Norman Wells to Fort Good Hope, Fort Norman,

Wrigley and Fort Simpson; and from Yellowknife to Rocher River, Port Radium, Coppermine and Bathurst. The first no-reservations-required airbus service in Canada operates daily between Edmonton and Calgary.

On the Pacific Coast, mainline services are operated from Vancouver to Comox, Powell River, Campbell River and Port Hardy and local services are operated between Prince Rupert, Stewart, Ford's Cove, Anyox, Maple Bay and Alice Arm in northern British Columbia. In addition, charter services are operated out of Vancouver, Nelson, Kamloops, Prince George, Terrace and Prince Rupert and, in the Northern Division, from Edmonton, Peace River, Fort Smith, Hay River, Yellowknife, Inuvik and Cambridge Bay.

Aircraft operated by Pacific Western number 48 and range from DC-6B's, DC-4's, Super 46's and DC-3's on mainline services, to Otters, Beavers, Grumman Goose and Cessnas on charter and freight flights. Revenue passengers carried in 1963 totalled 158,600, freight and express carried amounted to 16,808,006 lb. and miles flown numbered 4,119,534.

Commonwealth and Foreign Scheduled Commercial Air Services.—At the end of 1963, there were 21 Commonwealth and foreign air carriers holding valid Canadian operating certificates and licences issued for the following international scheduled commercial air services into Canada:—

Aeronaves de Mexico, S.A., operating between Montreal, Canada, and Mexico City, Mexico.

Air France (Compagnie Nationale Air France), operating between Paris and other points in Metropolitan France, Montreal, Canada, and Chicago, U.S.A., and beyond.

Alitalia (Italian International Airlines), operating between Rome and Milan, Italy, Montreal, Canada, and Chicago, U.S.A.

American Airlines, Inc., operating between Toronto, Canada, and New York/Newark, U.S.A.

British Overseas Airways Corp., operating between London and Manchester, England; Prestwick, Scotland; Shannon, Ireland; Montreal and Toronto, Canada; and between London, England, Montreal, Canada, Bermuda, Barbados, Trinidad, Bahamas, Jamaica and Antigua.

Deutsche Lufthansa Atkiengesellschaft (Lufthansa German Airlines), operating between Hamburg, Germany, and other points abroad, Montreal, Canada, and Chicago, U.S.A.

Eastern Air Lines, Inc., operating between the terminals Ottawa and Montreal, Canada, and New York, U.S.A., and between the terminals Ottawa and Montreal, Canada, and Washington, U.S.A.

KLM Royal Dutch Airlines, operating between Montreal, Canada, and Amsterdam, the Netherlands.

Mohawk Airlines, Inc., operating between Toronto, Canada, and Buffalo, U.S.A.

North Central Airlines, Inc., operating between Port Arthur/Fort William, Canada, and Duluth/Superior, U.S.A.

Northeast Airlines, Inc., operating between Montreal, Canada, and Boston, U.S.A., via Concord, Montpelier-Barre, Burlington, White River Junction, U.S.A.

Northwest Airlines, Inc., operating between Winnipeg, Canada, and Fargo, U.S.A., and between Minneapolis/St. Paul, U.S.A., Winnipeg and Edmonton, Canada, Anchorage, Alaska, and beyond.

Pan American World Airways Inc., operating between points in the United States, Gander, Canada, and points in Britain.

Qantas Empire Airways Ltd., operating between Sydney, Australia, San Francisco, U.S.A., and Vancouver, Canada.

Sabena Belgian World Airlines, operating between Brussels, Belgium; Manchester, England; Shannon, Ireland; and Montreal, Canada.

Seaboard and Western Airlines, Inc., operating between points in the United States, Gander, Canada, and points in Europe.

Swiss Air Transport Company Ltd. (Swissair), operating between points in Switzerland, Montreal, Canada, and points in the U.S.A.

United Air Lines, Inc., operating between Vancouver, Canada, and Seattle, U.S.A.

West Coast Airlines, Inc., operating between Calgary, Canada, and Spokane, U.S.A.

Western Air Lines, Inc., operating between Calgary, Canada, and Great Falls, U.S.A.

Wien-Alaska Airlines Inc., operating between Whitehorse, Y.T., Canada, and Fairbanks and Juneau, Alaska, U.S.A.

Flying Schools and Clubs.—At the end of 1963, 88 commercial flying schools were registered as members of the Air Transport Association of Canada. During the year, these schools instructed and graduated 1,569 students as private pilots and 331 students as commercial pilots.

Membership in the 35 flying clubs connected with the Royal Canadian Flying Clubs Association numbered 8,647 at the end of 1963. During the year these clubs instructed and graduated 1,132 students as private pilots and 76 students as commercial pilots.

Weather Services.—Weather services are provided by the Meteorological Branch, Department of Transport, to meet the demands of the general public and all basic economic endeavours such as agriculture, industry, forestry, shipping and fishing. Meteorological service is provided to national and international aviation. The military meteorological requirements in Canada and overseas are met by special co-operative arrangements with the Department of National Defence. The observing and forecasting of ice conditions in navigable waters, both inland and coastal, have expanded rapidly in recent years.

There are 52 forecast offices in Canada, one on shipboard and three in Europe. Forecast offices are linked by 55,300 miles of teletype and radio-teletype circuits, and a national facsimile system 14,600 miles long is used for the distribution of meteorological information in chart form. As of Jan. 1, 1964, the Branch maintained 281 surface synoptic and hourly weather reporting stations, a network of 32 radiosonde stations including five in the Arctic operated jointly with the United States, 61 stations recording upper winds, and 1,949 climatological stations. One Ocean Weather Station in the Pacific, 1,000 miles west of Vancouver, is maintained under International Agreement (see also p. 43).

Ground Facilities.—Aircraft landing areas in Canada are classified in Table 2 by administrative agency, as licensed or unlicensed land facilities or seaplane bases, and military airfields. The unlicensed aerodromes and seaplane bases shown are kept in varying degrees of readiness but lack one or more of the facilities usually found in licensed airports, such as lights, passenger accommodation, ground/air communication, etc. Associated with these facilities is a network of radio aids to navigation designed to facilitate en route navigation and safe landings under low visibility conditions.

On Apr. 1, 1964, the Department of Transport operated 75 low frequency radio ranges (with one under construction) and 36 VHF omni-directional ranges (with 11 under construction and five in the planning stage). Instrument Landing Systems in operation totalled 42 (with four under construction) and there were 197 non-directional beacons in operation (with 10 under construction). All of the operating facilities are regularly flight-checked and calibrated by civil aviation inspectors.

2.—Aircraft Landing Areas classified by Type of Facility and Operator, by Province, as at Apr. 1, 1964

Type of Facility and Operator	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Y.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Licensed Airports (Land)—													
Department of Transport	1	1	3	2	7	20	4	4	6	22	12	5	87
Municipal	1	—	1	3	20	20	5	18	17	17	—	2	104
Private	3	2	1	3	24	35	7	11	16	1	1	—	104
Heliports	—	—	—	—	2	8	1	—	—	5	—	—	16
Unlicensed Aerodromes—													
Department of Transport	1	—	—	—	3	6	2	2	—	9	5	4	32
Municipal	3	—	3	2	11	4	3	32	11	16	1	3	89
Private	3	1	1	10	26	14	31	108	27	66	7	—	294
Abandoned or unknown	4	—	1	—	6	7	2	5	4	39	1	4	73
Heliports	—	—	—	—	1	4	—	—	—	3	—	—	8

2.—Aircraft Landing Areas classified by Type of Facility and Operator, by Province, as at Apr. 1, 1964—concluded

Type of Facility and Operator	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C	N.W.T.	Y.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Licensed Seaplane Bases—													
Department of Transport	—	—	—	—	—	—	—	—	—	4	1	—	5
Municipal	—	—	1	—	1	14	1	1	1	10	—	2	31
Private	7	—	2	1	70	97	35	24	4	54	27	4	325
Unlicensed Seaplane Bases—													
Department of Transport	—	—	—	—	—	—	—	—	—	9	—	—	9
Municipal	—	—	1	1	1	10	7	4	2	5	1	—	32
Private	12	—	—	1	20	14	9	—	7	22	15	—	100
Abandoned or unknown	17	1	9	6	23	14	13	9	6	14	19	5	136
Military Airfields—													
RCAF	3	1	1	2	6	15	3	3	5	3	—	2	44
Army	—	—	—	1	—	1	1	—	2	—	—	—	5
RCN	—	—	3	—	—	—	—	—	—	—	—	—	3
U.S. Navy	1	—	—	—	—	—	—	—	—	—	1	—	2
U.S. Air Force	1	—	—	—	—	—	1	—	—	—	21	—	23
Totals, Land Bases	**16**	**4**	**10**	**20**	**100**	**118**	**55**	**180**	**81**	**178**	**27**	**18**	**807**
Totals, Seaplane Bases	**36**	**1**	**13**	**9**	**115**	**149**	**65**	**38**	**20**	**118**	**63**	**11**	**638**
Totals, Military Airfields	**5**	**1**	**4**	**3**	**6**	**16**	**5**	**3**	**7**	**3**	**22**	**2**	**77**
Grand Totals	**57**	**6**	**27**	**32**	**221**	**283**	**125**	**221**	**108**	**299**	**112**	**31**	**1,522**

Air Traffic Control.—The primary functions of the Air Traffic Control Division of the Department of Transport are to expedite and maintain an orderly flow of air traffic and to prevent collision between aircraft operating within controlled air space and between aircraft and obstructions on the movement area of controlled airports. This is accomplished through airport control, terminal control and area control services. These and other allied services are described below.

Airport Control Service provides control service to flights operating in the vicinity of major civil airports where the volume and type of aircraft operations, weather conditions and other factors indicate its need in the interest of flight safety. The service also includes the control of all traffic on the manoeuvring area of the airport. Control is effected by means of direct radiotelephone communication or visual signals. Airport control towers are located at: Whitehorse, Y.T.; Victoria (international), Port Hardy, Abbotsford and Vancouver, B.C.; Lethbridge, Calgary, Edmonton (industrial) and Edmonton (international), Alta.; Saskatoon and Regina, Sask.; Winnipeg (international), Man.; Lakehead, Windsor, London, Toronto Island, Toronto (international), Ottawa and North Bay, Ont.; Montreal (international), Cartierville, Quebec, Baie Comeau and Sept Îles, Que.; Moncton, Fredericton and Saint John, N.B.; Halifax (international) and Sydney, N.S.; Gander (international), Nfld.; and Frobisher, N.W.T.

Area Control Service provides control service to en route flights operating within controlled airspace during weather conditions that prevent a pilot from seeing other aircraft or obstructions and necessitate his reliance on instruments to conduct the flight. Area control centres are located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., Moncton, N.B., Goose Bay and Gander, Nfld. Each centre is connected with control towers, terminal control units, communications stations and operation offices within its area by means of an extensive system of local and long-line interphone or radio circuits, and through radio communications facilities available at these stations to all aircraft requiring area control service. Area control centres are also capable of communicating directly with most pilots flying within their control areas. Each area control centre is similarly connected with adjacent centres, including centres in the United States, for the purpose of coordinating control of aircraft operating through more than one control area. This communications system permits each centre to maintain a continuous detailed record of all aircraft operating in accordance with the Instrument Flight Rules (IFR) and a general record of aircraft operating in accordance with the Visual Flight Rules within its control area. In addition to providing area control service to aircraft operating within controlled airspace over Newfoundland, the Gander Control Centre provides control service within the airspace over approximately one half of the North Atlantic Ocean. The Vancouver Area Control Centre also provides control service over the Pacific Ocean within the Vancouver Oceanic Control Area.

Terminal Control Service consists of the provision of separation to aircraft operating in accordance with IFR in the vicinity of all controlled airports. This service is normally provided by area control centres but separate terminal control units have been established at Calgary and Edmonton (international), Alta.; Saskatoon and Regina, Sask.; Lakehead, Toronto, North Bay and Ottawa, Ont.; Quebec, Que.; Halifax, N.S.; Gander, Nfld.; and Frobisher, N.W.T.

Northern Area Control Service, inaugurated Sept. 26, 1963, is provided by the Edmonton, Winnipeg and Goose area control centres for aircraft flying above 23,000 feet, and is available throughout more than 3,000,000 sq. miles of Northern Canada.

Radar Control Service is provided extensively in the control of IFR traffic, both in terminal areas and while en route. Terminal service is provided at Vancouver, B.C.; Calgary and Edmonton, Alta.; Regina and Saskatoon, Sask.; Winnipeg, Man.; Lakehead, Toronto, North Bay and Ottawa, Ont.; Montreal and Quebec, Que.; Moncton, N.B.; Halifax, N.S.; and Gander, Nfld. En route service is provided by area control centres and by one radar unit located at Kenora, Ont. Ground Control Approach Service is provided at Gander, Nfld., Montreal, Que., and Toronto, Ont.

Flight Information Service is provided by all air traffic control units, but particularly by all area control centres. It consists of advice and information useful for the safe and efficient conduct of flight, including weather reports and forecasts, field condition reports, data concerning aids to navigation, traffic information, refuelling and transportation facilities, and other data of assistance to the pilot in planning or conducting a flight.

Alerting Service ensures that appropriate organizations are notified of aircraft that may be in need of search and rescue aid. This entails the maintenance and constant supervision of a continuous record of active flights to ensure that failure of an aircraft to arrive at the planned destination notified to air traffic control is detected immediately. The service is available to any pilot who files either a flight plan or flight notification with air traffic control.

Customs Notification Service facilitates the routine notification of the appropriate customs agency by pilots who plan to cross the Canada–United States boundary at certain designated customs airports. This is achieved through the prompt notification by air traffic control, at a pilot's request, of the customs officer at the destination airport of the intended arrival and of the need for customs clearance.

Airspace Reservation Service provides reserved airspace for specified air operations within controlled airspace and information to other pilots concerning these reservations and military activity areas in controlled and uncontrolled airspace. The Airspace Reservation Co-ordination Office, located at Ottawa, is responsible for co-ordinating all airspace reservations in Canada and in the Gander and Vancouver Oceanic Control Areas.

Aircraft Movement Information Service is provided by area control centres to assist the Department of National Defence in establishing the identification of all aircraft operating within specified areas.

The total number of aircraft movements at Department of Transport controlled airports in Canada during 1963 was 2,251,561.

Section 2.—Civil Aviation Operation Statistics

Table 3 provides a picture of commercial civil aviation in Canada for the years 1959-63. It shows data on miles and hours flown, traffic carried, fuel and oil consumed, employees, salaries and operating revenues and expenses, by type of service, for Canadian air carriers followed by summary statistics for both Canadian and foreign air carriers operating in Canada. Figures for Canadian carriers include domestic and international operations, and figures for foreign companies cover miles and hours flown over Canadian territory only and exclude passengers and goods in transit through Canada. Unit toll service refers to the transportation of passengers or goods at a toll per unit, whereas bulk service is the transportation of passengers or goods at a toll per mile or per hour for the entire aircraft. Other flying services comprise non-transportation services such as flying training, aerial photography and aerial patrol and inspection.

3.—Summary Statistics of Civil Aviation, 1959-63

Item	1959	1960	1961	1962	1963
Canadian Carriers—					
Unit Toll Transportation (revenue traffic only)—					
Hours flown..... No.	350,019	383,181	327,555	312,395	298,655
Miles flown..... "	77,405,581	80,246,283	76,008,312	76,040,318	75,746,629
Passengers carried..... "	4,176,501	4,218,431	4,543,009	4,792,409	4,864,855
Cargo and excess baggage carried..... lb.	76,464,625	80,152,652	80,823,898	93,064,818	99,063,385
Mail carried..... "	32,894,779	34,633,139	35,749,456	38,430,775	41,892,927
Passenger-miles..... No.	2,357,386,420	2,671,926,081	3,157,518,367	3,463,727,291	3,623,020,400
Cargo and excess baggage ton-miles..... "	29,505,264	35,316,334	38,504,034	45,427,320	53,618,163
Mail ton-miles..... "	13,115,587	13,706,091	14,094,209	15,289,672	17,530,240
Bulk Transportation (revenue traffic only)—					
Hours flown..... No.	259,188	230,670	243,102	230,525	250,988
Miles flown..... "	28,701,522	23,938,740	21,569,202	23,277,049	26,818,278
Passengers carried..... "	504,763	508,984	407,888	476,390	562,489
Freight carried..... lb.	126,523,737	123,200,348	111,504,022	105,082,430	110,102,115
Other Flying Services (revenue traffic only)—					
Hours flown..... No.	155,022	81,059	75,808	83,382	80,930
Canadian Carriers, All Services—					
Revenue Traffic—					
Hours flown..... No.	764,229	694,910	646,465	626,302	630,573
Miles flown..... "	106,107,103	104,185,023	97,577,514	99,317,367	102,564,907
Passengers carried..... "	4,681,264	4,727,415	4,950,897	5,268,799	5,427,344
Cargo and excess baggage carried..... lb.	202,988,362	203,353,000	192,327,920	196,776,738	209,165,500
Goods carried (incl. mail)..... "	235,883,141	237,986,139	228,077,376	236,578,023	251,058,427
Non-revenue Traffic—					
Hours flown..... No.	31,624	24,251	28,863	25,882	21,738
Passenger-miles..... "	100,192,596	127,072,658	148,517,121	176,277,219	203,399,987
Goods ton-miles..... "	4,287,822	5,244,953	5,965,235	6,449,798	6,601,370
Fuel consumed..... gal.	122,055,240	139,425,893	175,201,010	191,343,196	207,490,519
Oil consumed..... "	889,423	812,232	475,994	310,015	405,999
Average employees..... No.	16,565	17,106	17,700	17,810	17,577
Salaries and wages paid..... $	86,148,440	95,650,809	102,200,745	105,636,970	108,538,372
Operating revenues..... $	220,423,558	235,973,562	254,873,901	284,618,321	308,835,913
Operating expenses..... $	219,487,993	237,714,284	257,445,532	277,333,944	294,142,170
Canadian and Foreign Carriers—					
All Services (revenue traffic only)—					
Hours flown..... No.	798,527	712,371[1]	649,107[1]	642,284[1]	646,956[1]
Miles flown..... "	110,889,252	109,699,725	103,335,386	104,851,093	108,282,021
Passengers carried..... "	5,316,001	5,451,716	5,740,577	6,064,074	6,278,298
Cargo and excess baggage carried..... lb.	214,391,889	217,220,865	211,044,506	218,487,619	229,636,108
Mail carried..... "	35,558,226	37,579,496	39,024,564	41,596,384	45,210,723
Unit Toll Transportation (revenue traffic only)—					
Passenger-miles..... No.	2,495,682,456	2,847,022,735	3,352,704,994	3,666,655,321	3,832,248,493
Cargo and excess baggage ton-miles..... "	31,296,521	39,044,787	42,476,457	50,045,948	58,747,717
Mail ton-miles..... "	13,702,638	14,321,366	14,856,343	15,995,107	18,302,847

[1] Includes other flying services.

Summary statistics of Canadian and foreign commercial air carriers, by type of carrier, are given in Table 4 for 1963. No breakdown between the domestic and the international operations of the Canadian carriers is available for bulk services. For the foreign carriers, hours and miles reported are those flown over Canadian territory only and passengers and goods in transit through Canada are excluded.

It is interesting to note that the six scheduled carriers—those holding a Class I licence from the Air Transport Board—accounted for 87 p.c. of all revenue passengers transported by Canadian carriers during 1963. Their share of the goods carried amounted to approximately 45 p.c.

4.—Summary Statistics of Canadian and Foreign Commercial Air Carriers, by Type, 1963

Item	Canadian Carriers			Foreign Carriers		Total Carriers
	Scheduled		Non-scheduled	United States	Other Foreign	
	Domestic Services	International Services				
Unit Toll Transportation (revenue traffic only)—						
Hours flown..... No.	194,389	72,451	31,815	3,780	11,538	313,973
Miles flown..... "	46,116,174	25,685,890	3,944,565	916,219	4,398,908	81,061,756
Passengers carried..... "	3,292,660	1,443,725	128,470	586,348	230,991	5,682,194
Goods carried..... lb.	95,203,054	35,514,612	10,238,646	9,684,229	14,947,275	165,587,816
Passenger-miles..... No.	2,098,839,900	1,502,272,397	21,908,103	24,853,059	184,375,034	3,832,248,493
Goods ton-miles..... "	42,456,763	25,581,110	3,110,530	222,030	5,680,131	77,050,564
Bulk Transportation (revenue traffic only)—						
Hours flown..... No.	45,601		205,387	24	1,041	252,053
Miles flown..... "	8,272,170		18,546,108	6,087	395,900	27,220,265
Passengers carried..... "	169,749		392,740	3,340	30,275	596,104
Freight carried..... lb.	24,768,705		85,333,410	—	209,637	110,311,752

5.—Expenditure and Revenue of the Department of Transport in connection with Air Services, Years Ended Mar. 31, 1961-63

Item	1961	1962	1963
	$	$	$
Expenditure			
Air Transport Board	**590,890**	**850,941**	**814,487**
Air Services	**4,818,175**	**5,443,951**	**5,630,511**
General Administration	1,564,429	1,786,935	1,908,955
Construction Services Administration	3,253,746	3,657,016	3,721,556
Civil Aviation Branch	**29,958,090**	**32,319,901**	**32,591,336**
Control of Civil Aviation	2,835,305	3,340,752	4,043,075
Airports and other ground services—operation and maintenance	19,208,000	20,762,291	19,754,767
Airway and airport traffic control—operation and maintenance	6,802,517	7,500,249	8,168,774
Contributions to other governments or international agencies for the operation and maintenance of airports	218,705	217,542	244,596
Contributions to assist in the establishment or improvement of local airports and related facilities	254,163	105,667	87,600
Grants to organizations for development of civil aviation	639,400	393,400	282,474
Exchequer Court Awards	—	—	10,050
Telecommunications and Electronics Branch	**20,611,217**	**21,821,570**	**21,736,705**
Radio aids to air and marine navigation—administration, operation and maintenance (including the former Telegraph and Telephone Service)	17,879,682	18,822,907	18,795,872
Radio Act and Regulations—administration, operation and maintenance	2,731,535	2,998,663	2,875,287
Northwest Communications Systems—Deficit	—	—	65,546
Meteorological Branch	**15,059,297**	**16,900,780**	**17,403,992**
Totals, Expenditure	**71,037,669**	**77,337,143**	**78,177,031**
Revenue and Receipts			
Air Services Administration	**8,607**	**8,680**	**13,128**
Construction Branch Administration	**947**	**1,589**	**572**

5.—Expenditure and Revenue of the Department of Transport in connection with Air Services, Years Ended Mar. 31, 1961-63—concluded

Item	1961	1962	1963
Revenue and Receipts—concluded	$	$	$
Civil Aviation Branch	**11,494,911**	**14,758,453**	**15,676,753**
Private air pilots' certificates	25,600	19,415	18,135
Airport licence fees	691	1,045	1,300
Aircraft registration and airworthiness certificates	15,940	15,191	14,155
Fines, Aeronautics Act	5,767	6,707	7,246
Land rental	366,994	473,585	494,854
Other rentals (living quarters, hangar space, equipment, restaurants and snack bars, etc.)	1,662,723	2,328,448	2,372,865
Concessions (gasoline and oil, taxi, restaurant and snack bars, telephone, parking, car rentals, etc.)	2,364,101	3,208,950	3,786,018
Aircraft landing fees	4,820,617	6,580,628	7,085,134
Aircraft parking and handling	63,891	71,243	78,086
Power services	131,591	140,822	163,234
Mess receipts	55,973	66,667	26,841
Telephone service	3,611	3,519	5,094
Observation roof—turnstiles	75,831	109,421	122,976
Hangar storage space and heating	85,245	52,899	82,420
Sanitary fees	36,850	43,750	74,285
Sales (water, land and buildings, parking meters, etc.)	120,125	277,833	268,476
Gander Airport (coal sales, heating, electricity, etc.)	65,000	54,661	48,901
Interest on investment	10,263	9,811	8,620
Air route facilities fees	992,399	742,667	444,438
Joint user terminal facilities charge	—	213,804	313,098
Air Traffic Control Division	15,435	3,391	678
Sundry services and sundries	232,555	247,454	144,168
Refunds, previous years' expenditure	343,709	86,542	115,731
Telecommunications and Electronics Branch	**3,883,597**	**3,602,717**	**3,419,280**
Air-ground radio services	996,630	856,574	856,377
Communication facilities	2,152	2,318	2,326
Message tolls	419,062	390,757	334,864
Private commercial broadcasting station licence fees	1,266,128	739,694	1,109,160
Radio operators' examination fees	6,644	7,645	6,931
Radio station licence fees	360,328	384,545	500,981
Rentals (living quarters, space control lines and power, etc.)	447,916	533,172	515,131
Sales (land and buildings, power services, publications, miscellaneous etc.)	241,513	16,456	32,163
Telephone and telegraph services and tolls	55,752	6,793	307
Miscellaneous	13,422	11,278	11,994
Refunds of previous years' expenditure	74,050	53,485	49,046
Meteorological Branch	**213,889**	**248,307**	**244,503**
Totals, Revenue and Receipts	**15,601,951**	**18,019,746**	**19,354,236**

Table 6 shows the number of civil air personnel and airport licences in force and the number of civil aircraft registered at the end of each of the years 1962 and 1963.

6.—Personnel and Airport Licences in Force and Aircraft Registered as at Dec. 31, 1962 and 1963

Item	1962	1963	Item	1962	1963
	No.	No.		No.	No.
Personnel Licences in Force—			**Personnel Licences in Force**—concl.		
Pilot—			Flight engineers	28	38
Glider	582	665	Aircraft maintenance engineers	2,109	2,270
Private	15,979	16,393	**Airport Licences in Force**	**589**	**597**
Commercial	2,251	2,359	**Aircraft Registered—**		
Senior commercial	356	368	Commercial	1,979	1,929
Airline transport	1,342	1,355	Private	4,088	4,172
Totals, Pilot Licences	**20,510**	**21,140**	State	176	191
Air navigators	94	91	**Totals, Aircraft Registered**	**6,243**	**6,292**
Air traffic controllers	807	814			

PART VI.—OIL AND GAS PIPELINES*

A special article covering the history and development of pipeline construction in Canada appears in the 1954 Year Book at pp. 861-869. Additional information has been carried in each succeeding edition and the following write-up brings pipeline development up to the end of 1963.

Oil Pipelines.—At the end of 1963, approximately 10,500 miles of oil pipelines, predominantly crude oil lines, were in operation. Nearly 1,100 miles were laid in 1963, of which about 400 miles came into operation by the end of the year and the remainder early in 1964. More than half of the 1963 pipeline construction was accounted for by one project—the 577-mile, 6-inch natural gas liquids pipeline from the Alberta-Saskatchewan boundary to Winnipeg. This line, owned by Pacific Petroleums, Ltd., parallels the Trans-Canada gas pipeline and is the longest Canadian pipeline built for the sole purpose of transporting natural gas liquids (NGL). The NGL—propane, butane and natural gasoline—will be extracted from the Trans-Canada pipeline stream at a new gas reprocessing plant about 25 miles south of Empress, Alta.

In Manitoba, Interprovincial Pipe Line Company continued its looping program, adding four sections of 34-inch pipe, totalling 41 miles. The Company's wholly-owned subsidiary in the United States, Lakehead Pipe Line Company, Inc., added 126 miles of 34-inch loop between the Manitoba boundary and Superior, Wis., U.S.A. Capacity increases were effected in 1963 in four of the seven sections of the Interprovincial-Lakehead system; the section between Cromer and Gretna, Man., was increased to 494,000 bbl. a day, the highest capacity in the line. First deliveries of crude through the new lateral to Buffalo, N.Y., were made in May 1963. However, deliveries of Canadian crude to the United States by Interprovincial increased only 3 p.c. in 1963. For the first time on a year-round basis, Interprovincial delivered North Dakota crude, received from the Portal pipeline at Clearbrook, Minn., to refineries in Minnesota and Wisconsin; in fact, 55 p.c. of Interprovincial's increase in deliveries consisted of North Dakota crude.

In Alberta, Peace River Oil Pipe Line Co. Ltd. laid a 25-mile, 8-inch line to the Snipe Lake field from its existing system south of Sturgeon Lake, and a 6-inch extension from Snipe Lake to the Red Earth field, a distance of 120 miles, was completed in early 1964; this extension is the most northerly crude oil pipeline in the province. Imperial Oil Limited completed a 6-inch natural gas liquids pipeline, 116 miles long, from the Judy Creek casinghead gas plant to the gas conservation plant at Devon, south of Edmonton. Hudson's Bay Oil and Gas Company Limited laid a short NGL pipeline from the Lookout Butte gas cycling plant in southwestern Alberta to connect with the NGL pipeline to Montana. An important step toward much greater utilization of heavy asphaltic crude oil from the Lloydminster area was achieved in 1963 by the successful application of a new pipelining method that renders Lloydminster viscous crude amenable to pipeline transportation. In the Pembina area, Pembina Pipe Line Ltd. added 30 miles to its gathering system, including a five-mile extension to serve the Cyn-Pem field. Federated Pipe Lines Ltd. extended its gathering facilities in the Swan Hills area.

In Saskatchewan, Producers Pipelines Ltd. completed 14 miles of loops in the Steelman and Pinto fields and 76 miles of gathering lines, including 50 miles in the new areas of Lost Horse Hills, Fletewode, Storthoaks and South Hastings. In British Columbia, there was no major pipeline construction. Deliveries by Trans Mountain Pipe Line Company decreased slightly and deliveries by the company to the Kamloops refinery ceased. That refinery was supplied solely with British Columbia crude from the pipeline of Western Pacific Products & Crude Oil Pipelines Ltd. Deliveries by Western Pacific to Trans Mountain at Kamloops increased from 20,517 bbl. a day in 1962 to 28,739 in 1963. In Ontario, the flow of the Brockville-Toronto section of the Trans-Northern Pipe Line Company's petroleum products pipeline was reversed to a west-to-east direction in November 1963.

* Prepared in the Mineral Resources Division, Department of Mines and Technical Surveys, Ottawa, under the authority of Dr. W. E. van Steenburgh, Deputy Minister.

Interprovincial Pipeline.—Canada's longest oil pipeline, the system of Interprovincial Pipe Line Company, extends from Redwater field 29 miles northeast of Edmonton, Alta., to Port Credit near Toronto, Ont. This includes the part of the line passing through the United States which is operated by Interprovincial's wholly-owned subsidiary, Lakehead Pipe Line Company Incorporated. The total right-of-way distance of the whole system is 1,928 miles, although there is considerably more pipe than this because the system contains two complete pipelines between Edmonton and Superior, Wis., as well as additional loops. Upon completion of the 1964 construction program, the throughput capacities of various sections of the system will range from 193,000 bbl. a day between Sarnia and Port Credit to 538,000 bbl. a day between Cromer and Gretna, Man.

Trans Mountain Pipeline.—The system of Trans Mountain Pipe Line Company extends from Edmonton to Vancouver, enabling West Coast refineries to use Alberta crude oil. The system, completed in 1953, consists of 718 miles of 24-inch pipeline plus two 50-mile loops. Extensions into the State of Washington carry crude to refineries at Ferndale and Anacortes. In 1963, daily deliveries averaged 191,800 bbl. compared with 198,300 bbl. in 1962—both well below the 250,000-bbl. daily delivery capacity of the system. There are three main crude oil receiving terminals on the line—at Edmonton and Edson in Alberta and Kamloops, B.C.

Other Oil Pipelines.—The pipeline of Western Pacific Products & Crude Oil Pipelines Ltd. consists of 504 miles of 12-inch pipe extending from Taylor in northeastern British Columbia to Kamloops where it joins Trans Mountain pipeline. Trans-Prairie Pipelines, Ltd. and British Columbia Oil Transmission Co. Ltd. deliver oil to the Taylor terminal from fields in northeastern British Columbia.

In Alberta, Federated Pipe Lines Ltd. serves fields in the Swan Hills region by two pipelines to Edmonton which have a combined capacity of 109,000 bbl. a day. Peace River Oil Pipe Line Co. Ltd. has a pipeline system serving the Sturgeon Lake, Sturgeon Lake South, Kaybob and Simonette fields with one outlet running south to join the Trans Mountain pipeline at Edson and the other southeast to Edmonton. Pembina Pipe Line Ltd. gathers crude from the Pembina and adjacent fields and delivers it to Edmonton. Britamoil Pipe Line Company Limited operates a pipeline that begins 140 miles south of Edmonton in the Drumheller area and gathers crude from several fields en route to Edmonton, and the Edmonton Pipe Line Company transports crude from the Joarcam and Camrose fields, 40 miles south of Edmonton. Most of the other fields between Calgary and Edmonton are served by a composite pipeline system owned by three companies: Texaco Exploration Company, which owns the Edmonton–Rimbey section; Rangeland Pipe Line Division of Hudson's Bay Oil and Gas Company Limited, which owns the Rimbey–Sundre section; and Cremona Pipeline Division of Home Oil Company Limited, the Sundre to Calgary section. The Imperial Pipe Line Company Limited has four gathering systems that serve the fields in the Edmonton area, including Leduc-Woodbend, Golden Spike and Redwater, with a major pipeline connection from the Leduc area to Edmonton.

Producers Pipelines Ltd. and its wholly-owned subsidiary, Westspur Pipe Line, gather crude from most of the fields in the southeastern part of Saskatchewan and deliver it to the Interprovincial pipeline at Cromer, Man. Trans-Prairie Pipelines, Ltd., in addition to its comparatively new system in northeastern British Columbia, has a system serving the Weyburn field in southwestern Saskatchewan and is connected to the Westspur pipeline. It also has a system in southwestern Manitoba which is linked to the Interprovincial pipeline. The South Saskatchewan Pipe Lines Company delivers oil from the group of fields in southwestern Saskatchewan to Moose Jaw, Regina and the Interprovincial pipeline at Regina.

Oil Pipeline Tariffs.—On Feb. 1, 1963, Interprovincial Pipe Line Company put into effect a new tariff schedule which included tariff reductions up to a maximum of three cents from Edmonton, Alta., to Port Credit, Ont. On May 16, 1963, tariffs were posted for Interprovincial's new lateral to Buffalo, N.Y. The tariff from Edmonton to Buffalo is

55 cents. Western Pacific Products & Crude Oil Pipelines Ltd. announced a tariff reduction, effective May 1, 1963, from 66 to 55 cents on its Taylor-to-Kamloops pipelines. Trans-Prairie Pipelines Ltd., which delivers crude to Western Pacific, effected tariff reductions on Jan. 1, 1963 on oil from fields other than the Boundary Lake field, and posted further reductions on July 1. Trans Mountain Oil Pipe Line Company will reduce the tariff between Kamloops and Vancouver from 22 to 18½ cents when deliveries from Western Pacific exceed a 30,000 bbl.-a-day average over a 12-month period. In southeastern Saskatchewan, Producers Pipelines Ltd. reduced tariffs for several of the newer fields. Some examples of tariffs for the two major systems follow:—

Route	*Transmission Distance*	*Tariff as of Mar. 1, 1964*
	miles	cts. per bbl.
Edmonton, Alta., to—		
Regina, Sask.	438	20
Gretna, Man.	772	29
Sarnia, Ont.	1,743	48
Port Credit, Ont.	1,899	51
Buffalo, N.Y.	1,954	55
Kamloops, B.C.	510	33
Vancouver, B.C.	718	40
Anacortes, Wash., U.S.A.	740	40

Natural Gas Pipelines.—Additions to gas pipeline systems during 1963 brought the total of all transmission, distribution and gathering lines to nearly 40,000 miles. Construction increased appreciably over 1962, and more than 1,000 miles of gas transmission lines and 1,100 miles of distribution lines were laid. The largest gas pipeline construction project was the laying of 205 miles of 34-inch diameter loops by Trans-Canada Pipe Lines Limited along its system in Manitoba and Saskatchewan. The Alberta Gas Trunk Line Company laid 25 miles of 34-inch loop along the main line between Princess and Empress, and added a total of 43 miles of lateral lines in the Medicine Hat, Wimborne, Provost and Hussar areas. Northwestern Utilities, Limited, completed a 118-mile, 12-inch line from the Judy Creek gas plant to Edmonton. Canadian Industrial Gas Ltd. established a new source of supply, the Westlock gas field, by building a 36-mile extension from the company's existing system near Morinville. Mid-Western Industrial Gas Ltd. extended its Wabamun pipeline 23 miles to tie in additional gas sources in the Legal and Westlock areas. Saskatchewan Power Corporation added a total of 143 miles of transmission pipeline and 117 miles of distribution line in widely separated areas of Saskatchewan. In Ontario, Union Gas Company of Canada Limited provided services to a new region by laying more than 200 miles of transmission and distribution pipeline to communities between Waterloo and Owen Sound. The Consumer's Gas Company extended its transmission system from Brampton to Orangeville and laid a new 30-inch major supply line from Malton to Toronto.

Trans-Canada Pipe Lines Limited.—Trans-Canada pipeline, extending from the Alberta-Saskatchewan boundary to Montreal, is Canada's longest pipeline, with a right-of-way length of 2,145 miles. In addition, there are 195 miles of lateral lines including a 50-mile lateral completed in 1960 which delivers gas from the main line at Winnipeg to the United States boundary near Emerson, Man. In September 1962, Trans-Canada began delivering gas to St. Lawrence Gas Company Inc. in northern New York State through the Niagara Gas Transmission Ltd. line near Cornwall. Trans-Canada increased its sales of gas from 237,300,000 Mcf. in 1962 to 271,100,000 Mcf. in 1963, an increase of 14 p.c. by volume. The company receives its gas from The Alberta Gas Trunk Line Company.

Alberta-to-California Pipeline.—The total length of the main line, including the section in the United States, is 1,367 miles, all 36-inch pipe except the most northerly 126-mile section just south of Whitecourt, Alta., which is 30 inches. The Alberta Gas Trunk Line Company owns the 351-mile main section in Alberta plus more than 220 miles of lateral feeder lines. The 107-mile section of line that crosses southeastern British Columbia from the Crowsnest Pass to Kingsgate is owned by Alberta Natural Gas Company. The two Canadian companies that deliver gas through the pipeline—Alberta and Southern Gas Co. Ltd. and Westcoast Transmission Company Limited—have been authorized to export a maximum of 610,750 Mcf. a day at the British Columbia–Idaho boundary. The pipeline began deliveries in December 1961.

Westcoast Transmission Company Limited.—The Westcoast pipeline transports gas to the Vancouver area and adjacent United States areas from the Peace River district of northeastern British Columbia and northwestern Alberta. The main trunk consists of 650 miles of 30-inch pipe starting at Taylor, B.C., but there are some 400 miles of gathering lines supplying gas from British Columbia fields. The Worsley field in Alberta started supplying gas to Westcoast late in 1962. The ultimate throughput capacity of the present Westcoast main line, after installation of more compression equipment, will be 660,000 Mcf. per day. As already stated, the Company also buys Alberta gas and delivers it through the Alberta-to-California pipeline to Idaho, Washington and Oregon.

Other Gas Pipelines.—The Alberta Gas Trunk Line Company owns and operates the largest system of gas transmission pipelines in Alberta. Virtually all gas exported from the province is carried in its system. The Company receives gas from the gathering systems of more than 40 fields and delivers it at the provincial boundaries to gas transmission companies supplying markets elsewhere in Canada and in the northwestern and north-central United States. In addition, Alberta Gas Trunk supplies gas to some communities located along or near the pipeline rights-of-way. The Plains Division of the Alberta Gas Trunk system, which serves the Trans-Canada pipeline, contains 946 miles of pipeline. The Foothills Division forms the Alberta section of the Alberta-to-California pipeline and consists of 571 miles of pipe. The Northern Division, 41 miles long, delivers gas from the Worsley and Boundary Lake South fields in northwestern Alberta to the Westcoast Transmission pipeline at the British Columbia boundary.

In British Columbia, the British Columbia Electric Company Limited provides natural gas service to Vancouver and lower mainland areas, and Inland Natural Gas Co. Ltd. serves the southern interior region. In Saskatchewan, all cities and towns using natural gas are served by Saskatchewan Power Corporation. In Manitoba, Greater Winnipeg Gas Company distributes natural gas in the Winnipeg area. Union Gas Company of Canada, Limited serves southwestern Ontario in the Windsor, London, Sarnia and Chatham areas. The Consumers' Gas Company and its subsidiaries distribute gas in Toronto, Ottawa, Niagara Falls, Welland and Fort Erie regions. In Quebec, gas is distributed by Quebec Natural Gas Limited which serves the Montreal area. Although a small amount of gas is imported into southwestern Ontario from the United States, almost all of the gas used in Eastern Canada is supplied by the Trans-Canada pipeline.

Oil Pipeline Statistics.*—There were 42 oil pipeline companies operating in Canada at the end of 1962. Pipeline deliveries shown in Table 1 were made to non-pipeline carriers, foreign pipelines, and terminals including refineries and distributing centres.

* Statistics of oil pipelines are given in greater detail in the DBS monthly report *Oil Pipe Line Transport* (Catalogue No. 55-001).

1.—Pipeline Movements of Oil, 1959-62

Item	1959	1960	1961	1962
	bbl.	bbl.	bbl.	bbl.
Receipts				
Crude Oil, Condensate and Natural Gasoline—				
Canadian	177,829,488	185,062,776	221,622,809	254,874,604
Imports	86,083,102	81,009,097	79,831,149	78,811,557
Liquefied Petroleum Gases and Products—				
Canadian	46,665,369	48,949,163	50,735,920	53,435,886
Imports	202,463	450,443	303,976	337,548
Totals, Net Receipts	**310,780,422**	**315,471,479**	**352,493,854**	**387,459,595**
Deliveries				
Crude Oil, Condensate and Natural Gasoline—				
Canadian	226,851,400	222,175,832	232,892,272	245,872,459
Exports	33,705,773	41,371,872	67,154,419	85,789,864
Liquefied Petroleum Gases and Products—				
Canadian	46,508,471	48,831,714	50,653,585	52,800,070
Exports	283,092	398,491	191,595	831,974
Totals, Net Deliveries	**307,348,736**	**312,777,909**	**350,891,871**	**385,294,367**

Revenue and employee data shown in Table **2** are not complete; both revenue and employee figures have been omitted for some companies, since pipeline operation forms only a part of the activities of these establishments and the data are not separable.

2.—Operating and Financial Statistics of Oil Pipelines, 1959-62

Item		1959	1960	1961	1962
Pipeline Milage—					
Trunk lines	No.	5,426	5,661	6,390	6,543
Gathering lines	"	2,382	2,775	3,164	3,494
Daily Av. of Net Deliveries—					
Trunk lines	bbl.	826,099	833,572	943,820	1,038,194
Gathering lines	"	465,327	488,458	582,381	658,595
Barrel Miles—					
Trunk lines	'000	114,265,808	119,109,247	147,032,151	166,208,113
Av. Miles per Barrel—					
Trunk lines	No.	379	390	427	439
Property account	$	468,676,666	485,525,282	535,626,151	557,709,996
Long-term debt	$	305,238,208	298,910,522	322,671,204	306,029,767
Operating revenues	$	87,063,987	94,209,335	106,728,135	122,747,571
Operating expenses	$	21,830,343	22,926,604	24,554,444	28,056,494
Net income (after income tax)	$	20,985,946	23,502,277	30,715,081	36,426,607
Av. employees	No.	1,559	1,545	1,498	1,496
Salaries and wages	$	9,351,295	9,638,912	9,579,373	9,934,058

Gas Pipeline Transport Statistics.—The gas pipeline transport industry became a significant factor in the Canadian economy in 1957, with the completion of the first of several extensive pipelines constructed to transport natural gas from the field or processing plant to distribution outlets. The first detailed statistics for the industry cover the year 1959. Companies included are those that obtain the bulk of their revenue from the sale of gas to distribution companies for resale; those that derive most of their revenue from the sale of gas to final consumers are not included.

3.—Natural Gas Transmission, 1959-62

Item	1959	1960	1961	1962
	Mcf.	Mcf.	Mcf.	Mcf.
Natural Gas Received into System—				
From own gathering system	79,533,174	101,355,513	120,530,320	562,156,054
From other gathering systems	131,434,280	178,295,587	273,122,357	
From foreign transmission lines	11,634,172	5,550,597	5,480,890	5,477,463
Totals, Net Receipts	**222,601,626**	**285,201,697**	**399,133,567**	**567,633,517**
From Canadian transmission lines	80,518,000	148,887,225	258,557,280	..
From storage	10,186,728	12,646,150	20,298,994	26,376,059
From distribution systems	4,791,947	22,500,162	27,230,599	..
Totals, Gross Receipts	**318,098,301**	**469,235,234**	**705,220,440**	..
Natural Gas Delivered out of System—				
To distribution systems	136,001,965	178,573,842	227,062,133	235,407,852
To foreign transmission lines	83,175,601	112,483,781	173,840,858	342,812,316
To industrial consumers	99,971	105,378	174,851	..
To others	1,484	1,210	1,277	..
Totals, Net Deliveries	**219,279,021**	**291,164,211**	**401,079,119**	..
To Canadian transmission lines	80,518,000	148,887,225	258,503,017	..
To storage	10,812,260	16,850,422	24,002,897	26,034,086
Redelivered to distribution systems	3,190,280	6,274,357	6,948,891	..
Totals, Gross Deliveries	**313,799,561**	**463,176,215**	**690,533,924**	..

4.—Operating Statistics of Gas Pipelines, 1959-62

Item		1959	1960	1961	1962
Daily average sendout	Mcf.	600,764	795,531	1,098,847	1,643,319
Gross receipts	"	318,098,301	469,235,234	705,220,440	..
Gross deliveries	"	313,799,561	463,176,215	401,079,119	..
Operating revenues	$	75,701,751	98,083,659	138,516,655	199,470,727
Pipeline milage	miles	4,408	4,671	5,470	5,595
Average number of employees	No.	1,164	1,186	1,252	1,300
Salaries and wages	$	6,525,451	7,146,707	7,631,851	8,365,493
Average annual earnings per employee	$	5,606	6,026	6,096	6,435

CHAPTER XX.—COMMUNICATIONS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Communications media in Canada have been shaped to meet the needs of the country. Great networks of telephone, telegraph and radio services, inextricably bound together, provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change and development. The familiar challenges of the country—its size, its topography, its climate, its small population—which have reared their heads in other areas of development, have had to be faced as well in the field of communications. That these have been met is evidenced by the fact that today Canada possesses communication facilities and services second to none in the world.

Section 1.—Telecommunications*

During the past half-century, Canada has experienced tremendous economic expansion. Population growth and the advance to new industrial frontiers have been matched by an upward surge in national productivity and general standard of living. Continuing development of Canada is dependent on both individual pioneering and the co-operative efforts of many industries and the telecommunications industry is filling a vital role in this drama of growth.

Business and industry have expanded and ventured into isolated areas assisted and promoted by Canadian telecommunications industries which have anticipated the needs of the future with vast programs of development in virgin territories. Technological development has been particularly important to the extension of telecommunications in Canada. To meet the demands placed upon it, the industry has constantly introduced newer and better equipment, tools and methods of operation. In the growth of urban centres, the development of rural communities and the pioneering of new territory,

*Subsections 1 and 4 to 7 were revised in the Telecommunications and Electronics Branch of the Department of Transport, Ottawa. Textual data in Subsection 2 were prepared by The Bell Telephone Company of Canada, Montreal, and in Subsection 3 by Canadian Pacific Telecommunications Department, Montreal. Statistical material of Subsection 2 and Subsection 3 was revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

Canadian telecommunications agencies through the years have sought to provide the highest quality of service for the greatest number of people. The major railways, the hundreds of co-operating telephone companies, the radio and television companies and federal communications organizations work together with a common purpose—building networks of telecommunications from coast to coast. They provide such familiar services as telephone, telegraph, teletype, radio and television, and many other related means of communication; in addition, mutual co-operation has allowed them to satisfy a variety of defence needs.

Subsection 1.—Government Control over Telecommunications Agencies

Telephone and telegraph companies incorporated under the Federal Parliament are subject to the jurisdiction of the Board of Transport Commissioners in the matter of rates and practices under the provisions of the Railway Act (see pp. 752-753); other companies are responsible to provincial regulatory bodies. International telegraph and telephone communications are handled subject to the International Telecommunication Convention and the Regulations thereunder and/or under regional agreements. Tolls charged to the public for radio communication service are subject to the provisions of the Regulations made under the Radio Act. Overseas cables landed in Canada are subject to the External Submarine Cable Regulations under the Telegraphs Act.

Radio communications in Canada, except for those matters covered by the Broadcasting Act, are regulated under the Radio Act and Regulations and also under the Canada Shipping Act and Ship Station Radio Regulations. In addition, radio communication matters are administered in accordance with the International Telecommunication Convention and Radio Regulations annexed thereto; the International Civil Aviation Convention; the International Convention for the Safety of Life at Sea; the Inter-American Telecommunication Convention and the Convention between Canada and the United States of America relating to the operation by citizens of either country of certain radio equipment or stations in the other country; and also in accordance with such regional agreements as the Agreement between Canada and the United States for the Promotion of Safety on the Great Lakes by Means of Radio, the Agreement between Canada and the United States relating to the Co-ordination and Use of Radio Frequencies Above Thirty Megacycles per Second, the Inter-American Radio Agreement and the North American Regional Broadcasting Agreement (see also pp. 833-834).

National radio broadcasting in Canada entered its present phase in 1936 when, with the passage of the Canadian Broadcasting Act, the Canadian Broadcasting Corporation replaced the Canadian Radio Broadcasting Commission. The Act gave the Corporation wide powers in the operation of a national broadcasting system and gave to the Minister of Transport the technical control of all broadcasting stations.

During 1958 the Government established a Board of Broadcast Governors and the Canadian Broadcasting Corporation Board of Governors was abolished. The Board of Broadcast Governors regulates the establishment and operation of networks of radio and television broadcasting stations, the activities of public and private broadcasting stations and the relationship between them, in the interest of providing a national broadcasting service of high standard, basically Canadian in content and character. While the Minister of Transport is the licensing authority under the Radio Act, the Broadcasting Act requires that applications for broadcasting station licences or for any change in an existing broadcasting station be referred to the Board of Broadcast Governors for its recommendation before being dealt with by the Minister. (See also pp. 839-840.)

Subsection 2.—Telephones

Alexander Graham Bell first transmitted human speech through electrically energized equipment in March 1876, and in August of the same year a one-way call from Brantford to Paris, Ont., marked the first successful long-distance test of the new invention. Soon

after the instrument was perfected, telephone exchanges sprang up in many Canadian communities, sometimes with two competing companies in one place. In April 1880, The Bell Telephone Company of Canada was established by Act of Parliament and authorized as the official agent for telephone service in 32 cities and towns across the country. However, it came to be recognized that, in the existing state of the industry, one company could scarcely develop and organize service over so wide an area, and a separate company was set up in British Columbia. The Bell Telephone Company withdrew from the Maritime Provinces in the 1880's and installations in the Prairie Provinces were sold to the respective provincial governments in 1908-09. The seven major telephone systems that developed across Canada worked together to establish long-distance service on a national basis and in 1931 they founded the Trans-Canada Telephone System which now has eight full members. These include both shareholder-owned companies and provincial government systems. They are as follows:—

The Avalon Telephone Company Limited
Maritime Telegraph and Telephone Company Limited
The New Brunswick Telephone Company Limited
The Bell Telephone Company of Canada (serving Ontario, Quebec, Newfoundland and the Northwest Territories)
Manitoba Telephone System
Saskatchewan Government Telephones
Alberta Government Telephones
British Columbia Telephone Company.

These eight systems, together with the Island Telephone Company (P.E.I.), Quebec-Telephone serving the Lower St. Lawrence area, Ontario Northland Communications and the Okanagan Telephone Company, comprise the Telephone Association of Canada. This organization was established to ensure general co-operation in telephone matters and to provide a means of sharing technical and operating information. Many of the smaller systems have also formed similar groups, such as the Canadian Independent Telephone Association, the Quebec Independent Telephone Association and the Saskatchewan Association of Rural Telephone Companies.

Backbone of the Canadian telephone network is the trans-Canada microwave system. Stretching more than 3,900 miles from the Atlantic to the Pacific, it is the longest single microwave system in the world. In all, the Canadian telephone industry operates more than 10,000 miles of microwave routes, carrying simultaneously many hundreds of long-distance conversations, large volumes of data, and television programs for the CBC and CTV television networks. The trans-Canada system also supplies the communications facilities linking the more than 200 stations on the CBC French and English radio networks.

The steadily rising demand for local and long-distance service has called not only for general expansion of Canadian telephone systems but for the constant introduction of modern facilities and services. A number of Canadian companies have introduced what is called "Extended Area Service" in many of the communities they serve. This plan eliminates long-distance charges between several larger centres and their suburbs, and between many smaller places with a close community of interest. The cost of this service is included in the monthly charge for local telephone service.

Distance Dialing by both operators and customers enables the industry to provide faster and better long-distance service and at the same time makes the most efficient use of manpower and equipment. Direct Distance Dialing now makes it possible for users to dial their own long-distance calls to more than 6,000,000 telephones in Canada and more than 89,000,000 in Canada and the United States.

Numerous flexible telephone services are provided for government, business and industry. Special conference circuits can be quickly arranged, enabling business men to discuss their affairs without the inconvenience and expense of travel. Radiotelephone installations link travellers with the regular telephone network, providing mobile service

for such users as highway departments, trucking and construction firms, fire and ambulance services and police departments. A pocket radio signaller carried by a person temporarily leaving a telephone instrument area will indicate an incoming call requiring his attention.

Improvement and extension of local and long-distance telephone services continue to absorb the bulk of invested money and labour. However, the increasing mechanization of government and business operations and the resultant need to transmit large volumes of information at economical rates have led to the accelerated development of machine-to-machine communication. The growth of such communication in the past few years has been made possible to a large extent by the introduction of Data-Phone data sets which convert the electrical impulses from business machines into tone-signals acceptable to telephone circuits. A Data-Phone data set at the receiving business machine re-converts the tone-signals into machine language. Data-Phone service is now used in conjunction with a variety of business machines to send information from punched cards and from paper or magnetic tape.

Several optional services introduced recently provide great flexibility for machine-to-machine and voice calling over long distances. Wide Area Telephone Service extends a customer's flat-rate calling to telephones within seven progressively wider zones, the largest of which includes the whole of Canada. Telpak, a private line intercity service, is available to organizations which transmit large volumes of information requiring an exceptionally broad band of frequencies, such as data from advanced computers and high-speed facsimile equipment. It may also be used to carry simultaneously many smaller loads of information, such as voice calls and teletypewriter messages, which require relatively narrow bands of frequencies.

In 1963, the scope and value of Dial Teletypewriter Exchange Service was enhanced when arrangements were made to interconnect TWX subscribers in Canada with TWX users in the United States. This makes it possible for 60,000 TWX users to exchange typewritten information and certain low-speed data over the regular telephone network. Handwritten messages or sketches can be transmitted over private lines, or over the regular telephone network, in conjunction with Data-Phone data sets. The industry also offers an electronic facsimile service which transmits and receives letter-size handwritten or printed messages, charts or drawings over the regular network or private lines.

A recent product of Canadian telephone research which has been quickly accepted by business customers is known as Business Interphone, a versatile, hands-free intercommunication system and regular telephone service in a single instrument. Centrex, designed for large private telephone systems, permits incoming calls to be dialed straight through to an extension without being relayed at the switchboard of private branch exchanges. A complete intercommunication system is available for use in the home and in small businesses. A special type of telephone has been introduced for hard-of-hearing users. Another new service is an automatic dialer which can retain up to 290 telephone numbers in its electronic memory. Canadian telephone research laboratories are working on basic research in such fields as electronic circuitry, microminiaturization, solid state physics and ferrites. Applied research has concentrated on meeting the needs of Canadian subscribers for modern data communication and telephone service. Touch-tone service, featuring a telephone with push-buttons instead of a dial, was introduced in four communities in 1964.

The northward extension of industry in Canada has, of course, required the northward expansion of telephone communications. The British Columbia Telephone Company operates a tropospheric scatter system from Port Hardy to Annette Island. Alberta Government Telephones, in conjunction with Saskatchewan Government Telephones, operates a tropospheric scatter transmission system from Uranium City in Saskatchewan to Fort Smith in the Northwest Territories. In Manitoba, radiotelephone service reaches out to a large number of isolated settlements and bush camps and provides communication for aircraft and for boats plying Lake Winnipeg. In northern and northwestern Ontario, Fringe Radio Service extends telephone communication beyond wire and cable facilities. A radio unit on the customer's premises permits two-way calling between subscribers in

the fringe area and those served by the regular telephone network. Goose Bay in Labrador and the Schefferville area of the Quebec–Labrador boundary are in contact with the remainder of the world through a tropospheric scatter and radio-relay network hinged on Sept Îles. In mid-1964, Bell Telephone opened its most northerly exchange at Resolute on Cornwallis Island, far into the Arctic. A high-frequency radio base station at Alma, Que., serves the communications needs of the northern settlements in the area between the Atlantic Coast of Labrador and the Quebec shore of Hudson Bay, and also provides communications for aircraft operating in the North. To better serve this area, Bell in 1963 established a temporary base station at Frobisher, supplementing the base station at Alma, and opened five new radiotelephone stations.

Recently, the Canadian National Telecommunications (CNT) has made a major entry into the field of public telephone service. In Newfoundland, it provides public telephone service at Gander and at many smaller communities; at the end of 1963 there were more than 10,000 telephones connected to CNT exchanges in that province. CNT also supplies local and long-distance public telephone service to about 5,800 subscribers in the Yukon Territory, the Northwest Territories and northern British Columbia. Some of the points served are Hay River, Fort Smith, Yellowknife, Fort Nelson, Watson Lake, Cassiar, Whitehorse, Mayo, Elsa, Keno and Dawson City.

Telephone Statistics.—There were 2,430 telephone systems operating in Canada in 1962, compared with 2,509 in 1961. The number of co-operative systems in rural districts decreased from 2,108 to 2,079 and the number of shareholder-owned companies from 259 to 234. The largest of the incorporated companies, The Bell Telephone Company of Canada, which operates throughout the greater part of Ontario and Quebec and in Newfoundland and the Northwest Territories, served 61 p.c. of all the telephones in Canada in both 1961 and 1962. The British Columbia Telephone Company, also shareholder-owned, served 8.5 p.c. of the total in 1961 and 9.4 p.c. in 1962. The number of telephones in use increased by 76 p.c. during the ten-year period, 1953-62.

1.—Milages of Pole-Line and Wire and Number of Telephones in Use, 1953-62

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Systems	Route Milage[1]	Length of Wire	Telephones in Use			
				Business	Residential	Total	Per 100 Population
	No.	miles	miles	No.	No.	No.	No.
1953	2,793	257,059	12,307,070	1,084,815	2,521,592	3,606,407	24.4
1954	2,788	257,444	13,357,289	1,153,806	2,706,463	3,860,269	25.4
1955	2,739	259,784	14,758,160	1,236,341	2,915,337	4,151,678	26.6
1956	2,661	269,303	16,410,897	1,334,403	3,164,922	4,499,325	28.0
1957	2,637	274,334	18,161,444	1,409,446	3,417,689	4,827,135	29.1
1958	2,619	280,884	20,250,410	1,486,393	3,631,900	5,118,293	30.0
1959	2,605	267,737	22,791,129	1,568,735	3,870,288	5,439,023	31.2
1960	2,558	274,855	25,333,802	1,673,915	4,054,252	5,728,167	32.2
1961	2,509	306,167	26,986,478	1,729,599	4,284,416	6,014,015	32.6
1962	2,430	314,523	28,930,413	1,816,895	4,512,553	6,329,448	33.7

[1] Includes underground conduits and buried cable.

2.—Telephones in Use, by Province, 1962

Province or Territory	On Individual Lines		On 2- and 4-Party Lines		On Rural Lines		Public Pay Telephones
	Business	Residential	Business	Residential	Business	Residential	
	No.	No.	No.	No.	No.	No.	No.
Newfoundland	6,651	17,197	621	24,887	—	3,427	526
Prince Edward Island	2,114	5,649	75	3,193	350	6,451	153
Nova Scotia	16,437	79,972	643	19,931	1,264	28,751	2,903
New Brunswick	12,182	41,513	1,067	31,463	905	20,819	2,018
Quebec	148,795	644,571	8,268	268,394	8,715	120,142	24,383
Ontario	209,211	865,281	6,719[1]	479,687[1]	11,488	191,995	26,143
Manitoba	27,364	124,603	486	50,325	2,529	34,736	2,541
Saskatchewan	24,671	128,652	38	526	3,390	58,023	2,081
Alberta	52,559	245,033	11	208	969	32,319	2,754
British Columbia[2]	54,802	77,932	485	248,392	3,854	77,091	5,216
Northwest Territories	259	389	30	315	26	—	27
Canada	**555,045**	**2,230,792**	**18,443**	**1,127,321**	**33,490**	**573,754**	**68,745**

Province or Territory	Private Branch Exchange		Extensions		Mobile	Total	Telephones per 100 Population
	Business	Residential	Business	Residential			
	No.	No.	No.	No.	No.	No.	No.
Newfoundland	7,279	—	4,773	4,416	—	69,777	14.6
Prince Edward Island	1,418	—	1,492	1,273	83	22,251	20.8
Nova Scotia	17,409	—	10,571	16,147	577	194,605	25.9
New Brunswick	13,167	—	9,884	11,542	434	144,994	23.7
Quebec	204,383	26	120,134	161,903	229	1,709,943	31.4
Ontario	316,691	780	153,078	267,560	462	2,529,095	39.6
Manitoba	31,980	—	17,096	19,615	56	311,331	33.0
Saskatchewan	20,637	—	10,709	11,676	265	260,668	28.0
Alberta	66,844	—	15,248	35,343	1,702	452,990	32.5
British Columbia[2]	68,807	—	44,505	50,349	872	632,305	37.2
Northwest Territories	237	—	150	56	—	1,489	6.2
Canada	**748,852**	**806**	**387,640**	**579,880**	**4,680**	**6,329,448**	**33.7**

[1] Ontario 4-party telephones included under Rural Lines. [2] Includes Yukon Territory.

The major telephone systems record completed calls on representative days throughout the year and on this basis estimate the number of local conversations which, added to the actual count of long-distance calls, gives their total volume of business. Estimates are included for the smaller systems.

3.—Local and Long-Distance Calls and Average Calls per Capita and per Telephone, 1953-62

NOTE.—Figures from 1928 will be found in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Local Calls	Long-Distance Calls	Total Calls	Total Calls per Capita	Average Calls per Telephone		
					Local	Long-Distance	Total
	'000	'000	'000	No.	No.	No.	No.
1953	5,952,756	131,899	6,084,655	412	1,650	36.6	1,687
1954	6,209,771	137,761	6,347,532	418	1,608	35.7	1,644
1955	6,808,389	153,087	6,961,476	446	1,640	36.8	1,677
1956	7,593,525	171,280	7,764,805	486	1,688	38.0	1,726
1957	8,077,101	178,608	8,255,709	498	1,673	37.0	1,710
1958	8,513,455	194,186	8,707,641	511	1,663	37.9	1,701
1959	9,044,825	205,395	9,250,220	530	1,663	37.9	1,701
1960	9,364,586	215,275	9,579,861	537	1,635	37.6	1,672
1961	10,242,657	226,258	10,468,915	568	1,703	37.6	1,741
1962	10,558,129	250,239	10,808,368	576	1,668	40.0	1,708

The steady increases in capitalization, revenue and expenditure of telephone companies together with the figures of number of employees and salaries and wages paid are shown for the years 1953-62 in Table 4. Provincial figures for 1962 are given in Table 5.

4.—Financial Statistics of Telephone Systems, 1953-62

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Capital Stock[1]	Long-Term Debt	Cost of Property and Equipment	Revenue	Expenditure	Full-Time Employees	Salaries and Wages[2]
	$	$	$	$	$	No.	$
1953	398,198,697	450,511,233	1,152,309,749	310,833,599	269,817,828	50,540	145,109,934
1954	418,287,016	498,231,715	1,301,545,688	340,623,170	296,384,292	51,929	159,329,238
1955	467,026,669	521,336,006	1,470,679,433	376,716,651	328,880,674	55,673	173,922,973
1956	549,196,657	583,795,407	1,672,363,570	422,370,206	366,117,634	60,121	193,992,142
1957	627,051,991	683,386,827	1,941,591,700	467,701,983	412,158,348	64,074	219,693,002
1958	639,824,492	845,613,559	2,202,747,303	507,689,602	451,672,799	61,400	234,298,163
1959	730,874,613	916,791,207	2,444,576,788	582,262,550	509,727,426	58,826	240,691,244
1960	758,291,439	1,068,399,476	2,692,484,052	627,982,847	549,042,848	57,670	247,128,467
1961	879,424,405	1,134,866,419	2,926,527,459	679,306,194	590,428,169	56,322	254,207,734
1962	1,012,220,461	1,151,169,891	3,192,229,994	733,294,451	636,542,442	58,091	269,284,720

[1] Includes premium on capital stock. [2] Full-time and part-time.

5.—Financial Statistics of Telephone Systems, by Province, 1962

Province or Territory	Capital Stock[1]	Cost of Property and Equipment	Revenue	Expenditure	Full-Time Employees	Salaries and Wages[2]
	$	$	$	$	No.	$
Newfoundland	8,798,045	24,362,935	4,326,185	3,327,403	600	1,748,451
Prince Edward Island	1,919,123	8,045,933	1,695,417	1,478,111	175	537,049
Nova Scotia	32,260,246	86,103,648	19,092,328	16,239,816	1,925	6,891,286
New Brunswick	29,621,848	82,439,402	17,398,121	15,076,527	1,537	6,204,745
Quebec[3]	674,246,132	2,068,607,434	496,461,948	427,984,981	17,182	84,189,409
Ontario[4]	17,760,703	52,658,522	14,471,935	11,313,253	20,201	97,330,225
Manitoba	90,630,377	162,396,733	27,572,977	26,749,177	3,723	14,495,457
Saskatchewan	18,118,570	139,146,550	29,103,494	25,261,427	2,043	9,020,977
Alberta	2,251,888	219,595,702	46,688,096	42,565,892	5,203	20,839,433
British Columbia[5]	136,556,329	348,804,648	76,409,860	66,477,177	5,495	28,007,830
Northwest Territories	57,200	68,487	74,090	68,678	7	19,858
Canada	**1,012,220,461**	**3,192,229,994**	**733,294,451**	**636,542,442**	**58,091**	**269,284,720**

[1] Includes premium on capital stock. [2] Full-time and part-time. [3] Includes data of The Bell Telephone Company, which operates in Quebec, Ontario, Newfoundland and the Northwest Territories. [4] Includes data of Northern Telephone Limited, which operates in Ontario and Quebec. [5] Includes Yukon Territory.

Subsection 3.—Telegraphs

Public telegraph service in Canada is, for the most part, furnished by the railway companies through their telecommunications departments. The preponderance of this service is provided by Canadian National and Canadian Pacific, both of which, in addition to meeting their own railway communication needs and handling telegrams and cablegrams for the public, provide a wide range of services including data processing systems, radio and television network services, facsimile and wire photo services, telemetering, complex teletype and data switching centres, and other forms of voice and record communications.

At the end of 1963, there were about 6,000 customer installations in Canada for Canadian National–Canadian Pacific telex service; each installation has access to the other and also to world-wide telex networks in other countries.

In 1963, Canadian National–Canadian Pacific completed construction of a high-grade microwave radio relay system between Montreal and Vancouver. This system is capable of carrying 600 voice channels which are used for the transmission of all forms of voice and record communications and can be expanded readily by the addition of radio channels to provide network television service or increased circuitry for general communications use. This system links up with the railway microwave facilities running east from Montreal to St. John's in Newfoundland, and thus completes the railways' transcontinental microwave capability.

Increased civil and military interests in the Canadian northwest have created a need for all forms of communications services and to meet this need the Canadian National Telecommunications (CNT) has undertaken several major projects:—

(1) A 1,200-mile microwave system between northern Alberta and the Yukon–Alaska border was completed in July 1961. Starting at Grande Prairie, 450 miles north of Edmonton, this network proceeds northward through Alberta, crosses the northeast corner of British Columbia and, following the Alaska Highway through Yukon Territory, joins an interchange system at Mount Dave on the Yukon-Alaska border. At Grande Prairie, the system joins the Alberta Government telephone system running southward through Alberta to the Canada–United States border, where it connects with United States networks.

(2) Construction was completed in mid-1961 of a land-line communications network stretching around Great Slave Lake from Fort Smith on the Alberta–Northwest Territories border to Yellowknife, bringing the full range of communications services to residents of Yellowknife, Fort Rae, Fort Providence, Hay River, Pine Point and Fort Smith. This network is connected to the 'outside' by a microwave system between Hay River and Edmonton; the section of the microwave system within the Northwest Territories was constructed by CNT and the Alberta section by Alberta Government Telephones.

(3) Construction was completed in late 1962 of a tropospheric scatter communications system that extends from Hay River in the Northwest Territories to Lady Franklin Point on Victoria Island in the Arctic Archipelago. This system is used for defence purposes and provides various types of communication service to such outlying communities as Coppermine and Cambridge Bay.

(4) A 1,020-mile telephone pole-line is under construction down the length of the Mackenzie River from Hay River to Inuvik which, when completed in 1966, will provide simultaneous long-distance telephone, teletype, telex, commercial telegraphs, air operational and weather communications to Fort Simpson, Wrigley, Fort Norman, Norman Wells, Fort Good Hope and Inuvik. Aklavik, Fort McPherson and Arctic Red River will be linked to the system at Inuvik by very high frequency radio communications. Service will be instituted at successive communities as construction of the line proceeds northward.

Telegraph Statistics.—There were nine telegraph and cable companies operating in Canada during 1963 but, as already stated, telegraph service is provided mainly by the telecommunications departments of the two major railway companies. The Canadian Overseas Telecommunication Corporation (see p. 832), is responsible for maintaining and operating overseas telecommunication services. Total cost of property and equipment for all telegraph and cable companies increased by 16.3 p.c. during 1963 from $336,374,000 to $391,173,000. The number of telegrams sent continues to decline year by year, giving way to other types of message transmission, but the number of cablegrams sent has been rising. The business of telegraph and cable companies appears to be changing from one of handling messages directly to one of leasing equipment for the transmission of messages by others. Revenues from the latter source have been increasing over the past several years and have been the main factor in the steady advance in total operating revenues.

6.—Summary Statistics of Canadian Telegraphs, 1954-63

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Operating Revenues	Operating Expenses	Net Operating Revenue	Pole-Line Milage	Wire Milage	Employees[1]	Telegrams	Cablegrams[2]	Money Transfers
	$	$	$	miles	miles	No.	No.	No.	$
1954....	38,203,590	33,203,942	4,999,648	46,284	434,178	10,629	19,906,354	2,105,513	21,550,372
1955....	39,320,960	32,501,844	6,819,116	48,067	438,692	10,852	20,067,424	2,238,433	23,264,851
1956....	40,720,213	33,688,888	7,031,325	48,062	442,891	10,833	20,381,641	2,429,893	24,295,308
1957....	44,796,778	39,271,893	5,524,885	48,379	451,669	11,159	19,163,723	2,580,745	25,586,057
1958....	47,633,991	39,908,538	7,725,453	47,495	464,661	10,587	17,296,786	2,499,871	24,434,887
1959....	52,962,913	43,511,666	9,451,247	47,535[r]	486,875	10,586	16,390,997	2,602,974	25,589,067
1960....	58,546,167	45,538,063	13,008,104	48,159	510,640	10,279	15,546,292	2,663,598	25,134,534
1961....	64,053,626	51,735,006	12,318,620	48,675[r]	524,720	9,997	15,138,706	2,809,691	25,041,156
1962....	71,379,074	56,451,679	14,927,395	48,381	534,074	10,069	14,451,416	2,920,429	28,060,157
1963....	73,611,349	60,256,828	13,354,521	49,536	532,551	9,826	13,338,941	2,939,958	30,133,340

[1] Excludes commission operators. [2] Includes wireless messages and transatlantic telephone and telex messages.

Subsection 4.—Overseas Telecommunications Services

The Canadian Overseas Telecommunication Corporation was established in 1950 to maintain and operate external telecommunication services for the conduct of public communications by cable, radiotelegraph and radiotelephone and any other means of telecommunication between Canada and overseas points; to make use of all developments in cable and radio transmission and reception for external telecommunication services; and to conduct investigation and research with the object of improving and co-ordinating such telecommunication services with the telecommunication services of other parts of the Commonwealth. By 1964 the following services had been established: direct telegraph, telephone and telex communications between Canada and Argentina, Australia, Barbados, Bermuda, Brazil, Britain, Denmark, Finland, France, Germany, Italy, Jamaica, Japan, the Netherlands, New Zealand, Norway, Sweden and Switzerland.

The first transatlantic telephone cable, a joint project with the British Post Office, the American Telephone and Telegraph Company, the Eastern Telephone and Telegraph Company and the Corporation, was brought into service in 1956. Apart from normal use of the system for public telephone and telegraph message traffic, capacity is available for private leased circuits. International telex service was introduced to Canada the same year and service with 84 countries is available. Since 1961 the following cables have been made available for service: the Canada–Britain 80-circuit telephone cable (CANTAT); the Canada–Greenland–Iceland 24-circuit cable (ICECAN), primarily intended to meet the North Atlantic communication needs of international civil aviation, and its connecting counterpart between Iceland and Scotland (SCOTICE); a four-party project (Canada–Britain–Australia–New Zealand), part of a Commonwealth round-the-world cable system, consisting of a Canada–New Zealand–Australia 80-circuit telephone cable; and the use of a number of circuits for Canadian purposes in a telephone cable system connecting Bermuda and the United States and in a telephone cable system connecting Jamaica and the United States. A five-party (Canada–Britain–Australia–New Zealand–Federation of Malaysia) project, a section of the Commonwealth round-the-world cable system, will provide, when completed in 1966, an Australia–New Guinea–North Borneo–Singapore–Malaya–Hong Kong 80-circuit telephone cable (SEACOM).

Canada is taking part in negotiations being held among the more advanced nations for the purpose of setting up an international organization to develop and establish a commercial communications satellite system. A communications satellite ground station is being constructed near Liverpool, N.S., by the Department of Transport for experimental purposes. It is designed to improve the capability of industry and government in this new

field and will be available to the Canadian Overseas Telecommunication Corporation for initial participation in the commercial satellite system when it becomes operational. The exploitation of this new technology to supplement existing cable and other facilities and form part of an improved global network will provide a means of meeting the ever-increasing demand for overseas communication services. A list of cables landed in Canada is given in Table 7.

7.—External Cables Landed in Canada, 1963

Company and Station	Cables	Nautical Miles
	No.	No.
Canadian Overseas Telecommunication Corporation (COTC)—		
Halifax, N.S. via Azores to Porthcurno, England	1	3,078
Port Alberni, B.C. to Auckland, New Zealand	1	6,748
Port Alberni, B.C. to Sydney, Australia	1	7,830
Port Alberni, B.C. to Sydney, Australia via Hawaii, Fiji Islands and New Zealand	1	8,232
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland[1]	[2]	2,280
Hampden, Nfld. to Oban, Scotland (CANTAT)	1	2,010
Hampden, Nfld. to Vestmannaeyjar, Iceland via Greenland	1	1,657
Western Union International Inc. (WUI)—		
Bay Roberts, Nfld. to Penzance, England	4	8,479
Bay Roberts, Nfld. to Hammil, N.Y., U.S.A.	2	2,778
Bay Roberts, Nfld. to Azores	1	1,343
Heart's Content, Nfld. to Valencia, Ireland	4[3]	7,541
Placentia, Nfld. to St. Pierre and Miquelon Islands	2	250
North Sydney, N.S. to St. Pierre and Miquelon Islands	3	594
North Sydney, N.S. via Canso to Duxbury, Mass., U.S.A.	1	695
North Sydney, N.S. to Island Cove, Nfld.	2	635
North Sydney, N.S. to Colinet, Nfld.	1	323
Island Cove, Nfld. to St. Pierre and Miquelon Islands	1	130
Eastern Telephone and Telegraph Company (ET&T)—		
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland[1]	[2]	2,280
Sydney Mines, N.S. via Clarenville, Nfld. to Penmarch, France	2	2,400
New Brunswick Telephone Company Limited (NBTEL)—		
Campobello Island, N.B. to Lubec, Me., U.S.A.	1	0.3

[1] Twin cable from Clarenville, Nfld. to Oban, Scotland and single cable from Clarenville, Nfld. via Terrenceville, Nfld. to Sydney Mines, N.S. [2] Licensed for operation by two carriers—COTC and ET&T. [3] One cable unserviceable.

Subsection 5.—Federal Government Civil Telecommunications and Electronics Services

Radio regulation and radio aids to navigation services are under the jurisdiction of the Telecommunications and Electronics Branch of the Department of Transport. The functions and responsibilities of the Branch may be summarized as follows: (1) administration of the Radio Act and Regulations and the Radio Provisions of the Canada Shipping Act and Ship Station Radio Regulations; (2) research into and development of new and improved communication and electronic equipment and systems needed for aeronautical, marine, meteorological and other services; (3) construction, maintenance and operation of radio aids to marine and air navigation and of radio communication stations including procurement of the necessary equipment; (4) development of policy and plans with respect to international telecommunications by cables, satellites and other media including relations with the Canadian Overseas Telecommunications Board; (5) co-ordination of policy governing government use of telecommunication services; (6) administration of the leasing of land-line facilities required for all services of the Department; (7) planning of emergency measures and administration of the Emergency National Telecommunication Organization (ENTO); (8) administration of the Telegraphs Act and the Regulations thereunder covering the licensing of overseas submarine cables; (9) participation in the work of the International Telecommunication Union and its subsidiary organs; and (10) participation in the communication and electronic activities of the International Civil Aviation Organization

(ICAO), the International Air Transport Association (IATA) and the International Marine Consultative Committee (IMCO).

Licensing and Regulation of Radio Stations.—Under the Radio Act and the Canada Shipping Act it is provided that radio stations employing a form of Hertzian wave transmission, including television and radar, be licensed by the Department of Transport, unless otherwise exempted by regulation. Licensing, which provides basic control over the right to establish a radio station, involves the assigning of specific frequencies to each station. Frequencies are assigned to many types of services on a shared non-interference basis. Engineering briefs covering the selection or change of frequency, amount of power and design of the directional antenna system must be approved by the Department of Transport and notification sent to the signatory countries of the North American Regional Broadcasting Agreement before a new broadcasting station can be licensed or before modification can be made in an existing station. The setting of standards for the equipment, installation and operation of a station provides control for efficient use of the radio spectrum. A further control is the requirement that operating personnel be subject to examination and certification.

Eight monitoring stations are maintained at suitable points across Canada to observe actual radio spectrum conditions using a variety of modern electronic aids, their purpose being to ensure that radio communications are conducted according to regulatory procedures and to determine causes of harmful interference.

Under the Safety of Life at Sea Convention and the Canada Shipping Act, most passenger ships and larger cargo ships must be fitted with radiotelegraph or radiotelephone equipment, primarily for distress use. Approval is given for each make and model of equipment that comes up to the required standard and, in addition, the ship station as a whole is inspected after the licence is issued and periodically thereafter. All Canadian and foreign ships are subject to inspection to ensure that they conform to the requirements of the Safety of Life at Sea Convention.

Standards have been developed for the installation of aircraft radio stations specifying the techniques and materials that may be used, and inspections of radio stations aboard civil aircraft of all operational categories are carried out at prescribed periods. In-flight inspections of the radio communications and navigational aspects of proposed new air carrier operations, encompassing both land and oceanic routes, are also made as required.

Marine and aeronautical radio operator standards and related regulations are covered by international agreement. The International Telecommunication Convention prescribes the qualifications for radio operators on mobile radio stations and the regulations made under the Radio Act provide for the examination and certification of operators, both professional and amateur.

Number of Radio Stations Licensed and Operated in Canada.—During the year ended Mar. 31, 1964, 104,775 licences were issued in respect of radio stations in Canada. This figure includes stations operated by departments of the federal, provincial and municipal governments, stations on ships and aircraft registered in Canada and mobile stations operating in the public and private land mobile services but does not include private commercial broadcasting licences.

Item	*Year Ended* *Mar. 31, 1963*	*Mar. 31, 1964*
	No.	No.
New applications received	16,540	15,968
Authorizations granted	14,510	15,229
Licences cancelled	7,933	7,382
Licences renewed	71,396	82,909
Amateur licences issued	10,182	11,047
General radio service licences issued	13,579	10,819
Total licences issued	98,485	104,775
Licence amendments	22,832	16,326
Certificates of registration issued to U.S. licensees	1,831	1,871
Net increase over preceding year	19,156	6,290

Investigation and Suppression of Inductive Interference.—The Radio Act provides penalties for selling or using apparatus liable to cause interference to radio reception. Standards are developed and type approvals issued for certain classes of such equipment. The Telecommunications and Electronics Branch of the Department of Transport provides also a country-wide interference service using special investigation equipment for the purpose of tracing sources of interference and recommending cures for interference to broadcast, television and other radio reception.

Cars equipped for measuring and locating sources of interference operate from offices located in 30 cities throughout Canada; 27,134 cases were dealt with during the year ended Mar. 31, 1964. Sources include power lines, auto ignitions, heavy electrical equipment, domestic appliances, electro-medical apparatus, industrial radio frequency generators and TV receivers.

Regulations specifying the limits to be met by particular types of apparatus are contained in the Radio Noise Limits Order. Certain low-powered radio transmitting and receiving equipment is exempt from the operation of the Radio Act, e.g., garage door radio controls for a number of models have been exempted and consequently may be operated without the radio station licence otherwise required.

Meteorological Communications.—Weather stations operated by the Meteorological Branch of the federal Department of Transport throughout Canada are linked coast-to-coast by means of teletype and in the remote northern areas by radio or radioteletype. The land-line teletype circuits are leased from commercial companies and the radio circuits are operated chiefly by the Telecommunications and Electronics Branch of the Department of Transport.

Weather stations on the teletype network transmit their reports directly; other stations report via commercial or radio facilities to the nearest station on the teletype line for subsequent transmission on the meteorological circuit. The reports are collected on a regional basis and then relayed to other parts of the country as required. There are two coast-to-coast teletype systems transmitting weather information, with main relay points at Vancouver, Edmonton, Winnipeg, Toronto, Montreal, Halifax, Gander and Goose Bay. These main meteorological communications centres not only handle the distribution of weather information within Canada including the Arctic, but also effect international exchange with the United States and Europe and, through them, with many other countries. For the latter purpose, the Canadian Meteorological Branch and the British Meteorological Office share the cost of a leased duplex circuit in the transatlantic cable. Altogether, the Meteorological Branch uses 55,800 miles of teletype circuits connecting 355 teletype offices.

In addition, a facsimile network connects forecast offices, including radio facsimile transmission to Arctic stations and ships at sea. Weather charts originating at the Central Analysis Office in Montreal receive national distribution over the network. Regional transmissions of additional charts are distributed on a local basis. Altogether, the Meteorological Branch utilizes 14,500 miles of facsimile circuits, serving 80 offices.

Radio Aids to Marine and Aeronautical Navigation.—Services of the Telecommunications and Electronics Branch of the Department of Transport in aid of marine and aeronautical navigation are outlined in the following paragraphs; details may be obtained on request from the Department of Transport, Ottawa.

Marine Navigation.—Radio aids to marine navigation are provided for about 4,000 radio-equipped Canadian vessels and almost as many foreign ships using Canadian waters. This safety and communications service for shipping covers the East and West Coasts, the Great Lakes, the St. Lawrence River and Gulf, Hudson Bay and Hudson Strait and includes regularly broadcast weather reports, storm warnings and notices of dangers to navigation.

Ships at sea may obtain medical advice from any coast station. The stations carry out communications by radiotelegraph and/or radiotelephone and many of them provide connections to land telephone lines. Halifax (VCS) and Vancouver (CKN) stations have shortwave facilities for world-wide communications and participate in the Commonwealth long-range ship communication scheme. Coast stations on Hudson Bay and Hudson Strait, in addition to their regular services, provide commercial communications for posts of the Hudson's Bay Company and various prospecting and development organizations, make weather observations, handle administrative traffic and assist aircraft with information, landing conditions, etc.

Automatic radiobeacon stations are maintained on the East and West Coasts, the St. Lawrence River and Gulf, and Hudson Bay and Strait, giving navigational aid to mariners by transmitting signals on which bearings may be taken. These stations are arranged, where possible, in groups up to a maximum of six stations transmitting in sequence on a common frequency, the sequence being repeated continually regardless of weather conditions. For distance finding in foggy weather, a number of radiobeacons are synchronized with fog alarms at the same point.

Loran is a long-range radio aid to marine and air navigation providing accurate fixes at distances up to 600 miles by day and 1,500 miles by night. Two Loran stations operate in Nova Scotia, three in Newfoundland and one on the West Coast. These stations, in conjunction with Loran stations of the United States Coast Guard, give service to ships and aircraft plying the North Atlantic and Pacific Oceans. *Decca* is a short-range radio aid to navigation providing accurate fixes at distances up to 250 miles. Four chains of Decca stations are in operation—the Newfoundland chain, the Nova Scotia chain, the Anticosti chain and the Cabot Strait chain—giving service to ships off Newfoundland and Nova Scotia and in the St. Lawrence River and Gulf.

It has become general practice to equip merchant ships with radar and important buoys are fitted with radar reflectors to increase their radar visibility. Two shore-based radar installations are in operation—one at Camperdown near the mouth of Halifax Harbour and the other on the Lion's Gate Bridge across the entrance to Vancouver Harbour. Low-powered transceivers are provided for use in emergencies at lighthouses, particularly at locations that would otherwise be completely cut off from assistance in case of illness.

*Aeronautical Navigation.**—Radio aids to air navigation are provided from coast to coast and from the Canada–United States border to the Arctic along and off the airways, and are used by Canadian and foreign air carriers flying over Canadian territory. Six regional offices located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., and Moncton, N.B., carry out the construction and operation of facilities. Low-frequency radio range stations, located approximately every hundred miles along airways, provide specific track guidance to pilots by means of audible signals which may also be used to obtain direction finding bearings. In addition, radiotelephone communications are available between ground and aircraft, by which means pilots may obtain weather data, air traffic control instructions and other information concerning the safety of flights. Forty-three very high frequency omni-directional ranges (VOR) are in operation, a type of facility that enables the pilot to select any desired course. The 43 omni-directional ranges have permitted the establishment of VOR airways across Canada and of 31 trans-border airways. Two additional installations are under construction.

Aeronautical radiobeacon stations provide radio signals with which pilots may use their direction finding equipment to obtain relative directional bearings. Fan markers operating on very high frequencies, are usually placed on an airway to inform the pilot when he may safely lose altitude or to indicate accurately the distance from an airport. Station location markers, similar to fan markers, are installed at most radio range sites; they enable a pilot to determine when he is exactly over the station.

*See also the item on Air Traffic Control, pp. 813-814.

Airport and airway surveillance radars (150 nautical-mile) are in operation at 16 airports for air traffic control purposes. Precision approach radars are in operation at Montreal and Toronto International Airports and five additional installations are expected to be in operation by 1965. Instrument landing systems (ILS) provide radio signals which permit pilots to approach airports for landing during periods of very low visibility. An installation normally consists of a localizer transmitter providing lateral guidance to the runway, a glide path transmitter for slope guidance to the approach end of the runway, two marker transmitters giving distance indications from the runway and a low-power radiobeacon (compass locator) to assist in holding procedures and lining up on the localizer course. Forty instrument landing systems are in operation.

Aeronautical radio communications stations are located at strategic points across the country, including the Arctic. These stations, operating for the most part on high frequencies, provide communication with domestic and international air carriers. Thirteen international communication stations, giving coverage from coast to coast and over the oceans, form a major contribution on the part of Canada to international aviation.

Subsection 6.—Public and Private Commercial Microwave Facilities

Canada, because of its population distribution and the vast areas served by microwave communication links, ranks second highest among the world's users of microwave communications systems on a per capita/per mile basis. Because of an increasing demand for television outlets, it has been necessary to extend microwave routes to provide television interconnections for the CBC English, French or private networks. With the use of more automated equipment by industry and various services, associated data and control information must be transmitted at rapid speeds over microwave radio-relay to wide areas of Canada. This Subsection gives a summary of the facilities existing or under construction at the end of March 1964.

Railways.*—Early in 1964 the Telecommunications Departments of the Canadian National and Canadian Pacific Railway Companies placed in operation a microwave system extending from Montreal to the Pacific Coast. The system will be used for television, telephone and data relay purposes. The railways also operate microwave facilities which link the Province of Quebec with the Maritime Provinces and Newfoundland. In addition, the Canadian National Telecommunications have installed a microwave system between Alberta and the Yukon Territory which carries telephone and data traffic and serves both civil and military organizations in the area. In co-operation with Alberta Government Telephones a combination microwave and tropospheric scatter system connects Alberta and the Northwest Territories. This system is also intended to provide communication for civil and military use in Far North areas. The Quebec North Shore Labrador Railways have developed a microwave system extending into northern Quebec to provide communication for mining operations and to serve some civil communication purposes. Ontario Northland Railways has completed a microwave installation connecting northern Ontario and James Bay for purposes of military and civil communication. The Northern Telephone Company is expanding its microwave facilities in northwestern Ontario for carrying television program material and civil communication. The Pacific and Great Eastern Railway makes extensive use of 6,000 Mc/s microwave facilities linking Vancouver with Prince George and Dawson Creek, B.C.

Telephones.—The Trans-Canada Telephone System consists of eight provincial and private systems collectively providing a transcontinental microwave system for the purpose of carrying telephone, television, data and other types of communication services.

*See also p. 755.

Extensive microwave systems are utilized within the respective provinces for civil and military communications or television relay purposes. Major expansion has taken place in each province, greatly increasing the number of areas served and system capacity for all types of communication requirements. Tropospheric scatter systems are employed to provide beyond line-of-sight transmissions especially to the Far North areas which are used for both civil and military applications.

Hydro.—The British Columbia Hydro and Power Authority, the Calgary Power Corporation, The Hydro-Electric Power Commission of Ontario, the Quebec Hydro-Electric Commission, the Saskatchewan Power Corporation and Manitoba Hydro use a considerable number of microwave relay systems for important control and communication purposes. The Quebec Hydro-Electric Commission has greatly expanded its power generating plants and new microwave routes have been added to permit a central control of the various power generating stations through the use of microwave communication.

Television.—The two main television interests in Canada—the CBC and CTV—lease private microwave facilities for the relay of television programs from coast to coast. In addition, studio transmitter links are used by various television stations where the television transmitter is situated some distance from the studio and interconnection is required. In sparsely populated areas, off-the-air pick-up signals from primary television stations are sometimes relayed via microwave to rebroadcasting sites. Microwave facilities are also used in connection with portable and mobile television pick-up where program material is intended for the main studio.

There has been a great increase in television coverage areas during the past year and the ensuing need for English and French program feeds via microwave relay has caused an expansion in the number of leased microwave circuits and new communication routes.

Industrial.—Many firms utilize existing public communication facilities on a lease basis; however, some organizations have installed private microwave systems to provide voice, teletype and control data for various purposes.

Subsection 7.—Miscellaneous Radio Communication Services

In addition to radio communication services provided by the Federal Government, extensive radio communication systems have been established in the provinces, mainly for police, highway and forestry protection purposes. Municipal government departments have steadily increased their use of radio to facilitate operations, particularly as a medium of communication with vehicles—police, fire, engineering, hydro, etc. Such services as taxi, heavy construction, ready-mix concrete, oil pipeline construction and operation, veterinarian and rural medical participate extensively in the use of radio.

Public utilities, power companies, provincial power commissions, oil exploration and mineral development organizations have expanded considerably their use of radio in both mobile and point-to-point radio fields.

The telephone companies provide an extension of land telephone service, by radio, to suitably equipped vehicles. This service is available in all major cities in Canada and along many of the nation's arterial highways. Restricted common-carrier mobile radio service (this service to vehicles does not permit interconnection with the over-all telephone system but only with specific dispatchers) is available in most major cities in Canada as well as in a number of smaller urban centres. The latter service is provided by telephone companies as well as by other organizations. Low-power radio stations may be licensed to permit short-distance personal and private business radiotelephone communications; since the inauguration of this service in 1962, more than 24,000 licences have been issued.

Subsection 8.—Radio and Television Broadcasting*

Broadcasting in Canada has developed over a period of some forty-six years as a combination of public and private enterprise. Since the opening program from the first radio station was beamed into a few Montreal homes in 1918, the role of the radio and television program in the daily life of the Canadian family has grown to startling prominence. Today, radio service reaches 98 p.c. and television service over 94 p.c. of the Canadian population.

To have become such an integral force in the daily life of the nation, broadcasting had to learn the needs of the people and how to serve them. Two 'official' languages forming two distinct cultures had to be served independently but without diminishing the concept of national unity. Dozens of other smaller groups, distinct in culture and frequently dwelling in the same radio or TV coverage area but in separate communities with widely divergent program interests, had to be served. Physical problems of distance and geography had to be overcome. It requires some 360 radio transmitters and 105 TV stations and satellites to reach a population distributed across a 4,000-mile southern frontier, through seven time zones and a variety of topographical and climatic regions, and scattered northwest through thousands of square miles to the shores of the Arctic Ocean. Not only do these people have local service that is a reflection of life in their own districts, but by means of 15,000 miles of land-lines for radio networks and 8,500 miles of microwave circuits, for television nearly every Canadian may, at the same time, listen or watch as an event of national interest takes place.

Since 1932, a publicly owned body, now known as the Canadian Broadcasting Corporation, created to develop a national service, has worked with the private or independent station-owner to establish this service. A more recent addition (1958) is the Board of Broadcast Governors, which consists of three full-time members including the Chairman and Vice-Chairman and 12 part-time members; the function of the Board is to "regulate the establishment and operation of networks of broadcasting stations, the activities of public and private broadcasting stations in Canada and the relationship between them, and provide for the final determination of all matters and questions in relation thereto" (See also p. 825.) The Canadian Broadcasting Corporation consists of a President and a Vice-President and nine other directors appointed by the Governor in Council. It is accountable to Parliament through a Cabinet Minister designated by the Governor in Council and is empowered to establish and maintain program networks and stations. (See also pp. 840-844.)

The Broadcasting Act also requires that, before dealing with any application for a licence to establish a broadcasting station (private or public) or for an increase in power, change of frequency or change of location of a broadcasting station, the Minister of Transport must receive a recommendation from the Board of Broadcast Governors. The same requirement exists with respect to the making of a new regulation or the effecting of changes in the Regulations under the Radio Act. Before making the appropriate recommendation to the Minister of Transport, the Board considers all such applications at a public hearing at which the applicant, licensees and the Canadian Broadcasting Corporation are given the opportunity of being heard.

Under the provisions of the Radio Act, the Minister of Transport must also receive a recommendation from the Board before dealing with any application to change the ownership or control of any share of capital stock in the licensee of a broadcasting station which is incorporated as a private company. The Board of Broadcast Governors has established a policy that any such application, which would result in a change of ownership or control of a licensee, would be referred to a public hearing before a recommendation is made to the Minister. Applications of this kind not involving a change of ownership or control may be dealt with by the Board or the Executive Committee of the Board at a regular meeting.

* Textual information in this Subsection was supplied by the Canadian Broadcasting Corporation, the Board of Broadcast Governors and the Canadian Association of Broadcasters; statistical data were prepared by the Public Finance and Transportation Division of the Dominion Bureau of Statistics.

Under the provisions of the Broadcasting Act, the Board has issued the Radio Broadcasting Stations Regulations and the Radio (TV) Broadcasting Regulations applying to radio and television stations respectively; these regulations cover all aspects of station operation and the enforcement of them is the responsibility of the Board.

Broadcasting Facilities.—As of Apr. 1, 1964, there were in operation in Canada some 39 CBC radio stations plus another 110 low-power relay transmitters maintained by the Corporation, and 14 CBC television stations plus 104 rebroadcasting and network relay stations. On the same date there were 267 privately owned radio stations in operation and 158 privately owned television broadcasting and relay stations. All but 12 of the privately owned television stations and many of the privately owned radio stations are affiliated with the CBC and help to distribute national radio and television services over networks operated by the CBC. Of the 12 unaffiliated private television stations, nine form the Canadian Television Network (CTV) which commenced operating in the fall of 1961. The other three stations in Chicoutimi, Hamilton and Montreal are independent of any network affiliation. Of the 267 private radio stations, 228 were AM standard band stations, 33 were FM stations and six were shortwave stations; 21 of the 33 FM stations operated on the new multiplex stereophonic system.

Operations of the Canadian Broadcasting Corporation, 1963-64

Television.—The current television policy of the Corporation is to establish facilities to serve those Canadians beyond the reach of existing CBC stations or of private stations affiliated with the CBC networks. The dramatic extension of coverage that marked the developing years of television is now past. By the end of 1964, over 94 p.c. of Canadians were within reach of the national television service through CBC-owned stations and private affiliates. The remaining 6 p.c. are progressively difficult and expensive to serve since many of them live in isolated communities sometimes thousands of miles from the main east-west lines of communication and extension of coverage to these areas is subject to financial considerations and to various technical limitations, such as the availability of broadcasting frequencies and network services. The Corporation is following the policy of extending service first to those areas where the most people can be served at the least cost. Current planning takes into account all areas having a population of more than 2,000 and includes about 60 communities. The 63 p.c. of the Canadian public within reach of CBC-owned television stations receives full service of national programming but the 31 p.c. of the population served by private affiliates of the Corporation's networks receives an average of about 49 hours a week English and 66 hours a week French national network service. The Corporation intends gradually to eliminate this disparity in service by the installation of additional CBC facilities and, in keeping with the CBC-private station combination approach, television channels in the Saint John–Fredericton area of New Brunswick, at Saskatoon, Sask., and at Sudbury, Ont., have now been reserved for the use of the Corporation.

However, extension of television service to unserved areas is only one aspect of the Corporation's responsibilities. Of vital consideration is the gradual provision of basic production facilities in each province and the replacement of obsolete facilities in order to maintain operations at a high level of efficiency. During 1963-64, two new CBC television rebroadcasting stations were brought into operation and, as the year ended, six more stations were under construction; all of these were designed either to rebroadcast the signals of existing stations or to relay service direct from the television network. In addition, the Corporation completed two major television installations—one at Quebec City and the other at St. John's, Nfld.—both of which have production facilities and the necessary operating staffs. The establishment of production facilities and associated transmitters

has a twofold purpose—through CBC-owned transmitting facilities, the complete national service is made available to the audience and, through the production facilities, the Corporation is able to tap the program resources of the area and, thus, eventually reflect the area to the remainder of Canada. This enables the CBC to carry out one of its essential functions, that of showing the parts of Canada to each other, of reflecting the country to itself.

The complexities of CBC television broadcasting have greatly increased in recent years in the administrative area and as a result of the setting up of an entirely separate, wholly commercial television network (CTV). Of increasing significance for all broadcasters, public and private alike, is the growth in community antenna television systems. These systems, in which the TV receivers of fee-paying subscribers are linked to a common receiving and re-transmission system, makes television available to people who could not otherwise receive it, and thus, in effect, extends the coverage of existing television stations. The growth of both these systems can have substantial, and as yet largely unmeasured, effects on television broadcasting itself. A report on the future of community antenna television in relation to ordinary television broadcasting was published by the Board of Broadcast Governors at the request of the Government.

Radio.—As with television, the current demand on CBC radio broadcasting is twofold—first, there is the need to bring service to the small percentage of the population now beyond the reach of Canadian radio and, secondly, the need to increase the amount of national service programming distributed by the national radio networks. About 2 p.c. of Canadians—400,000 persons—are still beyond the reach of stations carrying the national service and 23 p.c. are reached only by private affiliates receiving on the average about 30 hours of national programming a week. At present there are about 120 communities of more than 500 population each on the planning list for service.

Changes during 1963-64 included the consolidation of the CBC's English-language radio networks into a single network, significantly altering the role of radio station CJBC in Toronto. No longer the anchor station of the former Dominion Network, CJBC was converted to a partial French-language station to serve a substantial minority of listeners in the area whose mother tongue is French or who have an understanding of the language. Complete French-language service on CJBC began in October 1964.

During the year the power of CFPR, Prince Rupert, B.C., was increased from 250 to 10,000 watts, greatly improving the service to the coastal areas of northern British Columbia. In the Maritimes, a new station, CBZ, was established at Fredericton and commenced operation on Mar. 4, 1964. In addition to bringing the complete service of the CBC network to central New Brunswick, CBZ will provide the first English-language production facilities that the Corporation has ever had in this province. The Corporation was authorized to establish a station at Calgary and a French-language station at Ottawa. Permission was also received to transfer the 50,000-watt station CBX from Lacombe to Edmonton, Alta., replacing CBXA (250 watts) in the Alberta capital. The Corporation was authorized to erect a station at Saint John, N.B., which will operate as a rebroadcasting station of CBZ, Fredericton. All these stations came into operation in 1964.

Extension of CBC service to remote areas of small population concentration is achieved principally through the use of low-power relay transmitters (LPRT's). During the year, CBC brought into operation 11 new LPRT's, bringing the national service to an additional 55,000 people and increasing the number of these unmanned transmitters to 108. The new stations are at Stephenville, Nfld.; Shelburne, N.S.; St. Favien de Panet, Que.; Hearst, Manitouwadge and Elliot Lake, Ont.; Clinton and Fort St. John, B.C.; and Beaver Creek, Destruction Bay and Teslin in the Yukon Territory. The power of eight older LPRT's was doubled and the locations and frequencies of another four were altered to improve service. As the year ended, applications were on file with the Department of Transport, the licensing authority, for a further 22 LPRT's, which will bring service to an additional 95,000 people.

CBC participation in FM broadcasting was curtailed a few years ago when general economic conditions made it necessary for the Corporation to suspend temporarily the operations of a Montreal–Ottawa–Toronto FM network. During the summer of 1964, the Corporation made plans to reactivate this network, mainly on the basis of a program service on tape between its FM stations in these cities and in Vancouver. The initial goal of the reactivation was to provide, by late 1964, CBC FM stations at Montreal, Ottawa, Toronto and Vancouver and the CBC French-language FM outlet in Montreal with a program service completely separate from the AM service to be distributed, in the initial stages at least, largely on tape.

Northern Service.—The Northern Service, established in 1958, extends the national radio broadcasting system to the Yukon and Northwest Territories and to the northern portions of all provinces except the Maritimes. With the recent addition of a third high-power transmitter at Sackville, N.B., the Northern Service shortwave schedule was increased from eight to nine and one half hours daily. In 1963-64, the Yukon Network was extended and improved by the addition of low-power relay transmitters at Teslin, Destruction Bay and Beaver Creek on the Alaska Highway and the increase of the power of CFWH Whitehorse, the network program centre, from 250 to 1,000 watts. The network of LPRT's now reaches most of the population of the Territory.

Programs in the Indian and Eskimo languages, originated by local stations, were increased in number and variety and the number of programs in French and Eskimo on the shortwave service was increased. Two special series were produced by the Northern Service—*Franklin's Diary* and *What Do You Know About. . .?* The latter consisted of interviews with authorities on the North, both in and out of the government service, on matters directly affecting the citizens of the North. *Indian Magazine,* the first CBC program series devoted exclusively to activities of Canadian Indians, was inaugurated during the year. Although intended for people of Indian background living in the North, it drew its material from all parts of Canada, co-operating with the National Indian Council, the Indian-Eskimo Association, Indian Friendship Centres in cities across Canada, and federal and provincial government departments dealing with Indian affairs.

In addition to supplying material to a number of regular English radio network programs, special programs were produced at Whitehorse for *Trans-Canada Matinee,* in Inuvik for *Christmas Day,* and in Yellowknife for *I.Q.*

Armed Forces Service.—In the course of 1963-64, the Armed Forces Service supplied CBC radio network programs recorded on tape in French and English to bases of the Canadian Armed Forces in Germany and France. Taped programs were also provided to 13 low-power broadcasting stations operated by the RCAF on the Mid-Canada Line and at other locations in Northern Canada. A weekly package of telerecorded prints of popular television programs was sent to Canadian troops in the Arctic, Europe, the Middle East and the Congo.

For the fourth consecutive year, a CBC Concert Party visited the UNEF bases in the Middle East and performed for the troops of all the nations represented there. Another concert party, which consisted of top Canadian variety artists, made a three-week tour of Armed Forces bases in Europe. During this visit a special television show, which saluted the 40th Anniversary of the founding of the RCAF, was taped at the fighter wing at Baden Soellingen, Germany, and was later shown in Canada on the CBC national network.

International Service.—The CBC International Service is operated on behalf of the people of Canada to provide information about this country to listeners in other lands. The Service continued in 1963-64 to pursue its aims by means of shortwave broadcasts in 11 languages, by transcriptions, relays and regular tape services, cable feeds of special actuality programs and by television programs. News reports and commentaries remained the mainstay of the shortwave service. New popular programs, such as the Radio-Canada Shortwave Club, and extended programs for philatelists have resulted in a marked increase in the mail received by the International Service.

A variety of programs were transcribed and made available to foreign broadcasting organizations. Radio Moscow broadcast a program on the symposium held by the Arctic Institute of McGill University, which included an interview with the Soviet representative. They also received a number of other transcriptions, including actuality reports about wheat shipments to Russia recorded on Soviet ships in Canadian ports. On a request from Czech Radio, the International Service arranged for Canada's contribution to the *Year of Czech Composers* by recording a special performance in Montreal of Janacek's *Sinfonietta*. Programs were prepared dealing with political developments in Ottawa, including the opening of Canada's 26th Parliament. The NATO Conference of May 1963 was reported directly from Ottawa in a multitude of languages in daily cable feeds to the broadcasting organizations of NATO and other countries. The monthly 15-minute television program *Canada Magazine* was distributed to a greater number of broadcasting organizations.

International Relations.—The CBC in 1963-64 continued its activity in the field of international exchange and export sales of programs. Among the more interesting of these was the sale of *The Open Grave*, an allegory associated with the Easter story. After much controversial publicity, the program was bought by the British Broadcasting Corporation and was successfully shown on its television network. Subsequently, negotiations took place with broadcasters in the Republic of Ireland and the Netherlands for the purchase of this program. The National Broadcasting Company bought ten CBC-TV *Parade* productions for showing on the NBC-TV network during the summer of 1964.

CBC will be one of the participants in an international television exchange project organized by the CBS network in the United States. The CBC entry is a one-hour concert featuring France's avant-garde composer-conductor Pierre Boulez, with the *L'Heure du Concert* Orchestra, in a program of 20th century music by Stravinsky, Debussy and Boulez.

Intertel, of which CBC is a founding member, continued production of hour-long documentaries for distribution in the member countries and the world abroad. During the past year, CBC contributed two documentaries to this series—*One More River*, a study of negro-white attitudes in the southern United States, which won the CBC Wilderness Award, and *What Price Freedom*, an examination of Algeria a year after independence.

CBC personnel seconded from their positions in Canada have continued to assist in the development of television and radio broadcasting service in the newly emerging nations of Asia, Africa and the West Indies. Technical and executive staff have been made available to these countries to assess their requirements and advise on the establishment of broadcast service. Much of this work has been undertaken in co-operation with the External Aid Office of the Canadian Government. During 1963-64, CBC staff members worked in Ghana, Malaya, Jamaica, Sarawak and East Asia, and requests were being considered for assistance to Laos, Nyasaland, Cyprus and the Cameroons. In addition, broadcast trainees from these countries have had on-the-job training at CBC production points across Canada in various functions applicable to broadcasting—news services, farm and school broadcasts, press relations, financial operations, administration, technical and programming matters, production, audience research and station management. Trainees have come from Norway, Greece, Pakistan, France, Indonesia, Japan, Burma, Colombia, Sarawak, Morocco, Malaya, Turkey, Granada, the West Indies and many other countries.

Finance.—The CBC, being a Crown corporation, is financed through public funds authorized by Parliament and through commercial advertising. In the year ended Mar. 31, 1964, commercial revenue accounted for about 30 p.c. of the Corporation's income. It is recognized that such revenue cannot be expected to grow significantly beyond this level, since there are no large untapped sources of advertising revenue available to television and the CBC continues to follow a policy whereby certain programs are not available for sponsorship (including news, talks and public affairs, farm and fisheries broadcasts, school broadcasts, religious and institutional broadcasts) and also deliberately restricts the quantity of commercial messages. The Corporation's efforts to increase commercial revenues are at no time allowed to influence its program decisions.

The following statement of operations shows a 6.5-p.c. increase in expenditures in 1963-64 over the previous year, to the amount of $115,458,000. Increases for the previous four years were: 1962-63, 0.7 p.c.; 1961-62, 6.6 p.c.; 1960-61, 7.4 p.c.; and 1959-60, 7.7 p.c. The small increase in 1962-63, as compared with other years, is attributable to the austerity program which caused postponement of planned extensions and improvements to the national broadcasting service. The 1963-64 grant of $78,439,000 voted by Parliament to discharge the responsibilities of the national broadcasting service was under-expended by $62,000.

8.—Financial Statement of CBC Operations, Years Ended Mar. 31, 1963 and 1964

Item	1962-63	1963-64
	$	$
Expenses—		
Production and Distribution—		
Cost of programs	70,005,498	74,387,746
Network distribution	10,145,968	10,323,478
Station transmission	4,029,540	4,406,649
Payment to private stations	4,334,789	4,927,418
Commissions to agencies and networks	3,872,204	3,804,462
Emergency broadcasting	282,540	623,861
Operational supervision and services	8,426,592	8,920,479
Selling and Administration—		
Selling expense	1,646,990	1,800,253
Engineering and development	1,080,411	1,102,127
Management and central services	4,541,350	5,161,963
Totals, Expenses	**108,365,882**	**115,458,436**
Income—		
Parliamentary grant	72,654,738	78,376,828
Advertising revenue (gross)	30,846,627	32,392,102
Interest on investments	253,898	240,390
Miscellaneous	302,067	377,563
Totals, Income	**104,057,330**	**111,386,883**
Depreciation included with total expenses	4,308,552	4,071,553
	108,365,882	**115,458,436**

Statistics of the Broadcasting Industry

Financial and other statistics of the radio and television broadcasting industry are obtained by the Dominion Bureau of Statistics in co-operation with the Board of Broadcast Governors and the Department of Transport; summary figures are given in Table 9 for 1959-62; for 1962, figures for the private sectors and the CBC are given separately.

The operating revenue of the broadcasting industry in 1962 amounted to $124,400,000, an increase of 12.5 p.c. over the previous year. Of this total, radio broadcasting contributed 45.0 p.c. compared with 46.6 p.c. in 1961. The number of private television stations reporting to the DBS increased from 55 in 1961 to 58 in 1962 and the number of radio stations from 194 to 198. In both 1961 and 1962, revenue from network and national advertising represented 63 p.c. of the total broadcasting revenue and revenue from local advertising 37 p.c.; both categories increased approximately 11 p.c. over 1961 and other non-broadcasting revenues increased 33 p.c.

Operating expenses in 1962 reached a total of $196,000,000, an increase of 8 p.c. over 1961. The growth of revenues exceeded the growth of expenses and resulted in an operating profit of $5,300,000 in 1962 compared with an operating loss of $228,000 in 1961. After adjustment on account of other income and expenses and income taxes, the final net profit of the private sector of the broadcasting industry for 1962 was $1,800,000 compared with a

loss of $2,700,000 in 1961. There are no CBC profits or losses in the figure of net profit because any unexpended balance of the parliamentary grant is treated as an account due to the Government of Canada.

9.—Revenue, Expense and Employee Statistics of the Broadcasting Industry, 1959-62

Item	1959	1960	1961	1962	
				Private Stations	CBC
	$	$	$	$	$
Operating Revenue and Grants					
Broadcasting revenue from network and local advertising	95,739,000	100,241,000	103,909,686	92,834,154	22,640,000
Non-broadcasting revenue	4,132,000	4,142,000	6,679,486	8,349,479	556,000
Grants	52,300,000	59,289,000	70,252,273	—	76,964,000[1]
Totals, Operating Revenue and Grants	**152,171,000**	**163,672,000**	**180,841,445**	**101,183,633**	**100,160,000**
Operating Expenses[2]					
Representative agency commissions	3,533,000	3,880,000	4,303,323	5,432,631	3,000
Interest charges	..	..	1,902,593	2,736,375	—
Depreciation and amortization of leasehold improvements	..	..	6,218,805	7,102,559	4,309,000
Rent, repairs and maintenance, insurance, property taxes, fuel and electricity	..	..	12,595,449	7,972,749	5,078,000
Salaries and wages	59,343,000	65,519,000	74,970,241	40,055,064	42,081,000
Staff benefits	..	..	3,539,240	1,181,567	3,009,000
Artists' and other talent fees	14,837,000	16,422,000	18,650,171	4,748,818	13,562,000
Performing rights	..	..	5,647,731	1,959,741	3,746,000
Telephone and telegraph and outside services	..	..	16,511,189	6,333,070	11,111,000
Films, tapes, recordings—rental and purchased	..	..	17,617,993	6,377,718	11,403,000
Advertising, promotion and travel	..	..	6,505,680[1]	5,784,863	1,760,000
Taxes and licences (other than income or property)	..	..	1,293,566	1,368,859	—
Office and other operating expenses	65,397,000	71,775,000	11,312,992	4,784,697	4,098,000
Totals, Operating Expenses	**143,110,000**	**157,596,000**	**181,068,973**	**95,838,711**	**100,160,000**
Net operating income	+9,061,000	+6,076,000	−227,528	+5,344,922	—
Net of other income and other expenses	+3,626,000	+3,790,000	+1,057,260	+288,151	—
Provision for income taxes	5,671,000	4,858,000	3,504,289	3,878,735	—
Net income after taxes	+7,026,000	+5,008,000	−2,674,557	+1,754,338	—
Average monthly number of employees	13,241	13,885	15,514	8,175	7,592

[1] The CBC charges its operations with depreciation but deducts the charge on its published statements; the charge so made has been added to the parliamentary grant. [2] Does not include advertising agency commissions, estimated at $11,761,211 in 1962.

Section 2.—The Post Office

The basic tasks of the Canadian Postal Service are to receive, convey and deliver postal matter with security and dispatch. In discharging these duties it maintains post offices and utilizes air, railway, land and water transportation facilities. Associated functions include the sale of stamps and other articles of postage, the registration of letters and other mail for dispatch, the insuring of parcels, the accounting for COD articles, and the transaction of money order and Post Office Savings Bank business. Because of its widespread facilities, it has been found expedient for the Post Office to assist other government departments in the performance of certain tasks including the sale of unemployment insurance stamps, the collection of government annuity payments, the distribution of income tax forms and Civil Service employment application forms, and the display of government posters. Post offices are established wherever the population warrants. Those in rural areas and small urban centres transact all of the functions of the city office. In larger

urban areas postal stations and sub-post offices have full functions similar to the main post office, including a general delivery service, lock-box delivery and letter-carrier delivery.

The Operating Service of the Post Office Department is organized into 14 Districts, each under a District Director. These District Directors and the Postmasters, Toronto and Montreal, report directly to the Assistant Deputy Postmaster General. The Assistant Deputy Postmaster General has the responsibility of conducting the normal field operations of the Postal Service. The operating and support functions required in the provision of postal service to the public are the responsibility of the local postmasters who receive technical and administrative assistance from District Offices at strategic points.

Postal service is provided in Canada from Newfoundland to the west coast of Vancouver Island and from Pelee Island, Ont., (the most southerly inhabited point of Canada) to settlements and missions far into the Arctic. Canada's airmail system provides several transcontinental flights daily, intersected by branch and connecting lines radiating to every quarter and linking up with the United States airmail system. All first-class domestic mail up to and including eight ounces in weight is carried by air between one Canadian point and another, whenever delivery can thus be expedited. Air stage service provides the only means of communication for many areas in the hinterland. There were approximately 46,000 miles of airmail and air stage routes in 1963. However, the railways are still the principal means of distant mail transport.

At Mar. 31, 1963 there were 11,336 post offices in operation and letter-carrier delivery, performed in 186 urban centres, employed over 9,113 uniformed carriers. Rural mail routes are generally circular in pattern and average about 26 miles in length. Some 1,680 side services transport mail between post offices, railway stations, steamer wharves and airports, and 1,874 stage services convey mail to and from post offices not located on railway lines. Transportation of mail by motor vehicle on highways is expanding and more than 400 such services were in operation in 1963, many of them replacing or reducing conveyance by rail. In 1963 there were 995 city mail services transporting mail to and from post offices, postal stations and sub-post offices, collecting mail from street letter-boxes and delivering parcel post. The 9,196 land mail service couriers employed travelled approximately 54,000,000 miles during the year; both land mail and coastal mail services are performed under contract.

The larger post offices in Canada may be described as intricate industrial plants where mail is unloaded, cancelled, transported and shipped by semi-automatic means. Conveyor belts, automatic chutes and other devices increase output of mail matter without increasing staff and all the larger offices are provided with the latest mechanical equipment. In some areas householder mail is carried by mailmobile. In most cities, postage stamps may be obtained at any time from automatic vending machines, and a curbside mail receptacle in which patrons may deposit mail without leaving their automobiles is coming into use. Electronic equipment checks money orders and accounts for the $900,000,000 annually that they represent.

10.—Post Offices in Operation, by Province, as at Mar. 31, 1962 and 1963

Province	1962	1963	Province or Territory	1962	1963
	No.	No.		No.	No.
Newfoundland	660	661	Saskatchewan	1,266	1,248
Prince Edward Island	107	107	Alberta	1,070	1,062
Nova Scotia	869	830	British Columbia	916	906
New Brunswick	555	536	Yukon Territory	20	20
Quebec	2,414	2,414	Northwest Territories	40	43
Ontario	2,680	2,704			
Manitoba	804	805	**Canada**	**11,401**	**11,336**

11.—Revenue and Expenditure of the Post Office Department, Years Ended Mar. 31, 1959-63

NOTE.—Figures from 1868 will be found in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Gross Revenue	Net Revenue[1]	Expenditure[2]	Surplus (+) or Deficit (−)
	$	$	$	$
1959	183,380,508	157,630,336	157,803,478	−173,142
1960	193,659,715	167,629,053	165,792,339	+1,836,714
1961	202,003,790	173,645,658	178,371,716	−4,726,058
1962	213,517,994	183,678,936	185,019,700	−1,340,764
1963	222,358,848	192,830,859	189,344,410	+3,486,449

[1] Gross revenue less commissions and allowances to postmasters, and other small items. [2] Excludes rental of semi-staff and staff post offices.

The gross revenue receipts shown in Table **11** are received mainly from postage, either in the form of postage stamps and stamped stationery, or postage meter and postage register machine impressions. Some postage is also paid in cash without stamps, stamped stationery or meter and register impressions. The gross value of the postage stamps and stamped stationery sold during 1962-63 was $91,723,497, and receipts from postage meter or postage register impressions and postage paid in cash by other means amounted to $115,978,652.

In the year ended Mar. 31, 1963, post office money orders, issued for any amount not exceeding $100 and payable in almost any country of the world, were sold at more than 8,895 post offices and money orders payable in Canada only, for amounts not exceeding $15.99, were sold at some 1,780 additional post offices. Table **12** shows the amount of money order business conducted by the Postal Service in recent years.

12.—Operations of the Money Order System, Years Ended Mar. 31, 1959-63

Year	Money Order Offices in Canada	Money Orders Issued in Canada	Value of Orders Issued in Canada	Value Payable in—		Value of Orders Issued in Other Countries, Payable in Canada
				Canada	Other Countries	
	No.	No.	$	$	$	$
1959	10,823	53,746,050	853,443,891	825,973,053	27,470,837	5,026,970
1960	10,778	54,953,087	868,669,133	840,584,556	28,084,576	5,250,922
1961	11,098	55,939,421	886,976,976	858,278,412	28,698,563	5,505,224
1962	10,708	56,252,265	893,512,291	867,182,785	26,329,506	5,940,795
1963	10,679	55,448,076	898,164,577	874,660,765	23,503,811	6,885,116

A statement on the financial business of the Post Office Savings Bank will be found in Chapter XXV on Currency and Banking.

Section 3.—The Press*

Daily newspapers published in Canada numbered 116 in 1963, counting morning and evening editions separately. English and French dailies had an aggregate reported circulation of more than 4,213,000—about 82 p.c. in English and 18 p.c. in French. Thirteen of those with circulations in excess of 100,000 accounted for over 55 p.c. of the circulation. French dailies, as would be expected, have their widest circulation in Quebec where nine of

*An article in the 1957-58 Year Book traces developments in Canadian journalism from their beginnings in 1752 to (circa) 1900. A second article appearing in the 1959 edition brings that account up to the date of writing (1958). The complete presentation is available in reprint form from the Dominion Bureau of Statistics.

the 11 in existence in 1963 were published. Some of the largest of these papers have been established in that province for over 60 years. Weekly newspapers serve more people in rural communities than do the dailies. They cater to local interests and exercise an important influence in the areas they serve.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 100 members with world and Canadian news and news photographs, mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides its fellow members with the news of its particular area and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the population of the cities in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The United Press International (British United Press) is a limited company in Canada and maintains a close association with the UPI World Service, of which it is an affiliate. From its headquarters in Montreal, it provides Canadian news for general world distribution as well as for 163 subscribers including 65 private broadcasting stations in Canada. Agence France Presse maintains offices in Montreal and Ottawa and certain foreign newspapers have agencies in Ottawa to interpret Canadian news for their readers.

Press Statistics.—The following tables are based on data estimated from *Canadian Advertising*. Circulation figures are given for daily English-language and French-language newspapers only. Such circulation figures are relatively easy to obtain because, in their own interest, newspapers qualify for and subscribe to the Audit Bureau of Circulation; for these, ABC 'net paid' figures have been used. On the other hand, circulation data for foreign-language newspapers, weekly newspapers, weekend newspapers and magazines are incomplete and therefore not usable.

13.—Estimated Numbers and Circulations of reporting English-Language, French-Language and Foreign-Language Newspapers, by Province, 1962 and 1963

Province or Territory	1962				1963			
	Daily		Weekly[1]	Weekend	Daily		Weekly[1]	Weekend
	No.	Circulation[2]	No.	No.	No.	Circulation[2]	No.	No.
	English-Language Newspapers							
Newfoundland	3	27,802	5	1	3	27,885	4	1
Prince Edward Island	3	26,131	—	—	3	27,840	—	—
Nova Scotia	6	154,351	28	—	6	156,483	29	—
New Brunswick	5	88,053	13	—	5	87,727	13	—
Quebec	4	331,138	20	1	4	347,234	21	1
Ontario	47	1,719,446	235	4	47	1,720,293	236	6
Manitoba	6	216,111	64	—	7	226,477	67	—
Saskatchewan	4	110,467	122	—	4	116,392	119	—
Alberta	6	268,942	101	2	7	277,755	90	1
British Columbia	14	453,431	91	—	14	464,190	89	—
Yukon and Northwest Territories	—	—	3	—	—	—	3	—
Totals	**98**	**3,395,872**	**682**	**8**	**100**	**3,452,276**	**671**	**9**

For footnotes, see end of table.

13.—Estimated Numbers and Circulations of reporting English-Language, French-Language and Foreign-Language Newspapers, by Province, 1962 and 1963—concluded

Province	1962				1963			
	Daily		Weekly[1]	Weekend	Daily		Weekly[1]	Weekend
	No.	Circulation[2]	No.	No.	No.	Circulation[2]	No.	No.
	FRENCH-LANGUAGE NEWSPAPERS[3]							
Nova Scotia	—	—	1	—	—	—	1	—
New Brunswick	1	10,884	2	—	1	9,830	3	—
Quebec	9	705,147	165	14	9	714,597	168	14
Ontario	1	34,482	5	—	1	36,150	7	—
Manitoba	—	—	1	—	—	—	1	—
Saskatchewan	—	—	3	—	—	—	3	—
Alberta	—	—	1	—	—	—	1	—
Totals	**11**	**750,513**	**178**	**14**	**11**	**760,577**	**184**	**14**
	FOREIGN-LANGUAGE NEWSPAPERS[4]							
Quebec	1	..	5	—	—	—	10	—
Ontario	2	..	42	—	2	..	42	—
Manitoba	—	—	15	—	—	—	15	—
Alberta	—	—	1	—	—	—	2	—
British Columbia	3	..	1	—	3	..	2	—
Totals	**6**	..	**64**	—	**5**	..	**71**	—

[1] Includes semi-weeklies, tri-weeklies and bi-weeklies. [2] Circulation not reported for all newspapers. [3] Includes bilinguals. [4] All daily and weekly foreign-language publications given here are considered to be newspapers.

14.—Estimated Numbers and Circulations of reporting English-Language and French-Language Newspapers Published in Urban Centres of Over 30,000 Population, 1962 and 1963.

NOTE.—Figures from 1945 will be found in the corresponding table of previous Year Books beginning with the 1947 edition.

Urban Centre	Households (Census 1961)	1962			1963		
		Daily		Weekly	Daily		Weekly
	No.	No.	Circulation	No.	No.	Circulation	No.
		ENGLISH-LANGUAGE NEWSPAPERS					
Belleville, Ont.	8,563	1	12,759	—	1	13,455	—
Brantford, Ont.	15,914	1	21,665	—	1	22,329	—
Burlington, Ont.	12,299	—	—	1	—	—	1
Calgary, Alta.	71,586	2	118,768	1	2	116,886	1
Cornwall, Ont.	10,753	1	13,007	—	1	13,332	—
Dartmouth, N.S.	10,945	—	—	1	—	—	1
Edmonton, Alta.	76,275	1	117,490	1	1	121,528	1
Fort William, Ont.	11,695	1	15,770	—	1	15,873	—
Granby, Que.	7,478	—	—	1	—	—	1
Guelph, Ont.	10,773	2	16,891	—	2	17,127	—

14.—Estimated Numbers and Circulations of reporting English-Language and French-Language Newspapers Published in Urban Centres of Over 30,000 Population, 1962 and 1963—concluded.

Urban Centre	Households (Census 1961)	1962			1963		
		Daily		Weekly	Daily		Weekly
	No.	No.	Circulation	No.	No.	Circulation	No.
		English-Language Newspapers—concluded					
Halifax, N.S.	21,501	2	112,029	—	2	114,226	—
Hamilton, Ont.	73,829	1	107,825	—	1	111,119	—
Kingston, Ont.	13,931	1	22,687	—	1	23,868	1[1]
Kitchener, Ont.	20,600	1	37,838	—	1	39,659	—
Lethbridge, Alta.	10,013	1	18,354	—	1	18,546	—
London, Ont.	47,498	2	111,762	—	2	115,153	—
Moncton, N.B.	10,529	2	27,083	—	2	27,280	—
Montreal, Que.	330,023	2	316,170	2[2]	2	332,420	2[2]
Moose Jaw, Sask.	9,562	1	8,337	—	1	8,452	—
New Westminster, B.C.	9,218	1	18,808	1	1	18,246	1
Oshawa, Ont.	17,133	1	17,345	—	1	18,609	—
Ottawa, Ont.	70,114	2	151,908	2	2	147,628	4
Peterborough, Ont.	12,853	1	22,863	1	1	23,516	1
Port Arthur, Ont.	11,609	1	14,616	—	1	14,849	—
Quebec, Que.	42,126	1	5,821	—	1	5,751	—
Regina, Sask.	30,125	1	52,896	1	1	58,504	—
St. Catharines, Ont.	23,287	1	27,451	—	1	28,242	—
St. James, Man.	9,076	—	—	1	—	—	1
St. John's, Nfld.	12,971	2	21,811	2[2]	2	21,587	1[1]
Saint John, N.B.	14,423	2	46,964	1	2	47,208	1
Sarnia, Ont.	13,710	1	15,872	1	1	16,462	1
Saskatoon, Sask.	25,912	1	41,994	—	1	42,172	—
Sault Ste. Marie, Ont.	11,054	1	17,539	—	1	18,359	—
Shawinigan, Que.	7,232	—	—	1	—	—	1
Sherbrooke, Que.	15,775	1	9,147	1	1	9,063	1
Sudbury, Ont.	19,526	1	30,339	—	1	30,107	—
Sydney, N.S.	7,500	1	26,615	—	1	26,537	1
Toronto, Ont.	172,864	4	798,248	10[3]	4	783,250	10[4]
Trois Rivières, Que.	12,372	—	—	1	—	—	1
Vancouver, B.C.	118,405	2	327,310	7	2	337,118	4
Victoria, B.C.	18,475	2	56,562	1	2	57,515	3
Welland, Ont.	9,428	1	16,773	—	1	17,267	—
Windsor, Ont.	33,060	1	77,650	—	1	77,533	—
Winnipeg, Man.	74,126	2	199,564	3	2	205,047	2
		French-Language Newspapers					
Chicoutimi, Que.	5,786	—	—	3	—	—	3
Chomedey, Que.	6,995	—	—	2	—	—	2[5]
Cornwall, Ont.	10,753	—	—	1	—	—	1
Edmonton, Alta.	76,275	—	—	1	—	—	1
Granby, Que.	7,478	1	12,132	1	1	11,156	1
Hull, Que.	13,304	—	—	3[2]	—	—	3[2]
Lachine, Que.	10,058	—	—	1[6]	—	—	1[6]
LaSalle, Que.	8,128	—	—	1[6]	—	—	1[6]
London, Ont.	47,498	—	—	—	—	—	1[6]
Moncton, N.B.	10,529	1	10,884	—	1	9,830	—
Montreal, Que.	330,023	3	413,328	267	3	411,206	25[8]
Ottawa, Ont.	70,114	1	34,482	—	1	36,150	—
Quebec, Que.	42,126	3	200,085	3[2]	3	204,026	3[2]
St. Boniface, Man.	9,561	—	—	1	—	—	1
St. Laurent, Que.	12,306	—	—	1	—	—	1
Shawinigan, Que.	7,232	—	—	5	—	—	5
Sherbrooke, Que.	15,775	1	41,979	1	1	47,273	1
Sudbury, Ont.	19,526	—	—	1	—	—	1
Toronto, Ont.	172,864	—	—	—	—	—	1
Trois Rivières, Que.	12,372	1	37,623	4	1	40,936	4

[1] Weekend newspaper. [2] Includes one weekend newspaper. [3] Includes four weekend newspapers. [4] Includes five weekend newspapers. [5] Includes one bilingual. [6] Bilingual. [7] Includes 14 bilingual and 12 weekend newspapers. [8] Includes 13 bilingual and 12 weekend newspapers.

15.—Estimated Numbers of Foreign-Language Publications, 1962 and 1963

Language	1962	1963	Language	1962	1963
	No.	No.		No.	No.
Byelorussian	1	1	Lithuanian	3	3
Chinese	4	4	Macedonian	2	1
Croat	2	3	Maltese	1	1
Czech	2	2	Norwegian	1	1
Danish	1	2	Polish	3	3
Dutch	7	8	Portuguese	1	3
Estonian	2	2	Russian	1	1
Finnish	2	2	Serbian	3	3
German	9	9	Slovak	2	2
Greek	1	2	Slovenian	1	1
Hungarian	9	8	Swedish	3	3
Icelandic	1	1	Ukrainian	19	18
Italian	10	11	Yiddish	4	4
Japanese	2	2			
Latvian	1	1	**Totals**	**98**	**102**

16.—Estimated Numbers of Magazines and Related Publications, by Broad Classifications, 1962 and 1963

Classification	1962	1963	Classification	1962	1963
	No.	No.		No.	No.
Agricultural and rural	56	57	Religious	37	37
Arts, crafts and professions	37	40	Services and directories	82	82
Construction	22	20	Sports and entertainment	54	69
Educational	93	99	Trade, industry and related publications	205	197
Finance and insurance	15	13	Transportation and travel	49	42
Government and government services	30	29	Miscellaneous	15	18
Home, social and welfare	50	48			
Labour	15	14			
Pharmaceutical and medical	40	40	**Totals**	**800**	**805**

CHAPTER XXI.—DOMESTIC TRADE AND PRICES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—THE MOVEMENT AND MARKETING OF COMMODITIES

Domestic trade is broad and complicated; it encompasses all values added to commodities traded, provincially and interprovincially, by agencies and services connected with the storage, distribution and sale of goods, such as railways, steamships, warehouses, wholesale and retail stores, financial institutions, etc. Taken in a wide sense, it embraces various professional and personal services, including amusement services such as theatres and sports. Only certain phases of this broad field are covered here and, wherever possible, cross references are given to related material appearing in other Chapters. The arrangement of material in a volume such as the Year Book is governed by the necessity of interpretation from various angles. The Index will be found useful in this respect.

Section 1.—Merchandising and Service Establishments*

The surveys of merchandising and service establishments centre around a census of such business establishments. The first census of this kind related to business transacted for the year 1930 and similar censuses were taken for 1941, 1951 and 1961. It should be noted that a wider range of data was available from the 1961 than from the previous

* Prepared in the Merchandising and Services Division, Dominion Bureau of Statistics.

censuses. Gross margin information was collected from retail stores and wholesalers; operating expense figures were collected from wholesalers and service businesses; and more information was sought about the operating characteristics of retailers and wholesalers. Detailed results may be obtained from the census reports.* Summary data are given in Subsection 1 following.

Census information is supplemented in intercensal years by monthly, quarterly and annual surveys on the more important phases of the wholesale, retail and service trades—sample surveys for some businesses and full coverage for others. Each census forms a new base for such surveys and certain improvements were implemented for continuance during the 1951-61 intercensal period. Current information available on the distributive trades, given in Subsections 2, 3 and 4, continues to project the 1951 base and estimates for years prior to 1951 have been revised in accordance with that base. Data related to the new 1961 base will be available early in 1965.

Subsection 1.—1961 Census of Merchandising and Service Establishments

Wholesale Trade.—Results of the 1961 census of wholesale trade are given in Tables 1 and 2. Classification changes put into effect for that census should be noted—lumber and building material dealers, farm implement dealers, feed stores, farm supply stores and harness shops, which were classified as retail businesses in 1951, were in 1961 classified as wholesale businesses.

* Vol. VI (Pt. 1) Census of Merchandising: Retail Trade (Series 6.1). Vol. VI (Pt. 2) Census of Merchandising: Wholesale Trade; Services (Series 6.2).

1.—Number of Wholesale Trade Locations and Value of Sales, by Province, Census 1961

Province or Territory	Locations	Sales
	No.	$'000
Newfoundland	447	239,696
Prince Edward Island	208	66,683
Nova Scotia	895	421,147
New Brunswick	709	303,940
Quebec	7,092	4,455,378
Ontario	10,103	6,059,667
Manitoba	2,167	3,120,482
Saskatchewan	2,646	802,905
Alberta	3,332	1,450,855
British Columbia	3,220	1,937,309
Yukon and Northwest Territories	32	10,677
Canada	**30,851**	**18,868,739**

2.—Number of Wholesale Trade Locations and Value of Sales, by Kind of Business, Census 1961

Kind of Business	Locations	Sales
	No.	$'000
Amusement, Sporting and Photographic Goods	**378**	**131,888**
Amusement and sporting goods	302	91,524
Photographic equipment and supplies	76	40,364
Automotive	**2,046**	**862,385**
Automotive equipment, parts and accessories	1,836	519,655
Motor vehicles	210	342,730
Beer, Wine and Distilled Spirits	**152**	**159,748**

2.—Number of Wholesale Trade Locations and Value of Sales, by Kind of Business, Census 1961—continued

Kind of Business	Locations	Sales
	No.	$'000
Chemicals, Drugs and Allied Products	**609**	**440,314**
Industrial chemicals	199	151,779
Drugs and drug sundries	210	216,282
Soaps and toilet preparations	108	28,992
Other chemicals, drugs and allied products	92	43,261
Coal and Coke	**108**	**78,503**
Dry Goods and Apparel	**1,689**	**815,115**
Clothing and furnishings	1,001	454,786
Dry goods (general line)	208	126,524
Piece goods	258	147,861
Notions	81	19,090
Miscellaneous dry goods, *n.e.s.*	141	66,855
Electrical Goods	**1,041**	**624,121**
Electrical merchandise (general line)	211	201,356
Household electrical appliances (incl. radios and television sets)	384	225,475
Electrical wiring supplies, construction materials, apparatus and equipment	268	139,585
Other electrical specialties	178	57,704
Farm Products (raw materials)	**971**	**3,717,498**
Flowers and nursery stock	64	14,752
Grain	236	2,740,322
Hides, skins, raw furs and wool	116	77,614
Livestock	522	769,889
Tobacco (leaf)	10	100,672
Miscellaneous farm products (raw materials)	23	14,250
Farm Supplies (feed, fertilizers, seeds and seed processing plants, etc.)	**1,187**	**303,986**
Food Products (except groceries) and Tobacco	**2,681**	**1,990,901**
Confectionery, soft drinks and tobacco	689	629,770
Dairy and poultry products	478	272,368
Fish and sea foods	226	70,373
Frozen or frosted foods	71	60,851
Fruits and vegetables (fresh)	715	446,037
Meats and meat products	265	229,325
Produce	188	225,294
Other food products except groceries	48	27,717
Forest Products (except lumber)	**160**	**71,162**
Furniture and House Furnishings	**611**	**248,451**
General Merchandise	**191**	**105,184**
Groceries and Food Specialties	**1,022**	**1,886,454**
Hardware	**738**	**450,245**
Jewellery	**240**	**42,707**
Leather and Leather Goods	**118**	**30,361**
Lumber and Building Materials (other than metal)	**3,892**	**1,407,334**
Construction and building materials (other than metal or wood)	1,522	491,291
Lumber and millwork	2,370	916,043
Machinery, Equipment and Supplies	**5,600**	**1,747,750**
Commercial machinery, equipment and supplies (refrigeration, hotel and restaurant, office and store)	575	103,933
Construction machinery and equipment (new and used)	209	242,305
Farm machinery and equipment	2,593	527,663
Industrial machinery, equipment and supplies	1,330	603,813
Professional equipment and supplies (church, dentists', school, scientific and laboratory, surgical, medical and hospital, etc.)	346	122,369
Service equipment and supplies	366	80,594
Transportation equipment and supplies	181	67,073
Metals and Metal Work	**477**	**573,433**
Paper and Paper Products	**553**	**376,501**

2.—Number of Wholesale Trade Locations and Value of Sales, by Kind of Business, Census 1961—concluded

Kind of Business	Locations	Sales
	No.	$'000
Petroleum and Petroleum Products	**4,361**	**2,075,767**
Plumbing, Refrigeration and Heating Equipment and Supplies	**598**	**363,461**
Waste Materials (incl. scrap metal)	**581**	**190,758**
Other Kinds of Business	**848**	**203,878**
Books, periodicals and newspapers	136	75,460
Optical goods	30	3,938
Containers (except wood, paper or glass)	28	6,179
Textiles and textile materials (other than dry goods)	51	11,753
Second-hand goods (except machinery and automotive)	140	16,441
Miscellaneous kinds of business, *n.e.s.*	463	90,107
Totals, All Locations	**30,851**	**18,868,739**

Retail Trade.—Results of the 1961 census of retail trade are given in Tables 3 and 4. These figures are not directly comparable with 1951 census information since certain classifications were excluded from retail trade in 1961 and others added. Restaurants, lumber dealers, repair shops, radio and television repair and jewellery repair were included in 1961 as part of retail trade but in 1951 were considered service trades.

3.—Number of Retail Trade Locations and Value of Sales, by Province, Metropolitan Area, Major Urban Area and Other Urban Centres (30,000 or more Population), Census 1961

NOTE.—Urban centres are designated in this table by the following abbreviations: m. = metropolitan area, u. = major urban area and c. = urban centres of 30,000 or more population.

Province and Area	Locations	Sales	Province and Area	Locations	Sales
	No.	$'000		No.	$'000
Newfoundland	**4,747**	**285,568**	Kingston, u.	488	76,598
St. John's, m.	750	107,440	Kitchener, m.	1,257	158,018
			London, m.	1,446	243,100
Prince Edward Island	**867**	**78,801**	Niagara Falls, u.	512	55,669
			Oshawa, u.	588	91,616
Nova Scotia	**6,523**	**580,335**	Ottawa, m.	2,612	437,728
Halifax, m.	1,122	199,775	Peterborough, u.	390	65,492
Sydney-Glace Bay, u.	912	91,925	St. Catharines, u.	884	99,659
			Sarnia, u.	475	64,452
New Brunswick	**5,215**	**435,806**	Sault Ste. Marie, u.	458	73,928
Saint John, m.	750	97,608	Sudbury, m.	740	124,279
Moncton, u.	426	72,630	Timmins, u.	357	36,652
			Toronto, m.	13,946	2,114,931
Quebec	**45,273**	**4,107,952**	Welland, c.	378	39,033
Chicoutimi-Jonquière, u.	705	92,498	Windsor, m.	1,578	175,562
Drummondville, u.	460	36,413			
Granby, c.	341	28,904	**Manitoba**	**6,575**	**766,711**
Montreal, m.	15,191	2,028,557	Winnipeg, m.	2,870	493,139
Quebec, m.	2,991	346,440			
Shawinigan, u.	551	42,490	**Saskatchewan**	**7,591**	**734,492**
Sherbrooke, u.	659	81,890	Moose Jaw, c.	272	50,507
St. Jean, u.	375	34,228	Regina, c.	656	132,189
Trois Rivières, u.	782	80,448	Saskatoon, c.	628	111,176
Valleyfield, u.	323	27,596			
			Alberta	**9,962**	**1,272,395**
Ontario	**52,157**	**6,206,685**	Calgary, m.	1,787	342,448
Belleville, c.	294	44,615	Edmonton, m.	1,917	388,237
Brantford, u.	487	63,416	Lethbridge, c.	329	55,149
Cornwall, c.	445	45,302			
Fort William-Port Arthur, u.	707	105,700	**British Columbia**[1]	**13,770**	**1,604,205**
Guelph, u.	378	47,426	Vancouver, m.	6,191	835,586
Hamilton, m.	2,958	393,429	Victoria, m.	1,232	157,299

[1]Includes Yukon and Northwest Territories.

4.—Number of Retail Trade Locations and Value of Sales, by Kind of Business, Census 1961

Kind of Business	Locations	Sales
	No.	$'000
Food	**47,313**	**4,298,240**
Bakery products stores	3,247	126,875
Confectionery stores	5,635	106,821
Grocery stores (without fresh meat)	21,708	788,546
Combination stores (groceries, with fresh meat)	10,817	2,915,241
Meat markets	2,295	250,019
Other	2,611	110,738
General Merchandise	**11,686**	**2,716,738**
Department stores and mail order offices	1,179	1,550,618
General stores	8,640	792,241
Variety stores	1,867	373,879
Automotive	**35,237**	**4,602,458**
Automobile and used car dealers	4,745	2,756,796
Accessories, tire and battery, and second-hand parts shops	1,758	234,570
Service stations	18,623	1,231,153
Garages	6,976	260,968
Paint, body and specialty repair shops	2,940	108,042
Other	195	10,929
Apparel and Accessories	**19,213**	**1,166,443**
Men's and boys' stores	3,304	230,265
Women's stores	5,529	326,855
Children's and infants' wear stores	1,273	41,923
Family clothing and furnishings stores	2,888	250,942
Shoe stores	3,038	195,180
Furriers and fur stores	719	49,586
Custom tailors	699	16,638
Piece goods stores	1,352	45,064
Second-hand and miscellaneous clothing and accessories stores	411	9,990
Hardware and Home Furnishings	**15,445**	**1,115,884**
Hardware stores	4,273	299,619
Paint, glass and wallpaper stores	785	33,625
Furniture stores	2,033	242,430
Household appliance stores	1,539	145,696
Furniture, including television, radio and appliance, piano and music stores	2,553	244,302
Television sales and service, television and radio and household appliance repair shops	2,243	46,242
Electrical supply stores	297	15,584
China, glassware and kitchenware stores	161	6,613
Floor coverings, curtains, upholstery and interior decoration stores	719	62,508
Linen stores	30	1,131
Picture and picture framing stores	66	1,800
Antique shops and second-hand furniture shops	694	13,956
Other	52	2,378
Other Retail Stores	**23,726**	**2,173,187**
Drug stores and patent and proprietary medicine stores	5,238	471,791
Fuel dealers	1,791	346,691
Florists	1,449	51,857
Tobacco stores and stands	2,702	104,436
Newsdealers and book and stationery stores	1,132	67,048
Artists' supplies, and camera and photographic supplies stores	447	33,615
Music stores and record bars	504	24,950
Gift, novelty and souvenir shops	1,422	36,184
Jewellery stores and jewellery repair shops	3,599	150,263
Sporting goods, bicycle and bicycle repair shops, boat and motorcycle shops	1,771	95,426
Government liquor, brewers' retail, and wine stores	1,317	671,472
Hobby and toy shops	211	6,794
Pet shops	222	4,315
Monument and tombstone dealers	145	5,587
Religious goods dealers	53	3,483
Opticians	224	11,194
Health appliance stores	146	6,433
Wool shops	99	2,140
Other	1,254	79,508
Totals, All Locations	**152,620**	**16,072,950**

Service Trades.—Results of the 1961 census of service trades are given in Tables 5 and 6. In 1961, restaurants, caterers, cocktail lounges, taverns and dressmakers, formerly classified as retail businesses, were included as service trades. Automotive repair shops (several kinds), radio and TV repair shops, jewellery repair and engraving, and bicycle repair shops, formerly classified as service trades, were transferred to the retail census. Dental laboratories, electroplating shops, machine shops and upholstery shops, formerly classified as service trades, were transferred to the manufacturing classification.

5.—Number of Service Trade Locations and Receipts, by Province, Metropolitan Area, Major Urban Area and Other Urban Centres of 30,000 or More Population, Census 1961

NOTE.—Urban centres are designated in this table by the following abbreviations: m. = metropolitan area, u. = major urban area and c. = urban centre of 30,000 or more population.

Province and Area	Locations	Receipts	Province and Area	Locations	Receipts
	No.	$'000		No.	$'000
Newfoundland	**834**	**31,116**	Kingston, u.	262	11,394
St. John's, m.	281	14,624	Kitchener, m.	697	21,286
			London, m.	886	37,455
Prince Edward Island	**360**	**6,442**	Niagara Falls, u.	406	15,542
			Oshawa, u.	351	11,148
Nova Scotia	**2,538**	**64,109**	Ottawa, m.	1,603	84,213
Halifax, m.	615	30,066	Peterborough, u.	271	9,188
Sydney-Glace Bay, u.	346	9,023	St. Catharines, u.	504	15,052
			Sarnia, u.	256	9,571
New Brunswick	**2,066**	**42,466**	Sault Ste. Marie, u.	263	13,144
Saint John, m.	378	13,096	Sudbury, m.	408	17,146
Moncton, u.	240	7,042	Timmins, u.	195	5,291
			Toronto, m.	8,973	521,762
Quebec	**23,803**	**821,379**	Welland, c.	180	4,513
Chicoutimi-Jonquière, u.	347	10,804	Windsor, m.	1,036	35,803
Drummondville, u.	186	3,953			
Granby c.	142	3,953	**Manitoba**	**3,853**	**153,921**
Montreal, m.	9,673	486,809	Winnipeg, m.	1,949	104,279
Quebec, m.	1,601	64,237			
Shawinigan, u.	300	6,660	**Saskatchewan**	**4,263**	**123,925**
Sherbrooke, u.	350	12,242	Moose Jaw, c.	149	6,210
St. Jean, u.	221	5,433	Regina, c.	452	26,726
Trois Rivières, u.	418	12,536	Saskatoon, c.	397	20,075
Valleyfield, u.	148	3,117			
			Alberta	**5,921**	**238,268**
Ontario	**32,014**	**1,175,642**	Calgary, m.	1,184	65,558
Belleville, c.	163	5,315	Edmonton, m.	1,355	76,681
Brantford, u.	309	8,860	Lethbridge, c.	184	7,617
Cornwall, c.	202	5,668			
Fort William-Port Arthur, u.	454	16,298	**British Columbia**[1]	**8,957**	**314,417**
Guelph, u.	198	5,951	Vancouver, m.	4,080	180,670
Hamilton, m.	1,893	67,178	Victoria, m.	688	26,926

[1]Includes Yukon and Northwest Territories.

6.—Number of Service Trade Locations and Receipts, by Kind of Business, Census 1961

Kind of Business	Locations	Receipts
	No.	$'000
Amusement and Recreation	**5,835**	**253,291**
Theatrical services	2,125	135,812
Commercial sports operators	3,496	104,249
Amusement parks, concessions and device services	124	9,776
Rental libraries	3	18
Miscellaneous amusement and recreation services, *n.e.s.*	87	3,436
Business	**4,024**	**272,684**
Advertising and display services	1,004	94,159
Chartered and certified accountants and other accounting and bookkeeping service	1,667	85,157
Addressing, duplicating, blueprinting, photostating, mailing and typing services	238	16,348
Other business services, *n.e.s.*	1,115	77,020

6.—Number of Service Trade Locations and Receipts, by Kind of Business, Census 1961
—concluded

Kind of Business	Locations	Receipts
	No.	$'000
Personal	**32,123**	**406,974**
Barber shops and beauty salons	19,804	144,154
Dry cleaner services	3,813	117,245
Laundries services	2,367	95,234
Shoe repair shops and shoe shine parlours	3,894	23,964
Valet service, pressing and repair shops	896	7,107
Dressmakers	690	2,754
Cemeteries	80	5,996
Miscellaneous personal services	579	10,520
Repair	**3,446**	**64,760**
Blacksmiths and general repair shops	1,188	7,607
Miscellaneous repair shops	2,258	57,153
Undertaking and Funeral	**1,533**	**69,780**
Photography (photographers, developing and printing)	**1,332**	**47,464**
Hotel, Tourist Camp and Restaurant	**34,626**	**1,660,787**
Hotels	5,129	567,892
Motels	2,693	58,700
Tourist courts, cabins, campgrounds, fishing and recreation camps	4,435	34,192
Eating places	22,369	1,000,003
Miscellaneous	**1,846**	**204,110**
Automobile and truck rentals (without driver)	305	40,069
Taxidermists	13	229
Collection agencies	141	5,084
Driving schools	138	1,988
Detective agencies	42	5,580
Disinfecting and exterminating service	48	2,420
Window cleaning service	70	2,772
Miscellaneous service to dwellings and buildings	267	25,676
Other miscellaneous services	822	120,293
Totals, All Locations	**84,765**	**2,979,850**

Subsection 2.—Wholesale Trade (Intercensal)

Total sales of wholesalers, estimated from the results of intercensal sample surveys, have shown a continuously upward trend over the past decade, reaching a record amount of $10,181,600,000 in 1963. As indicated in Table 7, all business groups reported increases in 1963 over 1962 with the exception of meat and dairy products and hardware, and the declines for these groups were not large.

7.—Wholesale Sales, by Kind of Business, 1959-63

NOTE.—Includes only wholesalers proper, i.e., firms performing the function of buying merchandise on their own account for resale.

Kind of Business	1959	1960	1961[r]	1962	1963[p]
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Fresh fruits and vegetables	279.5	288.4	288.7	308.1	323.0
Groceries and food specialties	1,544.5	1,649.7	1,751.4	1,862.9	1,987.0
Meat and dairy products	171.3	165.0	175.0	173.5	172.6
Clothing and furnishings	120.0	116.1	116.6	102.8	105.0
Footwear	37.1	38.0	39.4	41.3	41.7
Other textile and clothing accessories	211.5	204.6	206.0	208.0	212.7
Drugs and drug sundries	216.6	221.9	236.0	247.9	258.2
Household electrical appliances	181.4	182.7	199.5	210.4	218.5

7.—Wholesale Sales, by Kind of Business, 1959-63—concluded

Kind of Business	1959	1960	1961[r]	1962	1963[p]
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Farm machinery	84.9	73.0	67.8	71.0	84.9
Coal and coke	155.9	153.3	140.6	139.8	151.0
Hardware	317.6	327.1	350.7	357.0	355.7
Construction materials and supplies including lumber	964.4	877.6	725.5	779.9	830.8
Industrial and transportation equipment and supplies	779.7	748.1	750.1	776.4	828.0
Commercial, institutional and service equipment and supplies	130.2	137.4	140.4	139.3	140.9
Automotive parts and accessories	407.9	414.8	414.4	441.4	457.0
Newsprint, paper and paper products	262.8	276.4	291.6	308.8	325.0
Tobacco, confectionery and soft drinks	723.4	741.1	769.9	796.1	800.2
Other	2,163.9	2,149.3	2,373.0	2,675.9	2,889.4
Totals, All Trades	**8,752.6**	**8,764.5**	**9,036.6**	**9,640.5**	**10,181.6**

Subsection 3.—Retail Trade (Intercensal)

The trend of retail trade is one of the best general indicators of the economic condition of the country. It is through retail stores that most goods are ultimately sold and such sales reflect the financial strength of the consumer except in times of short supply. The value of retail sales, estimated from intercensal sample surveys, increased by 75.2 p.c. during the period 1954-63. Estimates, by province and by kind of business, for 1959-63, not adjusted for price changes, are shown in Table 8.

8.—Retail Trade, by Province and by Kind of Business, 1959-63

Province and Kind of Business	1959	1960	1961	1962	1963[p]
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Province					
Atlantic Provinces	1,362	1,430	1,465	1,521	1,581
Quebec	3,878	3,944	4,183	4,571	4,772
Ontario	6,218	6,313	6,340	6,641	6,978
Manitoba	813	843	817	880	913
Saskatchewan	951	938	905	968	1,049
Alberta	1,355	1,366	1,401	1,492	1,541
British Columbia[1]	1,707	1,668	1,665	1,797	1,902
Canada[2]	**16,284**	**16,502**	**16,777**	**17,871**	**18,735**
Kind of Business					
Grocery and combination stores	3,287	3,474	3,581	3,754	3,945
Other food and beverage stores	1,178	1,225	1,244	1,344	1,386
General stores	630	640	654	678	706
Department stores	1,420	1,454	1,503	1,563	1,649
Variety stores	321	350	371	391	406
Motor vehicle dealers	2,613	2,551	2,488	2,741	2,988
Garages and filling stations	1,104	1,145	1,212	1,306	1,330
Men's clothing stores	250	259	261	281	294
Family clothing stores	226	235	243	252	257
Women's clothing stores	273	277	283	297	308
Shoe stores	155	169	170	180	181
Hardware stores	226	226	328	321	347
Lumber and building material dealers	492	436	426	452	478
Furniture, appliance and radio dealers	581	547	548	573	581
Restaurants	567	569	573	612	625
Fuel dealers	342	324	317	360	362
Drug stores	405	416	428	442	456
Jewellery stores	137	134	134	138	142
Miscellaneous	1,967	1,971	2,012	2,176	2,297

[1] Includes the Yukon and Northwest Territories.

[2] Totals are not the exact addition of the components because of rounding of the figures.

Farm Implement Sales.—The value, at wholesale prices, of new farm implements and equipment sold in 1962 amounted to $238,797,000, an increase of 18.3 p.c. over the value of such sales in 1961. Decreases in the Atlantic Provinces, Ontario and British Columbia were offset by substantial increases in the other provinces, particularly Manitoba and Saskatchewan. In addition to the amount spent on new machinery, $43,879,451 was spent in 1962 for repair parts, 10.7 p.c. more than the amount so spent in 1961.

9.—Sales of Farm Implements and Equipment, by Province and by Major Group, 1958-62

(Values at wholesale prices)

Province and Major Group	1958	1959	1960	1961	1962	Percentage Change 1961-62
	$'000	$'000	$'000	$'000	$'000	
Province						
Atlantic Provinces	5,797	6,482	7,693	8,165	6,722	−17.7
Quebec	26,469	27,030	26,792	30,277	32,555	+ 7.5
Ontario	43,058	50,593	49,399	51,006	50,886	− 0.2
Manitoba	17,695	24,082	25,877	18,958	28,054	+48.0
Saskatchewan	36,905	50,520	57,359	41,615	59,348	+42.6
Alberta	37,944	47,934	44,993	45,723	55,294	+20.9
British Columbia	4,146	5,590	5,352	6,033	5,938	− 1.6
Totals	**172,014**	**212,231**	**217,465**	**201,777**	**238,797**	**+18.3**
Major Group						
Tractors and engines	63,171	78,938	80,093	74,764	80,631	+ 7.8
Ploughs	9,790	11,189	11,635	11,460	10,969	− 4.3
Tilling, cultivating and weeding machinery	9,656	11,920	12,650	12,939	15,363	+18.7
Planting, seeding and fertilizing machinery	7,104	7,894	7,873	8,224	9,477	+15.2
Haying machinery	26,257	30,655	30,544	29,298	32,214	+ 9.9
Harvesting machinery	29,851	44,122	46,485	37,631	57,626	+53.1
Machines for preparing crops for market or for use	6,102	7,510	6,261	6,233	7,658	+22.9
Farm wagons, wagon trucks and sleighs	1,900	1,994	2,025	1,910	1,770	− 7.4
Barn equipment	3,521	3,869	4,095	4,535	5,892	+29.9
Dairy machinery and equipment	6,488	5,139	5,766	5,589	5,621	+ 0.6
Spraying and dusting equipment	1,558	1,466	1,637	1,758	1,828	+ 3.9
Miscellaneous farm equipment	6,616	7,535	8,401	7,436	9,748	+31.1

New Motor Vehicle Sales.—Sales of new motor vehicles reached a peak in 1963 when 654,989 vehicles valued at $2,062,039,000 were sold. Sales over the ten-year period 1954-63 are shown in Table **10.**

10.—Retail Sales of New Motor Vehicles, 1954-63

Year	Passenger Cars		Trucks and Buses		Totals	
	No.	$	No.	$	No.	$
1954	310,546	797,554,000	72,082	191,964,000	382,628	989,518,000
1955	386,962	1,023,351,000	78,716	232,539,000	465,678	1,255,890,000
1956	408,233	1,128,640,000	91,688	326,735,000	499,921	1,455,375,000
1957	382,023	1,087,620,000	76,276	281,311,000	458,299	1,368,931,000
1958	376,723	1,110,724,000	68,046	254,742,000	444,769	1,365,466,000
1959	425,038	1,240,961,000	77,588	299,207,000	502,626	1,540,168,000
1960	447,771	1,289,073,000	75,417	285,754,000	523,188	1,574,827,000
1961	437,319	1,290,026,000	74,160	261,382,000	511,479	1,551,408,000
1962	502,565	1,482,407,000	82,645	300,509,000	585,210	1,782,916,000
1963p	557,787	1,716,121,000	97,202	345,918,000	654,989	2,062,039,000

Sales Financing.—As shown in Table 11, the amount of instalment financing transacted by sales finance companies has fluctuated within narrow limits during the years 1958-62, as have balances outstanding at year-end.

11.—Retail Instalment Paper Purchased and Balances Outstanding, by Class of Goods, 1958-62

(Millions of dollars)

Class of Goods	Paper Purchased					Balances Outstanding Dec. 31—				
	1958	1959	1960	1961	1962	1958	1959	1960	1961	1962
Consumer Goods	**870**	**902**	**878**	**768**	**851**	**768**	**806**	**829**	**756**	**801**
New passenger cars	336	371	378	330	381	588	610	625	589	609
Used passenger cars	333	323	298	250	265					
Radio and television sets, household appliances, furniture and other	201	208	202	188	205	180	196	204	187	192
Commercial and Industrial	**265**	**356**	**366**	**344**	**378**	**257**	**344**	**393**	**395**	**440**
New commercial vehicles	70	95	97	87	94	111	138	151	138	151
Used commercial vehicles	48	59	57	47	49					
Other	147	202	212	210	235	146	206	242	257	289
Totals	**1,135**	**1,258**	**1,244**	**1,112**	**1,229**	**1,026**	**1,150**	**1,222**	**1,151**	**1,241**

Consumer Credit.—Total balances outstanding on credit extended to consumers by retail stores and certain financial institutions are increasing very rapidly. Although the financial institutions included in the survey do not cover all sources of consumer credit, returns from the selected holders indicate that balances outstanding on credit extended to individuals for the purchase of consumer goods and services have more than doubled since 1954. The figures in Table 12 do not include credit extended for commercial purposes.

12.—Balances Outstanding on Retail Trade Credit and Loans Extended to Individuals for Non-business Purposes by Certain Financial Institutions, 1954-63

(Millions of dollars)

Year	Retail Trade Credit	Sales Finance Companies	Small Loans Companies	Chartered Banks	Credit Unions	Life Insurance Companies Policy Loans
1954	733	492	215	604[r]	151	240
1955	822	599	279	780[r]	174	250
1956	873	756	356	748[r]	226	270
1957	901	780	362	677[r]	258	295
1958	937	768	400	840[r]	320	305
1959	992	806	484	1,001	397	323
1960	1,038	828	549	1,143	433	344
1961	1,088	756	594	1,366	516	358
1962	1,125	801	714	1,555	579[r]	372
1963[p]	1,183	873	808	1,824	669	385

Accounts outstanding on the books of retailers stood at $1,183,300,000 at the end of 1963. This amount excludes lumber and building material dealers and farm implement dealers, two trades included up to and including 1957, so that the results for 1958 and subsequent years more closely approximate "consumer" credit shown in Table **13.**

13.—Retail Credit 1954-63, and by Kind of Business, 1963

Period	Accounts Receivable (at end of period)			Kind of Business	Accounts Receivable (at end of period)		
	Instalment	Charge	Total		Instalment	Charge	Total
	$'000,000	$'000,000	$'000,000		$'000,000	$'000,000	$'000,000
				1963			
1954.....	326.6	492.7	819.3	Department stores.....	..	..	457
1955.....	381.8	542.8	924.6	Motor vehicle.....	18	95	113
1956.....	414.9	566.6	981.5	Men's clothing.....	8	14	22
1957.....	485.1	529.1	1,014.2	Family clothing.....	14	13	27
1958[1].....	489.6	447.6	937.2	Women's clothing.....	4	13	17
1959[1].....	523.8	468.7	992.5	Hardware.....	12	29	41
1960[1].....	..	..	1,037.6	Furniture, appliance and radio.....	168	30	198
1961[1].....	..	..	1,088.2	Jewellery.....	15	9	24
1962[1].....	..	..	1,125.1	Grocery and combination (independent).....	[2]	37	37
1963[1].....	..	..	1,183.3	General stores.....	[2]	37	37
				Fuel.....	3	56	59
				Garages and filling stations.....	[2]	30	30
				All other trades.....	30	91	121

[1] Excludes lumber and farm implement dealers. [2] Included in "Charge"

Subsection 4.—Service Establishments (Intercensal)

Summary figures from the 1961 census of service establishments are given in Subsection 1, pp. 852-858, Table **6** of which shows the types of business included. At the time of going to press, 1962 sample-survey figures were available for only a few services, certain of which are given here.

Motion Picture Theatres.—The receipts of motion picture theatres reached a peak in 1953 when they amounted to $108,604,000; since then they have declined each year to $67,748,000 in 1962. The number of theatres in operation has also decreased rapidly, although drive-ins have shown some advance in both numbers and receipts.

14.—Summary Statistics of Motion Picture Theatre Operations, 1961 and 1962

Year and Item		Regular Theatres	Drive-in Theatres	Total
1961				
Establishments	No.	1,341	238	1,579
Receipts (excluding taxes)	$	62,228,910	6,653,262	68,882,172
Amusement taxes	$	5,043,553	490,793	5,534,346
Paid admissions	No.	97,944,809	9,473,685	107,418,494
1962				
Establishments	No.	1,278	240	1,518
Receipts (excluding taxes)	$	60,941,230	6,806,888	67,748,118
Amusement taxes	$	4,371,113	399,346	4,770,459
Paid admissions	No.	91,258,324	9,585,845	100,844,169

Motion Picture Production.—Table 15 shows the operations of private firms in the production and printing of motion picture films and filmstrips for industry, government, education, entertainment, etc. Films are also produced by government agencies but information concerning such production is, of course, not available. In addition, eight firms in other business categories produced films in 1962 (96 entertainment and documentary films for television use, six non-theatrical films, 10 commercial advertising films for television, one silent motion picture film and one sound filmstrip for unspecified use). This production brought in revenue amounting to $152,177.

15.—Summary Statistics of Motion Picture Production by Private Firms, 1954-62

Year	Firms	Employees	Salaries and Wages	Gross Revenue		
				Production	Printing and Laboratory	Other Revenue
	No.	No.	$	$	$	$
1954	45	478	1,549,233	2,106,131	1,456,405	1,328,021
1955	46	445	1,460,421	2,456,038	1,051,673	512,727
1956[1]	59	1,127	2,483,910	3,726,557	2,095,985	423,899
1957	58	1,216	2,758,560	4,471,710	2,978,626	469,369
1958	52	1,133	2,770,375	3,902,780	3,344,948	421,975
1959	54	1,065	3,609,537	5,814,690	3,229,240	389,480
1960	66	1,194	3,475,118	7,038,810	2,590,759	342,582
1961	67	784[2]	3,562,041	6,354,071	3,580,570	752,734
1962	76	903[3]	3,728,592	7,312,205	3,946,179	850,432

[1] Figures from 1956 include laboratories with no motion picture production; these were not included in previous years. [2] As of the last week of November 1961; not comparable with previous years. [3] Excludes freelancers.

Table 16 shows types of film produced by private industry, classified by major producing region, and by government agencies during 1962. Private industry and government agencies together printed 57,702,596 feet of 16mm. film in black and white, 8,917,247 feet of 16mm. film in colour, 20,607,131 feet of 35mm. film in black and white and 732,276 feet of 35mm. film in colour.

16.—Private Industry and Government Motion Picture Production, by Type of Film, 1962

Type	Private Industry				Government	Private and Government
	Quebec	Ontario	Other Provinces	Total		
	No.	No.	No.	No.	No.	No.
Films in English or French	**1,498**	**4,674**	**702**	**6,874**	**601**	**7,475**
Theatrical features, 60 minutes or longer	—	—	—	—	2	2
Theatrical shorts, less than 60 minutes	46	5	1	52	19	71
Television entertainment	114	321	1	436	1	437
Television, information or documentary	130	116	5	251	126	377
Non-theatrical (also non-television) motion pictures	93	329	53	475	113	588
Silent motion pictures	28	105	51	184	2	186
Television commercials (two minutes or less)	286	2,107	287	2,680	15	2,695
Theatre commercials (two minutes or less)	4	—	—	4	—	4
Other (newsreels, newsclips, trailers, titles, production services, etc.)	793	1,635	273	2,701	274	2,975
Silent filmstrips (slide films)	2	3	31	36	43	79
Sound filmstrips (slide films) with records	2	53	—	55	6	61
Films in Other than English or French	**59**	**1**	**—**	**60**	**73**	**133**

Advertising Agencies.—Table 17 records the growth of business done by advertising agencies during 1962 as compared with the four previous years.

17.—Summary Statistics of Advertising Agencies, 1958-62

Item	1958	1959	1960	1961[r]	1962
Billings.....$	237,654,038	254,145,919	272,739,802	282,561,449	298,584,954
Commissionable billings.....$	*233,789,205*	*250,080,021*	*267,756,156*	*277,805,963*	*293,028,021*
Other.....$	*3,864,833*	*4,065,898*	*4,983,646*	*4,755,486*	*5,556,933*
Gross revenue.....$	38,073,427	41,126,958	45,150,389	46,089,647	49,348,113
Distribution of Billings—					
Publications..... p.c.	49.3	47.8	47.2	45.5	44.0
Production, artwork, etc..... p.c.	14.4	14.7	18.7	19.0	17.2
Radio..... p.c.	10.5	10.6	9.7	9.4	10.8
Television..... p.c.	20.5	21.3	19.3	21.4	22.8
Other visual..... p.c.	4.7	4.8	5.1	4.6	5.1
Other..... p.c.	0.6	0.8	--	0.1	0.1

Section 2.—The Marketing of Agricultural Products

Subsection 1.—The Grain Trade, 1962-63

Total production of the five major Canadian grains amounted to 1,253,138,000 bu. in 1962, an output 79 p.c. higher than the 1961 production of 700,996,000 bu. This expansion more than offset a 37-p.c. decline in carryover stocks, from 850,548,000 bu. in 1961 to 537,006,000 bu. in 1962, and, as a result, estimated domestic supplies in the crop year 1962-63 at 1,790,232,000 bu. were about 15 p.c. greater than the 1,557,067,000 bu. of the previous season. Total marketings of the five major grains in the Prairie Provinces during 1962-63 amounted to 666,658,000 bu., exceeding by 63 p.c. the comparable 1961-62 total of 408,232,000 bu. and by 10 p.c. the ten-year (1951-52—1960-61) average of 605,828,000 bu. Reflecting reduced shipments of wheat, wheat flour and barley, total 1962-63 exports for the five major grains and their products, at 388,198,000 bu., were 8 p.c. less than the 1961-62 figure of 420,735,000 bu. and 10 p.c. less than the ten-year average of 432,847,000 bu.

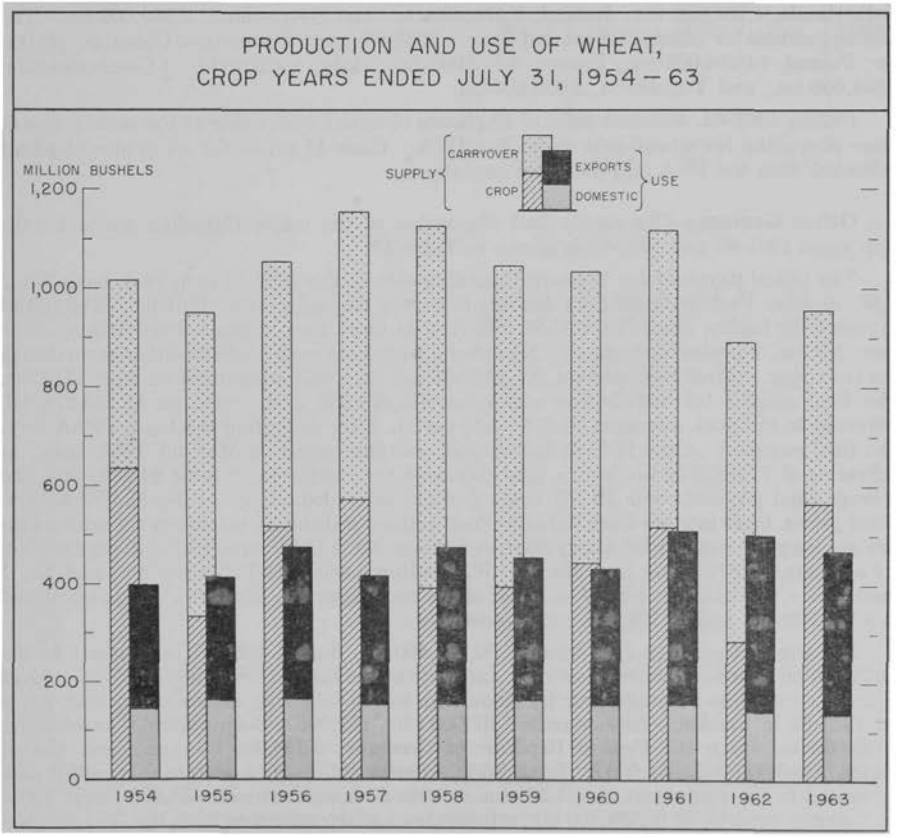
Disappearance of these grains into domestic channels in 1962-63 was estimated at 667,094,000 bu. compared with 599,326,000 bu. in 1961-62. This increase more than offset the decline in exports, but the effect of larger total domestic supplies was reflected in a 37-p.c. increase in carryover stocks—from 537,006,000 bu. at July 31, 1962 to 734,919,000 bu. at the same date in 1963. Higher carryover stocks and higher production of the five major grains brought total domestic supplies for the 1963-64 crop year to 2,166,242,000 bu., 21 p.c. above the 1962-63 total of 1,790,232,000 bu.

In 1962-63, marketings of wheat, oats and barley continued under the compulsory crop year pools system of the Canadian Wheat Board (see p. 880). An initial quota of 100 units was in effect at local delivery points at the beginning of the marketing year; permit holders were entitled to deliver a maximum of 300 bu. of wheat or 1,000 bu. of oats or 500 bu. of barley or 500 bu. of rye or any combination of these grains, which, when calculated on the unit basis, did not exceed 100 units. The initial unit quota was followed by general quotas, based upon bushels per specified acre. Specified acreage consisted of each permit holder's acreage seeded to wheat (excluding Durum), oats, barley and rye, the summerfallow acreage, and the eligible acreage seeded to cultivated grasses and forage crops. For Durum grades, the delivery quota of 5 bu. per seeded acre or 200 bu., whichever was larger, established at the beginning of the year, was increased on Oct. 9 and Nov. 14, 1962 and again on June 20, 1963, the final quota being 15 bu. per seeded acre or 650 bu., whichever was larger. A number of supplementary delivery quotas were established on soft white spring wheat,

oats, barley and rye. An open quota basis was issued for delivery of rye as at Oct. 19, 1962. Flaxseed and rapeseed, the latter defined as a grain in an amendment to the Canadian Wheat Board Act, were on open quota for the entire 1962-63 crop year.

Total commercial supplies at the beginning of the crop year were more than 100,000,000 bu. less than a year previously, most of the decline occurring in country elevator stocks. As a result, marketings were heavy early in the crop year and quotas were advanced as additional space became available. By June 24, 1963, slightly more than half of the operating delivery points in the Western Division were on a 12-bu. quota. Marketings were heavy during June and July as producers, acknowledging the indications of above-normal yields, took advantage of delivery privilege to reduce farm stocks. By the end of the crop year, all but six delivery points had been placed on the 12-bu. quota.

Wheat.—Total supplies of wheat for the 1962-63 crop year were estimated at 956,625,000 bu., 7 p.c. above the 1961-62 total of 891,240,000 bu.; a sharp increase in production more than offset a substantial decline in carryover stocks. Exports of wheat and flour in terms of wheat at 331,367,000 bu. were 7 p.c. lower than the 358,022,000 bu. of the previous year but were 8 p.c. higher than the ten-year (1951-52—1960-61) average of 307,038,000 bu. Domestic disappearance of wheat declined to 138,011,000 bu., the lowest level since 1949-50, and was down 3 p.c. from the 1961-62 figure of 142,160,000 bu. Total



disappearance of 469,378,000 bu. and production at 565,554,000 bu. brought carryover stocks at July 31, 1963 up to 487,247,000 bu., 25 p.c. above the carryover of 391,058,000 bu. at July 31, 1962.

The initial payment from Western Canadian wheat in the 1962-63 crop year commenced at $1.50 per bu., basis No. 1 Northern in store Fort William–Port Arthur or Vancouver. There were no adjustment or interim payments on the 1962-63 wheat pool, but on Feb. 14, 1964 the final payment was announced. Producers delivered 469,927,000 bu. of wheat to the pool, including 44,372,000 bu. of Durum wheat. The amount of the final payment distributed to producers was a record $199,737,000 and, of this amount, $28,744,000 went to producers of Durum wheat. After deducting the Prairie Farm Assistance Act levy, the average final payment on spring wheat (other than Durum) was 40.181 cents per bu. and the average final payment on Durum grades of wheat was 64.780 cents per bu. The total payment for No. 1 Northern, basis in store Fort William–Port Arthur or Vancouver and prior to deduction of the PFAA levy, amounted to $1.87448 per bu.

The crop year 1962-63 coincided with the first year of the fifth three-year International Wheat Agreement (IWA) which became effective Aug. 1, 1962; 27 of the 37 importing countries included in the pact purchased wheat and/or flour from Canada. Such purchases amounted to the equivalent of 219,566,000 bu. during 1962-63, the major importers being: Britain, with shipments amounting to some 89,623,000 bu.; Japan, 44,625,000 bu.; Federal Republic of Germany, 27,997,000 bu.; Belgium and Luxembourg, 10,149,000 bu.; Republic of South Africa, 7,883,000 bu.; Philippines, 6,752,000 bu.; Venezuela, 6,679,000 bu.; Netherlands, 4,754,000 bu.; Ireland, 3,470,000 bu.; and Switzerland, 2,969,000 bu. The leading markets for Class II wheat and flour in 1962-63, were: Communist China, 56,444,000 bu.; Poland, 14,184,000 bu.; France, 6,877,000 bu.; Italy, 4,920,000 bu.; Czechoslovakia, 4,394,000 bu.; and Yugoslavia, 3,920,000 bu.

During 1962-63, domestic sales of all classes of wheat were made at the same prices as those prevailing for wheat sold under the IWA. Class II prices for all grades of wheat coincided with the IWA and domestic quotations.

Other Grains.—The supply and disposition of the major Canadian grains for the crop years 1961-62 and 1962-63 is shown in Table **18**.

The initial payment for Western Canadian oats in the 1962-63 crop year, basis No. 2 C.W. in store Fort William–Port Arthur, remained the same as in 1961-62. The initial payment for barley, basis No. 3 C.W. Six-Row in store Fort William–Port Arthur, at 96 cents per bu., was also unchanged. No interim payments were made on either grain during the crop year. Final payment on the 1962-63 oat pool was announced on Apr. 14, 1964. The final surplus for distribution was some $10,671,662 and, based on 86,235,278 bu. delivered to the pool, averaged 12.375 cents per bu. after deducting the 1-p.c. PFAA levy. The final payment on the 1962-63 barley pool was announced on Mar. 26, 1964; based on deliveries of 77,610,648 bu. and a final payment for producers of some $14,091,969, the average final payment was 18.157 cents per bu. after deducting the 1-p.c. PFAA levy. Total prices, basis in store Fort William–Port Arthur, realized by producers for representative grades prior to the PFAA levy were as follows: No. 2 C.W. oats, $0.71842 per bu.; No. 1 Feed oats, $0.67967 per bu.; No. 3 C.W. Six-Row barley, $1.13192 per bu.; and No. 1 Feed barley, $1.05192 per bu. Deliveries of rye and flaxseed in Western Canada amounted to 9,372,000 bu. and 13,528,000 bu., respectively.

Exports of Canadian oats totalled 20,585,000 bu. during 1962-63 in contrast to the 2,679,000 bu. shipped the previous year, and were at the highest level since 1957-58. Most of the increase was accounted for by shipments to the following destinations, with totals for 1961-62 in brackets: Netherlands, 7,377,000 bu. (52,000); Belgium and Luxembourg, 3,432,000 bu. (nil); the Federal Republic of Germany, 3,333,000 bu. (nil); and United States, 2,496,000 bu. (951,000). In addition, exports of Canadian oatmeal and rolled oats amounted to the equivalent of 625,000 bu. in 1962-63 compared with 455,000 bu. in 1961-62. Barley exports, at 10,534,000 bu., represented a sharp reduction from the 1961-62 level

of 36,655,000 bu.; major declines occurred in shipments to Communist China, 1,083,000 bu. (19,284,000) and United States, 2,233,000 bu. (9,726,000) and a minor decline in exports to Britain, 6,803,000 bu. (7,391,000 bu.). In addition to the exports of Canadian barley as grain, shipments of malt were the equivalent of 4,843,000 bu. compared with 6,254,000 bu. in 1961-62. Of the 1962-63 exports, the United States received the equivalent of 2,807,000 bu.

Exports of Canadian rye amounted to 7,310,000 bu. in 1962-63, a substantial increase over the 1961-62 total of 4,363,000 bu. Principal markets were the Federal Republic of Germany, 3,104,000 bu., and the Netherlands, 2,089,000 bu. Smaller shipments went to nine other countries. Clearances of Canadian flaxseed moving overseas during 1962-63 amounted to 12,566,000 bu. compared with 11,988,000 bu. the previous year. Britain, with imports amounting to 5,061,000 bu., was the leading market for Canadian flaxseed followed by Japan with 3,785,000 bu. Relatively smaller shipments went to 15 other overseas destinations. Exports of linseed oil were equivalent to about 429,000 bu. of flaxseed, most of which went to Britain.

18.—Supply and Disposition of Canadian Grain, Crop Years Ended July 31, 1962 and 1963

(Millions of bushels)

Item	Wheat	Oats	Barley	Rye	Flaxseed
Crop Year 1961-62					
Carryover, Aug. 1, 1961	607.8	115.2	112.6	7.4	7.6
Production in 1961	283.4	284.0	112.6	6.5	14.5
Imports[1]	[2]	5.5	[2]	[2]	[2]
Totals, Supply	**891.2**	**404.6**	**225.2**	**14.0**	**22.1**
Exports[3]	358.0	3.5	42.9	4.4	12.0
Domestic use[4]	142.2	322.1	124.5	5.8	4.8
Totals, Disposition	**500.2**	**325.5**	**167.4**	**10.2**	**16.8**
Crop Year 1962-63					
Carryover, Aug. 1, 1962	391.1	79.1	57.8	3.8	5.3
Production in 1962	565.6	493.6	165.9	12.0	16.0
Imports[1]	[2]	[2]	[2]	0.1	[2]
Totals, Supply	**956.6**	**572.7**	**223.7**	**15.9**	**21.3**
Exports[3]	331.2	21.7	15.4	7.3	12.6
Domestic use[4]	138.1	400.7	119.1	4.4	4.8
Totals, Disposition	**469.4**	**422.4**	**134.5**	**11.7**	**17.3**
Carryover, July 31, 1963	487.2	150.3	89.2	4.2	4.0

[1] Includes flour in terms of wheat, rolled oats and oatmeal in terms of oats, malt and pot and pearl barley in terms of barley, and rye flour in terms of rye. [2] Fewer than 50,000 bu. [3] Includes bagged seed wheat, wheat flour in terms of wheat, rolled oats and oatmeal in terms of oats, malt and pot and pearl barley in terms of barley and rye flour and meal in terms of rye. [4] Includes human food, seed requirements, industrial use, loss in handling and animal feed.

19.—Production, Imports, Exports and Domestic Use of Wheat, Crop Years Ended July 31, 1958-63

(Millions of bushels)

Item	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63
Carryover, Aug. 1	733.5	648.5	588.0	599.6	607.8	391.1
Production	392.7	398.1	445.1	518.4	283.4	565.6
Imports	[1]	[1]	[1]	[1]	[1]	[1]
Totals, Supply	**1,126.3**	**1,046.5**	**1,033.1**	**1,118.0**	**891.2**	**956.6**
Exports[2]	320.3	294.5	277.3	353.2	358.0	331.2
Domestic use	157.5	164.0	156.2	156.9	142.2	138.1
Totals, Disposition	**477.8**	**458.5**	**433.5**	**510.1**	**500.2**	**469.4**
Carryover, July 31	648.5	588.0	599.6	607.8	391.1	487.2

[1] Fewer than 50,000 bu. [2] Includes bagged seed wheat and wheat flour in terms of wheat.

Miscellaneous Grain Trade Statistics.—*Grain Handled at Eastern Elevators.*—Total receipts of the five major grains at eastern elevators in the 1962-63 crop year amounted to 307,960,000 bu., 5 p.c. more than in 1961-62. Shipments totalled 291,811,000 bu., 7 p.c. less than in 1961-62.

20.—Canadian Grain Handled at Eastern Elevators, Crop Years Ended July 31, 1959-63

NOTE.—Figures for the crop years ended 1922-58 are given in the corresponding table of previous Year Books beginning with the 1931 edition.

Item and Crop Year	Wheat	Oats	Barley	Rye	Flaxseed	Total Grain
	bu.	bu.	bu.	bu.	bu.	bu.
Receipts—						
1958-59	287,235,822	40,935,632	55,087,986	2,468,424	14,779,910	400,507,774
1959-60	273,525,714	32,442,882	36,293,125	1,345,336	6,989,980	350,597,037
1960-61	283,713,889	32,686,125	34,139,873	1,305,521	6,010,008	357,855,416
1961-62	243,025,206	18,252,519	21,412,213	3,202,174	7,197,612	293,089,724
1962-63	244,953,613	30,096,077	21,431,674	3,692,938	7,786,039	307,960,341
Shipments—						
1958-59	294,412,290	42,689,493	56,544,772	2,551,111	14,635,190	410,832,856
1959-60	254,448,048	33,411,003	37,260,454	1,413,050	7,182,791	333,715,346
1960-61	287,810,455	30,785,810	31,288,234	1,200,616	6,086,236	357,171,351
1961-62	258,787,935	19,494,745	23,530,370	3,227,310	7,098,689	312,139,049
1962-63	229,459,107	29,294,945	21,984,624	3,432,627	7,639,856	291,811,159

Grain Inspections.—The volume of Canadian wheat, oats, barley, rye, flaxseed, corn, buckwheat and mixed grain inspected by the Board of Grain Commissioners for Canada in the crop year 1962-63 amounted to 543,723,000 bu., 2 p.c. above the 1961-62 total of 531,892,000 bu.

21.—Quantities of Grain and Other Field Crops Inspected, Crop Years Ended July 31, 1962 and 1963

Crop	1961-62			1962-63		
	Western Division	Eastern Division	Total	Western Division	Eastern Division	Total
	bu.	bu.	bu.	bu.	bu.	bu.
Wheat	405,957,236	9,280,768	415,238,004	398,423,923	5,341,232	403,765,155
Spring wheat	*1,379,732*	*86,755*	*1,466,487*	*397,546,586*	—	*397,546,586*
Winter wheat	*404,577,504*	*9,194,013*	*413,771,517*	*877,337*	*5,341,232*	*6,218,569*
Oats	23,040,336	132,200	23,172,536	56,835,319	886,680	57,721,999
Barley	72,449,452	184,555	72,634,007	54,945,979	495,750	55,441,729
Rye	4,519,424	35,700	4,555,124	8,438,503	44,100	8,482,603
Flaxseed	13,615,098	8,300	13,623,398	14,805,262	42,782	14,848,044
Corn	235,752	2,136,049	2,371,801	144,900	3,049,085	3,193,985
Buckwheat	2,203	60,449	62,652	54,366	61,241	115,607
Mixed grain[1]	234,384	—	234,384	152,115	2,200	154,315
Soybeans	—	6,766,585	6,766,585	—	5,943,643	5,943,643
Beans	—	643,546	643,546	—	733,672	733,672
Peas	15,020	—	15,020	6,346	—	6,346
Sample grain[1]	224,213	—	224,213	166,432	—	166,432
Rapeseed[1]	10,533,106	—	10,533,106	6,630,640	—	6,630,640
Mustard seed[1]	416,944	—	416,944	2,078,490	—	2,078,490
Safflower seed[2]	3,976	—	3,976	—	—	—
Western Grain Inspected in the Eastern Division—						
Barley	...	386,575	386,575	...	273,985	273,985
Flaxseed	...	561,180	561,180	...	1,665,656	1,665,656
Buckwheat	...	7,053	7,053	...	79,125	79,125
Peas	...	68,654	68,654	...	78,649	78,649

[1] Western grain in bushels of 50 lb. [2] In bushels of 45 lb.

Lake Shipments of Grain.—The 1963 navigation season opened at the Canadian Lakehead on Apr. 19 and closed on Dec. 19, the latest closing since the early 1920's. During the season, total vessel shipments of wheat, oats, barley, rye, flaxseed, buckwheat and peas amounted to 348,446,000 bu., 40 p.c. more than the 249,692,000 bu. shipped during the 1962 navigation season, which opened on Apr. 22 and closed on Dec. 13.

22.—Lake Shipments of Canadian Grain from Fort William-Port Arthur, Navigation Season 1962 and 1963

Grain	1962				1963			
	To Canadian Ports	To U.S. Ports	To Foreign Ports	Total Shipments	To Canadian Ports	To U.S. Ports	To Foreign Ports	Total Shipments
Wheat.....bu.	173,991,505	1,842,045	7,081,614	182,915,164	241,882,665	1,020,857	8,182,992	251,086,514
Oats..... "	21,398,044	158,868	1,366,129	22,923,041	34,508,681	460,660	7,509,482	42,478,823
Barley..... "	23,627,148	3,469,039	2,638,544	29,734,731	34,310,518	6,533,403	2,857,645	43,701,566
Rye ..... "	2,306,651	1,104,708	2,711,190	6,122,549	1,735,903	770,066	1,219,446	3,725,415
Flaxseed..... "	6,607,024	—	1,357,733	7,964,757	5,551,317	—	1,807,735	7,359,052
Buckwheat.... "	31,860	—	—	31,860	85,321	—	—	85,321
Peas..... "	—	—	—	—	—	—	9,515	9,515
Totals....bu.	**227,962,232**	**6,574,660**	**15,155,210**	**249,692,102**	**318,074,405**	**8,784,986**	**21,586,815**	**348,446,206**
Sample grain...lb.	18,253,250	—	—	18,253,250	20,625,865	—	—	20,625,865
Screenings.....ton	40,339	—	20,064	60,403	43,412	—	15,318	58,730

Wheat Flour.—Production of wheat flour in the crop year 1962-63 amounted to 35,505,000 cwt., about 10 p.c. less than in the previous crop year. Similarly, wheat milled for flour at 78,789,000 bu. was 11 p.c. less than during 1961-62. Of the latter, about 70,065,000 bu. were Western Canadian spring wheat (other than Durum) and the remainder consisted of Ontario winter wheat, Durum and 'other'. Based on a daily operating potential of some 169,000 cwt., utilization of milling capacity averaged 70.0 p.c. in 1962-63 compared with 81.5 p.c. in the preceding year. Exports of wheat flour during the 1962-63 crop year amounted to 11,854,000 cwt., 15 p.c. lower than in 1961-62.

23.—Wheat Milled for Flour, and Production and Exports of Wheat Flour, Five-Year Averages 1940-60 and Crop Years Ended July 31, 1961-63

Crop Year (Aug. 1—July 31)	Wheat Milled for Flour	Wheat Flour Production	Wheat Flour Exports	
			Amount	P.C. of Production
	'000 bu.	cwt.	cwt.	
Av. 1940-41 — 1944-45	99,705	43,908,245	23,699,546	54.0
Av. 1945-46 — 1949-50	107,330	47,011,540	25,819,721	54.9
Av. 1950-51 — 1954-55	100,446	43,847,894	21,812,041	49.7
Av. 1955-56 — 1959-60	90,148	39,752,589	16,349,155	41.1
1960-61	89,731	39,914,644	15,513,836	38.9
1961-62	88,241	39,539,651	13,892,676	35.1
1962-63	78,789	35,505,220	11,854,458	33.4

Subsection 2.—Livestock Marketings*

The number of cattle marketed and graded at stockyards and packing plants was about 3 p.c. higher in 1963 than in 1962. However, with reduced exports of live cattle, the total commercial movement as reported by the Canada Department of Agriculture was down slightly. The number of calves marketed decreased about 7 p.c., sheep 10 p.c. and hog carcasses graded at approved and inspected plants more than 1 p.c. from the 1962 volume. A moderate increase in the shipment of cattle, calves, sheep and lambs back to farms from stockyards and plants reflected increased feedlot activity. With a higher percentage of cattle being fattened on grain, the average weight of carcasses in inspected slaughter increased to 542.7 lb. from 529.5 lb. in 1962 and was the highest on record. There was also an appreciable increase in the percentage of beef carcasses in the top-quality grades. To a lesser extent, an increase in quality of marketings was also reflected in lamb and hog carcass gradings.

* More detailed information is available from DBS annual report *Livestock and Animal Products Statistics* (Catalogue No. 23-203), and the Department of Agriculture publication *Livestock Market Review*. Statistics of livestock and poultry are given on pp. 473-477 of this edition of the Year Book.

24.—Livestock Marketed at Stockyards and Packing Plants, by Grade, 1959-63

(Exclusive of Newfoundland)

Livestock	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Cattle	**2,161,628**	**2,322,626**	**2,532,248**	**2,493,814**	**2,567,475**
Steers—					
Choice	327,721	431,697	511,744	476,883	618,100
Good	228,790	238,920	271,077	231,158	241,796
Medium	150,547	172,080	163,484	160,971	155,543
Common	52,852	51,648	55,603	56,404	51,916

24.—Livestock Marketed at Stockyards and Packing Plants, by Grade, 1959-63—concluded

Livestock	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Cattle—concluded					
Heifers—					
Choice	62,043	100,818	116,670	101,667	113,706
Good	98,354	106,436	104,101	105,913	103,383
Medium	111,766	116,918	106,642	112,796	107,274
Common	64,585	57,737	57,596	56,673	50,095
Fed calves	100,020	97,250	85,845	82,442	63,263
Cows	534,581	548,412	566,045	642,781	590,797
Bulls	66,276	71,079	74,045	69,515	60,754
Feeder steers	286,144	267,209	323,932	307,883	323,417
Stock and feeder cows and heifers	77,949	62,422	95,464	88,728	87,431
Calves	**881,963**	**864,928**	**918,990**	**984,237**	**916,068**
Veal—					
Good and choice	157,992	158,069	173,071	211,444	202,602
Common and medium	460,184	484,632	423,613	431,041	424,217
Grass	56,606	60,674	51,196	48,676	36,850
Stocker	207,181	161,553	271,110	293,076	252,399
Hog Carcass Gradings	**8,568,217**	**6,764,196**	**6,448,956**	**6,593,945**	**6,520,828**
"A"	2,530,973	2,064,623	2,105,855	2,299,956	2,384,686
"B"	4,138,572	3,141,647	2,917,488	2,947,274	2,882,431
"C"	873,791	724,189	613,412	543,769	494,985
"D"	69,696	46,726	39,306	47,597	37,159
Heavy	184,586	222,683	212,903	216,085	227,475
Extra heavy	111,176	78,579	77,960	77,472	78,938
Light	198,478	198,771	152,966	168,171	125,400
Sows	388,861	231,753	278,563	240,253	234,302
Injured, ridglings and stags	72,084	55,225	50,503	53,368	45,452
Lambs and Sheep Graded Alive	**480,314**	**479,985**	**442,299**	**72,744**	**64,419**
Lamb and Sheep Carcass Gradings	**83,115**	**72,233**	**161,115**	**499,279**[1]	**450,501**

[1] Lamb carcasses.

25.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export, by Province, 1962 and 1963

(Exclusive of Newfoundland)

Year and Livestock	Maritime Provinces	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1962								
Cattle	**46,765**	**122,260**	**845,168**	**220,073**	**507,887**	**875,932**	**86,446**	**2,704,531**
Totals to stockyards	4,390	70,998	440,177	137,496	312,915	487,960	10,498	1,464,434
Direct to packers	40,428	49,587	364,083	80,548	126,029	330,208	38,497	1,029,380
Direct for export	1,373	1,675	40,873	1,844	57,822	51,810	27,300	182,697
Country points in other provinces[1]	574	—	35	185	11,121	5,954	10,151	28,020
Calves	**22,879**	**312,834**	**236,819**	**93,182**	**214,450**	**238,888**	**18,414**	**1,137,466**
Totals to stockyards	5,653	88,708	98,081	65,649	141,366	140,943	4,116	544,516
Direct to packers	13,885	211,542	121,109	25,342	13,393	48,166	6,284	439,721
Direct for export	201	12,584	17,588	1,982	19,734	2,183	681	54,953
Country points in other provinces[1]	3,140	—	41	209	39,957	47,596	7,333	98,276
Hogs	**172,292**	**1,336,739**	**2,402,217**	**467,086**	**512,908**	**1,674,672**	**32,050**	**6,597,964**
Totals to stockyards	—	74,331	319,556	75,276	58,233	151,146	28	678,570
Direct to packers	171,614	1,262,407	2,079,878	391,804	454,622	1,523,031	32,019	5,915,375
Direct for export	678	1	2,783	6	53	495	3	4,019
Sheep and Lambs	**38,664**	**70,770**	**157,070**	**35,815**	**69,058**	**205,401**	**31,271**	**608,049**
Totals to stockyards	962	5,920	67,812	13,443	21,513	37,228	698	147,576
Direct to packers	37,684	64,836	88,483	22,322	36,280	144,451	30,391	424,447
Direct for export	18	14	775	—	1,061	16,662	72	18,602
Country points in other provinces[1]	—	—	—	50	10,204	7,060	110	17,424

For footnote, see end of table, p. 872.

25.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export, by Province, 1962 and 1963—concluded

Year and Livestock	Maritime Provinces	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1962—concluded								
Total Inward Movement—[2]								
Cattle	180	1,931	112,247	29,765	56,306	172,231	2,959	375,619
Calves	89	938	167,963	5,306	14,421	62,750	1,035	252,502
Sheep and lambs	—	564	17,316	2,457	1,483	8,169	733	30,722
1963								
Cattle	**35,356**	**125,158**	**882,333**	**257,086**	**467,798**	**864,648**	**65,563**	**2,697,942**
Totals to stockyards	812	72,289	444,229	158,278	289,841	458,089	10,492	1,434,030
Direct to packers	32,917	51,803	398,782	95,938	138,251	382,346	33,408	1,133,445
Direct for export	1,490	1,066	39,322	2,717	27,947	18,371	14,905	105,818
Country points in other provinces[1]	137	—	—	153	11,759	5,842	6,758	24,649
Calves	**15,542**	**317,963**	**240,303**	**90,198**	**168,367**	**198,056**	**15,998**	**1,046,427**
Totals to stockyards	2,564	83,686	104,586	65,725	111,565	116,720	3,419	488,265
Direct to packers	11,089	218,725	122,288	23,223	9,330	36,531	6,617	427,803
Direct for export	295	15,552	13,429	976	7,194	756	160	38,362
Country points in other provinces[1]	1,594	—	—	274	40,278	44,049	5,802	91,997
Hogs	**176,777**	**1,514,418**	**2,647,771**	**436,895**	**369,194**	**1,350,494**	**28,272**	**6,523,821**
Totals to stockyards	—	62,571	415,605	57,536	44,993	111,975	135	692,815
Direct to packers	176,308	1,451,847	2,229,652	379,356	324,201	1,238,515	28,134	5,828,013
Direct for export	469	—	2,514	3	—	4	3	2,993
Sheep and Lambs	**29,969**	**56,343**	**144,205**	**34,496**	**59,015**	**177,089**	**35,363**	**536,480**
Totals to stockyards	268	3,002	72,969	12,243	20,727	34,952	624	144,785
Direct to packers	29,191	53,340	70,690	21,434	29,088	133,278	33,114	370,135
Direct for export	510	1	546	6	78	2,838	1,407	5,386
Country points in other provinces[1]	—	—	—	813	9,122	6,021	218	16,174
Total Inward Movement—[2]								
Cattle	16	2,454	112,963	36,046	59,733	183,887	3,972	399,071
Calves	3	592	169,346	3,649	24,753	79,372	713	278,428
Sheep and lambs	—	587	18,008	2,122	993	10,137	233	32,080

[1] Livestock billed through stockyards to country points outside province of origin. [2] Movement to farms from stockyards and plants and shipments on through-billings from country points in one province to country points in another province.

Section 3.—Warehousing and Cold Storage

The available statistics on warehousing, normally carried under the heading of Warehousing and Cold Storage, include statistics of the licensed storage of grain; cold storage facilities without which perishable foods such as meats, dairy products, fish and fruits could not be exchanged or distributed on a wide scale, and stocks of food commodities on hand in dairy factories and cold storage warehouses at certain times of the year; storage of petroleum and petroleum products; public and customs warehouses; and bonded warehouses, which specialize in the storage of tobacco and alcoholic liquors and are under the strict surveillance of Federal Government excise officers.

In this issue of the Year Book, only licensed grain storage data and statistics of the warehousing industry are carried. Reference may be made to the 1963-64 Year Book, pp. 867-871 for information on the other types of storage and later statistics may be obtained from the following sources: cold storage and storage of food—Economics Division of the Canada Department of Agriculture; storage of petroleum and petroleum products—Public Utilities Section of the Public Finance and Transportation Division, DBS; customs warehouses—Port Administration Branch of the Department of National Revenue; and bonded warehousing—Industry Statistics Section of the Industry Division, DBS.

Subsection 1.—Licensed Grain Storage

Total grain storage capacity in Canada, licensed under the provisions of the Canada Grain Act by the Board of Grain Commissioners for Canada, amounted to 647,706,000 bu. at Dec. 1, 1962 and represented a decrease of 4,406,000 bu. from the capacity at Dec. 1, 1961. A decline of some 5,000,000 bu. in the capacity of western country elevators, as well as relatively small reductions in the capacities at the Pacific Coast and at lower Lake and upper St. Lawrence ports, more than offset an increase at lower St. Lawrence ports and at interior, private and mill positions.

At the beginning of the crop year 1962-63, stocks of grain in commercial positions were some 116,000,000 bu. less than those of a year previous, with about 94,000,000 bu. of this total recorded in country elevators. As a result, marketings were heavy early in the crop year and quotas were advanced as additional space became available. With the exception of the months of February and March, delivery quotas were increased fairly regularly throughout the crop year and, by June 24, 1963, slightly more than half of the operating delivery points in the Western Division were on a 12-bu. quota. Marketings were heavy during June and July as producers, acknowledging the indications of above-normal yields, took advantage of delivery privilege to reduce farm stocks. As indicated in Table **26**, the proportion of occupied licensed storage capacity rose from 56.3 p.c. at July 31, 1962 to 78.8 p.c. at the same date in 1963.

26.—Licensed Grain Storage Capacity and Grain in Store, Crop Years 1961-62 and 1962-63

Crop Year and Storage Position	Licensed Storage Capacity	Canadian Grain in Licensed Storage			Proportion of Licensed Storage Capacity Occupied		
	Dec. 1, 1961	Nov. 29, 1961	Mar. 28, 1962	July 31, 1962	Nov. 29, 1961	Mar. 28, 1962	July 31, 1962
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.
1961-62							
Western country	373,458	250,771	193,420	194,611	67.1	51.8	52.1
Interior, private and mill	17,951	10,608	10,471	9,065	59.1	58.3	50.5
Interior, terminals	18,100	13,538	12,680	9,093	74.8	70.1	50.2
Pacific Coast	24,906	14,058	11,365	13,614	56.4	45.6	54.7
Churchill	5,000	4,829	4,829	4,400	96.6	96.6	88.0
Fort William–Port Arthur	101,741	53,258	80,935	75,509	52.3	79.6	74.2
Georgian Bay and upper Lake ports	36,566	27,819	23,342	19,764	76.1	63.8	54.1
Lower Lake and upper St. Lawrence ports	21,480	11,032	9,952	10,816	51.4	46.3	50.4
Lower St. Lawrence ports	45,680	33,386	21,080	26,803	73.1	46.1	58.7
Maritime ports (excl. Newfoundland)	7,229	6,497	2,536	3,534	89.9	35.1	48.9
Totals, 1961-62	**652,112**	**425,795**	**370,608**	**367,208**	**65.3**	**56.8**	**56.3**
	Dec. 1, 1962	Nov. 28, 1962	April 3, 1963	July 31, 1963	Nov. 28, 1962	April 3, 1963	July 31, 1963
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.
1962-63							
Western country	368,410	249,315	254,881	316,233	67.7	69.2	85.8
Interior, private and mill	18,034	11,100	11,108	10,606	61.6	61.6	58.8
Interior, terminals	18,100	8,361	6,706	5,930	46.2	37.0	32.8
Pacific Coast	24,846	17,092	14,966	16,470	68.8	60.2	66.3
Churchill	5,000	4,845	4,857	4,159	96.9	97.1	83.2
Fort William–Port Arthur	101,741	40,595	90,545	79,675	39.9	89.0	78.3
Georgian Bay and upper Lake ports	36,566	28,286	20,993	29,170	77.4	57.4	79.8
Lower Lake and upper St. Lawrence ports	20,100	10,728	10,128	10,755	53.4	50.4	53.5
Lower St. Lawrence ports	47,680	36,947	22,408	32,350	77.5	47.0	67.8
Maritime ports (excl. Newfoundland)	7,229	5,684	2,221	4,734	78.6	30.7	65.5
Totals, 1962-63	**647,706**	**412,955**	**438,813**	**510,080**	**63.8**	**67.7**	**78.8**

Subsection 2.—The Public Warehousing Industry

The summary statistics of the warehousing industry presented in Table 27 cover the operations of the majority of firms offering general merchandise and refrigerated storage facilities to the public. Associations and organizations such as co-operatives operating warehouses or storages for their own members are not included nor are packing houses and other firms operating storage facilities in connection with their respective businesses. Small food lockers are not included except where they may be part of a general warehousing business.

27.—Summary Statistics of Warehousing of General Merchandise and Refrigerated Goods, 1959-63

Item		1959[1]	1960	1961	1962	1963
Companies reporting	No.	204	111	108	104	138
Investment in land, warehouses, etc.	$	68,834,854	64,896,124	68,178,081	65,173,924	83,930,051
Warehousing Facilities—						
General merchandise[2]	cu. ft.	76,995,721	50,485,820	55,527,385	53,723,491	77,108,607
Refrigerated goods	"	32,550,680	30,653,893	32,058,659	34,918,978	45,259,631
Revenue—						
Storage	$	17,841,405	16,335,325	15,931,824	15,906,836	20,883,783
Cartage and moving	$	15,499,509	9,883,741	8,953,590	7,287,727	6,428,081
Miscellaneous	$	14,748,085	6,028,315	6,547,492	6,773,633	9,394,843
Total Revenue	$	48,088,999	32,247,381	31,432,906	29,968,196	36,706,707
Operating expenses	$	43,262,593	29,496,885	29,314,749	27,784,302	33,679,586
Net Operating Revenue	$	4,826,406	2,750,496	2,118,157	2,183,894	3,027,121
Employees, average	No.	6,441	3,734	3,560	3,137	4,033
Salaries and wages	$	22,880,612	15,418,560	14,573,924	14,141,772	17,277,613
Motor Vehicles—						
Trucks	No.	1,570	969	783	634	602
Tractors	"	353	173	158	148	130
Trailers and semi-trailers	"	477	228	221	206	158

[1] Includes household goods storage operators, compiled separately from 1960 (see p. 783). [2] Includes storage space for household goods amounting to 21,601,800 cu. ft. in 1959; 1,574,600 cu. ft. in 1960; 1,608,700 cu. ft. in 1961; 997,900 cu. ft. in 1962; and 900,000 cu. ft. in 1963.

Section 4.—Co-operative Organizations*

Canadian co-operative activities continued to be dominated by marketing and purchasing associations, which did a volume of business, including other revenue, amounting to $1,372,605,000 during the year ended July 31, 1962. Other revenue, which included payment for services provided by the co-operatives such as grinding, chopping, trucking and revenue for rent, interest dividends and commissions, accounted for $20,801,000.

Membership in marketing and purchasing associations showed a slight rise in 1962 but the number of associations decreased from 1,914 in the previous year to 1,877, mostly through amalgamations, and the number of places of business declined from 5,473 to 5,165. Total sales of farm products was the lowest since 1958 but sales of supplies were at a record high. However, the increase in sales of supplies was not sufficient to counteract the drop in sales of products and the total business therefore was down by 4 p.c. Most of the decrease in the sales of products took place in Ontario, although lower sales were also reported in Manitoba, Saskatchewan and Prince Edward Island. Saskatchewan accounts for the greatest value of farm products marketed co-operatively; sales in that province

* Revised by the Economics Division, Canada Department of Agriculture, Ottawa.

totalled $275,209,000 in 1962 and of that amount grain and seed sales accounted for 60 p.c. Of the total sales for Canada, grain and seed sales accounted for 42 p.c., dairy product sales for 26 p.c., livestock sales for 22 p.c., and sales of eggs and poultry and fruits and vegetables for most of the remainder. Members' equity in marketing and purchasing co-operatives decreased by $7,370,000 in 1962 and a decrease of $41,404,000 was recorded in liabilities to the public.

Wholesale co-operatives are federations of local co-operatives which act as central marketing agencies for farm products and as wholesalers of farm supplies, machinery and consumer goods. Such associations had assets amounting to $106,981,000 in 1962, of which members' equity represented 34 p.c., and reported sales of supplies and farm products amounting to $337,791,000, an increase of 7 p.c. over 1961.

In addition to the above-mentioned associations, there were 869 service co-operatives in 1962 providing a wide range of functions such as housing, rural electrification, medical insurance, transportation, grazing, custom grinding, seed cleaning, operation of farm machinery and restaurant operation. These associations had a total membership of 297,616 and assets amounting to $106,668,000, compared with a membership of 294,249 and assets of $110,066,000 in 1961. Fishermen's co-operatives operate in all provinces except Manitoba and in 1962 reported a membership of 9,239, sales of fish amounting to $18,428,000 and sales of supplies amounting to $1,545,000; comparable figures for 1961 were 9,593, $16,480,000 and $1,739,000, respectively.

An important development in this field is the growth of co-operatives among the Eskimo population in the Canadian North. Fourteen co-operatives were reported in 1962 with a membership of 500, which means that many families were participating in co-operative activities. Thirteen of these organizations are of a multi-purpose nature, engaged in a great variety of activities, and one is a housing co-operative. Nine of the co-operatives reported sales of $457,631, share capital of $52,178, statutory reserve of $55,768 and undistributed savings of $74,216.

28.—Summary Statistics of Co-operative Marketing and Purchasing Associations, Crop Years Ended July 31, 1953-62

Crop Year Ended July 31—	Associations	Places of Business	Shareholders or Members	Sales of Farm Products	Sales of Supplies	Total Business[1]
	No.	No.	No.	$'000	$'000	$'000
1953	2,221	4,987	1,195,985	874,698	245,630	1,147,590
1954	2,086	4,510	1,196,426	733,012	234,583	986,298
1955	1,949	5,016	1,199,808	704,047	228,446	941,378
1956	2,041	5,171	1,255,788	823,389	258,752	1,092,516
1957	2,022	5,023	1,363,470	817,601	283,730	1,116,002
1958	2,002	5,135	1,321,304	898,168	296,743	1,209,805
1959	1,982	5,267	1,290,462	963,330	332,943	1,315,167
1960	1,934	5,537	1,319,187	973,958	368,090	1,362,596
1961	1,914	5,473	1,324,270	1,019,819	391,761	1,430,197
1962	1,877	5,165	1,358,962	928,502	423,302	1,372,605

[1] Includes other revenue.

29.—Summary Statistics of Co-operative Marketing and Purchasing Associations, by Province, Crop Years Ended July 31, 1961 and 1962

Province and Year	Associations	Shareholders or Members	Sales of Products	Sales of Merchandise	Total Business[1]
	No.	No.	$'000	$'000	$'000
Newfoundland 1961	47	8,763	50	5,271	5,527
1962	56	9,105	57	5,782	6,147
Prince Edward Island 1961	21	6,454	3,309	4,955	8,350
1962	19	6,090	2,915	4,717	7,745
Nova Scotia 1961	88	26,539	10,987	19,409	30,900
1962	84	25,952	16,032	19,806	36,446
New Brunswick 1961	54	14,173	9,384	9,581	19,169
1962	56	15,033	9,780	10,526	20,560
Quebec 1961	585	95,572	119,976	90,050	212,263
1962	548	93,545	123,705	101,331	227,794
Ontario 1961	280	159,084	173,046	74,053	251,369
1962	265	112,262	89,171	78,257	171,152
Manitoba 1961	110	145,200	105,173	29,120	136,729
1962	108	169,578	93,424	30,520	126,413
Saskatchewan 1961	436	482,457	289,762	82,750	378,657
1962	450	531,792	275,209	84,646	366,560
Alberta 1961	183	211,205	169,008	34,883	205,213
1962	192	221,910	185,782	42,007	229,881
British Columbia 1961	104	58,448	59,342	28,469	88,557
1962	93	52,620	60,091	30,215	91,560
Interprovincial 1961	6	116,375	79,782	13,220	93,463
1962	6	121,075	72,336	15,495	88,347
Totals 1961	**1,914**	**1,324,270**	**1,019,819**	**391,761**	**1,430,197**
1962	**1,877**	**1,358,962**	**928,502**	**423,302**	**1,372,605**

[1] Includes other revenue.

30.—Products Handled by Marketing and Purchasing Co-operatives, Crop Years Ended July 31, 1961 and 1962

Product	1961		1962	
	Associations[1]	Value of Sales	Associations[1]	Value of Sales
	No.	$'000	No.	$'000
Marketing	**947**	**1,019,819**	**902**	**928,502**
Dairy products	394	229,664	362	240,166
Fruits and vegetables	123	33,581	108	38,464
Grains and seeds	89	427,190	77	386,492
Livestock and livestock products	357	270,469	334	204,019
Eggs and poultry	156	44,640	133	43,494
Honey	9	3,468	8	3,968
Tobacco	3	2,015	3	2,017
Wool	15	1,460	10	1,491
Fur	5	448	16	735
Forest products	39	3,027	37	3,054
Miscellaneous	73	3,857	68	4,602
Merchandising	**1,480**	**391,761**	**1,456**	**423,302**
Food products	810	106,800	813	114,605
Clothing and home furnishings	507	12,424	525	13,411
Hardware	708	26,206	786	32,088
Petroleum products and auto accessories	651	70,400	670	71,972
Feed, fertilizer and spray material	924	123,681	1,005	131,859
Machinery and equipment	250	15,895	272	19,344
Building material	529	24,710	516	24,510
Miscellaneous	557	11,645	558	15,513
Totals	**2,427**	**1,411,580**	**2,358**	**1,351,804**

[1] Duplication exists as some associations market more than one product.

Section 5.—Interprovincial Freight Movements*

Statistics relating to interprovincial freight movements are difficult to collect since there are no controls over, or barriers to, such trade. Interprovincial freight traffic statistics are available for loadings and unloadings of goods carried by rail, water, motor transport and pipeline.

Details of railway freight movement are confined to tons loaded and unloaded by province and contain a certain amount of import and export of goods shipped by water. The figures given in Table **31**, however, do not give a precise measure of total interprovincial freight movement by rail; they indicate only the net interprovincial movement of railway freight, which is but one aspect of that trade. For water-borne traffic, Table **32** shows tonnages of all cargoes unloaded at Canadian ports in both interprovincial and intraprovincial trade, by province of origin. Interprovincial and international traffic carried by Canadian registered trucks is shown in Table **33**. Pipeline statistics are given in the Transportation Chapter, p. 818-823.

* Revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

31.—Railway Revenue Freight Movement, by Province,[1] 1962 and 1963

Province	Loaded		Received from U.S.A. Rail Connections		Totals Carried	
	1962	1963	1962	1963	1962[2]	1963
	tons	tons	tons	tons	tons	tons
Newfoundland	1,597,783	1,549,526	—	—	1,597,783	1,549,526
Prince Edward Island	334,660	357,975	—	—	334,660	357,975
Nova Scotia	10,464,247	11,354,802	—	—	10,464,247	11,354,802
New Brunswick	3,878,569	3,966,593	208,735	206,593	4,087,304	4,173,186
Quebec	36,396,140	41,688,845	2,641,332	2,618,629	39,037,472	44,307,474
Ontario	38,926,399	39,387,294	17,512,399	17,848,527	56,438,798	57,235,821
Manitoba	6,136,537	7,290,910	330,095	347,887	6,466,632	7,638,797
Saskatchewan	12,314,017	16,173,480	181,060	190,299	12,495,077	16,363,779
Alberta	12,213,938	12,427,165	225,722	190,035	12,439,660	12,617,200
British Columbia	12,765,976	13,563,991	1,092,681	1,177,333	13,858,657	14,741,324
Totals	**135,028,266**	**147,760,581**	**22,192,024**	**22,579,303**	**157,220,290**	**170,339,884**

Province	Unloaded		Delivered to U.S.A. Rail Connections		Totals Terminated	
	1962	1963	1962	1963	1962[2]	1963
	tons	tons	tons	tons	tons	tons
Newfoundland	1,958,133	1,776,597	—	—	1,958,133	1,776,597
Prince Edward Island	417,552	454,476	—	—	417,552	454,476
Nova Scotia	9,833,757	9,972,934	—	—	9,833,757	9,972,934
New Brunswick	3,988,803	4,134,076	354,674	392,424	4,343,477	4,526,500
Quebec	35,722,789	40,945,030	5,105,468	5,099,131	40,829,257	46,044,161
Ontario	44,907,195	48,515,141	20,174,831	20,817,798	65,082,026	69,332,939
Manitoba	6,177,982	6,220,394	741,299	881,284	6,919,281	7,101,678
Saskatchewan	3,785,966	4,370,127	1,732,571	1,846,773	5,518,537	6,216,900
Alberta	6,827,154	6,510,785	36,692	37,623	6,863,846	6,548,408
British Columbia	13,558,252	15,654,097	1,976,923	2,096,300	15,535,175	17,750,397
Totals	**127,177,583**	**138,553,657**	**30,123,458**	**31,171,333**	**157,301,041**	**169,724,990**

[1] Class I and II railways operating in Canada. [2] Freight terminated exceeds totals carried due to tonnages originated by non-reporting industrial railways which are delivered to common carrier lines for further haul and unloading.

32.—Tonnage of Cargo Loaded and Unloaded at Canadian Ports in Interprovincial Trade, by Province, 1962 and 1963

Year and Province of Unloading	Province of Loading								Canada
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	B.C. and N.W.T.	
	tons	tons	tons	tons	tons	tons	tons	tons	tons
1962									
Nfld.	846,175	20,854	921,085	69,489	238,645	31,297	—	4,854	2,132,399
P.E.I.	44	32	168,380	147,722	32,892	8,166	—	—	357,236
N.S.	716,189	20,934	178,940	301,699	362,098	143,125	—	—	1,722,985
N.B.	322	49,195	603,943	125,019	271,856	27,875	—	3,993	1,082,203
Que.	235,855	32,022	2,108,593	256,032	4,938,652	5,219,554	10,984	19,419	12,821,111
Ont.	10,251	—	138,365	—	2,104,850	9,864,240	3,346	60	12,121,112
Man.	—	—	—	—	320	—	18	12,655	12,993
B.C. and N.W.T.	2,228	—	—	—	38,890	—	1,709	13,476,554	13,519,381
Totals, 1962	**1,811,064**	**123,037**	**4,119,306**	**899,961**	**7,988,203**	**15,294,257**	**16,057**	**13,517,535**	**43,769,420**
1963									
Nfld.	354,160	13,528	892,395	92,430	185,419	7,695	—	3,315	1,548,952
P.E.I.	29	—	147,656	74,691	34,814	7,212	—	—	264,402
N.S.	868,848	18,986	184,162	279,938	219,405	218,129	—	922	1,790,390
N.B.	3,787	35,368	590,995	171,784	303,364	13,658	—	1,618	1,120,574
Que.	183,512	21,301	1,619,528	295,305	4,085,854	7,028,171	12,057	14,078	13,259,806
Ont.	25,129	—	228,082	—	2,071,336	10,314,511	2,817	—	12,641,875
Man.	—	—	—	—	14	—	—	145	159
B.C. and N.W.T.	706	—	1,191	—	39,559	—	1,427	14,108,930	14,151,813
Totals, 1963	**1,436,171**	**89,193**	**3,664,009**	**914,148**	**6,939,765**	**17,589,376**	**16,301**	**14,129,008**	**44,777,971**

33.—Interprovincial and International Traffic by Canadian Registered Trucks, 1961 and 1962

To— Year and Province or Territory	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	United States	Total
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
1961										
From—										
Atlantic Provinces	—	59	4	—	—	—	—	—	157	220
Quebec	74	—	1,070	6	1	61	2	—	224	1,438
Ontario	13	1,054	—	137	41	152	26	—	451	1,874
Manitoba	—	5	202	—	186	76	11	—	13	493
Saskatchewan	—	3	11	333	—	62	—	—	6	415
Alberta	—	64	108	60	138	—	283	54	19	726
British Columbia	—	—	20	12	42	214	—	64	166	518
Yukon and Northwest Territories	—	—	—	—	—	9	13	—	—	22
United States	34	315	584	27	1	23	381	—	—	1,365
Totals, 1961	**121**	**1,500**	**1,999**	**575**	**409**	**597**	**716**	**118**	**1,036**	**7,071**
1962										
From—										
Atlantic Provinces	—	63	17	—	—	—	—	—	145	225
Quebec	69	—	1,036	35	—	80	—	—	406	1,626
Ontario	27	1,120	—	164	25	120	18	—	699	2,173
Manitoba	—	36	250	—	264	126	5	—	31	712
Saskatchewan	—	2	6	324	—	91	8	—	12	443
Alberta	—	82	62	110	193	—	331	42	24	844
British Columbia	—	6	33	6	15	268	—	107	508	943
Yukon and Northwest Territories	—	—	—	—	—	6	30	—	—	36
United States	37	195	676	19	10	34	127	—	—	1,098
Totals, 1962	**133**	**1,504**	**2,080**	**658**	**507**	**725**	**519**	**149**	**1,825**	**8,100**

PART II.—GOVERNMENT AIDS TO AND CONTROL OF DOMESTIC TRADE

Section 1.—Controls Affecting the Marketing of Farm Products

Subsection 1.—Control of the Grain Trade

The agencies exercising control of the grain trade in Canada include the Board of Grain Commissioners which, since 1912, has administered the provisions of the Canada Grain Act, and the Canadian Wheat Board which operates under the Canadian Wheat Board Act, 1935.

The Board of Grain Commissioners.*—The Board of Grain Commissioners was established in 1912 under the authority of the Canada Grain Act, 1912 (RSC 1952, cc. 25 and 308 and amendments). It is a quasi-judicial and administrative body of three—a Chief Commissioner and two Commissioners—reporting to the Minister of Agriculture.

The Canada Grain Act has been called the Magna Charta of the Canadian grain trade or, more particularly, of the Canadian farmer, and the Board's chief duties are to ensure that the rights conferred on the different parties by the provisions of the Act are properly protected. Transportation of grain is restricted except from or to licensed elevators, and restriction is placed on the use of established grade names. The Act does not provide for any control or supervision of grain exchanges and the Board of Grain Commissioners has no power or duties in the matter of grain prices.

The Board manages and operates, under semi-public terminal licences, the Canadian Government elevators situated at Moose Jaw and Saskatoon, Sask., Lethbridge, Edmonton and Calgary, Alta., and Prince Rupert, B.C. The Executive Offices of the Board and other principal offices are situated at Winnipeg, Man., but branch offices are maintained at numerous points from Montreal in the east to Victoria in the west. Total personnel is approximately 1,100, including elevator staff.

On a fee basis, the Board provides official inspection (see p. 868), grading and weighing of grain, and registration of warehouse receipts. All operators of elevators in Western Canada and of elevators in Eastern Canada that handle western-grown grain for export, as well as all parties operating as grain commission merchants, track buyers of grain, or as grain dealers, are required to be licensed by the Board annually and to file security by bond or otherwise as a guarantee for the performance of all obligations imposed upon them by the Canada Grain Act or by the regulations of the Board.

To protect the rights of the different parties, the Board has jurisdiction to inquire into and is empowered to give direction regarding any matter relating to the grading or weighing of grain; deductions made from grain for dockage; shortages on delivery of grain into or out of elevators; unfair or discriminatory operation of any elevator; refusal or neglect of any person to comply with any provision of the Canada Grain Act; and any other matter arising out of the performance of the duties of the Board.

In the Prairie Provinces the Board maintains four Assistant Commissioners—one in Alberta, two in Saskatchewan and one in Manitoba. These Assistant Commissioners investigate complaints of producers and inspect periodically the country elevators in their respective provinces; all elevators with their equipment and stocks of grain are subject at any time to inspection by officials of the Board.

The Board sets up, annually, Committees on Grain Standards and also appoints Grain Appeal Tribunals to give final decisions in cases where appeals are made against the grading of grain by the Board's inspection officials. To assist in maintaining the uniform quality of the top grades of Red Spring wheat handled through terminal elevators, the Canada Grain Act provides that wheat of these grades shall be stored with grain of like grade only.

* Prepared by W. J. MacLeod, Secretary of the Board of Grain Commissioners for Canada, Winnipeg, Man.

The Grain Research Laboratory, located at Winnipeg, is the main centre of research on the chemistry of Canadian grains. It is well staffed and equipped to provide the service required to help maintain and expand domestic and foreign markets for all types of grain. The Laboratory collects and tests samples of various crops to obtain information on the current quality of all grains shipped during the crop year. Fundamental research is also undertaken; the program is directed toward better understanding of what constitutes quality in cereal grains and toward improvement in the methods of assessing quality.

In addition to its duties under the Canada Grain Act, certain other duties are performed by the Board. Under the provisions of the Inland Water Freight Rates Act (RSC 1952, c. 153), the Board maintains records of rates for the carriage of grain from Fort William or Port Arthur, Ont., by lake or river navigation and is empowered to prescribe maximum rates for such carriage. Under the provisions of the Prairie Farm Assistance Act (RSC 1952, c. 213 as amended), the Board collects from licensees under the Canada Grain Act 1 p.c. of the purchase price of wheat, oats, barley, rye, flax and rapeseed purchased by such licensees.

The Canadian Wheat Board.*—The Canadian Wheat Board was established under the Canadian Wheat Board Act of 1935 for the purpose of "the marketing in an orderly manner, in interprovincial and export trade, of grain grown in Canada" and now operates under RSC 1952, c. 44 as amended. The Board accomplishes its objective through regulation and agreement. It owns no grain handling facilities but, by entering into agreements with the owners of these facilities, it attempts to bring about an orderly flow of grain through each of the steps involved in merchandising the grain from the producer to the domestic or overseas buyer.

In the selling of wheat, the Board utilizes the services of shippers and exporters. In its sales operations, the Board endeavours to meet the wishes of overseas buyers and, on occasion, enters into direct contracts. When an exporter completes an export sale, in his capacity as an agent of the Board, he is responsible for the transaction; he completes the transaction with the buyer and settles with the Board for the purchase of the wheat from the Board.

When the commercial storage facilities are inadequate to handle all the grain produced, it is necessary for the Board to regulate the flow of grain from the producer to these forward positions. The first step is accomplished by the use of producer's delivery permits issued annually by The Canadian Wheat Board. Every delivery of grain made to country elevators by a producer is entered in his permit book. By regulation, the amount of grain delivered by the producer to the country elevator by the use of a quota system and, by apportioning shipping orders to country elevators according to the needs created by sales commitments, the Wheat Board regulates the amount of grain coming into the marketing channel.

The next step is the handling of the grain by the country elevator. The maximum charges for the handling and storing of the grain are set by the Board of Grain Commissioners, but the actual charges are subject to negotiation between the elevator companies and the Wheat Board.

The third step in the marketing process—transporting the grain from the country elevators to large terminal elevators in Eastern Canada, Churchill or on the West Coast—is carried out by the railways. The Wheat Board determines the kinds and grades of grain that are required at the different terminal destinations to meet its sales commitments and informs the elevator companies and the railways of these needs. The maximum tariffs are set by an agreement between the railways and the Government of Canada.

The fourth major step—storing and handling of the grain at terminal elevators—is done in privately or co-operatively owned elevators. Maximum charges are established for this service by the Board of Grain Commissioners.

* Revised by R. L. Kristjanson, Executive Assistant, The Canadian Wheat Board, Winnipeg, Man.

In the case of oats and barley, the Board's operations are less extensive than those relating to wheat. These two grains are sold in store positions at the terminal elevators at Fort William–Port Arthur and Vancouver. Oats and barley are marketed either on a straight cash basis at prices quoted daily by the Board or on the basis of exchange of futures concluded through the facilities of the Winnipeg Grain Exchange. The Board controls the movement of coarse grains to the Lakehead. The private trade is responsible for the movement of oats and barley from Lakehead or Vancouver positions.

The producer receives payment for his wheat, oats and barley in two or three stages. An initial payment price is established early in the crop year by Order in Council. The initial payment price less the cost of handling grain at the local elevator and the transportation costs to the Lakehead or Vancouver is the initial price received by the producer. This price is a guaranteed floor price in that if the Wheat Board, in selling the grain, does not realize this price and the necessary marketing costs, the deficit is borne by the Federal Treasury. However, with very few exceptions, the Wheat Board has operated without financial aid from the Federal Treasury.

After the end of the crop year, but prior to the final payment being made, if the Wheat Board can confidently foresee a surplus accumulating and if authorized by Order in Council, an interim payment is made to producers. This interim payment is the same amount per bushel to all producers of the same grade of grain. When the Board has sold all the grain or otherwise disposed of it in accordance with the Canadian Wheat Board Act, the Board, if authorized by Order in Council, makes a final payment to producers.

Under the Prairie Grain Advance Payments Act, administered by the Board, producers may receive, through their elevator agents, cash advances on farm-stored grain in accordance with a prescribed formula. The purpose of this legislation is to make cash available to producers pending delivery of their grain under delivery quotas established by the Board. Cash advances are interest-free as far as producers are concerned.

Western Canadian producers receive the price for their grain that the Wheat Board receives, less its operating costs including carrying charge, and the general level of prices received by the Board is determined by competitive conditions in world markets. The only subsidy received by the farmer in the Canadian wheat marketing system is the part-payment of storage costs for wheat made by the Government of Canada. Under provisions of the Temporary Wheat Reserves Act, the Minister of Finance, out of the Consolidated Revenue Fund, pays to the Wheat Board the storage costs on wheat in storage at the end of the crop year in excess of 178,000,000 bu.

Subsection 2.—Controls Over Farm Products Other Than Grain*

The Government of Canada and provincial governments have, through legislation and in other ways, given marketing aids such as those related to research, education, information, inspection, grading and many other service measures of this type, designed to assist in making adjustments in marketing within agriculture and between agriculture and the remainder of the economy. Closely related is regulatory action designed to protect the consumer.

Producers have been concerned about another type of market control, namely that which will give their organizations or else a government agency influence over the price received. In a highly specialized commercial agriculture, such as Canada now has, the producer is dependent on the price of his product for his livelihood. Canadian farmers have long attempted to obtain some measure of market control through voluntary organizations, mainly marketing co-operatives. All provinces have made provision for the incorporation of such co-operatives and most, if not all, have provided other assistance to them. In the federal field the Agricultural Products Co-operative Marketing Act encourages marketing under a co-operative plan.

* Prepared in the Economics Division of the Canada Department of Agriculture, Ottawa. A more detailed statement on this subject, including the history of developments leading to the present situation, appears in the 1960 Year Book, pp. 961-966.

Other legislation provides for legal control over the marketing of agricultural products, either by a producer's board or a government agency. Legislation of this type includes that pertaining to milk control boards and marketing boards which is discussed below. Measures pertaining to grain marketing have been reviewed in Subsection 1, pp. 864-870, and the Agricultural Stabilization Act, which provides price support for certain key products is discussed in the Agriculture Chapter, p. 453.

General Marketing Controls.—The federal and provincial departments of agriculture co-operate in establishing and enforcing grades of quality standards for various foods. Some control over size and type of containers used for distribution of agricultural products is exercised by the federal Department of Agriculture and the Department of Trade and Commerce enforces regulations pertaining to weights and measures (see p. 889).

Controls related to health and sanitation in food handling are developed and enforced at all three levels of government—municipal, provincial and federal. Examples of provincial and municipal action include laws pertaining to the pasteurization of milk, inspection of slaughterhouses and sanitary standards in restaurants. At the federal level, inspection by the Health of Animals Branch of the Department of Agriculture of all meat carcasses that enter into interprovincial trade is required. The Food and Drug Directorate of the Department of National Health and Welfare has wide control over the composition of foods sold and over misleading advertising of foods and drugs.

The Agricultural Products Co-operative Marketing Act.—In the late 1930's, the Federal Government decided to assist orderly marketing by encouraging the establishment of pools which would give to the producer the maximum sales return for his product, less a maximum margin for handling expenses agreed upon in advance. Thus, the Agricultural Products Co-operative Marketing Act and the Wheat Co-operative Marketing Act were passed in 1939. The latter was used in one year only but the Agricultural Products Co-operative Marketing Act, which covers the marketing of all agricultural products except wheat, has continuously served agricultural producers since 1939.

The purpose of this Act is to aid farmers in pooling the returns from sale of their products by guaranteeing initial payments and thus assisting in the orderly marketing of the product. The Government will undertake to guarantee a certain minimum initial payment to the producer at the time of delivery of the product, including a margin for handling; sales returns are to be made to the producer on a co-operative plan. The guaranteed initial payment may be up to a maximum of 80 p.c. of the average price paid to producers for the previous three years, the exact percentage to be recommended by the Minister of Agriculture who enters into an agreement with the selling agency for the product.

Agreements have been made under this Act pertaining to a wide variety of agricultural products. With regard to crops produced in 1963, they pertained to apples for processing, forage crop seeds and maple syrup.

Milk Control Legislation.—Most of the provinces enacted milk control legislation before 1940. Many of them finance these milk-control agencies out of public funds, others finance through the collection of licence fees and assessments from those engaged in the fluid milk industry, and some combine the two methods. Most milk-control agencies have authority to carry out some system of licensing which provides for the revocation of such licences if those engaged in the fluid milk business do not conform with the orders of the milk control board.

In all provinces with such boards, the milk control board sets the minimum price which distributors in specified markets may pay producers for Class I milk, that is, milk actually sold for fluid consumption. In Ontario and British Columbia, this minimum price is based on formulas. Most provinces also set either minimum or fixed wholesale and retail prices for fluid milk. The wholesale and retail prices are fixed in Prince Edward Island, Nova Scotia and Saskatchewan; minimum prices are established in New Brunswick, Quebec

and Alberta. However, maximum but not minimum prices are set in Manitoba and no control is exercised over milk prices at the wholesale and retail levels in Ontario and British Columbia. In these three provinces some degree of price competition between store and home delivery sales has developed.

The powers given to or requirements made by milk control boards include: (1) authority to inquire into all matters pertaining to the fluid milk industry, to define market areas, to arbitrate disputes, to examine the books and records of those engaged in the industry, to issue and revoke licences, and to establish a price for milk, and (2) authority to require a bond from distributors, periodic reports from distributors, payments to be made to producers by a certain date each month, distributors to give statements to suppliers, distributors to give notice before ceasing to accept milk from any producer, producers to give notice before ceasing to deliver milk to any distributor, and the prohibition of distributors requiring capital investment from producers.

Thus, fluid milk controls are not only widespread but also numerous. They are generally considered to be administered in the public interest as well as in the interest of those who have regular opportunities to appear before the boards in connection with requests for price changes.

Producer Marketing Boards.—During the 1930's strong support developed for legislation whereby agricultural producers could exercise legal authority under certain conditions to control the marketing of their produce. The Natural Products Marketing Act of 1934 attempted to provide this power at the federal level but proved *ultra vires*. The Natural Products Marketing (British Columbia) Act 1936 was *intra vires* of provincial government powers and provided the model from which marketing board legislation has evolved in all ten provinces.

While marketing board legislation has been revised from time to time on the basis of experience, and there are variations in detail from province to province, the same basic powers are given to producers in all provinces. These powers include authority for a duly constituted producer board to control the marketing of 100 p.c. of a specified commodity produced in a designated area. A producer's board, in at least some provinces, may set production quotas for each farmer as has been done with respect to tobacco in Ontario. One producer's board may control the marketing of several related commodities and the designated area may be either the whole or part of a province. A producer vote is required to establish a producer marketing board whose powers are delegated either by a provincial marketing board, which has certain supervisory authority, or by the Lieutenant-Governor in Council.

The powers of a producers' board provided by provincial legislation are necessarily limited to intraprovincial trade. Under the Agricultural Products Marketing Act, the Federal Government may delegate to a marketing board with respect to interprovincial and export trade similar powers to those obtained with respect to intraprovincial trade under provincial authority. This Act also gives the Governor in Council the right to authorize a provincial marketing board to impose and collect levies from persons engaged in the production and marketing of commodities controlled by it for the purposes of the board, the creation of reserves and equalization of returns.

In mid-1964 there were 80 such marketing boards organized in Canada, 50 of which were in the Province of Quebec and 16 in Ontario; each of the other provinces with the exception of Newfoundland had one or more boards. It is estimated that about one seventh of the 1962 farm cash income was received from sales made under the control of provincial marketing board plans, including the following commodities: hogs, certain dairy products, poultry, wool, tobacco, wheat, soybeans, sugar beets, potatoes, other vegetables, fruits, seed corn, white beans, honey, maple products and pulpwood. As at Apr. 30, 1964, 38 of these provincial boards had received an extension of powers for purposes of interprovincial and export trade from the Federal Government. Four boards had received authority with regard to seven commodities to collect levies in excess of administrative expenses.

The Agricultural Products Marketing Act does not give the local or provincial marketing board any greater control over agencies outside the province than is possible through the control of the commodity by the board and whatever contractual arrangements it may make with such agencies outside the province. It does make it possible, however, for marketing boards to give groups within a province complete marketing control over any commodity produced in that province or any area of the province that may be defined.

Section 2.—Combinations in Restraint of Trade*

The purpose of Canadian anti-combines legislation is to assist in maintaining free and open competition as a prime stimulus to the achievement of maximum production, distribution and employment in a system of free enterprise. To this end, the legislation seeks to eliminate certain practices in restraint of trade that serve to prevent the nation's economic resources from being most effectively used for the advantage of all citizens.

By amendments which came into force on Aug. 10, 1960 (SC 1960, c. 45), all the provisions of the anti-combines legislation which previously had been divided between the Combines Investigation Act (RSC 1952, c. 314) and the Criminal Code were amended and consolidated in the Act. The substantive provisions now are contained in Sects. 2, 32, 33, 33A, 33B, 33C and 34 of the Combines Investigation Act. The Act was enacted in 1923 and was amended extensively in 1935, 1937, 1946, 1949, 1951 and 1952 as well as in 1960.

Sect. 32, generally speaking, forbids in Subsect. (1) combinations that prevent or lessen "unduly" competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of an article of trade or commerce or in the price of insurance. Subsect. (1) derives from Sect. 411 of the Criminal Code which was enacted originally in 1889. While Subsect. (2) provides that no person shall be convicted for participation in an arrangement relating only to such matters as the exchange of statistics or the defining of product standards, etc., Subsect. (3) provides that Subsect. (2) does not apply if the arrangement has lessened or is likely to lessen competition unduly in respect of prices, quantity or quality of production, markets or customers or channels of distribution, or if the arrangement "has restricted or is likely to restrict any person from entering into or expanding a business in a trade or industry". Subsect. (4) provides that, subject to Subsect. (5), no person shall be convicted for participation in an arrangement which relates only to the export trade. Subsect. (5) provides that Subsect. (4) does not apply if the arrangement has had or is likely to have harmful effects on the volume of export trade or on the businesses of Canadian competitors or on domestic consumers.

Sects. 2 and 33 make it an offence to participate in a merger which has or is likely to have the effect of lessening competition to the detriment or against the interest of the public. These Sections also make it an offence to participate in a monopoly that has been operated or is likely to be operated to the detriment or against the interest of the public.

Sect. 33A deals with what are commonly called "price discrimination" and "predatory price cutting". It provides that a supplier may not make a practice of discriminating among those of his trade customers who come into competition with one another by giving one a preferred price which is not available to another if the second is willing to buy in like quantities and qualities as the first; it also forbids a supplier from selling at prices lower in one locality than in another, or unreasonably low anywhere, if the effect or tendency of such policy is to lessen competition substantially or eliminate competitors or the policy is designed to have such effect.

Sect. 33B provides that where a supplier grants advertising or display allowances to competing trade customers he must grant them in proportion to the purchases of such customers; any service he exacts in return must be such that his different types of customers are able to perform; and if such customers are required to incur expenses to earn such allowances, such expenses also must be proportionate to their purchases.

* Revised by D. H. W. Henry, Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

Sect. 33C makes it an offence for any person, for the purpose of promoting the sale or use of an article, to make any materially misleading representation to the public concerning the price at which such or like articles have been, will be or are ordinarily sold.

Sect. 34 prohibits a supplier of goods from prescribing the prices at which they are to be resold by wholesalers or retailers or from cutting off supplies to a merchant because of the merchant's failure or refusal to abide by such prices, i.e., the practice of "resale price maintenance" The Section also provides that it shall not be inferred that a person practised resale price maintenance simply because he refused, or counselled the refusal of supplies to a merchant if there were reasonable cause to believe and the supplier did believe that the merchant was making a practice of using articles of such supplier as "loss-leaders" or as bait advertising or was making a practice of engaging in misleading advertising in respect of such articles or of not providing services that purchasers of such articles might reasonably expect.

The Act provides for a Director who is responsible for investigating combines and other restrictive practices, and a Commission (the Restrictive Trade Practices Commission) which is responsible for appraising the evidence submitted to it by the Director and the parties under investigation, and for making a report to the Minister. When there are reasonable grounds for believing that a forbidden practice is engaged in, the Director may obtain from the Commission authorization to examine witnesses, search premises, or require written returns. After examining all the information available, if the Director believes that it proves the existence of a forbidden practice, he submits a statement of the evidence to the Commission and to the parties believed to be responsible for the practice. The Commission then sets a time and place at which it hears argument on behalf of the Director in support of his statement, and hears argument and receives evidence on behalf of any persons against whom allegations have been made in the statement. Following this hearing, the Commission prepares and submits a report to the Minister, ordinarily required to be published within thirty days.

The Act also provides for general inquiries into restraints of trade which, while not forbidden or punishable, may affect the public interest. It further provides in Sect. 31 that the courts, including the Exchequer Court of Canada, in addition to imposing punishment for a contravention of the legislation, may make an order restraining persons from embarking on, continuing or repeating a contravention or directing the dissolution of a merger or monopoly as the case may be. Application also may be made to the courts for such an order in lieu of prosecuting and convicting for a contravention of the legislation. By virtue of the 1960 amendments, prosecutions for offences against the substantive provisions of the legislation (other than Sect. 33C which is punishable only on summary conviction) may be taken either in the provincial courts or with the consent of the accused in the Exchequer Court of Canada. The amendment conferring jurisdiction on the Exchequer Court came into force on Dec. 1, 1960.

In the years 1961-63 the following reports of inquiries under the legislation were published:—

(1) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—Supertest Petroleum Corporation, Limited).

(2) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—British American Oil Company Limited).

(3) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—Texaco Canada Limited).

(4) Alleged Attempts at Resale Price Maintenance in the Distribution and Sale of Cameras and Related Products (Arrow Photographic Equipment Limited).

(5) Meat Packing Industry and the Acquisition of Wilsil Limited and Calgary Packers Limited by Canada Packers Limited.

(6) Alleged Attempts at Resale Price Maintenance in the Distribution and Sale of Cameras and Related Products (Garlick Films Limited).

(7) Distribution and Sale of Automotive Oils, Greases, Anti-Freeze, Additives, Tires, Batteries, Accessories and Related Products.

(8) Manufacture, Distribution and Sale of Paperboard Shipping Containers and Related Products.
(9) The Acquisition of the Common Shares of Hendershot Paper Products Limited by Canadian International Paper Company.
(10) The Acquisition by Bathurst Power & Paper Company Limited of Wilson Boxes, Limited.
(11) Manufacture, Distribution and Sale of Evaporated Milk and Related Products.
(12) Distribution and Sale of Electric Appliances, Electric Shavers and Accessory Products (Sunbeam Corporation (Canada) Limited).
(13) Manufacture, Distribution and Sale of Drugs.
(14) Alleged Combine in the Matter of a Call for Tenders by the Town of Duvernay for the Construction of Sewers and Water Mains.

These reports and copies of the annual reports under the Act may be obtained from the Queen's Printer or the office of the Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

Section 3.—Control and Sale of Alcoholic Beverages

The retail sale of alcoholic beverages in Canada is controlled by provincial and territorial government liquor control authorities. Alcoholic beverages are sold directly by most of these liquor control authorities to the consumer or to licensees for resale. However, in some provinces beer and wine are sold directly by breweries and wineries to consumers or to licensees for resale. During the year ended Mar. 31, 1963, provincial government liquor control authorities operated 993 retail stores.

Table 1 shows revenue from administration of liquor control by provincial and territorial governments. Details are given in DBS report, *The Control and Sale of Alcoholic Beverages in Canada* (Catalogue No. 63-202).

1.—Provincial Revenue from Administration of Liquor Control, Years Ended Mar. 31, 1962 and 1963

NOTE.—Figures include revenue collected directly by the provincial and territorial governments as well as revenue of the liquor authorities, but exclude revenue resulting from a general retail sales tax on alcoholic beverages levied by eight provinces.

Province or Territory	1962			1963		
	Net Income from Sales[1]	Sales Tax, Licences and Permits, and Other	Total	Net Income from Sales[1]	Sales Tax, Licences and Permits, and Other	Total
	$'000	$'000	$'000	$'000	$'000	$'000
Newfoundland	2,431	2,209	4,640	2,604	2,416	5,020
Prince Edward Island	1,397	466	1,863	1,415	478	1,893
Nova Scotia	12,317	364	12,681	12,787	364	13,151
New Brunswick	9,534	42	9,576	9,642	244	9,886
Quebec	37,031	17,450	54,481	43,269	19,178	62,447
Ontario	56,802	27,155	83,957	63,177	26,645	89,822
Manitoba	11,989	3,054	15,043	12,391	3,177	15,568
Saskatchewan	13,858	294	14,152	14,406	290	14,696
Alberta	21,117	1,348	22,465	24,535	1,533	26,068
British Columbia	28,866	526	29,392	30,911	571	31,482
Yukon Territory	874	99	973	921	110	1,031
Northwest Territories	734	74	808	758	78	836
Canada	**196,950**	**53,081**	**250,031**	**216,816**	**55,084**	**271,900**

[1] After provision for depreciation on fixed assets and capital expenditure met out of operating income; includes commission on general sales tax collections.

Specified revenue of the Federal Government from alcoholic beverages comprising excise duties, excise taxes, customs duties and certain fees and licences in that connection are shown in Table 2.

2.—Specified Revenue of the Federal Government from Alcoholic Beverages, Years Ended Mar. 31, 1959-63

NOTE.—Figures exclude revenue from the general sales tax which is not available by commodities.

Nature of Levy	1959	1960	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000
On Spirits	**125,901**	**132,240**	**139,823**	**143,616**	**152,907**
Excise duty	96,551	102,354	108,502	113,689	122,021
Licences	7	7	8	8	8
Import duty	29,343	29,879	31,313	29,919	30,878[1]
On Beer	**83,243**	**90,873**	**91,165**	**93,257**	**98,354**
Excise duty	83,058	90,704	90,971	93,051	98,097
Beer licences	3	3	3	3	3
Import duty	182	166	191	203	254[1]
On Wine	**4,609**	**4,686**	**4,920**	**5,223**	**6,417**
Excise taxes	3,140	3,026	3,224	3,350	3,727
Import duty	1,469	1,660	1,696	1,873	2,690[1]
Totals[2]	**213,753**	**227,799**	**235,908**	**242,096**	**257,678**

[1] Includes an import surcharge of 15 p.c. ad valorem effective from June 25, 1962 to Feb. 20, 1963, when it was reduced to 10 p.c. ad valorem. The import surcharge was removed entirely as of Apr. 1, 1963. [2] Drawbacks and refunds of duties and taxes have not been deducted.

Value of Sales of Alcoholic Beverages.—The figures in Table 3 do not always represent the final retail selling price of alcoholic beverages to the consumer because, when sold to licensees, only the selling price to licensees is known.

3.—Value of Sales of Alcoholic Beverages, Years Ended Mar. 31, 1961-63

Province or Territory	Spirits			Wines		
	1961	1962	1963	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Newfoundland	5,662	5,911	6,353	574	571	620
Prince Edward Island	2,609	2,763	2,828	234	266	308
Nova Scotia	15,899	16,923	17,668	2,564	2,771	2,996
New Brunswick	11,738	12,379	12,733	2,154	2,380	2,579
Quebec	87,635	95,406	103,479	15,737	17,642	19,676
Ontario	163,454	170,302	185,461	20,669	21,909	23,696
Manitoba	21,885	22,500	23,355	2,716	2,832	3,089
Saskatchewan	18,412	18,154	18,986	2,851	2,915	3,120
Alberta	35,034	37,011	39,023	3,639	3,911	4,532
British Columbia	52,359	53,890	56,929	5,520	5,951	7,020
Yukon Territory	985	1,020	1,099	111	123	131
Northwest Territories	790	792	847	74	84	101
Canada	**416,462**	**437,051**	**468,761**	**56,843**	**61,355**	**67,868**

Province or Territory	Beer			Totals		
	1961	1962	1963	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Newfoundland	10,700	11,547	12,652	16,936	18,029	19,625
Prince Edward Island	1,467	1,615	1,663	4,310	4,644	4,799
Nova Scotia	15,551	16,248	16,574	34,014	35,942	37,238
New Brunswick	10,354	11,127	11,322	24,246	25,886	26,634
Quebec	106,052	107,936	115,134	209,424	220,984	238,289
Ontario	176,744	179,388	184,806	360,867	371,599	393,963
Manitoba	28,655	30,065	30,449	53,256	55,397	56,893
Saskatchewan	25,242	24,177	24,454	46,505	45,246	46,560
Alberta	33,610	34,877	36,673	72,283	75,799	80,228
British Columbia	41,477	43,172	45,643	99,356	103,013	109,592
Yukon Territory	1,241	1,146	1,208	2,337	2,289	2,438
Northwest Territories	736	889	926	1,600	1,765	1,874
Canada	**451,829**	**462,187**	**481,504**	**925,134**	**960,593**	**1,018,133**

Section 4.—Miscellaneous Aids or Controls

The National Energy Board.—The National Energy Board was established by the National Energy Board Act, 1959 (SC 1959, c. 46) for the broad purpose of assuring the best use of energy resources in Canada. The Board is responsible for the regulation in the public interest of the construction and operation of oil and gas pipelines subject to the jurisdiction of the Parliament of Canada, the tolls charged for transmission by such pipelines, the export and import of gas, the export of electric power and the construction of those lines over which such power is exported. The Board is also required to study and keep under review all matters relating to energy within the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary or advisable in the public interest with regard to such matters. The Act also authorizes the extension of the export and import provisions to oil upon proclamation by the Governor in Council. The Board, which reports to the Minister of Trade and Commerce, consists of a Chairman, a Vice-Chairman and three other members.

During 1963, the work of the Board in fulfilment of its regulatory responsibilities under the National Energy Act included the issuing of 570 certificates, licences and orders, compared with 441 in 1962. The certificates authorized the construction of certain additional oil and gas line facilities and international power lines; the licences and orders concerned the export of gas and electric power, the export of butanes by pipeline and exemption orders, the latter relating to the construction of pipelines or branches or extensions not exceeding 25 miles in length. Seven public hearings were held in connection with certificate and licence applications and one dealing with compensation in connection with the working of a quarry being prevented by a pipeline.

The Board continued active liaison or involvement with a number of agencies concerned with energy supply and demand, such as the Dominion Bureau of Statistics *re* the consolidation and improvement of procedures and content of surveys and statistical reports in connection with electric power and energy matters; the Federal-Provincial Working Committee on Long-Distance Transmission; the Nelson River Programming Board *re* feasibility studies associated with the development of remote hydro-electric power sites and their potential export possibilities; the Atlantic Development Board in the power and energy aspects of that Board's responsibilities; the Canadian Standards Association Committee *re* the establishment of a Canadian code for the design, construction and operation of oil and gas pipelines and of a code for aluminum pressure piping; the Emergency Supply Planning Branch of the Department of Defence Production *re* emergency planning in the energy field; and with certain international organizations.

The Board has under study detailed energy supply and demand forecasts and maintains up-to-date estimates of reserves and productibility for crude oil, natural gas and natural gas liquids.

Trade Standards.—The Standards Branch of the Department of Trade and Commerce consolidates under one Director the administration of the Electricity Inspection Act, the Gas Inspection Act, the Precious Metals Marking Act, the Weights and Measures Act, and the National Trade Mark and True Labelling Act.

Commodity Standards.—On Nov. 26, 1949, Parliament passed the National Trade Mark and True Labelling Act (RSC 1952, c. 191) which provides a framework for the development of the National Standard and true labelling in order to circumvent public deception in advertising. In brief, the use of the National Standard is voluntary and compliance with commodity standards affects only those manufacturers who desire to use the national trade mark. This is exemplified in the National Trade Mark Garment Sizing Regulations which were passed on Mar. 16, 1961. In addition, where manufacturers descriptively label any commodity or container, it must be labelled accurately to avoid public deception. The regulation applying to the labelling of fur garments, for example, has been established as a code of fair practice throughout the merchandising field.

Under the terms of the Precious Metals Marking Act, 1946 (RSC 1952, c. 215), commodities composed of gold, silver, platinum or palladium may be marked with a quality mark describing accurately the quality of the metal. Where such mark is used, a trade mark registered in Canada or for which application for registration has been made must also be applied. Gold-plated or silver-plated articles may also be marked under certain conditions outlined in the Act. The inspection staff of the Standards Branch is engaged in the examination of advertising matter, in verifying the quality of articles offered for sale, and in checking the marks applied.

Weights and Measures.—The Weights and Measures Act (RSC 1952, c. 292) prescribes the legal standards of weight and measure for use in Canada; it also requires control of the type of all weighing and measuring devices used for commercial purposes and their periodic verification and surveillance directed toward the elimination of sales by short weight or short measure. During 1963, 638,888 prepackaged articles were checked for weight or measure and 481,942 inspections of devices were made.

Electricity and Gas Inspection.—Responsibilities of the Standards Branch, under the Electricity Inspection Act (RSC 1952, c. 94) and the Gas Inspection Act (RSC 1952, c. 129) comprise the testing and stamping of every electricity and gas meter used throughout Canada for billing purposes, the object being to ensure the correct measurement of all electricity and gas sold. Canada is divided into 21 districts for administration of the two Acts and the staff numbers 205. During the year ended Mar. 31, 1963, 1,323,020 meters were tested. In 1962, there were 5,659,848 electricity meters and 1,440,344 gas meters registered in Canada.

Patents.*—Letters patent are issued subject to the provisions of the Patent Act (RSC 1952, c. 203), effective since 1935. Applications for protection relating to patents should be addressed to the Commissioner of Patents, Ottawa.

4.—Patents Applied for, Granted, etc., Years Ended Mar. 31, 1959-63

Item		1959	1960	1961	1962	1963
Applications for patents	No.	22,912	24,292	24,529	25,447	26,409
Patents granted	"	18,293	22,021	22,014	21,659	21,225
Granted to Canadians	"	*1,515*	*1,903*	*2,036*	*1,844*	*1,688*
Caveats granted	"	296	291	281	226	256
Assignments	"	20,208	22,015	22,587	24,161	24,180
Fees received, net	$	1,559,705	1,793,685	1,806,279	1,858,965	1,922,250

The number of Canadian patents granted increased fairly steadily each year from 4,522 at the beginning of the century to 21,225 in the year ended Mar. 31, 1963. Roughly, 68 p.c. of the patents granted resulted from inventions made by residents of the United States, 6 p.c. by residents of Britain and other Commonwealth countries and 6 p.c. by residents of Canada. Printed copies of patents issued from Jan. 1, 1948 to date are available at a nominal fee. The Canadian *Patent Office Record* gives a brief digest of each patent.

Canadian and foreign patents may be consulted at the Patent Office Library. The Library has records of British patents and abridged specifications thereof from 1617 to date, and of United States patents from 1845 to date, as well as many patents, indexes, journals and reports from Australia, New Zealand, South Africa, India, Pakistan, France, Belgium, Austria, Norway, Mexico, Italy, Sweden, the Netherlands, Switzerland, Japan, Egypt, Germany, Ireland, Colombia, Czechoslovakia and Yugoslavia.

Copyrights, Industrial Designs and Timber Marks.*—Copyright protection is governed by the Copyright Act (RSC 1952, c. 55) in force since 1924. Protection is

* Revised by the Commissioner of Patents, Department of the Secretary of State, Ottawa.

automatic without any formality. However, a system of voluntary registration is provided. Application for registration should be addressed to the Commissioner of Patents, Ottawa.

The Act sets out the qualifications for a copyright and its duration: "Copyrights shall subsist in Canada . . . in every original literary, dramatic, musical and artistic work, if the author was, at the date of the making of the work, a British subject, a citizen or subject of a foreign country which has adhered to the Berne Convention and the additional Protocol . . . or resident within Her Majesty's Dominions. The term for which the copyright shall subsist shall, except as otherwise expressly provided by this Act, be the life of the author and a period of fifty years after his death."

Canada belongs to the Universal Copyright Convention. This means that the works of Canadian authors are protected in the United States without the formality of compulsory registration or the obligation of printing in the United States, provided that, from the first publication, the work bears in a prominent place the following identification: ©, followed by the name of the proprietor and the year of publication.

Copyright protection is extended to records, perforated rolls, cinematographic films, and other contrivances by means of which a work may be mechanically performed. The intention of the Act is to enable Canadian authors to obtain full copyright protection in Canada, in all parts of the Commonwealth, in foreign countries of the Copyright Union and in the United States. Protection of industrial designs and of timber marks is afforded under the Industrial Design and Union Label Act and the Timber Marking Act. Registers of such designs and marks are kept by the Copyright Branch of the Patent Office.

5.—Copyrights, Industrial Designs and Timber Marks Registered, Years Ended Mar. 31, 1959-63

Item		1959	1960	1961	1962	1963
Copyrights registered	No.	5,331	5,513	6,381	6,479	7,279
Industrial designs registered	"	684	790	795	684	788
Timber marks registered	"	7	—	—	1	3
Assignments registered	"	640	1,037	1,017	1,213	1,071
Fees received, net	$	23,440	24,614	27,446	28,634	31,145

Trade Marks.*—The Trade Marks Office, a Branch of the Department of the Secretary of State, administers the Trade Marks Act (SC 1952-53, c. 49) which covers all legislation concerning the registration and use of trade marks and supersedes from July 1, 1954, former legislation enacted under the Unfair Competition Act, the Union Label Act and the Shop Cards Registration Act. Correspondence relating to an application for registration of a trade mark should be addressed to the Registrar of Trade Marks, Ottawa.

Applications are advertised for opposition purposes in the *Trade Marks Journal*, a weekly publication that also gives particulars of every registration of a trade mark and every registration of a registered user. The required fee payable on application for registration of a trade mark is $25, for advertisment of an application $15 and for registration of a person as a registered user of a trade mark $20.

* Revised by the Registrar of Trade Marks, Department of the Secretary of State, Ottawa.

6.—Trade Marks Registered, Years Ended Mar. 31, 1959-63

Item		1959	1960	1961	1962	1963
Trade marks registered	No.	3,992	3,818	4,524	4,438	4,620
Trade mark registrations assigned	"	2,642	2,541	3,115	3,335	2,887
Trade mark registrations renewed	"	1,117	1,481	1,748	1,961	2,657
Certified copies prepared	"	906	1,368	1,407	1,412	1,529
Fees received, net	$	268,437	302,164	305,036	336,212	346,387

Subventions and Bounties on Coal.*—A major problem of the Canadian coal mining industry arises from the fact that its fields are situated far distant from the main consuming markets of the Provinces of Ontario and Quebec while these markets lie in close proximity to the bituminous and anthracite fields of the United States. Transportation subventions, which have been maintained in varying degree during the past 30 years, were designed to further the movement of Canadian coals by equalizing as far as possible their laid-down costs with the laid-down costs of imported coals in various market areas. Since 1963, an addition to subvention regulations has also enabled eastern Canadian coals to be made competitive with imported residual fuel oils in the Atlantic Provinces and the Province of Quebec. Subvention assistance is authorized by annual Parliamentary vote and payments are administered in accordance with regulations established by Orders in Council.

7.—Expenditure for Coal Subventions, by Province, 1959-63

NOTE.—Tonnages and expenditures shown in a given year, being on a calendar-year basis, are not necessarily in direct relationship; certain of the amounts include adjustments on movements of previous years.

Province		1959	1960	1961	1962	1963
Nova Scotia	ton	2,154,034	2,048,073	2,323,684	2,191,938	2,428,819
	$	11,822,776	12,950,733	14,208,207[1]	14,589,764	14,442,122
New Brunswick	ton	137,613	173,063	146,201	114,186	191,765
	$	253,557	324,922	227,129	221,984	540,351
Saskatchewan	ton	111,006	79,377	104,807	82,511	89,311
	$	96,751	64,248	83,161	62,359	65,542
Alberta and eastern British Columbia	ton	130,956	51,884	38,171	57,539	63,346
	$	401,820	151,685	96,680	150,595	172,782
British Columbia and Alberta export	ton	192,857	633,913	719,840	634,855	716,740
	$	845,895	2,852,608	3,239,279	2,408,653	2,323,118
Totals	**ton**	**2,726,466**	**2,986,310**	**3,332,703**	**3,081,029**	**3,489,981**
	$	**13,420,799**	**16,344,196**	**17,854,456[1]**	**17,433,355**	**17,543,915**

[1] Includes $500,000 paid by the Nova Scotia Government as its share of the joint cost of certain Nova Scot ia subvention payments.

The Canadian Coal Equality Act (RSC 1952, c. 34), which implemented one of the recommendations of the Royal Commission on Maritime Claims (1926), was designed to assist the Canadian steel industry and only incidentally affects coal. It provides for the payment of 49.5 cents per ton on bituminous coal mined in Canada and converted into coke to be used in the Canadian manufacture of iron and steel. Bounties paid under this authority for the years 1959-63 were as follows:—

Item		*1959*	*1960*	*1961*	*1962*	*1963*
Quantity	ton	604,234	693,581	457,950	420,036	482,406
Amount	$	299,096	343,323	226,685	207,918	238,791

PART III.—BANKRUPTCIES AND COMMERCIAL FAILURES

Two series of figures are included in this part which, although closely related as far as subject matter is concerned, cover different aspects of the field of bankruptcies and commercial failures. The first under the heading of "Administration of Bankrupt Estates" is limited to the supervision, by the Superintendent of Bankruptcy, of the administration of bankrupt estates under the Bankruptcy Act (including the Farmers' Creditors Arrangement Act); it gives information on the amounts realized from the assets as established by debtors and indicates that values actually paid to creditors are invariably very much lower than such estimates alone would imply. It can therefore be assumed that this applies in even greater degree to the more extended fields covered in the second section under the

* Revised by the Administrative Officer, Dominion Coal Board, Ottawa.

heading of "Returns under the Bankruptcy and Winding-Up Act" which is compiled by the Dominion Bureau of Statistics. This series is limited to bankruptcies and insolvencies made under federal legislation (the Bankruptcy Act and the Winding-Up Act) and, since 1955, includes business failures only (see p. 893). The figures of assets and liabilities are estimates made by the debtor and, because they are not made uniformly, should be accepted with reservations.

Administration of Bankrupt Estates.*—Federal insolvency legislation comprises the Bankruptcy Act 1949 (RSC 1952, c. 14), the Farmers' Creditors Arrangement Act 1943 (RSC 1952, c. 111), the Companies' Creditors Arrangement Act (RSC 1952, c. 54), and, to some extent, the Winding-Up Act (RSC 1952, c. 296). The two Arrangement Acts are designed to avert failure and neither series of statistics therefore includes proposals or arrangements under these Acts. When such proposals or arrangements are rejected by the creditors or fail in their purpose, the proceedings may then come under the Bankruptcy Act, the bankruptcy provisions of the Farmers' Creditors Arrangement Act or, in certain circumstances, the Winding-Up Act. There are no provisions in the Companies' Creditors Arrangement Act for the liquidation or winding-up of insolvent companies.

* Prepared by the Superintendent of Bankruptcy, Ottawa. Early bankruptcy and insolvency legislation is reviewed in the 1952-53 Year Book, pp. 914-915.

1.—Assets, Liabilities, Assets Realized and Cost of Administration under the Bankruptcy Act, by Province, 1962

Province	Bankruptcies under General Provisions of the Act[1]					
	Estates Closed	Assets as Estimated by Debtors	Liabilities as Estimated by Debtors	Total Realization	Cost of Administration	Paid to Creditors
	No.	$	$	$	$	$
Newfoundland	11	435,311	611,443	196,300	57,963	138,337
Prince Edward Island	4	420,524	462,239	107,790	26,009	81,781
Nova Scotia	17	555,871	1,004,584	197,659	47,060	150,599
New Brunswick	26	563,503	1,196,232	102,179	30,384	71,795
Quebec	1,458	14,228,562	28,909,386	3,320,945	1,387,516	1,933,429
Ontario	1,064	12,888,411	31,093,752	2,974,824	1,142,462	1,832,362
Manitoba	28	763,828	1,077,369	255,340	50,685	204,655
Saskatchewan	27	208,685	443,696	76,408	23,198	53,210
Alberta	76	1,055,474	1,999,687	377,531	85,610	291,921
British Columbia	61	2,291,318	4,424,049	611,262	144,366	466,896
Totals	**2,772**	**33,411,487**	**71,222,437**	**8,220,238**	**2,995,253**	**5,224,985**

Province	Proposals under Section 27(1)(a) of the Act		
	Proposals Completed	Unsecured Liabilities as Estimated by Debtors	Paid to Unsecured Creditors
	No.	$	$
Newfoundland	1	6,160	8,310
Prince Edward Island	—	...	...
Nova Scotia	2	331,066	749,633
New Brunswick	1	7,795	35,563
Quebec	72	1,012,288	3,227,238
Ontario	28	685,393	2,766,090
Manitoba	2	161,688	288,275
Saskatchewan	—	...	...
Alberta	—	...	...
British Columbia	6	231,206	1,089,550
Totals	**112**	**2,435,596**	**8,164,659**[2]

[1] Includes summary administration cases. [2] In addition to the amount paid to creditors by the trustee, secured creditors realized direct from their security approximately $20,282,719.

Returns under the Bankruptcy and Winding-Up Acts.*—The DBS statistics concerning bankruptcies and insolvencies cover only the failures coming under federal legislation, i.e., the Bankruptcy Act and the Winding-Up Act. Certain documents relating to estates administered under these Acts have been forwarded, since July 1920, to the Dominion Statistician for statistical analysis. The Bankruptcy Act of 1949 altered the administration of bankruptcies by providing for proposals from insolvent persons. Since July 1950, agreements made under this method have not been included with the statistics of bankruptcy, so that subsequent figures are not strictly comparable with those for previous years. Table 2 shows the number of proposals in order to give a general impression of the trend. The series was revised in 1955 to cover business failures only, excluding failures of individuals such as wage-earners, salesmen and executive personnel formerly included.

* Prepared by the Business Finance Division, Dominion Bureau of Statistics.

2.—Bankruptcies and Insolvencies under Federal Legislation, by Province, 1955-63

NOTE.—Figures from 1923 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1955	36	1,180	406	27	37	42	67	1,795
1956	37	1,265	507	23	34	41	60	1,967
1957	54	1,359	630	26	32	55	57	2,213
1958	36	1,376	545	28	18	51	71	2,125
1959	36	1,366	658	26	20	47	76	2,229
1960	48	1,638	914	34	28	46	120	2,828
1961	47	1,450	932	39	25	62	104	2,659
1962	33	1,694	1,177	47	36	94	109	3,190
1963	60	1,987	1,389	45	37	67	92	3,677
Proposals—								
1955	7	466	36	2	1	1	5	518
1956	9	738	49	2	—	—	14	812
1957	4	479	38	1	1	1	10	534
1958	5	395	44	1	1	1	11	458
1959	3	419	63	2	1	3	12	503
1960	9	480	96	3	—	2	11	601
1961	11	482	80	1	2	1	13	590
1962	4	479	92	—	—	3	14	592
1963	7	526	72	23	2	4	9	643

3.—Bankruptcies and Insolvencies under Federal Legislation, by Branch of Business, 1955-63

NOTE.—Figures from 1924 are given in the corresponding table of previous Year Books beginning with the 1942 edition.

Year	Agriculture, Forestry, Fishing, Trapping and Mining	Manufacturing	Construction	Transportation, Communications and Storage	Trade	Finance and Public Utilities	Service	Not Classified	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1955	66	290	309	68	772	14	250	26	1,795
1956	58	342	375	83	782	28	246	53	1,967
1957	80	366	372	109	928	40	244	74	2,213
1958	67	356	367	105	882	42	295	11	2,125
1959	81	374	449	76	906	36	307	—	2,229
1960	100	323	619	129	1,229	65	363	—	2,828
1961	86	285	470	113	1,234	69	402	—	2,659
1962	93	326	573	143	1,496	82	477	—	3,190
1963	111	365	714	166	1,634	110	577	—	3,677

4.—Estimated Liabilities of Bankruptcies and Insolvencies, 1955-63

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total
	$'000	$'000	$'000	$'000	$'000	$'000
1955	2,248	28,746	16,299	3,939	2,548	53,776
1956	2,049	32,704	21,842	5,223	2,437	64,254
1957	2,508	37,266	31,349	5,683	3,056	79,863
1958	4,493	40,250	17,884	4,672	5,479	72,778
1959	2,302	50,034	34,156	3,866	5,429	95,786
1960	3,568	61,851	91,090	7,732	10,307	174,548
1961	4,714	49,133	48,352	7,075	7,246	116,520
1962	2,566	77,002	55,946	6,843	7,083	149,440
1963	3,788	91,271	84,260	8,330	7,757	195,406

5.—Bankruptcies and Insolvencies, by Industry and Economic Area, 1963

Year and Industry	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Totals	Total Liabilities
	No.	No.	No.	No.	No.	No.	$'000
Agriculture, Forestry, Fishing, Trapping and Mining	—	**53**	**47**	**7**	**4**	**111**	**4,751**
Manufacturing	**4**	**220**	**127**	**6**	**8**	**365**	**32,421**
Foods and beverages	2	16	13	2	—	33	1,037
Textiles	—	4	3	1	—	8	391
Clothing	—	53	9	—	—	62	4,899
Wood products	—	42	25	—	3	70	5,169
Paper products and printing industries	—	32	11	—	1	44	1,313
Iron and steel, transportation equipment, electrical apparatus and non-ferrous metals	1	39	37	2	3	82	14,032
Chemical products	1	6	7	—	—	14	768
Other industries	—	28	22	1	1	52	4,812
Construction	**13**	**362**	**295**	**26**	**18**	**714**	**40,177**
General contractors	7	129	113	17	7	273	23,269
Special trade contractors	6	233	182	9	11	441	16,908
Transportation, Communications and Storage	—	**88**	**63**	**10**	**5**	**166**	**6,824**
Trade	**35**	**852**	**618**	**82**	**47**	**1,634**	**61,298**
Food	8	174	97	7	5	291	7,577
General merchandise	3	24	19	5	1	52	2,896
Automotive products	5	250	159	25	11	450	11,360
Clothing and shoes	6	100	83	8	10	207	10,923
Hardware and building materials	4	75	69	15	6	169	13,636
Furniture, appliances and radios	2	89	73	6	3	173	6,047
Drugs	—	5	6	1	—	12	468
Other	7	135	112	15	11	280	8,391
Finance and Public Utilities	**2**	**66**	**38**	**1**	**3**	**110**	**27,152**
Service	**6**	**346**	**201**	**17**	**7**	**577**	**22,783**
Community	—	16	3	3	—	22	897
Recreational	—	24	14	—	—	38	3,430
Business	1	44	29	4	1	79	2,870
Personal	5	240	128	8	6	387	14,961
Other	—	22	27	2	—	51	625
Totals	**60**	**1,987**	**1,389**	**149**	**92**	**3,677**	**195,406**

PART IV.—PRICES*

Section 1.—Index Numbers of Wholesale Prices

The term "wholesale prices" refers to transactions that occur below the retail level. It has more of a connotation of bulk purchase and sale than of any homogeneous level of distribution. Wholesale price indexes and individual price series have numerous uses. One of the most important is in escalator contracts which contain a price adjustment clause. Other major uses include: study of replacement and construction costs in investment projects; analysis of price movements of both individual items and commodity groups in relation to purchases and sales; industrial planning and market analysis; valuation for tax purposes and inventory analysis; and study of changes in physical volume. They are also used by business firms abroad in connection with sales and purchases in Canada.

General Wholesale Index.—The general wholesale index mainly includes manufacturers' prices but also incorporates those of wholesalers proper, assemblers of primary products, agents and operators of other types of commercial enterprises which trade in commodities of a type, or in quantities characteristic of primary marketing functions. Prices are grouped according to a commodity classification scheme based on chief component material similarities. Indexes classified according to degree of manufacture are also available. In Table 1, the general wholesale index is presented for the period 1936-63. This index is used as a conventional summary figure against which to observe the behaviour of particular price groups such as farm products, raw materials and building materials, for which separate price indexes have been constructed. Table 2 gives, for the years 1954-63, the general wholesale price index and two of its integral classifications—raw and partly manufactured goods, and fully and chiefly manufactured goods; also presented are two related systems—industrial materials and Canadian farm products. Annual price index numbers of non-residential building materials and residential building materials are given for 1954-63 in Tables 3 and 4, respectively. More specific indexes are published regularly in the DBS monthly publication *Prices and Price Indexes* (Catalogue No. 62-002), which also contains current series on retail and security prices. Vol. 23 of that publication is a historical summary reaching back to the year 1867 for some series.

A system of wholesale price indexes called *Industry Selling Price Indexes 1956=100*, refers exclusively to manufacturing industries and includes approximately 100 industry and 175 commodity indexes. DBS Reference Paper No. 62-515 contains tables, explanatory text, charts and weights relating to these indexes; current indexes are published monthly in *Prices and Price Indexes*.

The general wholesale index rose 1.9 p.c. from 240.0 in 1962 to 244.6 in 1963, continuing the annual increases that began in 1954.

* Prepared in the Prices Division, Dominion Bureau of Statistics.

1.—General Wholesale Index Annual Averages, 1936-63

(1935-39=100)

Year	Average	Year	Average	Year	Average	Year	Average
1936	96.8	1943	127.9	1950	211.2	1957	227.4
1937	107.7	1944	130.6	1951	240.2	1958	227.8
1938	102.0	1945	132.1	1952	226.0	1959	230.6
1939	99.2	1946	138.9	1953	220.7	1960	230.9
1940	108.0	1947	163.3	1954	217.0	1961	233.3
1941	116.4	1948	193.4	1955	218.9	1962	240.0
1942	123.0	1949	198.3	1956	225.6	1963	244.6

Between 1962 and 1963, the raw and partly manufactured goods index increased 1.4 p.c. from 223.8 to 226.9 and the fully and chiefly manufactured goods index increased 2.1 p.c. from 249.0 to 254.2. The farm products index, on the other hand, decreased 4.5 p.c. in the same comparison, both field and animal products dropping from the high points reached in 1962.

2.—Annual Index Numbers of Wholesale Price Groups, 1954-63

(1935-39=100)

Year	General Wholesale Index	Raw and Partly Manufactured Goods	Fully and Chiefly Manufactured Goods	Industrial Materials	Canadian Farm Products		
					Field	Animal	Total
1954	217.0	204.8	224.2	223.7	170.9	256.2	213.6
1955	218.9	209.7	224.5	236.0	180.1	245.1	212.6
1956	225.6	215.8	231.5	248.2	181.6	246.9	214.2
1957	227.4	209.4	237.9	240.3	169.2	258.0	213.6
1958	227.8	209.3	238.3	229.8	171.4	274.5	222.9
1959	230.6	210.9	241.6	240.2	176.1	271.6	223.9
1960	230.9	209.6	242.2	240.4	189.1	264.1	226.6
1961	233.3	212.6	244.5	243.2	191.7	270.0	230.9
1962	240.0	223.8	249.0	248.0	195.5	286.0	240.8
1963	244.6	226.9	254.2	253.5	184.4p	275.4	229.9p

The price indexes of building materials* were slightly higher in 1963. The non-residential index (1949=100) advanced almost steadily during the year and at 137.6 in December, was up from 132.9 a year earlier; the annual index was 135.5 compared with 131.9 for 1962. The residential building materials index (1935-39=100, arithmetically converted to the base 1949=100 for comparability with the non-residential index) moved up from 130.0 in December 1962 to 138.4 in December 1963; the composite for the year was 4.7 points higher than in 1962.

* Details of weighting and construction and historical series appear in DBS publications *Price Index Numbers of Residential Building Materials, 1926-48* (Catalogue No. 62-505) and *Price Index Numbers of Non-residential Building Materials, 1935-52* (Catalogue No. 62-506). Revised item list and weighting for the electrical component of the residential building materials index, effective July 1960, is available on request.

3.—Annual Price Index Numbers of Non-residential Building Materials, 1954-63

(1949=100)

Year	Composite Index	Principal Components						
		Steel and Metal Work	Plumbing, Heating and Other Equipment	Electrical Equipment and Fixtures	Aggregate, Cement and Concrete Mix	Lumber and Lumber Products	Blocks, Brick and Stone	Tile
GROUP WEIGHT AS A PERCENTAGE OF TOTAL	...	20.1	21.4	11.5	11.1	10.5	9.1	3.8
1954	121.8	128.2	115.2	117.6	120.9	124.5	127.0	120.6
1955	123.4	129.9	118.0	121.3	120.3	127.6	127.0	120.3
1956	128.0	139.0	123.4	123.6	117.0	131.5	130.3	120.8
1957	130.0	147.7	124.1	118.4	119.4	128.7	134.0	118.5
1958	129.8	150.9	123.8	114.0	119.6	126.8	135.7	118.2
1959	131.7	152.6	126.0	119.2	118.6	131.3	137.4	118.3
1960	132.3	152.9	126.7	119.5	119.8	129.0	139.1	121.0
1961	131.1	153.2	126.3	113.8	119.8	127.6	133.0	123.9
1962	131.9	153.3	127.4	114.0	122.0	130.8	130.9	125.0
1963	135.5	157.1	126.8	120.8	126.8	136.7	135.9	129.8

4.—Annual Price Index Numbers of Residential Building Materials, 1954-63
(1949=100)

Year	Composite Index	Principal Components								
		Cement, Sand and Gravel	Brick, Tile and Stone	Lumber and its Products	Lath, Plaster and Insulation	Roofing Material	Paint and Glass	Plumbing and Heating Equipment	Electrical Equipment and Fixtures	Other Materials
GROUP WEIGHT AS A PERCENTAGE OF TOTAL	...	7.6	5.0	42.6	11.3	2.9	3.2	18.6	3.8	5.0
1954	121.7	119.1	137.4	124.3	109.1	122.5	116.3	112.5	119.8	129.7
1955	124.3	117.6	138.7	127.1	106.1	128.3	122.3	115.0	132.2	131.8
1956	128.5	117.9	144.9	130.5	110.8	136.3	126.3	120.9	140.5	139.5
1957	128.4	120.9	148.2	128.9	115.9	133.0	125.5	126.3	120.6	145.3
1958	127.3	123.5	148.7	127.2	118.4	123.6	126.2	127.5	107.8	145.4
1959	130.0	121.1	150.9	130.7	119.3	125.6	127.7	128.5	116.3	147.1
1960	129.2	121.7	151.9	129.1	120.6	112.6	128.3	130.5	114.3	150.1
1961	128.3	120.5	145.0	128.0	122.6	107.1	131.2	131.0	112.0	149.9
1962	129.7	120.5	143.6	130.4	126.2	112.0	132.9	128.6	114.0	149.4
1963	134.4	124.9	149.8	135.9	128.5	126.1	142.8	131.0	118.2	143.2

Highway Construction Price Index.—A system of annual base-weighted and current-weighted bid price indexes (1956=100) relating mainly to provincial highway construction was developed recently, by which price movement is shown for completed units of work such as earth excavation or crushed gravel in place. DBS Reference Paper 62-520 contains tables, explanatory text, charts and weights relating to these indexes. Current indexes are published from time to time in the monthly reports on *Prices and Price Indexes* (Catalogue No. 62-002).

World Wholesale Price Indexes.—Price changes within different countries have varied widely during the years. Comparisons of Canadian wholesale price indexes with those of other countries are given in Table 5.

5.—Index Numbers of Wholesale Prices in Canada and Other Countries, 1960-62
(1958=100)
SOURCE: *United Nations Monthly Bulletin of Statistics*, May 1964.

Country	1960	1961	1962	Country	1960	1961	1962
Belgium	101	100	101	India	111	113	115
Brazil	181	250	383	Iran	102	102	103
Britain	101	100	100	Israel	105	115	134
Canada	**101**	**102**	**105**	Korea, Republic of	113	128	140
Chile	137	138	149	Netherlands	99	98	99
Denmark	100	102	105	New Zealand	102	102	102
Dominican Republic (St. Domingo)	97	91	100	Norway	101	102	104
France	107	110	113	Sweden	103	105	107
Germany, Federal Republic of	100	102	103	Switzerland	99	99	102
Greece	103	104	104	Turkey	126	130	137
				United Arab Republic	100	102	101
				United States	100	100	100

Section 2.—Consumer Price Index*

The purpose of the consumer price index is to measure the movement from month to month in retail prices of goods and services bought by a representative cross-section of the Canadian urban population. For a particular article or service, a price index number is simply the price of the article in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the consumer price index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods each month as a percentage of their prices in the base period 1949.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all or composite index. The weights reflect the relative importance of items in expenditures of middle-size urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket. The basket and weights now used in the index are based on expenditures in 1957 of families of two to six persons, with annual incomes of $2,500 to $7,000, living in cities of 30,000 population or over.

6.—Consumer Price Index Numbers, 1936-63

(1949=100)

Year	Index	Year	Index	Year	Index	Year	Index
1936	61.1	1943	74.2	1950	102.9	1957	121.9
1937	63.0	1944	74.6	1951	113.7	1958	125.1
1938	63.7	1945	75.0	1952	116.5	1959	126.5
1939	63.2	1946	77.5	1953	115.5	1960	128.0
1940	65.7	1947	84.8	1954	116.2	1961	129.2
1941	69.6	1948	97.0	1955	116.4	1962	130.7
1942	72.9	1949	100.0	1956	118.1	1963	133.0

The behaviour of the consumer price index during the years of almost continuous economic growth following the end of the Second World War up to 1959 is discussed in the 1962 Year Book at pp. 928-929 and the movement during 1959 and 1960 in the 1963-64 edition, p. 900.

In 1961, the index ranged from a low of 128.9 in February to a high of 129.7 in November. Two factors in price movement during the year were (1) the introduction of the 3-p.c. sales tax in Ontario in September, which was taken into account, and (2) the change in the exchange rate of the Canadian dollar. Although the latter was considered likely to result in higher prices on imported goods and ultimately in higher consumer prices, no evidence of this was available up to December 1961 as the index stood at just about the same level as in December 1960.

Relative price stability continued throughout 1962 for the fourth consecutive year. The annual average was 1.2 p.c. higher than the 1961 figure. Increases of 1.8 p.c. and 1.9 p.c. in the food, and health and personal care groups were the largest of the year. Lesser upward movements occurred in the other components with the exception of transportation, in which a slight decline was noted. In 1963, prices increased slightly more than in any of the previous few years, the annual average being 1.8 p.c. higher than the 1962 average. The largest increases occurred in the food (3.2 p.c.), health and personal care (2.6 p.c.), and clothing (2.5 p.c.) groups.

* A comprehensive description of the index is contained in the publication *The Consumer Price Index (1949=100) —Revision Based on 1957 Expenditures* (Catalogue No. 62-518).

7.—Consumer Price Index Numbers, 1954-63

(1949=100)

Year	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation and Reading	Tobacco and Alcohol	Composite Index
GROUP WEIGHT AS A PERCENTAGE OF TOTAL	27	32	11	12	7	5	6	100
1954	112.2	121.6	109.4	120.0	124.5	119.5	107.3	116.2
1955	112.1	122.4	108.0	118.5	126.7	122.6	107.4	116.4
1956	113.4	124.2	108.6	123.3	130.0	125.3	107.7	118.1
1957	118.6	126.7	108.5	129.9	138.2	129.8	109.4	121.9
1958	122.1	129.0	109.7	133.8	145.4	138.4	110.6	125.1
1959	121.1	131.4	109.9	138.4	150.2	141.7	114.0	126.5
1960	122.2	132.7	110.9	140.3	154.5	144.3	115.8	128.0
1961	124.0	133.2	112.5	140.6	155.3	146.1	116.3	129.2
1962	126.2	134.8	113.5	140.4	158.3	147.3	117.8	130.7
1963	130.3	136.2	116.3	140.4	162.4	149.3	118.1	133.0

Table 8 gives single commodity price relatives for a number of important items entering into the food component of the consumer price index.

8.—Urban Average and Relative Retail Prices of Staple Foods, 1954-63

(1949=100)

Year	Beef, sirloin, per lb.		Pork, rib chops, per lb.		Butter, creamery, per lb.		Eggs, "A", fresh, per doz.		Milk, fresh, per qt.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1954	77.0	109.4	66.4	116.8	64.0	99.0	57.1	92.9	21.1	118.5
1955	80.0	113.6	61.5	108.2	64.1	99.2	61.5	99.9	21.1	118.5
1956	81.6	115.9	64.4	113.2	63.5	98.3	63.2	102.7	21.2	119.1
1957	84.3	119.7	74.6	131.1	65.7	101.7	56.0	91.0	22.5	126.2
1958	94.4	134.1	72.5	127.4	69.2	107.0	57.9	94.1	23.2	130.4
1959	101.0	143.5	67.6	118.9	69.6	107.8	54.4	88.4	23.4	131.0
1960	97.7	138.8	69.8	122.8	69.8	108.0	54.5	88.6	23.7	133.0
1961	97.1	138.0	72.8	128.0	69.9	108.2	56.3	91.5	23.5	132.0
1962	107.4	152.5	74.9	131.7	62.1	96.0	53.2	86.5	23.6	132.4
1963	103.7	147.4	74.4	130.9	58.5	90.5	58.4	94.9	23.8	134.0

Year	Flour, per lb.		Tomatoes, canned, 28-oz. tin		Potatoes, 10 lb.		Sugar, granulated, per lb.		Bread, per lb.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1954	7.7	110.2	21.5	107.4	37.5	107.6	9.4	101.8	12.8	126.8
1955	7.4	106.4	26.3	131.3	46.8	134.5	9.2	99.7	12.8	126.4
1956	7.6	108.8	27.3	136.1	49.7	142.6	9.3	100.4	13.3	131.6
1957	7.9	113.3	29.1	144.8	42.1	120.8	12.3	133.1	14.3	141.4
1958	8.0	114.3	26.6	132.2	45.7	131.2	10.6	114.4	14.8	146.3
1959	8.4	119.9	27.3	136.1	48.9	140.3	9.4	101.4	15.2	150.9
1960	8.8	125.5	27.8	138.2	58.0	166.5	9.4	101.7	15.6	154.5
1961	9.0	128.9	27.0	134.5	47.8	137.2	9.6	103.8	15.9	157.6
1962	9.8	141.0	26.6	132.7	47.3	135.9	9.5	103.4	16.4	162.2
1963	10.3	147.4	27.1	135.0	51.4	147.7	15.7	170.1	17.2	170.4

Consumer Price Indexes for Regional Cities.—Table 9 gives regional consumer price indexes for ten cities or city combinations. These indexes do not show whether it costs more or less to live in one city than in another and should not be used for such comparisons. Their function is to measure percentage changes in retail prices—over a certain time in each city or city combination—of a fixed basket of goods and services representing the level of consumption of a particular group of families.

9.—Consumer Price Indexes for Regional Cities, 1954-63
(1949=100)

Year	St. John's, Nfld. (1951 =100)	Halifax, N.S.	Saint John, N.B.	Montreal, Que.	Ottawa, Ont.	Toronto, Ont.	Winnipeg, Man.	Saskatoon-Regina, Sask.	Edmonton-Calgary, Alta.	Vancouver, B.C.
1954	102.8	114.1	116.6	116.8	116.2	118.3	115.3	114.2	114.9	117.4
1955	104.2	114.8	117.7	116.9	117.2	118.8	115.9	114.6	114.6	117.9
1956	106.8	116.1	118.8	118.4	119.2	120.6	117.2	115.8	115.7	119.6
1957	109.4	119.8	122.6	121.8	123.2	125.2	120.0	119.1	118.8	122.6
1958	112.0	122.9	125.3	125.5	125.5	128.6	123.0	122.0	121.4	125.6
1959	114.3	125.9	127.7	126.9	126.9	128.9	123.7	123.1	123.0	127.9
1960	115.5	127.2	129.2	127.9	128.6	130.4	125.6	124.4	124.1	129.0
1961	116.7	128.5	130.2	129.3	130.2	131.2	127.5	125.4	125.0	129.4
1962	117.6	130.2	131.4	130.9	131.7	132.4	129.1	127.5	126.2	129.8
1963	120.0	131.5	133.4	133.0	134.0	134.6	130.3	128.5	127.6	131.8

World Retail Price Indexes.—In order to place changes in Canadian retail prices in perspective with those occurring elsewhere, Table **10** provides consumer price indexes for selected countries for 1960, 1961 and 1962. These indexes measure price changes only within each country and should not be used to compare actual levels of living costs from country to country.

10.—Consumer Price Index Numbers in Canada and Other Countries, 1960-62
(1958=100)

SOURCE: *United Nations Monthly Bulletin of Statistics*, April 1964.

Country	1960	1961	1962	Country	1960	1961	1962
Belgium	102	103	104	Iran	122	126	127
Brazil (São Paulo)	185	256	390	Israel	104	111	121
Britain	102	105	110	Korea, Republic of (Seoul)	112	121	129
Canada	**102**	**103**	**104**	Netherlands	103	105	108
Chile (Santiago)	155	167	190	New Zealand	105	106	109
Denmark	103	107	115	Norway	102	105	111
Dominican Republic (St. Domingo)	96	93	101	Sweden	105	107	112
France (Paris)	110	114	119	Switzerland	101	103	107
Germany, Federal Republic of	102	105	109	Turkey (Istanbul)	133	137	142
Greece (1959=100)	102	103	103	United Arab Republic (Cairo)	101	101	98
India	106	108	112	United States	102	103	105

Section 3.—Consumer Expenditure

A continuing program of surveys of family expenditure in urban areas was begun in 1953 and surveys were conducted since then at two-year intervals up to and including 1959. No expenditure surveys were taken in 1961, the decennial census year, but the regular program was resumed in 1962, when monthly surveys of food expenditure were made throughout the year, and a recall survey of the complete budget was made in February and March 1963.

The primary purpose in most of these surveys was to collect information for reviewing and revising, when necessary, the weights of the consumer price index. Therefore the surveys, with the exception of that for 1959, have been restricted to cover only the families comparable in composition and income level to the consumer price index target group which was selected for index number purposes from a nation-wide survey conducted in 1947-48. For each of the four survey periods covering 1953, 1955, 1957 and 1962, respectively, the program consisted of a series of monthly surveys in which the major objective was the collection of detailed expenditure data on food, followed by a recall survey of all expenditures and income for the same calendar year. In the 1959 survey program, the monthly surveys were omitted and a larger recall survey was made referring to all families and individuals in cities with populations of 15,000 or over. Detailed results for each survey have been published in two series of occasional publications of which the latest are: *Urban Family Food Expenditure, 1957* (Catalogue No. 62-516) and *Urban Family Expenditure, 1959* (Catalogue No. 62-521).

Summary results of the 1959 survey appear in the 1962 Year Book at pp. 934-937 where tables are given showing how expenditure patterns varied among families grouped by income level, and the average dollar expenditure per family and per person for major items. Summary results of the 1962 survey of family food expenditure are shown in Tables **11** and **12.** Results of the 1962 survey of the complete budget were not yet available at the time of printing.

Table **11** shows weekly food expenditure patterns in 1962 for seven cities individually and the seven-city composite. Approximately 150 families in each month kept weekly diaries of food purchases for a four-week period; the families belonged to one of eight family types (two to four adults, two adults and one to four children, three adults and one child) with family incomes ranging from $3,000 to $7,500.

On the average, 29 p.c. of the family food dollar went for meat, poultry and fish, 14 p.c. for fruits and vegetables, 13 p.c. for bakery and cereal products, 12 p.c. for dairy products, 4 p.c. for fats and oils, 3 p.c. for eggs, 1 p.c. for frozen foods, 12 p.c. for other groceries for home use and 12 p.c. for food purchased and eaten away from home, including out-of-town board. This distribution differs only slightly from that recorded in a similar survey made in 1957. The most pronounced differences between the 1957 and 1962 distributions were in the proportions of food expenditure going to meat, from 28.2 p.c. in 1957 to 29.3 p.c. in 1962 and to fats and oils from 4.9 p.c. to 4.2 p.c. Among the seven cities surveyed, total weekly food expenditure ranged from an average of $20.61 per family in Edmonton to $24.85 in Montreal; average expenditure per person varied from $5.78 in Halifax to $7.41 in Montreal.

Table **12** shows how weekly food expenditure varied among families at different income levels. Average expenditure per family increased from $21.33 in the lowest income group to $26.57 in the highest, with over half the increase occurring between the two upper income classes. Family spending on food away from home and on frozen foods increased as income rose, not only in dollars but as a percentage of total expenditure. Expenditure on fruits and vegetables also increased with rising income but the percentage of total expenditure declined slightly at successive income levels. Expenditure per family and per person on

dairy products was highest in the $5,000 to $5,999 group where average family size was greatest. The only food group in which increasing income was accompanied by a consistent decline in expenditure per family and per person was eggs, although fats and oils showed a declining tendency on a per-person basis. Expenditure on meats and poultry was approximately the same per person in the lowest and highest income groups, although the proportion of total expenditure declined from 30.2 p.c. to 25.9 p.c.

11.—Average Weekly Food Expenditure in Seven Cities, 1962

Item	Seven-City Composite	St. John's	Halifax	Montreal	Toronto	Winnipeg	Edmonton	Vancouver
Families in Sample... No.	1,841	124	137	473	579	200	182	146
Av. Family Size..... "	3.36	3.51	3.68	3.31	3.35	3.43	3.37	3.34
	DOLLARS PER FAMILY							
Dairy products.....	2.69	2.77	3.01	2.52	2.74	2.66	2.93	2.67
Eggs.....	0.70	1.06	0.74	0.66	0.73	0.59	0.71	0.74
Bakery and cereal products	2.90	2.73	2.62	3.04	3.07	2.60	2.35	2.51
Meat and poultry.....	6.30	7.26	5.58	7.52	6.04	5.37	5.27	5.19
Fish.....	0.45	0.79	0.71	0.41	0.48	0.33	0.38	0.47
Fats and oils.....	0.96	0.87	0.98	0.97	0.97	0.94	0.97	0.90
Fruits and vegetables.....	3.33	4.55	3.32	3.42	3.32	2.98	3.31	3.17
Frozen foods.....	0.23	0.14	0.25	0.10	0.31	0.24	0.21	0.26
Other foods.....	2.78	3.15	2.97	2.84	2.76	2.76	2.50	2.78
Food away from home.....	2.73	0.63	1.85	3.39	2.63	3.02	1.96	2.08
All Food.....	**23.07**	**23.95**	**22.04**	**24.85**	**23.07**	**21.50**	**20.61**	**20.78**
	DOLLARS PER PERSON[1]							
Dairy products.....	0.79	0.75	0.79	0.75	0.81	0.78	0.86	0.80
Eggs.....	0.21	0.29	0.19	0.20	0.21	0.17	0.21	0.22
Bakery and cereal products	0.85	0.74	0.69	0.91	0.90	0.76	0.69	0.75
Meat and poultry.....	1.85	1.96	1.46	2.25	1.78	1.57	1.54	1.55
Fish.....	0.13	0.22	0.18	0.12	0.14	0.10	0.11	0.14
Fats and oils.....	0.28	0.24	0.26	0.29	0.29	0.27	0.28	0.27
Fruits and vegetables.....	0.98	1.23	0.87	1.02	0.98	0.87	0.97	0.95
Frozen foods.....	0.07	0.04	0.06	0.03	0.09	0.07	0.06	0.08
Other foods.....	0.82	0.85	0.78	0.85	0.81	0.80	0.73	0.83
Food away from home.....	0.80	0.17	0.49	1.02	0.78	0.88	0.58	0.61
All Food.....	**6.76**	**6.48**	**5.78**	**7.41**	**6.78**	**6.22**	**5.99**	**6.14**
	PERCENTAGE DISTRIBUTION OF FAMILY FOOD DOLLAR							
Dairy products.....	11.7	11.6	13.7	10.1	11.9	12.4	14.2	12.8
Eggs.....	3.0	4.4	3.4	2.7	3.2	2.7	3.5	3.6
Bakery and cereal products	12.5	11.4	11.9	12.2	13.3	12.1	11.4	12.1
Meat and poultry.....	27.3	30.3	25.3	30.3	26.2	25.0	25.6	25.0
Fish.....	2.0	3.3	3.2	1.6	2.1	1.5	1.9	2.3
Fats and oils.....	4.2	3.6	4.4	3.9	4.2	4.4	4.7	4.3
Fruits and vegetables.....	14.4	19.0	15.1	13.8	14.4	13.9	16.1	15.3
Frozen foods.....	1.0	0.6	1.1	0.4	1.3	1.1	1.0	1.2
Other foods.....	12.1	13.2	13.5	11.4	12.0	12.8	12.1	13.4
Food away from home.....	11.8	2.6	8.4	13.6	11.4	14.1	9.5	10.0
All Food.....	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

[1] Meals to non-family persons living in household were converted to persons per week and added to number of family persons at home. Persons away from home who paid board were included only in obtaining per-person averages for board and total food.

12.—Average Weekly Family Food Expenditure in Seven Cities, by Size of Family Income, 1962

Item	All Families	Income				
		$3,000-$3,999	$4,000-$4,999	$5,000-$5,999	$6,000-$6,999	$7,000-$7,500
Families in Sample..... No.	1,841	381	522	459	340	139
Av. Family Size..... "	3.36	3.19	3.39	3.49	3.29	3.39
	Dollars per Family					
Dairy products.....	2.69	2.53	2.70	2.92	2.56	2.63
Eggs.....	0.70	0.73	0.71	0.71	0.69	0.62
Bakery and cereal products.....	2.90	2.70	2.94	2.99	2.84	3.06
Meat and poultry.....	6.30	6.43	6.12	6.38	6.07	6.89
Fish.....	0.45	0.42	0.46	0.42	0.51	0.49
Fats and oils.....	0.96	0.94	0.95	0.99	0.96	0.95
Fruits and vegetables.....	3.33	3.15	3.25	3.41	3.35	3.71
Frozen foods.....	0.23	0.15	0.17	0.25	0.31	0.31
Other foods.....	2.78	2.48	2.82	2.95	2.78	2.81
Food away from home.....	2.73	1.77	2.24	2.51	3.64	5.13
All Food.....	**23.07**	**21.33**	**22.35**	**23.52**	**23.71**	**26.57**
	Dollars per Person[1]					
Dairy products.....	0.79	0.79	0.79	0.82	0.77	0.76
Eggs.....	0.21	0.23	0.21	0.20	0.21	0.18
Bakery and cereal products.....	0.85	0.84	0.86	0.84	0.86	0.88
Meat and poultry.....	1.85	2.01	1.78	1.79	1.83	2.00
Fish.....	0.13	0.13	0.13	0.12	0.15	0.14
Fats and oils.....	0.28	0.30	0.28	0.28	0.29	0.27
Fruits and vegetables.....	0.98	0.99	0.95	0.96	1.01	1.07
Frozen foods.....	0.07	0.05	0.05	0.07	0.09	0.09
Other foods.....	0.82	0.78	0.82	0.83	0.84	0.81
Food away from home.....	0.80	0.55	0.65	0.70	1.10	1.48
All Food.....	**6.76**	**6.64**	**6.50**	**6.60**	**7.10**	**7.62**
	Percentage Distribution of Family Food Dollar					
Dairy products.....	11.7	11.9	12.1	12.4	10.8	9.9
Eggs.....	3.0	3.4	3.2	3.0	2.9	2.3
Bakery and cereal products.....	12.5	12.7	13.2	12.7	12.0	11.5
Meat and poultry.....	27.3	30.2	27.4	27.1	25.6	25.9
Fish.....	2.0	2.0	2.1	1.8	2.2	1.8
Fats and oils.....	4.2	4.4	4.2	4.2	4.0	3.6
Fruits and vegetables.....	14.4	14.8	14.5	14.5	14.1	13.9
Frozen foods.....	1.0	0.7	0.7	1.1	1.3	1.2
Other foods.....	12.1	11.6	12.6	12.5	11.7	10.6
Food away from home.....	11.8	8.3	10.0	10.7	15.4	19.3
All Food.....	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

[1] Meals to non-family persons living in household were converted to persons per week and added to number of family persons at home. Persons away from home who paid board were included only in obtaining per-person averages for board and total food.

Section 4.—Security Price Indexes

Security price indexes measure, through time, the effect of price change on the value of a portfolio of stocks bought and held by a hypothetical investor (as opposed to the more speculative trader). The portfolio represents stocks of Canadian companies listed on the Toronto, Montreal and Canadian stock exchanges. In the case of the mining and the two supplementary indexes (primary oils and gas, and uraniums), eligible issues are for producing mines and wells only. The number of shares held for each issue is in proportion to the total number of shares outstanding. Prices in the weekly common stock indexes (investors, mining and supplementary indexes) are Thursday's closing quotations. For the monthly preferred stock indexes, prices are monthly weighted averages of the daily closing prices in which weights are daily total sales. The indexes express current prices as a percentage of prices in 1956. Monthly and certain weekly indexes appear in DBS monthly publication *Prices and Price Indexes* (Catalogue No. 62-002) and a weekly DBS report gives indexes on a weekly basis for all groups and sub-groups.

The investors index is comprised of three major groups, with relative importance indicated by percentage weights as follows: industrials, 67.2; utilities, 18.5; and finance, 14.3. Each major group is further divided into industry sub-groups corresponding to the standard industrial classification, adopted as the basis of classification in the revision of the index to the 1956 = 100 base. The mining index is composed of two groups: base metals with a weight of 64.6 p.c. and golds with a weight of 35.4 p.c. The two supplementary indexes of common stocks—primary oils and gas, and uraniums—and the index of preferred stocks are not divided into component groups.

13.—Index Numbers of Common Stock Supplementary Indexes and Prices of Mining Stocks, by Month, 1962 to Mid-1964

(1956=100)

Year and Month	Supplementary Indexes		Mining Stocks		
	Primary Oils and Gas	Uraniums	Golds	Base Metals	Composite
1962					
January	69.4	75.9	112.3	98.0	103.1
February	73.9	78.2	109.8	96.0	100.9
March	72.6	79.6	109.4	95.4	100.4
April	67.8	81.2	107.5	94.7	99.2
May	62.2	79.7	116.8	91.7	100.6
June	53.5	70.6	123.5	84.2	98.1
July	52.6	70.5	123.8	82.8	97.3
August	59.2	73.9	116.4	83.7	95.3
September	59.8	76.6	114.0	80.4	92.3
October	61.1	74.6	108.9	74.8	86.9
November	63.9	77.6	105.4	79.0	88.4
December	65.1	81.6	102.5	81.0	88.6
1963					
January	65.9	86.8	105.3	84.9	92.1
February	62.4	91.7	111.6	82.7	92.9
March	63.4	89.5	109.6	83.7	92.9
April	67.9	92.4	107.8	85.2	93.2
May	68.7	97.5	106.2	85.0	92.5
June	64.3	96.1	107.6	81.5	90.8
July	62.9	90.5	109.5	80.5	90.8
August	62.8	89.7	111.8	79.0	90.6
September	66.5	93.0	112.8	80.2	91.8
October	67.1	93.4	106.5	81.5	90.3
November	66.6	89.7	102.0	79.6	87.6
December	66.6	85.0	100.2	78.9	86.5
1964					
January	69.5	86.4	104.5	82.5	90.3
February	71.6	87.4	105.3	85.0	92.2
March	72.2	90.4	107.6	90.2	96.4
April	78.7	89.8	106.9	93.0	97.9
May	82.1	83.6	109.8	93.1	99.0
June	80.5	77.8	111.4	88.2	96.4

14.—Investors Index Numbers of Common Stocks, by Month, 1962 to Mid-1964

(1956 = 100)

Year and Month	Industrials														Utilities						Finance			Investors Composite Index
	Industrial Mines	Foods	Beverages	Textile and Clothing	Pulp and Paper	Printing and Publishing	Primary Metals	Metal Fabricating	Nonmetallic Minerals	Petroleum	Chemicals	Construction	Retail Trade	Industrials Total	Transportation	Pipelines	Telephone	Electric Power	Gas Distribution	Utilities Total	Banks	Investment and Loan	Finance Total	
1962																								
Jan.	150.2	177.5	181.4	158.9	119.2	308.2	95.6	102.7	108.6	112.7	99.3	110.7	164.7	136.2	89.7	155.0	125.5	119.8	209.6	133.2	153.8	197.6	169.0	140.3
Feb.	146.8	180.1	184.8	164.0	123.5	327.5	95.8	102.5	110.4	111.5	98.9	100.0	169.9	137.0	90.8	154.1	127.2	117.4	215.1	133.8	150.8	196.4	166.6	140.6
Mar.	145.5	177.2	191.1	164.7	128.2	337.2	100.2	98.8	113.2	110.3	105.8	107.5	170.8	138.6	89.3	154.2	127.5	115.1	211.5	132.9	150.1	194.7	165.6	141.4
Apr.	143.5	178.4	186.6	159.8	128.8	343.9	96.8	97.0	111.5	107.2	106.5	107.7	168.1	136.7	89.8	150.0	124.8	110.2	205.1	129.5	146.5	185.6	160.1	138.7
May	137.4	172.8	179.0	154.5	125.9	326.9	90.8	94.2	109.1	100.1	102.2	96.8	160.4	130.5	87.9	144.6	119.8	110.6	198.0	125.8	140.5	169.9	150.6	132.5
June	118.7	153.0	161.7	144.6	115.0	264.7	77.3	84.9	95.2	93.6	90.2	87.7	147.9	115.4	82.5	127.2	112.8	102.8	170.9	114.9	124.3	145.5	131.6	117.6
July	114.3	147.6	160.0	146.4	115.4	270.9	76.0	84.7	96.4	90.8	93.9	79.7	148.0	113.8	78.6	127.2	111.9	103.6	164.2	113.6	118.6	133.9	123.9	115.2
Aug.	124.1	154.3	169.2	149.7	116.6	286.1	82.9	88.7	98.3	97.8	101.7	79.8	149.9	120.7	77.7	132.3	113.8	110.4	178.4	117.9	125.4	142.1	131.2	121.7
Sept.	117.4	154.5	163.7	150.2	115.5	277.3	79.6	86.2	98.6	98.9	103.0	77.7	149.0	117.6	75.4	134.5	111.4	112.7	182.5	118.1	125.0	142.1	130.9	119.6
Oct.	110.3	149.8	161.2	144.6	109.8	282.2	76.0	82.9	95.2	98.0	101.3	75.0	143.8	113.8	73.0	132.6	109.4	107.2	178.1	115.1	124.5	140.0	129.9	116.4
Nov.	122.9	156.3	173.1	150.1	112.4	290.6	82.0	89.7	98.7	100.0	108.8	73.8	152.9	121.2	79.3	141.2	113.3	109.6	186.0	120.3	135.5	151.9	141.2	123.9
Dec.	125.3	160.4	181.2	157.3	113.0	291.3	83.2	95.8	103.7	99.6	115.5	74.3	162.7	124.0	84.9	140.1	117.6	107.8	191.4	122.5	138.6	160.0	146.0	126.9
1963																								
Jan.	130.4	171.9	189.1	171.1	121.2	306.8	88.4	101.4	113.7	100.1	121.8	81.0	167.8	129.8	87.2	144.7	123.3	125.4	196.4	130.0	143.7	171.5	153.3	133.2
Feb.	126.4	171.9	188.0	187.2	122.7	318.6	87.7	101.6	122.6	97.0	126.3	78.6	164.2	129.0	87.8	144.8	122.3	125.6	199.8	130.1	138.2	165.5	147.7	131.8
Mar.	125.6	172.2	189.0	195.4	124.0	305.8	88.4	102.9	128.6	97.3	127.9	77.6	163.9	129.0	89.8	147.2	123.8	127.0	201.8	131.9	139.8	165.2	148.7	132.3
Apr.	131.4	176.4	190.6	208.1	132.8	322.0	96.1	107.6	134.6	98.6	132.7	79.6	172.2	134.7	93.6	148.5	127.8	129.8	212.8	135.7	145.6	169.3	153.9	137.6
May	136.6	180.5	195.3	222.6	135.2	329.2	100.9	111.7	136.1	103.1	134.4	79.3	181.7	139.6	100.7	155.3	129.3	130.5	228.6	140.2	147.4	172.5	156.1	142.1
June	133.6	175.5	197.2	218.5	132.0	329.4	100.4	109.7	136.1	99.3	128.8	74.0	180.9	137.4	102.0	156.0	126.9	128.3	230.2	139.3	144.9	166.7	152.5	139.9
July	128.6	170.3	190.6	211.1	127.8	313.4	98.2	106.9	131.3	96.3	123.0	71.2	178.1	133.0	103.1	153.8	123.8	127.9	221.6	137.0	139.8	161.7	147.4	135.8
Aug.	128.9	167.7	186.9	211.0	124.6	298.8	94.7	103.9	127.8	96.7	121.9	68.5	173.7	130.7	102.1	151.6	121.3	126.6	216.4	134.7	136.6	154.4	142.8	133.2
Sept.	135.1	173.6	192.0	216.6	131.0	312.8	97.9	109.7	130.1	100.1	127.2	62.4	177.6	136.0	107.5	157.4	123.2	124.8	231.6	138.3	139.9	159.6	146.8	138.0
Oct.	131.7	177.3	192.8	224.3	136.8	308.3	103.3	110.9	133.2	100.3	135.8	63.1	185.3	137.6	113.5	161.4	122.8	124.9	227.7	139.5	140.6	157.9	146.7	139.3
Nov.	134.0	173.6	190.8	234.9	133.8	304.0	99.5	108.1	133.8	100.6	136.8	64.2	180.8	136.5	115.5	156.2	122.2	120.1	222.1	137.0	138.2	157.0	144.8	137.8
Dec.	140.5	174.2	192.1	246.1	136.5	301.0	100.7	110.7	131.0	101.4	138.0	60.1	185.8	139.2	117.9	155.0	122.6	120.9	225.3	137.6	139.4	155.9	145.2	139.8
1964																								
Jan.	152.0	179.6	199.2	253.9	143.6	308.8	106.6	114.2	137.1	104.8	139.1	61.0	194.2	146.2	121.3	161.8	122.9	125.6	236.0	141.6	141.3	162.4	148.6	145.8
Feb.	152.6	178.8	197.8	247.6	144.3	310.8	107.9	113.8	139.7	104.4	139.7	62.0	192.5	146.4	117.8	161.8	122.4	125.9	232.4	140.6	137.4	163.2	146.4	145.4
Mar.	156.0	181.6	201.3	259.0	145.6	311.7	109.9	118.8	140.4	105.4	152.7	58.7	196.8	149.3	122.6	164.4	119.5	128.1	227.8	140.8	134.4	162.4	144.2	147.1
Apr.	165.3	188.5	211.3	268.9	156.2	312.7	118.2	126.5	148.2	112.5	155.7	61.6	212.7	158.0	134.4	169.3	124.7	130.6	227.0	145.7	138.7	164.9	147.8	154.4
May	171.2	193.1	217.0	280.4	163.5	322.2	123.0	140.9	156.2	116.0	157.1	67.0	224.7	164.4	147.6	176.6	128.0	134.9	227.6	151.2	142.4	165.9	150.6	160.1
June	166.7	197.3	218.5	287.5	162.4	324.4	120.0	152.4	156.7	114.5	163.4	69.6	228.1	164.0	149.4	178.6	131.2	137.4	233.9	154.0	141.6	170.4	151.6	160.5

15.—Index Numbers of Preferred Stocks, by Month, 1955 to Mid-1964

(1956=100)

NOTE.—Figures for 1927-45 are given in the 1948-49 Year Book, p. 958, and for 1946-54 in the 1956 edition, p. 1045.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Av.
1955.....	105.7	105.9	106.0	105.5	106.0	107.0	108.0	108.2	107.7	107.8	106.9	104.6	106.6
1956.....	105.6	105.5	104.5	102.9	100.9	100.0	100.8	99.9	97.3	95.5	94.5	92.9	100.0
1957.....	93.8	94.1	93.1	92.3	92.1	90.7	90.3	89.9	88.6	87.9	88.8	90.9	91.0
1958.....	92.7	94.1	94.8	95.4	97.2	98.6	97.7	98.3	98.6	97.9	97.9	96.1	96.6
1959.....	95.1	96.0	96.1	96.3	97.4	96.6	96.8	95.8	93.4	90.9	90.3	90.2	94.6
1960.....	89.8	89.5	88.6	88.2	89.6	91.7	93.3	94.1	94.8	94.8	94.6	94.3	91.9
1961.....	95.0	95.2	94.9	96.0	97.1	97.7	98.4	98.3	99.5	100.7	100.6	99.9	97.8
1962.....	101.0	100.9	101.3	101.6	102.0	99.3	96.6	97.0	97.3	96.8	98.1	99.3	99.3
1963.....	102.0	101.5	101.2	101.9	103.9	103.5	102.2	101.6	101.6	102.4	102.6	102.7	102.3
1964.....	102.3	102.4	102.0	102.4	102.2	102.8	..	..		..	..	..	..

CHAPTER XXII.—FOREIGN TRADE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The subject of foreign trade covers more than the treatment of exports and imports of commodities, important though this is. In its broader sense foreign trade is made up of the total international interchange of goods, services, securities and other financial transactions, all of which are presented in their appropriate relationship in this Chapter and in Section 3 of Chapter XXIV. Following Part I, which is a review of Canada's commodity trade during 1963-64, Part II gives detailed statistics of that trade. Part III outlines the various ways in which the Federal Government promotes and encourages trade relationships, and contains a brief review of the Canadian tariff structure. Part IV contains a review of the extent of travel between Canada and other countries in 1963 with estimates of the amount of money expended for that purpose. The Canadian balance of international payments is covered in Chapter XXIV.

PART I.—CANADIAN MERCHANDISE EXPORTS AND IMPORTS, 1963-64*

Economic conditions in most countries continued to gather strength during 1963 with a consequent further advance in international merchandise trade. Canada shared in the expansion particularly in exports but imports rose strongly through most of the year.

Exports, which had remained almost unchanged in value between 1956 and 1958, commenced to rise in 1959 and the increase continued at a generally accelerating rate. In 1963, exports enjoyed their greatest increase in this five-year continuous expansion phase; the rise amounted to $632,000,000 or about 10 p.c. compared with an 8-p.c. increase in 1962. Over the period 1958-63, exports rose by 43 p.c. in value and about 33 p.c. in terms of physical volume. For 1953-63, the corresponding figures were 68 p.c. and 53 p.c., respectively.

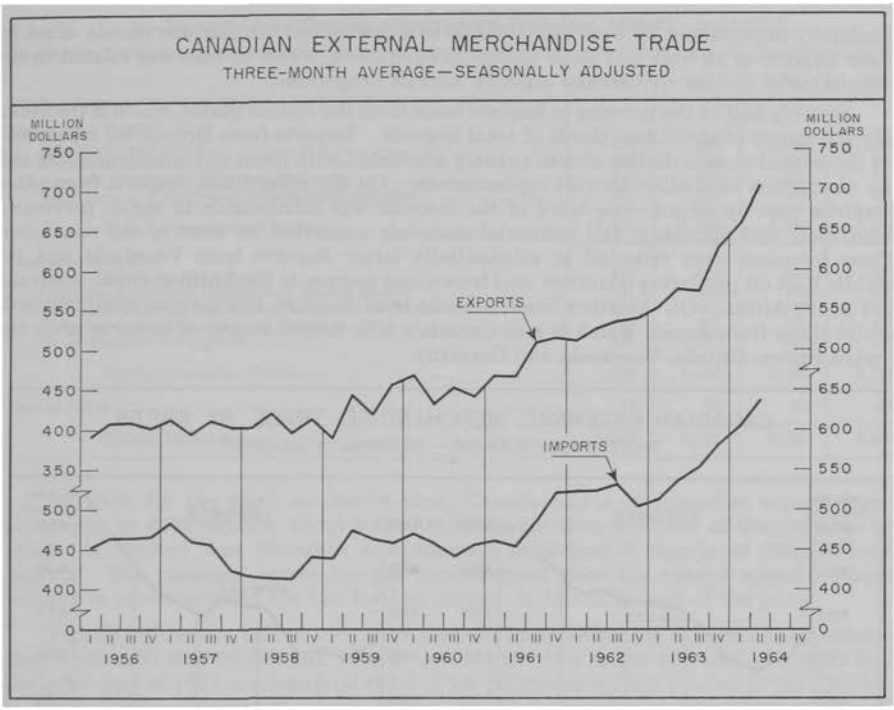
* Prepared by G. S. Watts, Research Department, Bank of Canada, Ottawa.

1.—Canadian Merchandise Exports, by Main Commodities or Groupings, 1954 and 1960-63

(Millions of dollars)

Group or Commodity	1954	1960	1961	1962	1963
Farm and Fish Products—					
Wheat and wheat flour	463	473	723	659	849
Barley, oats and rye	131	61	58	46	54
Other farm and fish products	390	484	518	559	561
Totals, Farm and Fish Products	984	1,018	1,299	1,264	1,464
Forest Products—					
Softwood lumber	311	323	335	371	427
Wood pulp	271	325	347	370	405
Newsprint	636	758	761	753	760
Other forest products	146	181	180	207	232
Totals, Forest Products	1,365	1,587	1,623	1,701	1,824
Minerals and Mineral Products—					
Iron ore	40	155	143	221	271
Primary iron and steel	44	161	157	162	197
Aluminum and products	185	269	252	294	316
Copper, nickel and products	317	473	530	523	530
Lead, zinc and products	99	90	86	87	83
Crude petroleum and natural gas	6	112	196	305	310
Uranium ores and concentrates	8	264	193	166	138
Other metals and minerals	218	289	301	306	325
Totals, Minerals and Mineral Products	917	1,814	1,858	2,063	2,169
Chemicals and fertilizers	153	238	251	248	268
Other manufactures and miscellaneous	441	600	724	902	1,073
Exports of foreign produce	65	129	140	169	182
Totals, Exports	**3,926**	**5,387**	**5,895**	**6,348**	**6,980**

From Table 1, which shows exports by principal product groupings, it may be seen that the course of expansion in 1963 was in certain respects a continuation of earlier trends and in other respects quite different. Exports of lumber, wood pulp, iron ore and aluminum continued to advance as did manufactured and miscellaneous goods which rose almost as strongly as in 1962; exports of newsprint and base metals remained relatively static and uranium continued to decline in response to the phasing out of remaining contracts. On the other hand, shipments of wheat and flour, which had fallen in 1962, rose strongly to a new peak and were responsible for almost one third of the total increase. This was attributable in large measure to initial shipments to the Soviet Union under contract amounting to about $500,000,000 covering the 1963-64 crop year; there were also large shipments to Mainland China under a new contract and demand elsewhere was generally strong. Primary iron and steel shipments were higher; chemicals and fertilizers and miscellaneous minerals were stronger (reflecting rising shipments of potash and sulphur among other items) but oil and gas, which had risen sharply in 1961 and 1962, remained almost unchanged. The increase of $171,000,000 in fully manufactured products carried the total to double its value in 1957. There were a number of special or new factors involved, such as goods financed under long-term credits by the Export Credits Insurance Corporation, military aircraft and other military equipment outside the range of ordinary commercial trade. But there were, as well, extensive increases in exports of automobiles and parts, farm implements, engineering and electrical equipment and a wide range of items reflecting a strengthening in Canada's competitive position abroad in the area of highly manufactured goods.

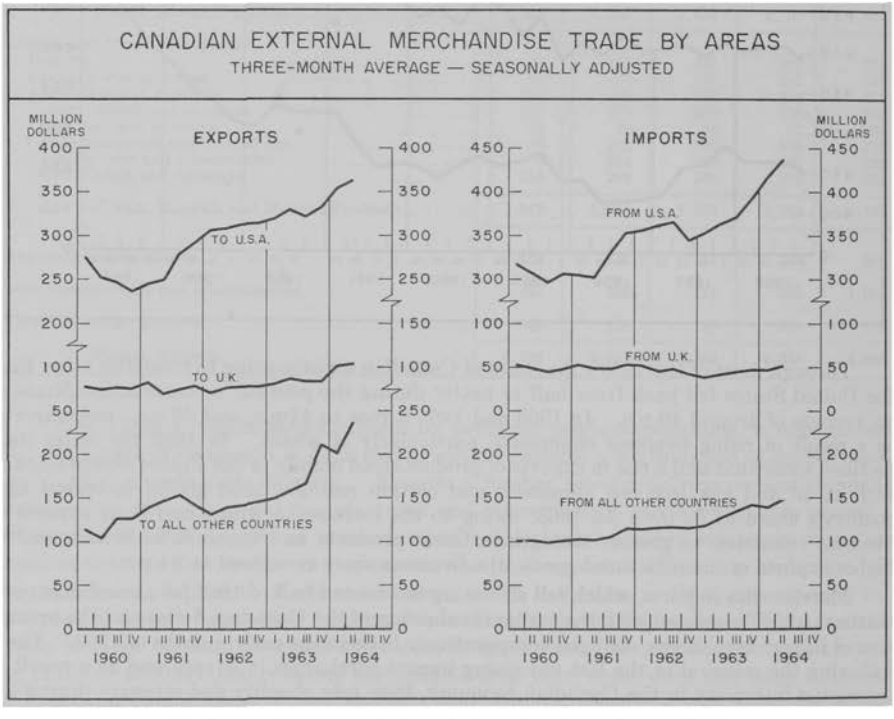


Through most of the 1950's the share of Canadian exports going to countries other than the United States fell back from half or better during the postwar reconstruction phase to an average of around 40 p.c. In 1960 and 1961 it rose to 44 p.c. and 46 p.c., respectively, as a result of rising overseas shipments, particularly of wheat. In 1962 the latter item declined somewhat and a rise in exports of products sold mainly in the United States market, such as oil and gas, iron ore, aluminum and certain manufactured goods, increased that country's share to 59 p.c. In 1963, owing to the increase in wheat and flour exports to overseas countries, to greater strength in forest products and uranium to Britain and to higher exports of manufactured goods, the overseas share recovered to 44 p.c.

Merchandise imports, which fell off during the second half of 1962 for a combination of reasons partly associated with the earlier revaluation of the Canadian dollar and the imposition of import surcharges, changed comparatively little in the early months of 1963. Then, following the removal of the last remaining import surcharges in March and as a result of increasing buoyancy in the Canadian economy, they rose steadily and strongly during the remaining months of the year. The increase for the year of $300,400,000 or 5 p.c. was less than the 8-p.c. increase in 1962; however, because of an almost equal increase in import prices, the rise in physical volume of imports appears to have been less than 1 p.c. compared with 4 p.c. in 1962. In contrast to the extensive rise in exports, imports which reached their low point in 1958 rose by only 30 p.c. in value and about 15 p.c. in volume in the succeeding five years. From Table **2**, which shows imports on an end-use basis, it is seen that the distribution of the 1963 increase by commodity groupings follows a rather different pattern than in the previous year. Over one third of the increase occurred in the food and beverages group and was attributable mainly to the sharp advance in the prices of sugar and some fruits. Industrial materials, automobiles, fuels and lubricants were moderately stronger but investment goods remained about the same as in 1962. The behaviour of the latter group was rather surprising in view of the general buoyancy in the economy; in fact,

machinery imports rose by over $100,000,000 to a new record but this was mainly offset by lower imports of aircraft and other transport equipment, which in turn was related to the completion of certain civilian and military aircraft programs.

Scarcely half of the increase in imports came from the United States, which is traditionally the source of about two thirds of total imports. Imports from Britain fell off in 1963 for the second year, a decline almost entirely associated with lower automobile imports and the completion of civilian aircraft replacements. On the other hand, imports from other countries rose by 14 p.c.; one third of the increase was attributable to sugar, previously mentioned, and petroleum and industrial materials accounted for most of the remainder. These increases were reflected in substantially larger imports from Venezuela and the Middle East oil-producing countries, and from sugar sources in the Antilles, India, Australia and South Africa. On the other hand, imports from Western Europe rose relatively little as did those from Japan, which is still Canada's fifth largest source of imports, after the United States, Britain, Venezuela and Germany.



2.—Imports into Canada classified by End-Use, 1960-63

(Millions of dollars)

Item	1960	1961	1962	1963
Fuels and lubricants	478	473	487	538
Industrial Materials—				
Textile and fur materials	353	378	422	432
Metal materials	423	448	529	579
Chemical materials	291	318	346	361
Other	388	408	430	418
Totals, Industrial Materials	1,455	1,552	1,727	1,790

2.—Imports into Canada classified by End-Use, 1960-63—concluded

Item	1960	1961	1962	1963
Investment Goods—				
Machinery and parts	940	968	1,093	1,201
Electrical machinery	233	234	302	291
Aircraft, transport equipment and parts	270	406	365	279
Construction materials, structural steel and pipe	232	216	221	223
Totals, Investment Goods	1,675	1,824	1,981	1,994
Consumer Goods—				
Foods, beverages and tobacco	572	618	650	779
Clothing, household textiles and leather goods	151	149	120	113
Passenger automobiles, engines and parts and finished vehicles	488	439	539	576
Household durables and semi-durables	223	227	203	191
Other manufactured goods	395	433	492	513
Totals, Consumer Goods	1,829	1,866	2,004	2,172
Special items	46	53	60	65
Totals, Imports	**5,483**	**5,771**	**6,258**	**6,559**

In 1963, for the third successive year, Canada had a merchandise export surplus amounting to $421,000,000, about $300,000,000 larger than in either of the previous two years. It resulted from the much more buoyant behaviour of exports as compared with imports. The principal causes for the improvement were the special wheat contracts referred to previously and the low level of imports in the early part of the year.

Figures for the first half of 1964 show that the improvement in exports has accelerated; they totalled $3,935,000,000 and were 21 p.c. higher than in the first half of 1963. As in the latter part of 1963, a substantial share of the improvement was related to the high level of wheat exports including the special contracts, but there was also a general broadening in strength including increases in newsprint, base metals, manufactured goods and fertilizers. The resulting over-all export surplus amounted to $224,000,000 compared with $123,000,000 in the first half of 1963.

Imports also rose rapidly during the first half of 1964; the six-month total amounted to about $3,711,000,000, some 19 p.c. higher than in the same period of 1963. All the main country groupings of imports rose by proportions not far removed from the over-all level. The increase from Britain is notable in that, besides being the largest percentage increase of the four country groupings, it reversed a trend that had been in evidence since 1961 and that ran counter to the persistent rise from other areas during this interval. Although at the time of writing details were not available for the whole period, the increase seems to have involved a broadening out in fields other than automobiles and aircraft.

PART II.—FOREIGN TRADE STATISTICS*

Section 1.—Explanatory Notes on Canadian Trade Statistics

Sources.—Canadian foreign trade statistics are compiled from information recorded on customs documents received by the Dominion Bureau of Statistics from the various customs ports in Canada with the following exceptions: *electricity* exports are based on reports received from the National Energy Board and imports are based on reports received from public utility companies; and *crude petroleum exported by pipeline*, statistics for which are reported directly to the Bureau by the pipeline companies. Record is kept of value and, whenever possible, of quantity. In considering trade figures, it should be noted that the statistics do not necessarily reflect the financial transactions relating to the movement of goods since the method and time of payment are affected by many factors.

* Based on statistical reports published by the External Trade Division, Dominion Bureau of Statistics.

Coverage.—*Domestic exports* or *exports of Canadian produce* include exports of goods wholly produced in Canada together with exports of previously imported goods that have been changed in form by further processing in Canada. *Re-exports* or *exports of foreign produce* include previously imported goods that are exported from Canada in the same form as when imported.

Imports, for years prior to 1964, include all goods that enter Canada and are cleared through customs for domestic sale or use, i.e., imports on which all duties are paid and which have passed from customs control into the possession of the importer. Goods re-exported without being cleared for domestic consumption are not included. It should be noted that the fact that imports have been *entered for consumption* does not necessarily imply that the goods will all be consumed in Canada but only that consumption can take place without further customs formalities.

Beginning Jan. 1, 1964, Canada's trade statistics are being compiled on a "General Trade" basis, instead of on the "Special Trade" basis used until the close of 1963 and thus used for all figures appearing in this Chapter. The definitions of terms given in the above paragraphs are according to the Special Trade basis. The main difference for figures recorded on the General Trade basis is that imports are entered as such whether the goods are cleared through customs for immediate domestic use or stored in a customs warehouse under customs supervision. Domestic exports remain the same on both bases but re-exports, after Jan. 1, 1964, will include exports from customs warehouses, which were previously excluded. Over a period of years, the totals of Canadian exports or imports will be almost the same on either the General Trade or Special Trade basis, but considerable differences may appear in individual years owing to time of clearance and extent of business activity.

The most important exclusions from export totals are: gold, goods shipped to Canadian Armed Forces or diplomats stationed abroad, goods financed under the Defence Appropriation Act and shipped to other NATO countries, temporary exports for exhibition or competition, fuel and stores sold to foreign vessels and aircraft in Canada, settlers' effects, private donations and gifts, and identifiable tourist purchases.

The most important exclusions from import totals are: gold, goods for use of the United States Armed Forces stationed at treaty bases in Canada, Canadian-owned military equipment returned to Canada, ships imported for use in foreign trade and ships of British construction and registry imported for use in the coasting trade, temporary imports for exhibition or competition, fuel and stores purchased by Canadian vessels and aircraft abroad, settlers' effects, private donations and gifts, tourist purchases exempt from duty, and goods imported for foreign armed forces or diplomats stationed in Canada.

From Jan. 1, 1960, a new category was established in both export and import statistics entitled "Special Transactions—Non-Trade". This category includes certain commodity movements which either have no international financial implications or, for various reasons, are better considered separately from merchandise trade in economic analysis. The value of transactions of these types is now excluded entirely from published totals of Canadian merchandise trade, and do not appear in this volume, but statistics for the classes of this category are contained in the regular monthly export and import reports.

Beginning with statistics for January 1961, a new export commodity classification was used, based on the standard industrial classification developed in the DBS as a tool for integrating statistical series derived from different sources. Whereas the classification previously used classified commodities primarily according to the material of which they were chiefly composed, the new classification places commodities in sections mainly according to stage of processing and purpose, as follows: Live Animals; Food, Feed, Beverages and Tobacco; Crude Materials, Inedible; Fabricated Materials, Inedible; End Products, Inedible; and Special Transactions—Trade.

As part of the change to the new classification, the commodity detail shown in export statistics has been modernized by eliminating statistics on many commodities of minor significance and instituting new classes for many commodities of greater importance. The grouping system employed in the new classification also makes easier the identification of

other commodities which may merit separate specification. For most of the commodities of greatest importance in Canadian exports, the classes of the new export commodity classification are substantially identical with those of its predecessor.

A similar new commodity classification was introduced for import statistics commencing January 1964. Import statistics will be presented on the new basis in the next edition of the Year Book.

Valuation.—Export entries define the value of exports as the "actual amount received or to be received in terms of Canadian dollars, exclusive of all charges" (freight, insurance, handling, etc.). This definition would give values f.o.b. point of consignment for export but in practice it is not always followed. For example, in recent years a significant but indeterminate proportion of exports has been reported in United States dollars, resulting in some overstatement of the value of exports for the period prior to June 1961 and some understatement of their value in subsequent months.

The value of goods imported is usually the value as determined for customs duty. The Canadian Customs Act generally requires the valuation of goods f.o.b. point of shipment in the country of export, but, at least in recent years, importers have often reported c.i.f. value for free goods or goods subject to specific rates of duty. An effort is made to ensure that f.o.b. values are consistently used in import statistics in the following cases: goods subject to dumping duty (from January 1959); raw cotton and crude petroleum (from January 1962, retroactive to January 1961); raw sugar (from January 1963, retroactive to January 1961); and all shipments individually valued at $100,000 or more (from January 1964). Only about one fifth of the value of imports is covered by these specific checks.

Country Classification.—Trade is credited to countries on the basis of consignment. For exports from Canada, the country of consignment is that country to which goods are, at the time of export, intended to pass without interruption of transit except in the course of transfer from one means of conveyance to another. For imports into Canada, the country of consignment is the country from which the goods came without interruption of transit except in the course of transfer from one means of conveyance to another. This is not necessarily the country of actual origin, since goods produced in one country may be imported by a firm in another country and re-sold to Canada; in such cases the second country is the country of consignment to which the goods are credited. There is one exception to this rule; an attempt is made to classify by country of origin goods produced in South America, Central America, Bermuda and the Antilles and consigned to Canada from the United States. The effect of this procedure is to reduce slightly the imports credited to the United States and to increase those credited to South and Central American countries.

The country sub-totals include trade with Commonwealth and other countries entitled to Preferential rates of duty (the Republic of Ireland and the Republic of South Africa).

Discrepancies in Trade Statistics Between Canada and Other Countries.—Canada's statistics of exports are rarely in exact agreement with the import statistics of its customers and parallel differences occur with Canadian imports. Major factors contributing to these discrepancies include:—

(1) Differences in the system of valuation used by Canada and those of other countries, especially with respect to the treatment of transportation charges.

(2) Differences in the statistical treatment of special categories of trade, such as armaments and military supplies, government-financed gift or mutual aid shipments, postal and express shipments, or warehouse trade.

(3) Differing definitions of territorial areas.

(4) Differing systems of crediting trade by countries, notably the consignment system used by Canada and the actual origin or ultimate destination system in use by some other countries.

(5) Differences in the time at which trade is recorded in the statistics of partner countries caused by the time required for goods to move from one country to another.

Section 2.—Total Foreign Trade

In considering the figures in Sections 2 to 6, reference should be made to the explanatory notes on trade in Section 1. Exports and imports of gold are excluded from all tables.

1.—Value of Total Foreign Trade of Canada (excluding Gold), 1949-63

NOTE.—Figures have been revised to cover the adjustment for "Special Transactions—Non-Trade"; see p. 912.

Year	Exports			Imports			Balance of Trade: Excess of Exports (+) Imports (−)
	Domestic	Re-exports	Total	Dutiable	Free	Total	
	$'000	$'000	$'000	$'000	$'000	$'000	$'000
1949	2,974,969	29,428	3,004,397	1,444,124	1,269,902	2,714,025	+ 290,372
1950	3,104,016	38,620	3,142,636	1,621,534	1,503,697	3,125,231	+ 17,406
1951	3,897,082	48,847	3,945,929	2,174,304	1,830,635	4,004,939	− 59,011
1952	4,282,361	54,814	4,337,175	2,162,882	1,753,535	3,916,418	+ 420,757
1953	4,097,111	55,158	4,152,269	2,417,960	1,829,848	4,247,808	− 95,539
1954	3,860,217	65,604	3,925,821	2,311,568	1,655,833	3,967,401	− 41,580
1955	4,258,328	69,448	4,327,776	2,638,037	1,929,718	4,567,754	− 239,978
1956	4,760,442	73,335	4,833,777	3,292,516	2,254,435	5,546,951	− 713,175
1957	4,788,880	95,261	4,884,141	3,223,197	2,250,149	5,473,346	− 589,205
1958	4,791,436	102,907	4,894,343	2,952,707	2,097,785	5,050,492	− 156,150
1959	5,021,672	118,628	5,140,300	3,143,065	2,365,856	5,508,921	− 368,621
1960	5,255,575	131,217	5,386,792	3,048,583	2,434,112	5,482,695	− 95,903
1961	5,754,986	140,229	5,895,215	3,115,408	2,653,170	5,768,578	+ 126,637
1962r	6,178,523	169,190	6,347,713	3,480,282	2,777,494	6,257,776	+ 89,937
1963	6,798,529	181,613	6,980,142	3,542,601	3,015,606	6,558,208	+ 421,934

Treatment of Gold in Trade Statistics.—The general use of gold as a money metal gives it peculiar attributes that distinguish it from other commodities in trade. In particular, international movements of gold are determined largely by monetary factors rather than by ordinary trade or commercial considerations. Gold is generally acceptable; it does not have to surmount tariff barriers and is normally assured a market at a fixed minimum price. Also, gold may be bought or sold internationally without any physical movements of the metal, such transactions being recognized by simply setting aside or 'ear-marking' the metal in the vaults of some central bank.

For these reasons movements of gold in a primary or semi-fabricated state are excluded from the totals of Canada's commodity trade. However, since gold is produced in Canada primarily as an export commodity, a series showing new gold production available for export is published as a supplement to the trade statistics. Because this series is calculated on a production basis, a division of the figures into transactions with individual countries is not possible.

2.—New Gold Production Available for Export, by Month, 1956-63

NOTE.—Since Mar. 21, 1956, mines not receiving aid under the Emergency Gold Mining Assistance Act have been allowed to sell their gold to private residents and non-residents, either for export or for safe-keeping in Canada. Such sales, commencing in April 1956, are included in the figures of new gold production available for export.

(Millions of dollars)

Month	1956	1957	1958	1959	1960	1961	1962	1963
January	12.5	13.6	14.7	11.7	14.5	14.1	9.8	14.2
February	12.7	12.4	17.7	16.1	15.0	14.2	18.1	15.8
March	12.4	11.7	11.1	9.8	14.3	12.8	14.6	14.9
April	12.3	10.7	10.7	14.1	9.4	13.3	10.3	13.4
May	13.4	15.1	12.9	12.9	12.4	15.2	17.6	13.9
June	12.8	5.0	14.7	13.8	13.3	13.9	13.6	13.9
July	10.8	12.7	13.6	11.4	11.7	12.7	11.5	12.5
August	14.0	3.4	11.4	11.1	14.4	14.8	16.2	12.9
September	12.1	9.9	12.6	10.3	15.7	13.1	11.6	12.5
October	12.1	16.0	13.9	9.4	12.3	11.1	13.6	16.2
November	12.0	16.1	11.4	12.6	11.7	16.3	16.4	13.4
December	10.1	17.1	12.4	15.1	16.8	10.7	11.7	12.0
Totals	**147.2**	**143.7**	**157.1**	**148.3**	**161.5**	**162.2**	**165.9**	**165.6**

Section 3.—Trade by Geographic Area

The tables in this Section provide information about Canada's total foreign trade by geographic region and by country.

3.—Trade of Canada with Commonwealth and Preferential Countries, and Other Countries, 1946-63

Item and Year	Britain		Other Commonwealth and Preferential Countries		United States[1]		Other Countries	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	$'000		$'000		$'000		$'000	
Domestic Exports								
1946	594,138	26.1	301,411	13.3	884,066	38.9	492,390	21.7
1947	746,718	27.1	405,485	14.8	1,030,101	37.4	570,495	20.7
1948	683,249	22.4	337,880	11.1	1,498,552	49.1	532,409	17.4
1949	702,074	23.6	309,214	10.4	1,504,768	50.6	458,913	15.4
1950	467,896	15.1	197,654	6.4	2,020,703	65.1	417,763	13.4
1951	630,124	16.2	260,889	6.7	2,296,235	58.9	709,834	18.2
1952	744,461	17.4	283,809	6.6	2,302,673	53.8	951,418	22.2
1953	662,785	16.2	244,745	6.0	2,413,318	58.9	776,263	18.9
1954	651,033	16.9	202,561	5.2	2,308,670	59.8	697,953	18.1
1955	767,642	18.0	248,624	5.9	2,547,636	59.8	694,426	16.3
1956	811,113	17.0	252,117	5.3	2,803,085	58.9	834,127	18.8
1957	720,898	15.1	240,016	5.0	2,846,646	59.4	981,320	20.5
1958	771,576	16.1	290,125	6.1	2,808,067	58.6	921,667	19.2
1959	785,802	15.7	281,462	5.6	3,083,151	61.4	871,257	17.3
1960	915,290	17.4	333,815	6.4	2,932,171	55.8	1,074,300	20.4
1961	909,344	15.8	328,854	5.7	3,107,176	54.0	1,409,612	24.5
1962	909,041	14.7	331,004	5.4	3,608,439	58.4	1,330,040	21.5
1963	1,006,838	14.8	394,274	5.8	3,766,380	55.4	1,631,037	24.0
Imports								
1946	137,423	7.5	135,601	7.4	1,387,386	75.3	180,857	9.8
1947	184,207	7.2	164,553	6.5	1,951,606	76.8	242,293	9.5
1948	293,535	11.2	203,932	7.8	1,798,507	68.7	322,302	12.3
1949	302,420	11.1	186,306	6.9	1,915,227	70.6	310,072	11.4
1950	400,811	12.8	241,124	7.7	2,089,531	66.9	393,765	12.6
1951	415,194	10.4	306,287	7.6	2,752,087	68.7	531,371	13.3
1952	351,541	9.0	184,345	4.7	2,887,628	73.7	492,904	12.6
1953	445,441	10.5	170,224	4.0	3,115,201	73.3	516,842	12.2
1954	382,229	9.6	181,884	4.6	2,871,279	72.4	532,010	13.4
1955	393,117	8.6	209,265	4.6	3,331,143	72.9	634,229	13.9
1956	476,371	8.6	220,808	4.0	4,031,394	72.7	818,378	14.7
1957	507,319	9.3	239,054	4.4	3,887,391	71.0	839,582	15.3
1958	518,505	10.3	210,016	4.2	3,460,147	68.5	861,824	17.0
1959	588,573	10.7	241,241	4.4	3,709,065	67.3	970,042	17.6
1960	588,932	10.8	281,167	5.1	3,686,625	67.2	925,971	16.9
1961	618,221	10.7	292,155	5.1	3,863,968	67.0	994,233	17.2
1962	563,062	9.0	318,501	5.1	4,299,539	68.7	1,076,673[r]	17.2
1963	526,850	8.0	405,937	6.2	4,444,556	67.8	1,180,864	18.0

[1] Includes Alaska and Hawaii.

4.—Trade of Canada, by Leading Countries, 1963, with Comparable Figures for 1961 and 1962

Rank in— 1961	Rank in— 1962	Rank in— 1963	Item and Country	1961	1962	1963
				$'000	$'000	$'000
			Domestic Exports			
1	1	1	United States	3,107,176	3,608,439	3,766,380
2	2	2	Britain	909,344	909,041	1,006,838
3	3	3	Japan	231,574	214,535	296,010
4	4	4	Germany, Federal Republic	188,694	177,688	170,969
22	[1]	5	Union of Soviet Socialist Republics	24,276	3,297	150,122
5	5	6	China, Communist	125,448	147,438	104,738
6	6	7	Australia	78,628	104,965	100,773
11	7	8	Netherlands	61,297	76,940	87,009
10	8	9	Italy	67,688	74,521	76,761
7	10	10	Belgium and Luxembourg	76,055	68,169	76,493
9	9	11	Norway	69,744	69,054	73,398
8	11	12	France	71,923	57,561	63,428
14	14	13	Republic of South Africa	37,819	37,525	60,299
13	13	14	Mexico	38,529	41,267	55,572
12	16	15	India	42,885	29,633	53,900
16	12	16	Venezuela	34,978	42,328	46,328
20	20	17	Argentina	30,893	22,546	36,992
18	18	18	New Zealand	31,125	26,784	30,549
21	17	19	Brazil	30,076	28,481	29,432
23	19	20	Switzerland	22,422	23,891	27,247
15	15	21	Poland	36,819	37,391	27,200
25	22	22	Colombia	19,525	19,887	23,348
26	21	23	Jamaica	19,077	21,891	22,271
30	23	24	Philippines	15,645	18,545	21,284
29	24	25	Sweden	17,654	18,230	20,926
33	25	26	Spain	12,803	15,416	20,500
31	31	27	Pakistan	15,315	10,755	19,152
[1]	[1]	28	Yugoslavia	2,135	999	17,519
24	27	29	Hong Kong	19,604	14,283	17,490
19	30	30	Cuba	31,104	10,878	16,433
			Totals, 30 Leading Countries	**5,470,255**	**5,932,378**	**6,519,362**
			Grand Totals, Domestic Exports	**5,754,986**	**6,178,523**	**6,798,529**
			Imports			
1	1	1	United States	3,863,968	4,299,539	4,444,556
2	2	2	Britain	618,221	563,062	526,850
3	3	3	Venezuela	216,640	224,275	243,495
4	4	4	Germany, Federal Republic	136,530	141,198	144,023
5	5	5	Japan	116,607	125,359	130,471
6	6	6	France	54,280	56,160	58,170
11	9	7	Australia	36,649	45,216	55,650
7	7	8	Italy	49,140	51,859	55,303
13	10	9	India	33,465	43,479	52,664
10	12	10	Jamaica	38,511	39,721	51,524
9	11	11	Saudi Arabia	41,393	40,551	50,290
8	8	12	Belgium and Luxembourg	44,780	48,672[r]	47,342
20	15	13	Iran	21,622	31,736	42,799
12	13	14	Netherlands	33,493	37,049	36,736
15	16	15	Brazil	29,081	31,600	36,361
14	14	16	Netherlands Antilles	31,137	35,856	35,999
17	19	17	Sweden	24,221	25,873	33,410
16	17	18	Switzerland	26,102	28,040	32,469
27	23	19	Republic of South Africa	12,202	16,952	31,548
18	18	20	Malaya and Singapore	23,597	27,740	31,454
19	21	21	British Guiana	23,030	23,375	31,334
22	20	22	Mexico	18,193	24,416[r]	23,734
30	24	23	Norway	8,965	16,109	23,492
25	22	24	Hong Kong	14,143	18,889	21,197
24	27	25	Trinidad and Tobago	14,375	14,100	15,871
23	26	26	Ceylon	16,516	14,763	14,642
29	29	27	New Zealand	10,546	12,005	14,067
26	25	28	Colombia	13,023	15,658	13,576
28	28	29	Denmark	11,650	13,278	13,209
39	[1]	30	Cuba	5,034	2,803	13,041
			Totals, 30 Leading Countries	**5,587,114**	**6,069,333**	**6,325,277**
			Grand Totals, Imports	**5,768,578**	**6,257,776[r]**	**6,558,208**

[1] Lower than 50th.

5.—Value of Domestic Exports, by Geographic Region and Country, 1956-63

Region and Country	1956	1957	1958	1959	1960	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Western Europe—								
Britain	811,113	720,898	771,576	785,802	915,290	909,344	909,041	1,006,838
Gibraltar	239	272	214	182	200	291	149	185
Ireland	10,106	8,379	8,690	8,156	7,706	11,588	10,329	10,461
Malta and Gozo	4,056	2,743	1,506	2,142	2,299	2,924	2,217	2,313
Austria	4,920	6,441	7,457	8,260	7,745	7,877	7,316	6,826
Belgium and Luxembourg	57,789	60,194	69,531	56,127	69,131	76,055	68,169	76,493
Denmark	3,467	3,487	4,859	5,449	4,978	4,813	6,087	6,811
Finland	1,931	909	2,312	2,739	4,355	6,085	5,240	7,277
France	52,710	57,030	44,688	43,157	72,907	71,923	57,561	63,428
Germany, Federal Republic	133,847	151,508	201,134	129,345	165,597	188,694	177,688	170,969
Greece	2,402	4,022	4,576	3,798	5,546	4,995	9,235	7,429
Iceland	284	268	310	279	243	219	287	347
Italy	37,559	62,685	29,718	31,717	68,393	67,688	74,521	76,761
Netherlands	54,371	69,553	74,721	53,849	62,554	61,297	76,940	87,009
Norway	57,609	55,491	55,849	62,308	61,595	69,744	69,054	73,398
Portugal	1,894	2,788	2,553	3,251	3,336	4,718	2,563	5,859
Spain	5,013	5,875	6,675	6,168	10,243	12,803	15,416	20,500
Sweden	7,793	11,964	10,866	14,879	20,906	17,654	18,230	20,926
Switzerland	33,294	24,894	29,243	25,728	26,404	22,422	23,891	27,247
Totals, Commonwealth and Preferential Countries	825,515	732,292	781,986	796,281	925,496	924,147	921,736	1,019,797
Totals, Other Countries	454,884	517,109	544,492	447,055	583,932	616,986	612,198	651,279
Totals, Western Europe	**1,280,399**	**1,249,401**	**1,326,478**	**1,243,336**	**1,509,428**	**1,541,133**	**1,533,934**	**1,671,076**
Eastern Europe—								
Albania	—	[1]	[1]	[1]	[1]	5,845	3,053	2
Bulgaria	102	116	70	200	491	277	388	28
Czechoslovakia	24,540	1,401	1,342	4,937	6,767	32,654	3,522	13,289
Germany, Eastern	1,458	25	[1]	[1]	994	17,972	148	1,262
Hungary	1,907	289	384	1,115	931	564	350	374
Poland	17,903	16,632	560	15,631	16,665	36,819	37,391	27,200
Romania	123	429	1,171	1,157	1,326	1,037	514	1,275
Union of Soviet Socialist Republics	24,528	10,646	18,863	12,638	8,233	24,276	3,297	150,123
Yugoslavia	206	189	198	2,577	3,249	2,135	999	17,519
Totals, Eastern Europe	**70,766**	**29,727**	**22,587**	**38,255**	**38,658**	**121,579**	**49,662**	**211,071**
Middle East—								
Bahrain	[2]	[2]	[2]	[2]	112	111	210	162
Cyprus	[3]	[3]	[3]	[3]	609	70	298	513
Kuwait	[2]	[2]	[2]	[2]	1,091	941	1,040	2,748
Qatar	[2]	[2]	[2]	[2]	55	72	213	246
British Middle East, *n.e.s.*	8	1	1	7	61	165	159	127
Ethiopia	101	117	77	72	220	120	105	139
Iran	782	1,700	1,648	2,242	2,499	4,457	5,293	3,568
Iraq	654	1,069	969	4,311	2,425	1,374	1,343	3,376
Israel	2,648	4,889	4,501	4,557	6,184	8,747	6,232	8,163
Jordan	35	56	73	72	131	308	145	244
Lebanon	1,162	924	2,073	3,182	3,443	2,484	2,244	2,365
Libya	95	180	156	382	333	151	376	690
Saudi Arabia	1,940	1,656	2,017	2,877	2,905	2,697	3,257	3,548
Somalia	6	6	—	193	2	12	3	22
Sudan	65	212	182	367	335	333	180	173
Syria	716	798	765	1,067	674	364	561	713
Turkey	822	450	1,400	693	2,014	1,943	978	2,378
United Arab Republic—Egypt	2,499	1,197	1,077	1,601	2,010	3,025	2,230	2,536
Totals, Commonwealth and Preferential Countries	8	1	1	7	1,927	1,360	1,920	3,796
Totals, Other Countries	11,525	13,254	14,938	21,617	23,176	26,013	22,945	27,914
Totals, Middle East	**11,533**	**13,254**	**14,939**	**21,624**	**25,103**	**27,373**	**24,866**	**31,710**

[1] Less than $500. [2] Included with Saudi Arabia prior to 1960. [3] Included with Malta and Gozo prior to 1960.

5.—Value of Domestic Exports, by Geographic Region and Country, 1956-63—continued

Region and Country	1956	1957	1958	1959	1960	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Other Africa—								
Ghana	1,479	1,244	1,272	3,784	3,879	7,798	8,400	5,451
Kenya	383	743	472	806	936	586	680	1,018
Mauritius and Dependencies	108	145	107	68	77	95	94	218
Nigeria	723	1,492	308	938	2,305	3,272	6,997	3,234
Republic of South Africa	64,565	48,322	49,960	51,243	52,655	37,819	37,525	60,299
Rhodesia and Nyasaland	4,640	4,925	3,894	2,851	4,088	3,396	3,367	4,562
Sierra Leone	614	490	501	725	641	810	1,200	1,298
Tanganyika	[1]	[1]	[1]	[1]	143	173	228	362
Uganda	[1]	[1]	[1]	[1]	86	66	137	148
British Africa, *n.e.s.*	99	36	15	57	200	156	161	264
Algeria	[2]	[2]	[2]	[2]	4,662	6,064	2,202	3,970
Angola	[3]	[3]	[3]	[3]	67	160	44	104
Cameroons	[4]	[4]	[4]	[4]	[4]	[4]	92	24
Congo	2,774	2,614	2,926	2,689	1,310	980	889	921
French Equatorial Africa	[2]	[2]	[2]	[2]	34	57	5[5]	8
French West Africa	[2]	[2]	[2]	[2]	135	73	775[5]	331
French Africa, *n.e.s.*	1,060	844	1,008	2,765	10	26	9	10
Gabon	[2]	[2]	[2]	[2]	[2]	19	61	15
Guinea	[2]	[2]	[2]	[2]	9	140	131	[5]
Ivory Coast	[2]	[2]	[2]	[2]	[2]	26	10	18
Liberia	1,781	1,551	652	217	644	501	816	1,100
Morocco	2,027	725	1,152	416	627	476	459	963
Mozambique	2,185	2,128	1,326	2,012	3,145	2,023	2,504	2,646
Portuguese Africa, *n.e.s.*	167	210	320	305	279	241	197	283
Spanish Africa	15	15	2	2	28	40	118	27
Togo	[4]	[4]	[4]	[4]	[4]	[4]	105	350
Tunisia	[2]	[2]	[2]	[2]	170	561	30	1,970
Totals, Commonwealth and Preferential Countries	72,610	57,397	56,529	60,473	65,010	54,172	58,790	76,853
Totals, Other Countries	10,008	8,086	7,386	8,406	11,121	11,385	8,449	12,738
Totals, Other Africa	**82,619**	**65,482**	**63,915**	**68,878**	**76,130**	**65,558**	**67,239**	**89,591**
Other Asia—								
Ceylon	3,325	3,205	5,459	4,931	2,479	3,799	2,007	2,636
Hong Kong	7,005	7,563	6,028	11,192	21,665	19,604	14,283	17,490
India	25,614	28,902	78,994	53,654	36,814	42,885	29,633	53,900
Malaya and Singapore	3,889	3,288	3,223	3,258	4,660	5,696	5,453	6,355
Pakistan	10,376	11,308	15,311	17,317	11,942	15,315	10,755	19,152
British East Indies, *n.e.s.*	127	185	112	95	360	457	435	644
Afghanistan	14	87	24	67	159	55	25	18
Burma	285	239	944	817	806	1,405	1,303	703
Cambodia and Laos	[6]	[6]	[6]	[6]	148	114	2	17
China, Communist	2,427	1,390	7,809	1,720	8,737	125,448	147,438	104,738
Indonesia	1,201	1,590	1,665	1,760	2,110	2,463	2,027	1,449
Japan	127,804	139,082	104,853	139,724	178,859	231,574	214,535	296,010
Korea	2,594	6,970	3,682	6,000	3,916	2,067	1,492	3,815
Philippines	18,036	17,516	14,077	14,863	14,809	15,645	18,545	21,284
Portuguese Asia	454	461	341	358	93	59	22	38
Portuguese India	[7]	[7]	[7]	[7]	385	445	[8]	[8]
Taiwan (Republic of China)	747	1,641	1,161	1,692	2,886	2,219	4,387	3,759
Thailand	1,933	2,041	1,288	1,937	2,710	2,921	3,472	2,823
Viet Nam	534	996	249	385	540	206	298	250
Totals, Commonwealth and Preferential Countries	50,335	54,452	109,127	90,447	77,920	87,755	62,566	100,176
Totals, Other Countries	156,030	172,011	136,095	169,324	216,159	384,622	393,546	434,903
Totals, Other Asia	**206,366**	**226,463**	**245,222**	**259,771**	**294,079**	**472,376**	**456,112**	**535,079**
Oceania—								
Australia	47,582	48,662	52,562	53,929	98,862	78,628	104,965	100,773
Fiji	1,121	578	814	727	808	607	705	759
New Zealand	17,896	16,842	15,008	13,306	23,858	31,125	26,784	30,549
British Oceania, *n.e.s.*	118	113	98	65	324	191	296	249
French Oceania	479	386	271	171	313	303	366	299

[1] Included with Kenya prior to 1960. [2] Included with French Africa, *n.e.s.* prior to 1961. [3] Included with Portuguese Africa, *n.e.s.* prior to 1960. [4] Included with French Africa, *n.e.s.* prior to 1962. [5] Less than $500. [6] Included with Viet Nam prior to 1960. [7] Included with Portuguese Asia prior to 1960. [8] Included with India.

5.—Value of Domestic Exports, by Geographic Region and Country, 1956-63—concluded

Region and Country	1956	1957	1958	1959	1960	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Oceania—concluded								
United States Oceania	212	208	138	167	640	1,293	3,084	3,693
Totals, Commonwealth and Preferential Countries	66,717	66,195	68,483	68,027	123,852	110,551	132,750	132,330
Totals, Other Countries	691	594	409	338	953	1,596	3,451	3,992
Totals, Oceania	**67,408**	**66,789**	**68,892**	**68,365**	**124,805**	**112,147**	**136,201**	**136,322**
South America—								
British Guiana	4,298	4,969	4,014	4,392	7,428	5,272	5,102	5,061
Falkland Islands	11	3	53	216	169	24	13	6
Argentina	6,130	14,158	6,428	7,002	19,364	30,893	22,546	36,992
Bolivia	1,480	934	414	324	323	353	363	628
Brazil	12,945	25,686	21,088	14,148	19,755	30,076	28,481	29,432
Chile	4,394	4,342	4,566	6,226	6,575	8,225	13,278	12,329
Colombia	17,552	14,587	13,813	17,668	16,590	19,525	19,887	23,348
Ecuador	4,336	2,782	3,185	3,864	3,913	3,922	3,777	3,913
French Guiana	[1]	5	2	2	2	15	5	2
Paraguay	237	171	183	114	120	69	41	211
Peru	11,265	10,031	11,441	11,632	8,891	8,188	8,140	11,641
Surinam	1,025	829	853	696	883	1,224	866	1,031
Uruguay	2,752	3,777	938	1,656	2,423	3,039	3,151	2,994
Venezuela	34,203	39,661	43,480	45,833	35,345	34,978	42,328	46,328
Totals, Commonwealth and Preferential Countries	4,309	4,971	4,067	4,608	7,597	5,296	5,115	5,067
Totals, Other Countries	96,318	116,963	106,392	109,166	114,184	140,507	142,863	168,848
Totals, South America	**100,627**	**121,935**	**110,459**	**113,773**	**121,780**	**145,803**	**147,978**	**173,915**
Central America and Antilles—								
Bahamas	2,218	2,487	2,541	3,083	3,357	3,798	5,010	6,133
Barbados	4,684	4,628	4,159	4,103	3,775	3,977	4,481	5,469
Bermuda	2,801	2,907	3,195	4,334	4,016	4,239	4,492	5,713
British Honduras	243	276	229	289	409	600	835	698
Jamaica	17,063	19,247	15,588	18,538	18,056	19,077	21,891	22,271
Leeward and Windward Islands	4,270	4,297	4,248	4,437	4,720	4,828	5,642	6,596
Trinidad and Tobago	12,456	11,763	11,548	12,636	12,971	18,398	14,817	16,213
Costa Rica	2,731	2,360	2,879	2,633	2,983	2,931	3,473	3,651
Cuba	15,284	16,846	17,549	15,222	13,038	31,104	10,878	16,433
Dominican Republic	4,965	4,991	5,335	5,137	5,062	4,469	8,488	9,085
El Salvador	2,293	2,412	2,146	2,567	2,390	2,436	3,354	3,134
French West Indies	16	37	26	19	43	75	53	66
Guatemala	2,997	3,190	3,645	2,627	2,106	2,188	2,705	3,107
Haiti	2,888	2,191	2,079	1,319	1,529	1,543	1,277	1,525
Honduras	856	1,055	1,201	946	1,416	1,061	899	1,100
Mexico	39,303	42,477	31,429	27,633	38,023	38,529	41,267	55,572
Netherlands Antilles	1,332	1,312	1,583	1,193	1,131	1,239	1,793	2,406
Nicaragua	1,396	1,534	1,886	1,515	1,319	1,448	2,135	2,693
Panama	7,742	30,657	5,370	4,023	3,703	4,578	5,645	4,417
Puerto Rico	10,396	12,589	12,526	10,522	11,172	13,109	12,711	14,619
United States Virgin Islands	130	126	132	185	214	190	283	284
Totals, Commonwealth and Preferential Countries	43,735	45,605	41,507	47,421	47,304	54,917	57,167	63,093
Totals, Other Countries	92,329	121,779	87,786	75,540	84,127	104,900	94,961	118,092
Totals, Central America and Antilles	**136,064**	**167,384**	**129,294**	**122,961**	**131,431**	**159,818**	**152,129**	**181,185**
North America—								
Greenland	176	76	138	154	427	198	167	287
St. Pierre and Miquelon	1,399	1,722	1,444	1,403	1,563	1,825	1,799	1,913
United States[2]	2,803,085	2,846,646	2,808,067	3,083,151	2,932,171	3,107,176	3,608,439	3,766,380
Totals, North America	**2,804,660**	**2,848,445**	**2,809,650**	**3,084,708**	**2,934,162**	**3,109,199**	**3,610,404**	**3,768,580**
Grand Totals, Commonwealth and Preferential Countries	**1,063,230**	**960,914**	**1,061,701**	**1,067,263**	**1,249,104**	**1,238,198**	**1,240,045**	**1,461,112**
Grand Totals, Other Countries	**3,697,212**	**3,827,966**	**3,729,735**	**3,954,409**	**4,006,470**	**4,516,788**	**4,938,479**	**5,397,417**
Grand Totals, All Countries	**4,760,442**	**4,788,880**	**4,791,436**	**5,021,672**	**5,255,575**	**5,754,986**	**6,178,523**	**6,798,529**

[1] Less than $500. [2] Includes Alaska and Hawaii.

6.—Value of Imports, by Geographic Region and Country, 1956-63

Region and Country	1956	1957	1958	1959	1960	1961	1962[r]	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Western Europe—								
Britain	476,371	507,320	518,505	588,573	588,932	618,221	563,062	526,850
Gibraltar	—	—	[1]	[1]	2	1	—	—
Ireland	371	1,122	1,313	2,001	2,098	3,806	4,826	5,270
Malta and Gozo	39	64	62	174	22	25	36	232
Austria	3,724	4,239	4,640	5,707	6,605	6,636	7,971	9,026
Belgium and Luxembourg	52,379	43,681	35,759	44,786	41,401	44,780	48,672	47,342
Denmark	5,858	7,939	7,401	9,227	9,962	11,650	13,278	13,209
Finland	500	402	475	875	1,053	1,215	1,939	2,520
France	31,719	34,987	40,007	56,940	50,121	54,280	56,160	58,170
Germany, Federal Republic	84,430	92,527	102,644	123,905	126,988	136,530	141,198	144,023
Greece	242	399	316	310	538	545	1,094	1,631
Iceland	2	40	7	40	15	707	1,183	696
Italy	24,644	32,536	32,150	37,656	42,843	49,140	51,859	55,303
Netherlands	21,524	21,690	26,905	29,154	31,456	33,493	37,049	36,736
Norway	3,698	2,984	3,106	4,063	4,248	8,965	16,109	23,492
Portugal	2,404	2,750	3,045	3,116	3,208	4,917	5,998	7,713
Spain	5,651	5,541	6,681	5,627	6,947	8,543	8,463	8,496
Sweden	17,135	15,339	13,939	18,077	20,409	24,221	25,873	33,410
Switzerland	21,925	24,053	26,491	24,514	24,343	26,102	28,040	32,469
Totals, Commonwealth and Preferential Countries	476,781	508,505	519,881	590,748	591,054	622,053	567,924	532,352
Totals, Other Countries	275,836	289,106	203,566	363,996	370,138	411,722	444,887	474,236
Totals, Western Europe	**752,617**	**797,611**	**823,446**	**954,744**	**961,191**	**1,033,775**	**1,012,811**	**1,006,588**
Eastern Europe—								
Albania	—	—	—	—	[1]	—	—	—
Bulgaria	4	[1]	4	6	6	24	34	74
Czechoslovakia	5,649	5,013	4,908	6,440	6,654	8,405	9,033	9,204
Germany, Eastern	779	707	948	901	877	970	881	1,207
Hungary	189	168	701	237	338	393	417	557
Poland	2,159	1,050	1,131	1,643	1,871	3,194	4,792	6,788
Romania	2	[1]	4	35	84	261	61	124
Union of Soviet Socialist Republics	1,001	2,789	1,676	2,278	3,210	2,746	1,777	2,313
Yugoslavia	900	564	813	551	804	1,665	1,801	1,843
Totals, Eastern Europe	**10,683**	**10,292**	**10,185**	**12,090**	**13,844**	**17,659**	**18,795**	**22,109**
Middle East—								
Bahrain	[2]	[2]	[2]	[2]	—	1	—	1
Cyprus	[3]	[3]	[3]	[3]	180	194	151	88
Kuwait	[2]	[2]	[2]	[2]	22,303	20,225	10,034	5,169
Qatar	[2]	[2]	[2]	[2]	8,434	8,724	6,273	8,678
British Middle East, *n.e.s.*	73	51	62	400	59	48	68	56
Ethiopia	120	61	18	44	43	4	5	21
Iran	1,056	535	915	11,948	30,740	21,622	31,736	42,799
Iraq	919	429	1,556	1,107	722	846	704	1,269
Israel	1,463	1,548	1,725	2,349	2,372	3,108	5,646	6,043
Jordan	1	4	1	1	1	3	1	3
Lebanon	19,590	6	12	4	33	23	58	65
Libya	[1]	[1]	[1]	—	[1]	[1]	10	[1]
Saudi Arabia	24,709	34,315	68,021	70,725	37,402	41,393	40,551	50,290
Somalia	—	—	1	[1]	—	[1]	—	1
Sudan	97	45	80	438	83	76	105	148
Syria	1,350	238	200	183	127	263	455	362
Turkey	686	823	491	886	855	859	1,472	1,294
United Arab Republic—Egypt	145	229	179	200	846	474	301	224
Totals, Commonwealth and Preferential Countries	73	51	62	400	30,975	29,192	16,525	13,992
Totals, Other Countries	50,137	38,232	73,198	87,887	73,224	68,668	81,044	102,518
Totals, Middle East	**50,210**	**38,284**	**73,261**	**88,286**	**104,200**	**97,861**	**97,569**	**116,511**

[1] Less than $500. [2] Included with Saudi Arabia prior to 1960. [3] Included with Malta and Gozo prior to 1960.

6.—Value of Imports, by Geographic Region and Country, 1956-63—continued

Region and Country	1956	1957	1958	1959	1960	1961	1962[r]	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Other Africa—								
Ghana	4,062	5,989	2,122	4,103	3,127	4,691	7,036	6,533
Kenya	7,270	4,970	5,057	4,261	2,561	3,629	3,157	5,392
Mauritius and Dependencies	7,758	10,278	5,918	7,584	2,100	5,600	5,215	8,606
Nigeria	985	2,252	2,372	3,084	4,358	3,504	5,726	7,924
Republic of South Africa	8,321	6,777	7,914	6,564	11,482	12,202	16,952	31,548
Rhodesia and Nyasaland	715	1,080	1,373	966	981	1,318	3,272	8,031
Sierra Leone	18	9	2	1	5	8	22	5
Tanganyika	[1]	[1]	[1]	[1]	1,834	2,139	2,173	7,245
Uganda	[1]	[1]	[1]	[1]	1,277	2,325	2,213	3,144
British Africa, *n.e.s.*	—	[2]	[2]	[2]	5	53	7	4
Algeria	[3]	[3]	[3]	[3]	161	162	509	458
Angola	[4]	[4]	[4]	[4]	209	136	122	728
Cameroons	[5]	[5]	[5]	[5]	[5]	[5]	15	147
Congo	2,744	3,337	1,125	2,258	1,781	1,314	1,320	1,921
French Equatorial Africa	[3]	[3]	[3]	[3]	185	27	8	38
French West Africa	[3]	[3]	[3]	[3]	270	1	[2]	[2]
French Africa, *n.e.s.*	2,095	2,225	1,749	2,183	33	29	17	271
Gabon	[3]	[3]	[3]	[3]	[3]	658	1,123	859
Guinea	[3]	[3]	[3]	[3]	2,794	4,824	896	2,501
Ivory Coast	[3]	[3]	[3]	[3]	[3]	788	244	227
Liberia	440	7	147	39	8	144	40	106
Morocco	152	138	130	209	222	164	487	540
Mozambique	370	39	24	18	1	30	139	395
Portuguese Africa, *n.e.s.*	94	33	11	—	—	—	[2]	—
Spanish Africa	24	20	7	8	2	17	23	39
Togo	[5]	[5]	[5]	[5]	[5]	[5]	—	—
Tunisia	[3]	[3]	[3]	[3]	62	32	17	2
Totals, Commonwealth and Preferential Countries	29,130	31,456	24,759	26,563	27,729	35,469	45,772	78,433
Totals, Other Countries	5,920	5,799	3,195	4,715	5,728	8,327	4,962	8,234
Totals, Other Africa	**35,050**	**37,254**	**27,954**	**31,278**	**33,456**	**43,796**	**50,734**	**86,667**
Other Asia—								
Ceylon	16,540	14,910	12,863	15,133	15,556	16,516	14,763	14,642
Hong Kong	5,642	7,138	8,689	12,969	15,534	14,143	18,889	21,197
India	30,852	29,185	27,655	29,221	29,352	33,465	43,479	52,664
Malaya and Singapore	28,544	27,313	19,863	28,644	28,120	23,597	27,740	31,454
Pakistan	1,297	489	460	1,061	985	2,367	2,561	2,270
British East Indies, *n.e.s.*	122	120	129	390	261	297	511	180
Afghanistan	—	—	—	—	—	[2]	—	—
Burma	1	9	84	24	85	30	50	102
Cambodia and Laos	[6]	[6]	[6]	[6]	17	2	—	—
China, Communist	5,713	5,299	5,370	4,840	5,638	3,233	4,521	5,147
Indonesia	1,141	951	211	147	529	290	173	152
Japan	60,729	61,396	70,092	102,669	110,382	116,607	125,359	130,471
Korea	1	34	21	235	404	76	99	380
Philippines	2,451	3,957	2,177	1,440	1,966	1,517	1,447	2,007
Portuguese Asia	—	—	1	[2]	—	—	77	428
Taiwan (Republic of China)	112	189	159	716	1,150	1,856	2,910	5,875
Thailand	1,062	609	643	649	842	582	1,031	582
Viet Nam	12	5	3	8	5	9	7	1
Totals, Commonwealth and Preferential Countries	82,997	79,155	69,659	87,418	89,807	90,384	107,943	122,407
Totals, Other Countries	71,223	72,448	78,762	110,728	121,020	124,202	135,673	145,145
Totals, Other Asia	**154,220**	**151,603**	**148,422**	**198,146**	**210,827**	**214,586**	**243,616**	**267,552**
Oceania—								
Australia	26,207	28,572	32,755	41,080	35,508	36,649	45,216	55,650
Fiji	6,267	7,216	5,727	4,764	6,481	2,512	3,144	8,588
New Zealand	12,265	11,707	11,540	8,594	10,099	10,546	12,005	14,067
British Oceania, *n.e.s.*	142	—	160	157	—	[2]	—	5
French Oceania	—	19	[2]	1	—	40	—	[2]

[1] Included with Kenya prior to 1960. [2] Less than $500. [3] Included with French Africa, *n.e.s.* prior to 1961. [4] Included with Portuguese Africa, *n.e.s.* prior to 1960. [5] Included with French Africa, *n.e.s.* prior to 1962. [6] Included with Viet Nam prior to 1960.

6.—Value of Imports, by Geographic Region and Country, 1956-63—concluded

Region and Country	1956	1957	1958	1959	1960	1961	1962[r]	1963
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Oceania—concluded								
United States Oceania	[1]	—	—	[1]	21	55	214	27
Totals, Commonwealth and Preferential Countries	44,880	47,495	50,182	54,595	52,087	49,706	60,365	78,310
Totals, Other Countries	[1]	19	[1]	1	21	96	214	27
Totals, Oceania	**44,880**	**47,514**	**50,182**	**54,597**	**52,109**	**49,802**	**60,578**	**78,338**
South America—								
British Guiana	20,482	20,988	20,627	18,033	18,921	23,030	23,375	31,334
Falkland Islands	—	—	—	[1]	8	8	—	—
Argentina	4,525	4,679	5,357	3,380	3,611	3,399	5,649	5,352
Bolivia	87	139	132	166	443	883	957	70
Brazil	34,807	35,276	27,419	28,479	24,883	29,081	31,600	36,361
Chile	1,701	1,597	823	870	747	1,217	1,117	1,271
Colombia	23,037	18,179	16,574	15,827	12,784	13,023	15,658	13,576
Ecuador	4,496	4,427	4,962	7,623	11,018	7,682	8,611	7,625
French Guiana	—	—	[1]	—	—	—	—	1
Paraguay	142	278	347	746	760	874	378	831
Peru	2,754	2,768	2,226	3,978	3,037	4,233	3,225	3,770
Surinam	3,925	3,899	2,270	2,872	4,156	3,482	4,067	6,158
Uruguay	1,156	808	820	657	987	1,834	793	868
Venezuela	208,346	248,069	209,538	204,582	195,189	216,640	224,275	243,495
Totals, Commonwealth and Preferential Countries	20,482	20,988	20,627	18,034	18,929	23,038	23,375	31,334
Totals, Other Countries	284,975	320,119	270,568	269,180	257,615	282,349	296,329	319,379
Totals, South America	**305,458**	**341,106**	**291,194**	**287,213**	**276,544**	**305,387**	**319,703**	**350,714**
Central America and Antilles—								
Bahamas	197	145	146	233	2,614	484	217	425
Barbados	4,610	7,602	3,735	4,709	2,417	4,980	3,170	3,954
Bermuda	118	116	276	1,291	701	224	136	262
British Honduras	137	182	136	92	91	701	629	1,720
Jamaica	24,572	40,133	27,491	31,012	37,688	38,511	39,721	51,524
Leeward and Windward Islands	2,191	2,387	1,761	1,989	1,496	1,261	1,686	2,202
Trinidad and Tobago	11,012	8,159	9,807	12,731	14,512	14,375	14,100	15,871
Costa Rica	3,890	8,602	7,127	4,810	4,345	4,227	6,259	7,308
Cuba	12,257	13,840	18,836	12,011	7,243	5,034	2,803	13,041
Dominican Republic	1,345	1,268	2,659	1,634	1,586	1,269	1,912	2,281
El Salvador	1,133	1,311	1,186	3,899	829	1,307	1,848	1,960
French West Indies	[1]	—	—	7	28	426	326	278
Guatemala	3,224	3,469	3,585	2,718	3,256	2,536	1,796	2,557
Haiti	1,679	1,491	1,073	1,053	982	810	566	1,159
Honduras	7,079	4,575	4,903	2,905	3,352	7,391	7,617	6,868
Mexico	41,592	20,987	31,888	34,201	21,007	18,193	24,416	23,734
Netherlands Antilles	38,103	39,259	39,453	47,120	32,521	31,137	35,856	35,999
Nicaragua	647	555	2,657	306	170	208	107	383
Panama	7,580	7,193	7,478	8,889	6,066	6,168	8,321	11,057
Puerto Rico	1,048	969	1,433	1,780	2,904	2,359	2,713	2,399
United States Virgin Islands	—	[1]	44	32	32	1	[1]	[1]
Totals, Commonwealth and Preferential Countries	42,836	58,723	43,352	52,057	59,518	60,535	59,658	75,958
Totals, Other Countries	119,578	103,520	122,323	121,365	84,322	81,067	94,541	109,025
Totals, Central America and Antilles	**162,414**	**162,244**	**165,675**	**173,422**	**143,839**	**141,603**	**154,199**	**184,984**
North America—								
Greenland	[1]	[1]	8	53	[1]	102	111	106
St. Pierre and Miquelon	25	47	19	27	60	42	118	84
United States[2]	4,031,394	3,887,391	3,460,147	3,709,065	3,686,625	3,863,968	4,299,539	4,444,556
Totals, North America	**4,031,419**	**3,887,437**	**3,460,174**	**3,709,145**	**3,686,685**	**3,864,111**	**4,299,769**	**4,444,746**
Grand Totals, Commonwealth and Preferential Countries	**697,179**	**746,373**	**728,521**	**829,814**	**870,099**	**910,377**	**881,563**	**932,788**
Grand Totals, Other Countries	**4,849,772**	**4,726,973**	**4,321,971**	**4,679,107**	**4,612,597**	**4,858,201**	**5,376,213**	**5,625,420**
Grand Totals, All Countries	**5,546,951**	**5,473,346**	**5,050,492**	**5,508,921**	**5,482,695**	**5,768,578**	**6,257,776**	**6,558,208**

[1] Less than $500. [2] Includes Alaska and Hawaii.

The proportion of imports subject to duty varies widely between countries and geographic areas. Generally, the Canadian tariff imposes duties on a greater proportion of manufactured goods than of natural products. Countries supplying chiefly manufactures to Canada tend to have duties charged on a greater proportion of their goods and also to have relatively higher average *ad valorem* rates of duty charged on their goods than is the case with countries supplying chiefly natural products. Variations in the proportion of imports dutiable as between different countries or in the average *ad valorem* rates of duty charged on imports from different countries therefore do not necessarily indicate differences in the tariff relations between Canada and these countries.

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1961-63

Region and Country	1961			1962r			1963		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Western Europe	**532,526**	**501,249**	**1,033,775**	**620,692**	**392,119**	**1,012,811**	**576,799**	**429,789**	**1,006,588**
Britain	201,574	416,647	618,221	264,132	298,930	563,062	212,832	314,018	526,850
Austria	6,242	393	6,636	7,243	729	7,971	8,071	955	9,026
Belgium and Luxembourg	34,434	10,346	44,780	36,725	11,947	48,672	34,327	13,015	47,342
Denmark	8,344	3,306	11,650	9,241	4,038	13,278	8,861	4,348	13,209
France	43,116	11,164	54,280	44,806	11,353	56,160	45,279	12,891	58,170
Germany, Federal Republic	115,632	20,898	136,530	120,195	21,003	141,198	118,537	25,486	144,023
Italy	42,632	6,509	49,140	46,227	5,632	51,859	49,494	5,809	55,303
Netherlands	25,557	7,936	33,493	27,336	9,713	37,049	27,268	9,468	36,736
Norway	3,340	5,625	8,965	5,002	11,107	16,109	5,359	18,133	23,492
Spain	3,613	4,930	8,543	5,149	3,314	8,463	4,035	4,460	8,496
Sweden	19,309	4,911	24,221	20,159	5,714	25,873	24,646	8,764	33,410
Switzerland	21,179	4,923	26,102	22,635	5,406	28,042	25,202	7,267	32,469
Eastern Europe	**14,658**	**3,001**	**17,659**	**16,164**	**2,631**	**18,795**	**19,315**	**2,791**	**22,109**
Czechoslovakia	7,929	477	8,405	8,419	614	9,033	8,828	376	9,204
Poland	2,745	450	3,194	4,389	402	4,792	6,416	372	6,788
Middle East	**2,495**	**95,365**	**97,861**	**4,178**	**93,391**	**97,569**	**4,335**	**112,175**	**116,511**
Kuwait	251	19,974	20,225	—	10,034	10,034	—	5,169	5,169
Qatar	—	8,724	8,724	—	6,273	6,273	—	8,678	8,678
Iran	156	21,465	21,622	128	31,608	31,736	153	42,646	42,799
Israel	1,144	1,962	3,106	2,930	2,716	5,646	2,954	3,089	6,043
Saudi Arabia	—	41,393	41,393	—	40,551	40,551	—	50,290	50,290
Other Africa	**16,247**	**27,549**	**43,796**	**20,163**	**30,571**	**50,734**	**40,521**	**46,146**	**86,667**
Ghana	3,206	1,485	4,691	3,020	4,017	7,036	1,959	4,574	6,533
Mauritius and Dependencies	5,600	—	5,600	5,215	—	5,215	8,606	—	8,606
Nigeria	998	2,506	3,504	2,444	3,282	5,726	3,603	4,320	7,924
Republic of South Africa	4,332	7,870	12,202	6,632	10,320	16,952	18,054	13,494	31,548
Rhodesia and Nyasaland	91	1,226	1,318	431	2,840	3,272	5,867	2,164	8,031
Tanganyika	10	2,129	2,139	38	2,135	2,173	30	7,215	7,245
Other Asia	**133,538**	**81,048**	**214,586**	**156,724**	**86,892**	**243,616**	**177,147**	**90,405**	**267,552**
Ceylon	513	16,003	16,516	611	14,152	14,763	587	14,055	14,642
Hong Kong	13,625	518	14,143	18,327	563	18,889	20,606	592	21,197
India	7,429	26,035	33,465	16,483	26,996	43,479	25,712	26,952	52,664
Malaya and Singapore	1,570	22,027	23,597	1,507	26,233	27,740	2,450	29,004	31,454
China, Communist	1,131	2,102	3,233	1,599	2,922	4,521	2,018	3,129	5,147
Japan	106,714	9,894	116,607	114,035	11,324	125,359	117,993	12,478	130,471
Taiwan (Republic of China)	1,650	206	1,856	2,836	74	2,910	5,585	290	5,875
Oceania	**27,782**	**22,019**	**49,802**	**39,335**	**21,243**	**60,578**	**49,068**	**29,270**	**78,338**
Australia	20,379	16,269	36,649	30,769	14,447	45,216	33,621	22,029	55,650
Fiji	2,506	5	2,512	3,132	12	3,144	8,572	16	8,588
New Zealand	4,842	5,704	10,546	5,221	6,784	12,005	6,847	7,219	14,067
South America	**75,605**	**229,781**	**305,387**	**68,754**	**250,949**	**319,703**	**85,127**	**265,586**	**350,714**
British Guiana	9,835	13,194	23,030	7,637	15,738	23,375	16,431	14,904	31,334
Brazil	19,547	9,534	29,081	20,330	11,269	31,600	20,669	15,692	36,361
Colombia	9,643	3,380	13,023	11,356	4,303	15,658	10,457	3,119	13,576
Ecuador	7,631	51	7,682	8,424	188	8,611	7,496	129	7,625
Venezuela	23,960	192,680	216,640	16,347	207,928	224,275	23,019	220,477	243,495

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1961-63—concluded

Region and Country	1961			1962 r			1963		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Central America and Antilles	**88,648**	**52,955**	**141,603**	**95,434**	**58,765**	**154,199**	**117,938**	**67,046**	**184,984**
Jamaica	9,758	28,754	38,511	9,244	30,476	39,721	16,543	34,981	51,524
Trinidad and Tobago	7,199	7,175	14,375	5,519	8,581	14,100	6,227	9,644	15,871
Costa Rica	4,090	137	4,227	6,206	54	6,259	7,118	190	7,308
Honduras	7,233	158	7,391	7,488	129	7,617	6,698	170	6,868
Mexico	7,233	10,960	18,193	9,069	15,347	24,416	9,267	14,467	23,734
Netherlands Antilles	30,642	495	31,137	35,720	136	35,856	35,793	207	35,999
Panama	6,150	18	6,168	8,290	31	8,321	11,017	39	11,057
North America	**2,223,908**	**1,640,203**	**3,864,111**	**2,458,837**	**1,840,932**	**4,299,769**	**2,472,351**	**1,972,395**	**4,444,746**
United States	2,223,783	1,640,185	3,863,968	2,458,717	1,840,822	4,299,539	2,472,340	1,972,216	4,444,556
Totals, Commonwealth and Preferential Countries	**302,239**	**608,138**	**910,377**	**389,007**	**492,556**	**881,563**	**397,815**	**534,972**	**932,788**
Totals, Other Countries	**2,813,169**	**2,045,032**	**4,858,201**	**3,091,275**	**2,284,938**	**5,376,213**	**3,144,786**	**2,480,634**	**5,625,420**
Grand Totals, Imports	**3,115,408**	**2,653,170**	**5,768,578**	**3,480,282**	**2,777,494**	**6,257,776**	**3,542,601**	**3,015,606**	**6,558,208**

Section 4.—Trade by Commodity

This Section provides detailed information on the composition of Canada's exports and imports for 1962 and 1963. Table **8** shows exports and re-exports to and imports from all countries, Britain and the United States, classified by section; Table **9** gives detailed statistics of all commodities of any importance exported from Canada to all countries, to Britain and to the United States; and detailed statistics for imports into Canada by group and commodity appear in Table **10**. An explanation of the different classification used in the latter table is given on p. 912.

8.—Exports to and Imports from All Countries, Britain and the United States, by Section, 1962 and 1963

(Millions of dollars)

Section	Domestic Exports		Re-exports		Imports	
	1962	1963	1962	1963	1962	1963
All Countries	**6,178.5**	**6,798.5**	**169.2**	**181.6**	**6,257.8**	**6,558.2**
Live animals	68.1	42.0	0.2	0.2	7.6	9.7
Food, feed, beverages and tobacco	1,172.1	1,419.9	5.8	7.7	657.4	770.5
Crude materials, inedible	1,361.6	1,426.0	8.9	9.8	829.6	897.3
Fabricated materials, inedible	2,907.1	3,106.9	36.0	43.2	1,483.7	1,571.0
End products, inedible	654.8	779.1	113.6	114.8	3,159.5	3,172.4
Special transactions—trade	14.8	24.7	4.7	6.0	120.1	137.4
Britain	**909.0**	**1,006.8**	**10.9**	**8.1**	**563.1**	**526.8**
Live animals	0.1	--	--	--	0.5	0.5
Food, feed, beverages and tobacco	270.3	297.8	0.4	0.3	32.0	31.6
Crude materials, inedible	172.1	216.3	0.3	0.4	31.4	36.4
Fabricated materials, inedible	435.8	457.5	1.1	1.0	176.7	168.9
End products, inedible	30.6	34.6	9.1	6.3	317.9	284.8
Special transactions—trade	0.2	0.7	--	0.1	4.6	4.7
United States	**3,608.4**	**3,766.4**	**136.2**	**147.0**	**4,299.5**	**4,444.6**
Live animals	64.4	38.3	0.1	0.1	6.7	8.9
Food, feed, beverages and tobacco	305.8	332.9	4.4	6.1	341.5	358.0
Crude materials, inedible	884.0	881.4	7.4	8.0	360.5	383.9
Fabricated materials, inedible	1,968.0	2,069.2	32.3	39.5	979.7	1,037.0
End products, inedible	375.9	425.4	87.7	87.6	2,502.0	2,533.1
Special transactions—trade	10.2	19.1	4.4	5.7	109.2	123.7

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1962 and 1963

Section and Commodity	All Countries		Britain		United States	
	1962r	1963	1962r	1963	1962r	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Live Animals	**68,054**	**41,971**	**105**	**46**	**64,422**	**38,312**
Food, Feed, Beverages and Tobacco	**1,172,135**	**1,419,857**	**270,282**	**297,762**	**305,780**	**332,872**
Meat, fresh, chilled or frozen	28,059	27,274	1,601	2,345	24,565	23,329
Other meat and meat preparations	14,722	17,147	159	279	7,422	8,558
Fish, whole or dressed, fresh or frozen	37,697	37,502	1,944	2,782	33,451	30,858
Fish, fillets and blocks, fresh or frozen	40,591	43,897	264	1,237	40,237	42,479
Fish, preserved, except canned	21,346	25,588	3	21	5,875	6,165
Fish, canned	19,276	23,775	9,300	9,939	1,487	605
Shellfish	27,458	29,070	620	570	25,707	27,268
Dairy produce, eggs and honey	23,311	26,551	8,960	11,018	884	1,286
Barley	29,927	24,524	11,895	10,362	4,851	8,924
Wheat	601,518	786,804	140,134	160,798	12,913	14,528
Other cereals, unmilled	17,701	29,714	1,983	1,638	4,806	6,062
Wheat flour	57,043	62,616	22,781	22,327	1,979	1,780
Other cereals, milled	12,866	10,902	10	25	7,703	4,657
Cereal preparations	6,227	6,682	401	872	5,250	5,234
Fruits and fruit preparations	17,691	22,768	8,090	7,342	7,470	13,139
Vegetables and vegetable preparations	23,998	27,341	7,416	11,365	6,262	6,274
Sugar and sugar preparations	8,057	18,293	742	820	6,249	8,627
Other foods and materials for foods	15,342	17,727	4,001	3,739	5,784	7,167
Oil seed cake and meal	19,064	23,123	18,318	22,843	131	55
Other feeds of vegetable origin	12,977	19,007	2,205	880	9,589	16,387
Other fodder and feed	12,938	15,630	2,433	2,168	7,396	9,684
Whisky	84,885	90,125	305	384	80,639	85,365
Other beverages	4,259	4,255	12	11	4,118	4,127
Tobacco	35,182	29,541	26,707	23,998	1,009	315
Crude Materials, Inedible	**1,361,595**	**1,425,951**	**172,050**	**216,316**	**884,041**	**881,401**
Raw hides and skins	14,781	13,220	887	1,444	4,335	3,571
Fur skins, undressed	25,546	32,356	4,696	6,842	18,172	20,670
Other crude animal products	6,004	6,417	550	511	5,060	5,564
Seeds for sowing	11,734	13,586	1,693	2,678	8,665	8,704
Flaxseed	41,920	38,560	16,760	13,985	6	9
Rapeseed	20,667	16,156	180	164	72	37
Other oil seeds, oil nuts and oil kernels	10,648	8,889	7,500	4,998	1,898	2,095
Other crude vegetable products	13,856	12,512	145	93	13,272	11,879
Pulpwood	35,732	35,985	2,401	2,554	24,346	26,717
Other crude wood materials	19,030	19,438	1,014	527	14,241	14,258
Textile and related fibres	11,718	13,640	668	837	3,869	5,320
Iron ores and concentrates	220,522	270,949	14,892	26,272	178,687	214,532
Scrap iron and steel	12,489	13,456	—	—	6,159	6,246
Aluminum ores, concentrates and scrap	9,331	13,001	59	5	2,279	2,569
Copper in ores, concentrates and scrap	48,287	53,797	962	896	10,976	8,555
Lead in ores, concentrates and scrap	8,070	7,686	519	1,126	4,185	4,284
Nickel in ores, concentrates and scrap	132,308	149,236	70,081	79,110	10,453	14,917
Precious metals in ores, concentrates and scrap	34,996	34,554	22,846	21,707	9,581	10,521
Zinc in ores, concentrates and scrap	19,782	18,805	542	976	16,484	13,555
Radioactive ores and concentrates	166,009	137,531	16,598	40,509	149,165	96,879
Other metals in ores, concentrates and scrap	7,789	4,116	217	147	3,259	1,726
Crude petroleum	232,497	233,867	—	—	232,497	233,867
Natural gas	72,423	75,630	—	—	72,423	75,630
Coal and other crude bituminous substances	9,311	10,823	1	4	3,307	3,304
Asbestos unmanufactured	135,638	139,447	7,994	9,891	57,449	57,688
Sulphur	7,540	12,910	218	336	6,264	7,983
Other crude non-metallic minerals	21,188	27,000	162	284	17,315	20,625
Other waste and scrap materials	11,777	12,381	466	420	9,624	9,694
Fabricated Materials, Inedible	**2,907,126**	**3,106,898**	**435,774**	**457,459**	**1,968,046**	**2,069,229**
Leather and leather fabricated materials	11,281	9,468	3,053	2,784	5,211	3,494
Lumber, softwood	371,410	426,855	46,499	52,168	284,285	313,560
Lumber, hardwood	25,337	25,629	2,721	2,564	22,159	22,358
Shingles and shakes	24,172	30,317	170	259	23,836	29,818
Other sawmill products	4,547	4,550	758	747	3,764	3,799
Veneer	20,913	24,607	7	2	20,095	23,082
Plywood	23,298	28,438	16,452	18,877	5,935	7,948
Other wood fabricated materials	5,825	5,413	1,177	961	3,797	3,919
Wood pulp and similar pulp	369,902	405,292	27,723	31,621	298,166	309,915
Newsprint paper	753,060	759,990	63,452	60,213	633,037	636,086
Other paper for printing	8,769	9,269	561	807	6,716	6,922
Paperboard	14,914	19,621	12,663	16,836	1,661	1,776

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1962 and 1963—continued

Section and Commodity	All Countries		Britain		United States	
	1962r	1963	1962r	1963	1962r	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Fabricated Materials, Inedible—concl.						
Other paper	20,450	23,395	8,403	8,573	5,147	7,284
Yarn, thread, cordage, twine and rope	7,899	10,317	493	720	4,123	5,888
Broad woven fabrics	8,904	10,586	5,532	6,444	304	458
Other textile fabricated materials	6,930	9,494	935	533	394	534
Oils, fats, waxes, extracts and derivatives	14,539	17,423	6,414	8,959	1,483	2,613
Chemical elements	6,855	6,669	1,497	1,462	3,927	4,050
Other inorganic chemicals	21,153	23,730	3,245	5,147	14,491	13,737
Organic chemicals	44,957	41,797	8,321	8,176	27,236	23,843
Fertilizers and fertilizer materials	60,250	74,756	3	151	57,283	64,624
Synthetic rubber and plastics materials	84,571	88,406	15,380	15,964	10,078	11,686
Plastics, basic shapes and forms	8,503	10,447	1,713	1,638	454	798
Other chemical products	9,923	12,386	1,094	1,530	5,098	6,203
Petroleum and coal products	19,386	19,975	517	383	16,844	17,491
Ferro-alloys	5,856	4,293	3,392	2,691	1,924	1,199
Primary iron and steel	45,878	59,540	4,674	9,757	35,598	45,728
Castings and forgings, steel	15,384	15,470	156	18	14,267	14,650
Bars and rods, steel	9,448	12,817	1,756	1,474	3,694	8,129
Plate, sheet and strip, steel	48,800	61,350	5,430	4,004	14,785	27,636
Rails and railway track material, steel	12,669	17,308	—	—	451	796
Other iron and steel and alloys	11,599	12,980	157	182	9,351	7,630
Aluminum, including alloys	284,554	302,730	82,443	82,734	102,014	119,943
Copper and alloys	163,931	166,517	59,710	63,629	56,087	56,216
Lead, including alloys	18,269	15,798	5,975	6,368	10,059	6,419
Nickel and alloys	191,556	175,368	15,587	11,873	163,403	150,399
Precious metals, including alloys	12,582	17,783	196	113	12,072	15,375
Zinc, including alloys	41,541	42,276	16,928	16,101	17,471	18,055
Other non-ferrous metals and alloys	12,579	13,577	5,453	5,789	5,028	5,766
Metal fabricated basic products	17,041	21,018	1,151	1,482	10,647	12,488
Abrasive basic products	30,091	27,626	3,310	2,894	25,129	23,698
Other non-metallic mineral basic products	13,982	15,274	206	191	10,983	12,349
Electricity	16,508	15,958	—	—	16,508	15,958
Other fabricated materials, inedible	7,107	10,384	468	641	3,049	4,906
End Products, Inedible	**654,763**	**779,138**	**30,624**	**34,555**	**375,905**	**425,436**
General purpose industrial machinery	22,731	29,505	1,081	950	8,589	10,098
Materials handling machinery and equipment	4,301	7,200	530	62	1,694	5,031
Drilling, excavating, mining machinery	8,742	10,420	284	122	2,290	3,179
Metalworking machinery	5,886	7,323	541	355	3,541	4,734
Construction machinery and equipment	4,135	6,893	200	511	2,171	3,439
Plastics industry machinery and equipment	4,515	7,192	73	219	4,402	6,844
Woodworking machinery and equipment	7,126	8,783	750	926	2,285	3,435
Pulp and paper industries machinery	8,994	10,528	58	122	2,003	2,194
Other special industry machinery	18,587	19,243	1,966	1,928	10,537	10,437
Soil preparation, seeding, fertilizing machinery	20,594	23,652	71	35	19,455	22,634
Combine reaper-threshers and parts	31,652	43,745	1,156	1,060	27,598	38,518
Other haying and harvesting machinery	24,075	31,427	71	9	23,172	29,768
Other agricultural machinery and equipment	6,833	7,413	33	187	6,319	6,689
Tractors	8,324	8,327	239	407	6,143	7,175
Railway and street railway rolling-stock	5,902	28,520	12	—	1,048	1,841
Passenger automobiles and chassis	21,233	28,040	487	1,526	322	639
Other motor vehicles	10,073	9,954	48	85	4,557	3,938
Motor vehicle engines and parts	6,273	15,333	52	22	4,781	12,266
Motor vehicle parts, except engines	19,498	34,318	254	296	5,312	19,797
Ships and boats	19,319	16,888	793	609	8,633	12,001
Aircraft, complete with engines	69,361	32,640	780	—	63,043	25,940
Aircraft engines and parts	34,460	31,485	1,629	233	20,808	23,253
Aircraft parts, except engines	43,096	44,168	406	698	23,141	27,549
Other vehicles	1,086	3,701	—	5	1,046	3,591
Rubber tires and tubes	7,630	11,044	8	10	4,440	7,547
Communication and related equipment	51,789	52,193	1,171	1,124	39,171	39,046
Heating and refrigeration equipment	5,877	10,058	2,123	3,349	1,630	3,973
Cooking equipment for food	2,713	2,952	1,323	1,829	942	536
Electric lighting and distribution equipment	16,280	19,251	1,215	742	5,427	4,747
Navigation equipment and parts	23,572	48,820	84	290	12,295	17,419
Other measuring, controlling, laboratory, medical and optical equipment	8,663	15,029	437	994	4,085	5,726

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1962 and 1963—concluded

Section and Commodity	All Countries		Britain		United States	
	1962[r]	1963	1962[r]	1963	1962[r]	1963
	$'000	$'000	$'000	$'000	$'000	$'000
End Products, Inedible—concl.						
Hand tools and miscellaneous cutlery	5,543	6,233	986	587	256	943
Office machines and equipment	33,589	29,929	1,807	1,022	8,038	6,268
Other equipment and tools	9,687	14,578	828	1,681	4,793	5,838
Apparel and apparel accessories	9,757	14,744	2,553	2,994	3,645	3,928
Footwear	5,652	4,996	992	978	3,446	2,862
Toys, games, sporting, recreation equipment	8,057	9,115	478	599	6,065	6,331
Other personal and household goods	8,598	11,196	840	1,560	3,826	3,924
Medicinal and pharmaceutical products	10,274	10,498	236	376	830	964
Medical, ophthalmic, orthopaedic supplies	1,263	1,304	75	114	544	543
Printed matter	6,940	7,500	450	729	5,083	5,512
Photographic goods	4,498	5,508	329	364	2,034	2,504
Firearms, ammunition and ordnance	10,239	10,804	450	838	9,146	8,418
Containers and closures	5,262	6,864	1,489	2,387	2,064	2,442
Prefabricated buildings and structures	3,375	10,160	239	118	1,386	6,044
Other end products	8,707	9,666	996	1,504	3,866	4,932
Special Transactions—Trade	**14,849**	**24,714**	**205**	**699**	**10,243**	**19,130**
Shipments valued at less than $100 each[1]	6,437	15,760	163	413	5,088	12,583
Other special transactions—trade	8,413	8,955	43	287	5,155	6,548
Totals, Exports	**6,178,523**	**6,798,529**	**909,041**	**1,006,838**	**3,608,439**	**3,766,380**

[1] Prior to January 1963, included only shipments under $50.

10.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1962 and 1963

Group and Commodity	All Countries		Britain		United States	
	1962[r]	1963	1962[r]	1963	1962[r]	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Agricultural and Vegetable Products	**754,749**	**864,964**	**38,184**	**36,847**	**422,750**	**441,741**
Fruits and berries, fresh or chilled	99,493	102,653	15	9	65,264	65,716
Other fruits and fruit preparations	71,834	81,973	1,365	1,282	48,911	50,859
Vegetables, fresh or chilled	55,455	54,481	2	2	51,247	49,576
Other vegetables and vegetable preparations	14,638	19,493	202	349	10,337	12,871
Cereals, unmilled	52,478	41,725	40	1	51,126	41,522
Cereals products and farinaceous substances	9,931	13,464	3,663	3,618	5,180	8,302
Sugar, raw	56,926	126,735	—	—	—	6
Other sugar and sugar preparations	17,510	21,012	5,833	5,826	4,620	5,561
Cocoa and chocolate	18,647	18,543	3,398	2,165	1,592	1,758
Coffee	62,180	65,297	33	41	12,293	14,609
Tea	22,571	25,554	3,576	4,360	298	662
Other foodstuffs, chiefly vegetable	22,231	43,111	1,054	1,418	9,909	23,105
Fodder and feed, except unmilled cereals	20,521	24,617	—	31	20,520	24,082
Beverages	26,730	26,973	11,184	10,632	1,302	1,561
Tobacco	7,523	7,360	397	379	4,651	4,356
Oil seeds, oil nuts and oil kernels	48,211	50,115	12	1	39,222	44,348
Oils, vegetable	32,707	33,974	3,441	3,189	14,948	17,352
Rubber, raw and partially manufactured	43,290	42,687	426	321	23,248	22,504
Rubber, manufactured	37,481	39,595	2,681	2,797	30,915	33,039
Other non-food products, chiefly vegetable	34,391	25,601	865	427	27,166	19,950
Animals and Animal Products	**156,054**	**166,937**	**14,251**	**14,368**	**86,165**	**96,635**
Fish and marine animals	19,156	20,147	455	387	7,574	9,509
Furs and products	23,141	26,338	4,605	4,549	12,240	13,918
Hides, skins and leather	24,899	22,349	6,216	5,829	15,399	13,554
Meat, fresh, chilled or frozen	28,524	47,586	12	741	14,488	28,042
Other meat and meat preparations	17,305	14,917	248	285	11,699	8,740
Dairy produce, eggs and honey	12,353	14,834	119	119	5,181	7,119
Other animals and animal products	30,676	20,766	2,595	2,457	19,584	15,753

10.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1962 and 1963—continued

Group and Commodity	All Countries		Britain		United States	
	1962r	1963	1962r	1963	1962r	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Fibres, Textiles and Products	**481,942**	**486,350**	**90,442**	**91,836**	**231,952**	**218,948**
Cotton, raw and linters	56,395	53,347	8	1	50,192	49,039
Cotton fabrics	72,861	68,077	3,236	3,271	47,880	41,364
Other cotton products	23,066	22,138	3,795	4,426	11,462	10,409
Flax, hemp, jute and products	30,938	32,186	4,936	5,081	4,367	4,398
Wool and fine animal hair	31,780	39,994	18,884	24,360	2,574	4,461
Wool fabrics	38,010	33,337	26,865	22,050	2,193	2,420
Other wool products	10,434	12,195	6,395	7,728	1,090	1,320
Synthetic fibres, yarns and cordage	22,494	21,067	2,806	2,764	15,897	13,931
Synthetic fibre fabrics	38,117	46,212	1,383	1,580	27,496	32,221
Carpets, mats and other floor coverings	11,252	10,685	2,710	2,734	2,367	1,734
Apparel and apparel accessories	71,728	67,923	11,564	10,162	20,158	15,913
Other textile products	74,868	79,189	7,860	7,678	46,274	41,728
Wood, Wood Products and Paper	**291,475**	**291,754**	**10,575**	**10,548**	**245,020**	**247,410**
Lumber	31,236	31,829	33	15	27,720	28,522
Other wood, unmanufactured	35,017	35,169	301	125	22,887	25,124
Wood, manufactured	28,128	28,792	494	652	21,116	20,994
Newspapers, magazines and periodicals	37,290	39,054	300	504	35,287	36,572
Books, pamphlets and tourist literature	53,224	54,886	5,383	5,518	42,154	43,377
Other printed matter	26,200	25,380	1,263	1,274	23,633	22,847
Other paper and products	80,379	76,645	2,800	2,461	72,224	69,974
Iron and Its Products	**2,196,628**	**2,385,017**	**206,104**	**177,415**	**1,795,265**	**1,987,228**
Iron ore	56,324	67,873	—	—	54,665	63,454
Scrap iron and steel	12,619	18,442	2	26	12,617	18,380
Ferro-alloys, pigs, ingots, blooms and billets	11,437	12,193	362	519	5,703	5,200
Bars and rods, steel	25,457	25,764	2,360	2,391	5,643	5,672
Plate, sheet and strip, steel	57,898	80,761	5,066	8,081	46,267	61,151
Other rolling-mill products, steel	28,131	30,185	3,565	4,370	16,925	15,523
Pipes, tubes and fittings, iron and steel	49,458	50,671	9,743	8,021	29,573	31,784
Wire and wire products	21,321	21,951	6,546	6,964	7,212	7,826
Engines, except aircraft engines	121,677	143,781	12,022	11,484	104,710	125,440
Farm equipment and parts, except tractors	113,451	140,244	2,070	2,105	106,667	132,457
Tractors and parts, except engines	140,287	183,732	17,085	16,989	121,483	162,904
Hardware and cutlery	35,078	37,629	3,596	4,768	24,127	25,342
Household machinery	28,071	26,882	2,045	1,633	22,934	21,464
Mining and metallurgical machinery	41,973	38,416	1,928	2,330	38,906	34,382
Business and printing machinery	104,882	105,294	5,922	9,073	86,223	82,056
Metalworking machinery	55,025	57,868	8,407	7,413	41,576	42,890
Other non-farm machinery	445,817	446,619	34,140	34,536	386,945	387,269
Tools	43,608	65,509	5,614	6,483	31,537	51,668
Automobiles, freight and passenger	178,955	116,649	54,874	22,967	78,174	49,373
Automobile parts, except engines	392,687	489,057	8,767	8,190	378,809	476,170
Other vehicles, chiefly of iron	24,297	27,939	4,660	4,538	17,796	21,174
Cooking and heating apparatus	32,038	28,425	623	673	30,397	27,217
Firearms and ammunition	19,786	12,460	4,471	2,097	13,781	7,197
Other iron and steel products	156,350	156,674	12,237	11,765	132,595	131,235
Non-ferrous Metals and Products	**598,756**	**603,949**	**70,639**	**75,099**	**395,142**	**378,471**
Aluminum ores, concentrates and scrap	62,277	67,149	3	3	12,226	11,323
Other aluminum and products	39,592	44,729	10,206	6,227	27,748	36,630
Brass and copper and products	28,953	34,147	2,603	5,102	24,137	25,630
Nickel and alloys	15,894	21,832	162	141	5,876	5,504
Precious metals and products, except gold	40,030	31,523	17,216	14,134	17,233	15,410
Tin and products	6,262	11,725	523	1,518	526	775
Zinc, including alloys	4,421	4,941	140	159	3,995	4,431
Watches and clocks	13,065	13,506	1,594	2,271	2,653	2,475
Electric generators and motors	30,814	37,065	9,893	14,882	20,177	20,639
Electronic tubes and semi-conductors	20,702	24,136	1,324	2,046	16,865	18,788
Other electrical apparatus	273,800	250,290	20,737	21,510	223,830	198,425
Plumbing equipment and fittings	8,900	7,570	829	524	6,685	5,897
Other non-ferrous metals and products	54,047	55,336	5,411	6,582	33,191	32,544
Non-metallic Minerals and Products	**710,851**	**755,729**	**32,443**	**30,308**	**273,190**	**280,287**
Asbestos and asbestos-cement basic products	4,940	5,287	965	1,080	3,397	3,743
Clay and products	48,542	50,020	15,644	15,060	26,608	28,054
Coal	74,171	78,632	513	403	73,658	78,228
Coal products	15,454	16,358	1,780	2,194	13,627	14,161
Glass and glassware	78,720	77,086	7,497	6,610	50,426	49,293

10.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1962 and 1963—concluded

Group and Commodity	All Countries		Britain		United States	
	1962r	1963	1962r	1963	1962r	1963
	$'000	$'000	$'000	$'000	$'000	$'000
Non-metallic Minerals and Products—concluded						
Petroleum, crude	304,898	334,761	—	—	941	40
Fuel oil, except kerosene	60,159	65,282	356	—	8,886	8,757
Other petroleum products	41,382	44,789	248	567	34,607	35,261
Stone and products	44,640	45,363	2,035	1,658	36,223	37,709
Other non-metallic minerals and products	37,944	38,150	3,405	2,737	24,817	25,040
Chemicals and Allied Products	**394,660**	**410,326**	**35,391**	**32,685**	**320,072**	**336,065**
Acids	8,316	9,770	1,213	1,302	4,904	5,875
Drugs, medicines, agricultural chemicals	38,896	40,194	4,260	5,951	29,366	27,974
Fertilizers and fertilizer materials	15,176	13,109	36	27	12,258	11,062
Toiletries, cleaners, household chemicals	12,167	11,619	672	641	10,368	9,795
Inorganic chemicals, *n.o.p.*	26,986	30,457	4,011	3,977	20,614	24,020
Plastic materials, not shaped	53,205	54,176	1,325	1,180	48,626	49,083
Plastic film and sheet	24,161	24,297	1,555	1,412	20,269	20,878
Other plastics, basic shapes and forms	10,181	12,510	299	521	9,466	11,449
Plastics manufactures, *n.o.p.*	31,685	30,660	598	573	28,322	27,628
Dyestuffs, except dyeing extracts	14,048	15,013	1,672	1,695	7,039	7,754
Pigments, lakes and toners	10,531	11,501	660	760	9,207	9,831
Paints and related products	8,040	8,195	361	452	7,596	7,638
Other chemicals and allied products	141,269	148,825	18,630	14,194	112,037	123,077
Miscellaneous Commodities	**672,659**	**593,182**	**65,034**	**57,743**	**529,983**	**457,771**
Films	19,081	20,313	3,126	3,417	12,716	12,838
Toys and sporting goods	20,757	21,508	2,685	3,108	9,868	9,642
Footwear	21,625	20,240	5,295	3,667	2,049	1,845
Refrigerators	24,647	22,174	3,206	3,313	20,740	17,751
Other household and personal equipment	25,362	24,218	1,968	1,702	14,693	13,720
Musical instruments, phonographs, records	18,173	19,091	4,533	4,945	9,913	9,976
Scientific and educational equipment	72,640	83,218	3,227	3,700	56,746	67,763
Aircraft, complete with engines	259,251	22,123	29,633	760	229,420	21,283
Aircraft engines and parts		47,766		18,290		29,439
Aircraft parts		90,060		5,558		84,255
Ships, boats and parts, except engines	6,792	6,503	562	762	4,957	4,221
Other vehicles	8,785	8,275	116	102	8,551	8,037
Canadian goods returned	34,167	38,457	1,655	1,694	28,717	33,033
Shipments under $100 in value	85,504	92,902	2,820	2,592	80,182	87,729
Other miscellaneous commodities	75,876	76,333	6,208	4,131	51,432	56,239
Totals, Imports	**6,257,776**	**6,558,208**	**563,062**	**526,850**	**4,299,539**	**4,444,556**

Section 5.—Trade by Origin and Degree of Manufacture

The classifications of trade statistics according to origin and degree of manufacture are not included in this volume; they will be replaced in future editions by statistics calculated on new concepts of imports and exports by stage of fabrication.

Section 6.—Comparison of Value, Price and Volume of Foreign Trade

In recent years there has been a substantial increase in the value of Canada's exports and imports. Changes in the value of trade, however, are the joint product of changes in the volume of goods traded and in the prices at which transactions are conducted. To assess the significance of value changes, it is desirable to isolate the contributions made to them by the price and volume factors.

Special indexes of export and import prices have been developed to provide this information. These indexes are based chiefly on unit values (average prices) calculated from the trade statistics, supplemented by information on wholesale and retail prices.

Price relatives are calculated for a sample of commodities representing the greater part of export and import trade, and these relatives are weighted by the percentage of 1948 trade represented by each commodity in the sample in obtaining group and total indexes. By dividing these price indexes into the trade values the effects of price change are removed from the values, or by dividing the price index into an index of values on the same time-base an index is obtained showing changes in the volume of trade from year to year.

The grouping of commodities used in these calculations differs from that of the regular trade statistics, the changes being desirable to simplify the pricing problem. The chief differences are that the first two main groups of the trade statistics have been combined into one group, "agricultural and animal products", and that the sub-group "rubber and its products" has been transferred from this group to the "miscellaneous" group. The declared values of domestic exports and imports have been revised to cover the adjustment for "Special Transactions—Non-Trade". An explanation of that adjustment is given at p. 912. Table 11 shows the revised values of trade adjusted for pricing purposes and the value, price and volume indexes of Canadian trade for 1960-63.

11.—Declared Values, and Value, Price and Physical Volume Indexes of Foreign Trade, by Commodity Group, 1960-63

Commodity Group[1]	1960	1961[r]	1962[r]	1963
	Declared Values			
	$'000	$'000	$'000	$'000
Domestic Exports	**5,255,575**	**5,754,986**	**6,178,523**	**6,798,529**
Agricultural and animal products	1,142,428	1,434,668	1,418,138	1,642,595
Fibres and textiles	40,518	44,661	48,193	59,306
Wood products and paper	1,591,919	1,639,343	1,718,306	1,838,913
Iron and steel and products	605,960	603,099	747,887	931,727
Non-ferrous metals and products	1,213,999	1,209,545	1,234,139	1,244,312
Non-metallic minerals and products	339,569	428,586	545,508	578,205
Chemicals and fertilizers	237,687	248,326	248,399	261,342
Miscellaneous	83,495	146,757	217,953	242,129
Imports	**5,482,695**	**5,768,578**	**6,257,814**	**6,558,847**
Agricultural and animal products	737,710	787,213	830,032	949,947
Fibres and textiles	431,975	458,488	481,952	486,349
Wood products and paper	256,701	265,577	283,333	284,350
Iron and steel and products	2,046,258	1,918,163	2,189,653	2,378,291
Non-ferrous metals and products	476,633	524,033	609,668	615,030
Non-metallic minerals and products	660,749	671,202	700,009	743,557
Chemicals and fertilizers	346,972	380,134	405,503	422,529
Miscellaneous	525,698	763,768	757,663	678,795
	Value Indexes (1948=100)			
Domestic Exports	**172.5**	**188.9**	**202.8**	**223.2**
Agricultural and animal products	109.3	137.2	135.7	157.1
Fibres and textiles	88.9	98.0	105.8	130.2
Wood products and paper	166.9	171.9	180.2	192.8
Iron and steel and products	167.0	166.2	206.1	256.7
Non-ferrous metals and products	311.0	309.9	316.2	318.8
Non-metallic minerals and products	357.8	451.5	574.7	609.2
Chemicals and fertilizers	297.7	311.0	311.1	327.3
Miscellaneous	113.2	198.9	295.4	328.2
Imports	**209.4**	**220.3**	**239.0**	**250.5**
Agricultural and animal products	183.4	195.7	206.4	236.1
Fibres and textiles	122.8	130.3	137.0	138.2
Wood products and paper	363.9	376.5	401.7	403.1
Iron and steel and products	261.2	244.9	279.5	303.6
Non-ferrous metals and products	305.6	335.9	390.8	394.2
Non-metallic minerals and products	109.5	111.3	116.0	123.2
Chemicals and fertilizers	286.1	313.4	334.3	348.4
Miscellaneous	405.5	589.1	584.4	523.6

[1] The groups, although classified by component material, differ slightly from conventional groups (see text above).

11.—Declared Values, and Value, Price and Physical Volume Indexes of Foreign Trade, by Commodity Group, 1960-63—concluded

Commodity Group[1]	1960	1961[r]	1962[r]	1963
	Price Indexes (1948=100)			
Domestic Exports	**123.0**	**124.0**	**128.1**	**128.9**
Agricultural and animal products	99.6	101.9	108.6	108.0
Fibres and textiles	110.5	111.5	114.2	119.5
Wood products and paper	118.5	116.0	116.3	117.8
Iron and steel and products	162.8	167.1	172.4	174.4
Non-ferrous metals and products	148.8	152.4	159.9	162.3
Non-metallic minerals and products	165.3	169.2	172.3	172.5
Chemicals and fertilizers	115.3	114.2	114.3	108.3
Miscellaneous	133.9	131.6	132.2	135.2
Imports	**115.5**	**119.1**	**124.5**	**129.4**
Agricultural and animal products	91.1	94.8	98.1	118.7
Fibres and textiles	85.0	89.0	93.2	96.5
Wood products and paper	142.2	144.8	150.7	151.6
Iron and steel and products	146.5	153.4	162.0	163.8
Non-ferrous metals and products	138.3	141.3	148.4	148.2
Non-metallic minerals and products	98.6	101.0	104.2	108.0
Chemicals and fertilizers	111.9	116.4	121.8	120.5
Miscellaneous	125.7	114.8	119.6	117.9
	Volume Indexes (1948=100)			
Domestic Exports	**140.2**	**152.3**	**158.3**	**173.2**
Agricultural and animal products	109.7	134.6	125.0	145.5
Fibres and textiles	80.5	87.9	92.6	109.0
Wood products and paper	140.8	148.2	154.9	163.7
Iron and steel and products	102.6	99.5	119.5	147.2
Non-ferrous metals and products	209.0	203.3	197.7	196.4
Non-metallic minerals and products	216.5	266.8	333.5	353.2
Chemicals and fertilizers	258.2	272.3	272.2	302.2
Miscellaneous	84.5	151.1	223.4	242.8
Imports	**181.3**	**185.0**	**192.0**	**193.6**
Agricultural and animal products	201.3	206.4	210.4	199.0
Fibres and textiles	141.6	146.4	147.0	143.2
Wood products and paper	255.9	260.0	266.6	265.9
Iron and steel and products	178.3	159.6	172.5	185.3
Non-ferrous metals and products	221.0	237.7	263.3	266.1
Non-metallic minerals and products	111.0	110.2	111.3	114.2
Chemicals and fertilizers	255.7	269.2	274.5	289.1
Miscellaneous	322.6	513.2	488.6	444.1

[1] The groups, although classified by component material, differ slightly from conventional groups (see text, p. 930).

PART III.—THE GOVERNMENT AND FOREIGN TRADE

Section 1.—Federal Foreign Trade Services*

Foreign trade contributes substantially to the welfare and prosperity of Canadians, largely because the productive capacity of Canada is greater than the ability of its population to consume the output of farms, factories, forests, fisheries and mines. Every effort is made, therefore, to establish and maintain close commercial relations with other countries whose markets are essential to the Canadian economy. It is appreciated, however, that two-way trade should be encouraged so that goods and services may be accepted in partial payment for the products Canada is in a position to export. Furthermore, many commodities not indigenous to this country must be imported. Some of these are required for industrial processes and others may be classed as consumer goods necessary for the maintenance of the Canadian standard of living.

* Prepared in the several branches and agencies concerned, and collated in the Trade Publicity Branch, Department of Trade and Commerce, Ottawa.

Although numerous private firms have established connections in other countries that enable them to maintain a steady flow of goods in either direction, others require the assistance of government agencies in finding markets or sources of supply. Import and export controls imposed by many countries for a variety of reasons, together with foreign exchange difficulties, present problems that no single firm or even an association of manufacturers, exporters or importers can solve without assistance from government representatives. The federal Department of Trade and Commerce, the primary function of which is the promotion of external trade, makes available to business men a wide variety of services to assist them in selling their products abroad. These services are provided by the Department's head office in Ottawa, five regional offices in Canada, and a corps of trade commissioners stationed around the world.

Services available from the various branches, divisions and agencies of the Department of Trade and Commerce are described below. The work of these entities is inter-related, each operating in its own field but working closely with the others to effect the over-all objective of trade promotion.

Trade Commissioner Service.—The Trade Commissioner Service is the overseas arm of the Department and is actively engaged in the promotion of Canadian trade and the protection of Canada's commercial interests; 65 offices are maintained in 47 countries, of which 47 posts form part of Canadian Government diplomatic missions abroad and 18 are separate trade commissioner posts.

Every effort is made by the trade commissioners to bring Canadian exporters and prospective buyers together. On their own initiative, and in response to requests from the Department and Canadian business men, they study potential markets for specific Canadian commodities and services. Reports are provided on the demand in the country concerned, prices, competition, trade and exchange regulations, tariffs, shipping and packaging requirements, credit terms, channels of distribution, labelling regulations, etc. Inquiries from local business men for goods obtainable from Canada are forwarded to the Department in Ottawa, or directly to Canadian firms in a position to supply the products required.

The supervision of Canadian exhibits at overseas trade fairs and the provision of assistance to participating Canadian firms is an important function of many offices. Trade commissioners make local arrangements for and travel with Canadian trade missions visiting overseas markets. They also seek sources of supply for a wide variety of goods on behalf of Canadian importers.

In developing trade opportunities, Canada's trade commissioners travel extensively in their territories, visit leading industrial and commercial centres, and call on government officials, business men, trade associations and municipal authorities. They establish social contacts with commercial interests, thereby developing goodwill for Canada and Canadian products, while creating connections for Canadian exporters and facilitating the collection of trade information. They return to Canada at periodic intervals and make tours of Canadian industrial and commercial centres. Such direct contacts enable them to discuss specific problems with business men and bring into focus the Canadian commercial scene.

In countries where Canada has a diplomatic mission, the Canadian trade office is the commercial division and the trade commissioner has the rank of Minister (Commercial), Minister-Counsellor (Economic), Commercial Counsellor or Commercial Secretary. When attached to a consulate, he carries the title of Deputy Consul General (Commercial), Consul (Commercial), or Vice-Consul (Commercial), according to his rank, in addition to that of Trade Commissioner. He may also be the Consul General, in charge of the office. Where trade offices are detached and do not form part of a diplomatic mission, the trade commissioner may also be required to undertake consular, immigration and other duties as the sole representative of Canada.

CANADIAN FOREIGN TRADE OFFICES ABROAD, AS AT AUG. 22, 1964

ARGENTINA.—Commercial Counsellor, Canadian Embassy, Bartolome Mitre 478, Buenos Aires. Territory includes Paraguay.

AUSTRALIA.—
Sydney: Commercial Secretary for Canada, 21st Floor A.M.P. Bldg., Circular Quay, Sydney. Mail: P.O. Box 3952 G.P.O.

Melbourne: Commercial Counsellor for Canada, Mobile Centre, 2 City Road, South Melbourne.

Canberra: Commercial Counsellor, Office of the High Commissioner for Canada, Commonwealth Ave., Canberra.

AUSTRIA.—Commercial Counsellor for Canada, Obere Donaustrasse 49/51, Vienna II. Mail: P.O. Box 190, Vienna 1/8. Territory includes Albania, Bulgaria, Czechoslovakia, Hungary, Romania and Yugoslavia.

BELGIUM.—Commercial Counsellor, Canadian Embassy, 35 rue de la Science, Brussels 4. Territory includes Luxembourg, European Economic Community, European Atomic Energy Community and European Coal and Steel Community.

BRAZIL.—
Rio de Janeiro: Commercial Counsellor, Canadian Embassy, Edificio Metropole, Av. Presidente Wilson 165, Rio de Janeiro. Mail: Caixa Postal 2164-ZC-00.

São Paulo: Consul and Trade Commissioner, Canadian Consulate, Edificio Alois, Rua 7 de Abril 252, São Paulo. Mail: Caixa Postal 6034.

BRITAIN.—
London: Minister (Commercial), Office of the High Commissioner for Canada, One Grosvenor Square, London W.1.

Liverpool: Canadian Government Trade Commissioner, Martins Bank Bldg., Water Street, Liverpool.

Glasgow: Canadian Government Trade Commissioner, Cornhill House, 144 West George St., Glasgow C.2, Scotland.

Belfast: Canadian Government Trade Commissioner, 15-17 Chichester St., Belfast 1, Northern Ireland.

CAMEROON.—Commercial Division, Canadian Embassy, Soppo Priso Bldg., rue Joseph Clerc, Yaounde. Mail: P.O. Box 572. Territory includes Central African Republic, Chad, Congo (Brazzaville) and Gabon.

CEYLON.—Commercial Division, Office of the High Commissioner for Canada, 6 Gregory's Road, Cinnamon Gardens, Colombo. Mail: P.O. Box 1006.

CHILE.—Commercial Counsellor, Canadian Embassy, 5th Floor, Agustinas 1225, Santiago. Mail: Casilla 771.

COLOMBIA.—Commercial Counsellor, Canadian Embassy, Edificio Banco de Los Andes, Carrera 10, No. 16-92, Bogota. Airmail: Apartado Aereo 8582. Surface Mail: Apartado 1618. Territory includes Ecuador.

CONGO.—Chargé d'Affaires, Canadian Embassy, C.C.C.I. Bldg., Boulevard Albert 1er, Leopoldville 1. Mail: Boîte Postale 8341.

CUBA.—Commercial Division, Canadian Embassy, Calle 30, No. 518, esquina 7a Avenida, Miramar, Havana. Mail: Gaveta 6125.

DENMARK.—Commercial Counsellor, Canadian Embassy, Prinsesse Maries Allé 2, Copenhagen V. Territory includes Greenland and Poland.

DOMINICAN REPUBLIC.—Commercial Counsellor and Consul, Canadian Embassy, Edificio Copello 408. Calle El Conde, Santo Domingo. Mail: Apartado 1393. Territory includes Puerto Rico.

FRANCE.—Minister-Counsellor (Economic/Commercial), Canadian Embassy, 35 Ave. Montaigne, Paris 8e. Territory includes Algeria and Morocco.

GERMANY.—
Bad Godesberg: Commercial Counsellor, Canadian Embassy, Kennedy-Allee 35, Bad Godesberg.

Duesseldorf: Consul, Canadian Consulate, Koenigsallee 82, 4 Duesseldorf 1.

Hamburg: Consul General, Canadian Consulate General, Ferdinandstrasse 69, Hamburg.

GHANA.—Commercial Counsellor, Office of the High Commissioner for Canada, E115/3 Independence Ave., Accra. Mail: P.O. Box 1639. Territory includes Guinea, Ivory Coast, Liberia, Mali, Mauritania, Togo and Upper Volta.

GREECE.—Commercial Counsellor, Canadian Embassy, 31 Vassilissis Sophias Ave., Athens 138. Territory includes Turkey.

GUATEMALA.—Commercial Counsellor, Canadian Embassy, 5a Avenida 11-70, Zone 1, Guatemala City, C.A. Airmail P.O. Box 400. Surface mail: P.O. Box 444. Territory includes Costa Rica, El Salvador, Honduras, Nicaragua, Panama and Canal Zone.

HAITI.—Chargé d'Affaires *ad interim* and Consul, Canadian Embassy, Route du Canape Vert, St. Louis de Turgeau, Port-au-Prince. Mail: P.O. Box 826.

HONG KONG.—Canadian Government Trade Commissioner, Hong Kong and Shanghai Banking Corporation Bldg., Hong Kong. Mail: P.O. Box 126. Territory includes Cambodia, Communist China, Laos, Viet Nam and Macao.

INDIA.—
New Delhi: Commercial Counsellor for Canada, 13 Golf Links Road, New Delhi 1. Mail: P.O. Box 11. Territory includes Bhutan, Nepal and Sikkim.

Bombay: Canadian Government Trade Commissioner, Gresham Assurance House, Mint Road, Bombay 1-BR. Mail: P.O. Box 886.

IRAN.—Commercial Division, Canadian Embassy, Bezrouke Bldg., Corner of Takht Jamshid Ave. and Forsat St., Tehran. Mail: P.O. Box 1610.

IRELAND.—Commercial Counsellor for Canada, 66 Upper O'Connell St., Dublin.

ISRAEL.—Commercial Secretary for Canada, 84 Hahashmonaim St., Tel Aviv. Mail: P.O. Box 20140. Territory includes Cyprus.

ITALY.—
Rome: Commercial Counsellor, Canadian Embassy, Via G.B. De Rossi 27, Rome. Territory includes Libya and Malta.

MILAN: Consul General and Trade Commissioner, Canadian Consulate General, Via Pirelli 19, Milan. Mail: G.P. 3977.

JAMAICA.—Commercial Secretary, Office of the High Commissioner for Canada, 32 Duke St. (corner Duke and Barry Sts.), Kingston. Mail: P.O. Box 225. Territory includes Bahamas and British Honduras.

JAPAN.—Minister (Commercial), Canadian Embassy, 16, Omote-Machi, 3-Chome, Akasaka, Minatoku, Tokyo. Mail: c/o Akasaka Post Office, Tokyo. Territory includes Korea and Okinawa.

LEBANON.—Commercial Counsellor, Canadian Embassy, Alpha Bldg., Rue Clemenceau, Beirut. Mail: Boîte Postale 2300. Territory includes Iraq, Jordan, Persian Gulf Area, Saudi Arabia and Syria.

MALAYSIA.—Canadian Government Trade Commissioner, American International Building, Robinson Road and Telegraph Street, Singapore. Mail: P.O. Box 845.

MEXICO.—Commercial Counsellor, Canadian Embassy, Melchor Ocampo 463, 7th Floor, Mexico 5, D.F. Mail: Apartado Postal 5-364.

NETHERLANDS.—Commercial Counsellor, Canadian Embassy, Sophialaan 5-7, The Hague.

NEW ZEALAND.—Commercial Counsellor, Office of the High Commissioner for Canada, Government Life Insurance Bldg., Wellington. Mail: P.O. Box 1660. Territory includes Fiji, Western Samoa, Tahiti and Tonga.

NIGERIA.—Commercial Secretary, Office of the High Commissioner for Canada, 4th Floor Barclays Bank Bldg., 40 Marina Road, Lagos. Mail: P.O. Box 851. Territory includes Dahomey, Gambia, Niger, Senegal and Sierra Leone.

NORWAY.—Commercial Secretary, Canadian Embassy, Fridtjof Nansens Plass 5, Oslo 1. Mail: P.O. Box 1379—Vika. Territory includes Iceland.

PAKISTAN.—Commercial Secretary, Office of the High Commissioner for Canada, Hotel Metropole, Victoria Road, Karachi. Mail: P.O. Box 3703. Territory includes Afghanistan.

PERU.—Commercial Secretary, Canadian Embassy, Edificio Boza, Carabaya 831, Plaza San Martin, Lima. Mail: Casilla 1212. Territory includes Bolivia.

PHILIPPINES.—Consul General and Trade Commissioner, Canadian Consulate General, L & S Bldg., 3rd Floor, 1414 Dewey Blvd., Manila. Mail: P.O. Box 1825. Territory includes Republic of China (Taiwan).

PORTUGAL.—Commercial Counsellor, Canadian Embassy, Rua Marques de Fronteira, No. 8-4°D°, Lisbon. Territory includes Angola, Azores, Cape Verde Islands, Madeira and Portuguese Guinea.

SOUTH AFRICA.—

Johannesburg: Canadian Government Trade Commissioner, Mobil House, 17th Floor, Corner Rissik and De Villiers Sts., Johannesburg. Mail: P.O. Box 715. Territory includes Malagasy, Mauritius, Mozambique and Reunion.

Cape Town: Canadian Government Trade Commissioner, 13th Floor, African Life Centre, St. George's St., Cape Town. Mail: P.O. Box 683. Territory includes St. Helena and South West Africa.

SOUTHERN RHODESIA.—Canadian Government Trade Commissioner, 8th Floor, Grindlay's Bank Chambers, Baker Avenue, Salisbury. Mail: P.O. Box 2133.

SPAIN.—Commercial Counsellor, Canadian Embassy, Edificio España, Avenida de Jose Antonio 88, Madrid. Mail: Apartado 117. Territory includes Balearic Islands, Canary Islands, Gibraltar, Rio Muni and Rio de Oro.

SWEDEN.—Commercial Counsellor, Canadian Embassy, Strandvagen, 7-C, Stockholm. Mail: P.O. Box 14042. Territory includes Finland.

SWITZERLAND.—Commercial Counsellor, Canadian Embassy, Kirchenfeldstrasse 88, Berne. Territory includes Tunisia.

TRINIDAD AND TOBAGO.—Commercial Secretary, Office of the High Commissioner for Canada, Colonial Bldg., 72 South Quay, Port-of-Spain. Mail: P.O. Box 125. Territory includes Barbados, Windward and Leeward Islands, British Guiana, French Guiana, Surinam, Guadeloupe and Martinique.

UNION OF SOVIET SOCIALIST REPUBLICS.—Commercial Secretary, Canadian Embassy, 23 Starokonyushenny Pereulok, Moscow.

UNITED ARAB REPUBLIC.—Commercial Counsellor, Canadian Embassy, 6 Sharia Rouston Pasha, Garden City, Cairo. Mail: Kasr el Doubara Post Office. Territory includes Aden, Sudan, Ethiopia and Yemen.

UNITED STATES.—

Washington: Commercial Counsellor, Canadian Embassy, 1746 Massachusetts Ave., N.W., Washington 36, D.C.

New York City: Deputy Counsul General (Commercial), Canadian Consulate General, 680 Fifth Ave., New York City 19. Territory includes Bermuda.

Boston: Consul and Trade Commissioner, Canadian Consulate General, 607 Boylston St., Boston 16.

Chicago: Consul and Trade Commissioner, Canadian Consulate General, 310 South Michigan Ave., Suite 2000, Chicago 4.

Cleveland: Consul and Trade Commissioner, Canadian Consulate, Illuminating Building, 55 Public Square, Cleveland.

Detroit: Consul and Trade Commissioner, Canadian Consulate, 1139 Penobscot Bldg., Detroit 26.

Los Angeles: Consul and Trade Commissioner, Canadian Consulate General, 510 West Sixth St., Los Angeles 14.

New Orleans: Consul and Trade Commissioner, Canadian Consulate General, Suite 1710, 225 Baronne St., New Orleans 12.

Philadelphia: Consul and Trade Commissioner, Canadian Consulate, 3 Penn Center Plaza, Philadelphia 2.

San Francisco: Consul General, Canadian Consulate General, 333 Montgomery St., San Francisco 4. Territory includes Hawaii.

Seattle: Consul General, Canadian Consulate General, The Tower Bldg., Seventh Ave. at Olive Way, Seattle 1. Territory includes Alaska.

URUGUAY.—Commercial Division, Canadian Embassy, No. 1409 Avenida Agraciada, Piso 7°, Montevideo. Mail: Casilla Postal 852. Territory includes Falkland Islands.

VENEZUELA.—Commercial Counsellor, Canadian Embassy, Avenida La Estancia No. 10, Ciudad Comercial Tamanaco, Caracas. Mail: Apartado 11452-Este. Territory includes Netherlands Antilles.

Trade Fairs and Missions Branch.—It is the function of this Branch, through its Trade Fairs Abroad Division and its Trade Missions Division, to organize and co-ordinate the trade fairs and missions programs sponsored by the Department. Liaison within the Department and program development are conducted through advisory committees—one on trade fairs abroad and another on trade missions. Each committee is convened and chaired by the Director of the Branch and includes representatives of all trade promotion Branches of the Department.

The 1964 program of the Trade Fairs Abroad Division included exhibits at 45 trade fairs held in the United States, Britain and six other European countries, Israel and Japan. At most of these exhibitions, selected Canadian companies displayed their products in individual booths within a Canadian exhibit. However, eight of the exhibits were trade information booths manned primarily by departmental personnel. The 20 trade missions organized in 1964 by the Trade Missions Division included ten teams of Canadian business men sent abroad to study special markets in Europe, the United States, the Caribbean, Australasia and Africa and ten groups of business visitors brought to Canada from France, Italy, Uruguay, India, Japan, Britain, Chile, Iran and Venezuela. Both Divisions work in close co-operation with trade associations and other interested organizations outside the Department.

Office of Trade Relations and Trade Policy.—The function of the Office of Trade Relations and Trade Policy is to safeguard and improve terms of access for Canadian exporters in foreign markets. The Office is concerned with the conduct of Canadian trade relations with other countries, including the negotiation and administration of trade agreements and Canadian participation in international trade conferences such as those of the General Agreement on Tariffs and Trade. It endeavours to find practical solutions for tariffs and other difficulties encountered in foreign markets by Canadian exporters and, as a service to exporters, provides expert information, advice and assistance on foreign tariffs, import and exchange controls, documentation requirements and other foreign governmental regulations affecting Canada's trade. The Office also has responsibilities in relation to the export financing facilities available for the development of exports of Canadian capital equipment. Through the Area Divisions—Commonwealth, United States, European, Latin American and Asia and Middle East—the Office is the central point of contact between Canada's trade commissioners abroad and the Department in Ottawa.

Trade Services Branch.—The functions of this Branch relate to transportation problems, export and import controls, trade directories, the administration of the five Regional Offices and the provision of general guidance to firms seeking entry into the export field. These activities are conducted by three Divisions: the Transportation Division is concerned primarily with industrial transportation from the user's point of view, keeping in touch with developments and trends in shipping services and in freight rates; the Trade Controls Division administers the controls established under the Export and Import Permits Act; and the Allied Services Division administers the Department's Regional Offices and compiles the *Exporter's Directory*, a confidential list of firms engaged in or seriously interested in exporting commodities or services.

Commodity Branches.—The Commodities and Industries Services include three commodity Branches—the Agriculture and Fisheries Branch, the Industrial Materials Branch and the Manufacturing Industries and Engineering Branch. These Branches provide the main link with industry and maintain close contact with the business community to be familiar with the production and supply conditions in Canada. Emphasis is placed in the search for products and services, the sale of which can be promoted abroad.

The Agriculture and Fisheries Branch is organized into four divisions to cover fisheries, grain, livestock, and animal products and plant products. The Industrial Materials Branch is composed of three divisions to handle chemicals, forest products and metals and minerals. The Manufacturing Industries and Engineering Branch is organized into three

divisions responsible for appliances and commercial machinery, engineering and equipment and textiles and consumer goods. These divisions are staffed by Commodity Officers who are specialists in their fields and are available to assist Canadian business men.

Commodity Officers visit manufacturing plants and production facilities, attend and address meetings of business associations and study groups and prepare product reports and market surveys. They constitute the principal channel through which information on Canadian products and services reaches Canadian trade commissioners abroad and the channel through which information on sales opportunities in foreign countries is disseminated to industry in Canada. They continually analyse reports from trade commissioners abroad to determine potential markets for commodities and services of interest to Canadian industry. In co-operation with the Canadian Government Exhibition Commission, they assist in making arrangements for the display of commodities in trade fairs throughout the world to introduce Canadian products into new markets. They organize and accompany departmental trade missions and serve as delegates to international commodity conferences to study world market conditions and to consider corrective adjustments in conjunction with industrial advisers.

Trade Publicity Branch.—The function of the Trade Publicity Branch of the Department is to promote an awareness of, and interest in, Canadian products in foreign markets and to publicize the activities of all Branches, so as to further the Department's objectives both in Canada and abroad. All communications media are employed to these ends, with particular emphasis on the graphic arts. The Branch has three main divisions.

The Editorial and Art Services Division is responsible for the writing, art work, design and production of all advertising and printed matter for the Department. Although its interests range over all aspects of the Department's work, the primary objective is to publicize Canadian products in foreign markets through the production of booklets, catalogues, folders, posters and other material prepared for distribution at trade fairs abroad or at points being visited by Canadian trade missions. Advertising campaigns, using all appropriate media, are prepared to attract attention to Canadian exhibits at trade fairs or to acquaint foreign audiences with the services and assistance available to them from the Trade Commissioner Service at posts abroad. *Canada Courier*, a publication on Canadian exports and exporters, is distributed to business men abroad at periodic intervals. A second Division produces *Foreign Trade*, a fortnightly magazine, and *Commerce extérieur*, a monthly, which are distributed to Canadian subscribers. Each issue contains information on foreign exchange rates, trade and tariff regulations, marketing information and other valuable trade data. Articles by trade commissioners abroad discuss marketing needs and requirements in the areas they serve. The Media Relations Division prepares and distributes press releases, articles, photographs, speeches and background information to newspapers, radio and television stations, magazines and trade publications throughout Canada. It provides publicity material for distribution by trade commissioners abroad and distributes motion picture films and TV film clips to promote interest in Canada as a supplier of a wide range of commodities.

Canadian Government Exhibition Commission.—The Commission organizes, designs, produces and administers all Canadian exhibits at fairs and exhibitions abroad in which the Canadian Government participates and also advises private exhibitors and their agents on the best means of displaying Canadian products at trade fairs. It acts as a central service agency for all government departments and agencies in the preparation of conventional exhibits and displays for showing in Canada and is responsible for international fairs and exhibitions held in Canada that are financed and sponsored by the Government of Canada.

Canadian Government Travel Bureau.—The Canadian Government Travel Bureau is in operation to encourage tourist travel to Canada and to co-ordinate the tourist promotion conducted by the provinces, transportation companies and national, regional

and local tourist associations. The Bureau undertakes extensive tourist advertising campaigns abroad, provides tourist publicity material for foreign newspapers, magazines, radio and television outlets, and annually handles more than 1,000,000 inquiries from potential visitors to Canada. Tourist offices are operated in New York, Chicago, San Francisco, Minneapolis and Los Angeles in the United States, and in London, England. Also, the Bureau has field representation in Paris, France, and Duesseldorf, Germany.

Export Credits Insurance Corporation.—This Corporation was established under the provisions of the Export Credits Insurance Act, 1944 (RSC 1952, c. 105, as amended) and is administered by a Board of Directors that includes the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance. It operates in two fields—export credits insurance and export financing.

Insurance is available to all persons or corporations carrying on business in Canada to cover export sales made on customary credit terms. It provides protection against risks involved in the export, manufacture, treatment or distribution of goods, or the rendering of engineering, construction, technical or similar services. The main risks covered include: insolvency or protracted default on the part of the buyer; exchange restrictions in the buyer's country preventing the transfer of funds to Canada; cancellation of an import licence or the imposition of restrictions on the importation of goods not previously subject to restrictions; the occurrence of war between the buyer's country and Canada, or of war, revolution, etc., in the buyer's country. The insurance is available under three main classifications—general commodities, capital goods and services. General commodities policies cover a policyholder's export sales to all countries except the United States for a period of one year, and are renewable. Two types are available: the contracts policy, which insures an exporter against loss from the time he books an order until payment is received; or the shipments policy, obtainable at lower rates of premium and covering the exporter from the time of shipment until payment is received. Insurance of capital goods offers protection to exporters dealing in plant equipment, heavy machinery, etc., where extended credit up to a maximum of five years may be necessary. Specific policies are issued for transactions involving capital goods but the general terms and conditions are the same as those applicable to policies for general commodities. Specific policies are also issued to cover engineering, construction, technical or similar service contracts entered into between Canadian firms and persons in foreign countries who have agreed to purchase such services.

The Corporation insures exporters on a co-insurance basis, the exporter retaining a small percentage of the risk involved, and the same principle operates in the distribution of recoveries obtained after the payment of a claim. The Corporation, when authorized by the Governor in Council, may enter into certain contracts of insurance, which, although they would impose upon the Corporation a liability for a term or in an amount in excess of that normally undertaken, would, in the opinion of the Minister of Trade and Commerce, be considered in the national interest. The Corporation also administers direct financing facilities available under the Act in cases where export sales involving capital goods are of such a nature as to warrant credit terms in excess of five years. The Corporation, when authorized by the Governor in Council, buys the promissory notes or other negotiable instruments of the foreign purchaser.

Section 2.—The Development of Tariffs

Limitations of space in the Year Book have made it necessary, in regard to tariffs, to adopt the policy of confining any detail regarding commodities and countries to tariff relationships in force at present and to summarize as much as possible historical data and details of preceding tariffs.

Subsection 1.—The Canadian Tariff Structure*

The Canadian Tariff consists, in the main, of three sets of tariff rates—British Preferential, Most-Favoured-Nation, and General.

British Preferential Tariff rates are, with some exceptions, the lowest rates. They are applied to imported commodities from British countries, with the exception of Hong Kong, when conveyed without trans-shipment from a port of any British country enjoying the benefits of the British Preferential Tariff into a port of Canada. Some Commonwealth countries have trade agreements with Canada which provide for rates of duty, on certain specified goods, lower than the British Preferential rates.

Most-Favoured-Nation rates are usually higher than the British Preferential rates and lower than the General Tariff rates. They are applied to commodities imported from countries with which Canada has trade agreements. These rates would apply to British countries when they are lower than the British Preferential Tariff rates. The most important trade agreement concerning the effective rates applied to goods imported from countries entitled to Most-Favoured-Nation rates is the General Agreement on Tariffs and Trade (GATT).

General Tariff rates are applied to goods imported from the few countries with which Canada has not made trade agreements.

There are numerous goods which are duty free under the British Preferential Tariff, or under both the British Preferential and Most-Favoured-Nation Tariffs, or under all Tariffs.

Valuation.—In general, the Customs Act, as amended effective Sept. 6, 1958, provides that the value for duty of imported goods shall be the fair market value of like goods as established in the home market of the exporter at the time when and place from which the goods are shipped directly to Canada when sold "(*a*) to purchasers located at that place with whom the vendor deals at arm's length and who are at the same or substantially the same trade level as the importer, and (*b*) in the same or substantially the same quantities for home consumption in the ordinary course of trade under competitive conditions". In cases where like goods are not sold for home consumption but similar goods are sold, the value for duty shall be the cost of production of the goods imported plus an amount for gross profit equal in percentage to that earned on the sale of similar goods in the country of export. The value for duty ordinarily may not be less than the amount for which the goods were sold to the purchaser in Canada, exclusive of all charges thereon after their shipment from the country of export. Internal taxes in the country of export (when not incurred on exported goods), the cost of shipping goods to Canada and similar charges do not normally form part of the value for duty. There are, of course, further provisions for determining value for duty under the Act.

Dumping.—Sect. 6 of the Customs Tariff provides that when the actual selling price of goods being imported is less than the fair market value and the goods are of a class or kind made or produced in Canada, a special or dumping duty shall be collected. This duty is to be equal to the difference between the actual selling price and the fair market value of the goods, except that it may not be more than 50 p.c. *ad valorem.* These provisions are designed to offset the advantage foreign exporters may achieve by exporting to Canada at less than the going prices.

* Information relating to rate of duty and value for duty is available from the Department of National Revenue, Customs and Excise Division, which administers the Customs Act and the Customs Tariff.

Drawback.—There are provisions in the Customs and Excise Tax Acts for the repayment of a portion of the duty, sales and/or excise taxes paid on imported goods used in the manufacture of products later exported. The purpose of these drawbacks (as these repayments are called) is to assist Canadian manufacturers to compete in foreign markets with foreign producers of similar goods. A second class of drawback, known as "home consumption" drawbacks, is provided for under the Customs Tariff Act and applies to imported materials and/or parts used in the production of specified goods to be consumed in Canada.

The Tariff Board.—The organization and functions of the Tariff Board are described at p. 113 of this volume.

Subsection 2.—Tariff and Trade Arrangements with Other Countries as at Dec. 31, 1963

Canada's tariff arrangements with other countries fall into three main categories: trade agreements with a number of Commonwealth countries; the General Agreement on Tariffs and Trade (GATT); and other agreements and arrangements.

Canada accords preferential tariff treatment to all members of the Commonwealth and dependent territories with the exception of Hong Kong. In addition, preferences are extended to the Republics of Ireland and South Africa. The preferential arrangements with Britain, Australia, New Zealand, the West Indies and the Republics of Ireland and South Africa are governed by bilateral trade agreements. A number of Commonwealth countries—India, Pakistan, Ghana, Nigeria, Tanganyika, Uganda and Kenya—do not accord preferential tariff treatment to Canadian goods. Canada's arrangements and agreements with Commonwealth countries have been modified on a number of occasions by the negotiations which Commonwealth countries have had with their non-Commonwealth trading partners in GATT.

Canada signed the Protocol of Provisional Application of the General Agreement on Tariffs and Trade on Oct. 30, 1947, and brought the General Agreement into force on Jan. 1, 1948. The Agreement provides for scheduled tariff concessions and the exchange of most-favoured-nation treatment among the contracting parties, and lays down rules and regulations to govern the conduct of international trade. On Dec. 31, 1963, there were 60 full members of GATT. The names of these, and the dates of their accession, are given in the list on pp. 941-947. In addition, Switzerland, Tunisia, Argentina, Yugoslavia and the United Arab Republic have acceded provisionally. The GATT is applied on a *de facto* basis to a number of newly independent states (Algeria, Burundi, Congo (Leopoldville), Mali, Rwanda and Togo) pending final decisions as to their future commercial policy. Two other countries, Cambodia and Poland, while not members, participate in the work of the GATT. Five rounds of major multilateral tariff negotiations have been held under the GATT—at Geneva in 1947, Annecy in 1949, Torquay in 1950-51 and again at Geneva in 1956 and 1960.

Canada already had most-favoured-nation trade agreements with most contracting parties prior to the effective date of the General Agreement. These arrangements continue in force in conjunction with the GATT. As an exception, however, the Canada–United States Trade Agreement was suspended for as long as both parties should continue to be contracting parties to the GATT. Trade relations between Canada and many other countries are governed by trade agreements of various kinds, by exchange of most-favoured-nation treatment under Orders in Council, by continuation to newly independent states of the same treatment originally negotiated with the mother country and by even less formal arrangements.

Tariff and Trade Arrangements with Commonwealth Countries as at Dec. 31, 1963

Country	Agreement	Principal Terms
AUSTRALIA	Trade Agreement signed Feb. 12, 1960; in force June 30, 1960. GATT effective Jan. 1, 1948.	Agreement includes schedules of tariff rates and exchange of British preferential rates on items not scheduled. May be terminated on six months notice.
BRITAIN	Trade Agreement signed Feb. 23, 1937, effective Sept. 1, 1937; modified by exchanges of letters Nov. 16, 1938 and Oct. 20, 1947. GATT effective Jan. 1, 1948.	Various concessions are granted by each country including exchange of preferential tariff rates. The Agreement (as modified) includes provisions relating to the Colonies, Dependencies and Trusteeships.
BRITISH CARIBBEAN, BAHAMAS, BARBADOS, BERMUDA, BRITISH GUIANA, BRITISH HONDURAS, THE LEEWARD ISLANDS, AND THE WINDWARD ISLANDS.	Canada-British West Indies Trade Agreement signed July 6, 1925, in force Apr. 30, 1927; Canadian notice of termination of Nov. 23, 1938, was replaced by notice of Dec. 27, 1939, which continued the Agreement. Barbados, Bermuda, British Guiana, British Honduras and the Leeward and the Windward Islands participate in GATT.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
CEYLON	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective July 29, 1948.	Canada and Ceylon exchange preferential tariff treatment.
CYPRUS	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Aug. 16, 1960.	Canada exchanges preferential treatment with Cyprus.
GHANA	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 18, 1957.	Canada accords Ghana the British preferential rates, except on cocoa beans. Exchange of most-favoured-nation treatment.
INDIA	Since 1897 Canada has unilaterally accorded British preferential treatment without contractual obligation. GATT effective July 8, 1948.	Canada accords British preferential treatment to India. Exchange of most-favoured-nation treatment.
JAMAICA	Relations continue to be governed by Canada-British West Indies Trade Agreement (see British Caribbean). GATT effective Aug. 6, 1962.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
KENYA	Relations continue to be governed by Trade Agreement of 1937 with Britain.	Canada accords British preferential treatment to Kenya.
MALAYSIA	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 24, 1957.	Canada and Malaysia exchange preferential tariff treatment.
NEW ZEALAND	Trade Agreement signed Apr. 23, 1932; in force May 24, 1932. GATT effective July 26, 1948.	The parties exchange specific preferences on scheduled goods and reciprocally concede British preferential rates on items not scheduled. May be terminated on six months notice.
NIGERIA, FEDERATION OF	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 1, 1960.	Canada accords British preferential treatment to Nigeria. Exchange of most-favoured-nation treatment.
PAKISTAN	Canada unilaterally accords British preferential treatment without contractual obligation. GATT effective July 30, 1948.	Canada accords British preferential treatment to Pakistan. Exchange of most-favoured-nation treatment.
SIERRA LEONE	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Apr. 27, 1961.	Canada and Sierra Leone exchange preferential tariff treatment.

Tariff and Trade Arrangements with Commonwealth Countries as at Dec. 31, 1963—concluded

Country	Agreement	Principal Terms
TANGANYIKA	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Dec. 9, 1961.	Canada accords British preferential treatment to Tanganyika. Exchange of most-favoured-nation treatment.
TRINIDAD	Relations continue to be governed by Canada-British West Indies Trade Agreement (see British Caribbean). GATT effective Aug. 31, 1962.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
UGANDA	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 9, 1962.	Canada accords British preferential treatment to Uganda. Exchange of most-favoured-nation treatment.
ZANZIBAR	Relations continue to be governed by Trade Agreement of 1937 with Britain.	Canada accords British preferential treatment to Zanzibar.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963

Country	Agreement	Principal Terms
ALGERIA	Franco-Canadian Trade Agreement of 1933 applied to Algeria. Algeria maintains a *de facto* application of the GATT.	Since the creation of Algeria as an independent state in 1962, Canada has continued to grant most-favoured-nation rates.
ARGENTINA	Trade Agreement signed Oct. 2, 1941; provisionally in force Nov. 15, 1941. Argentina has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. Provisional application may be terminated on three months notice.
AUSTRIA	GATT effective Oct. 19, 1951.	Exchange of most-favoured-nation treatment.
BELGIUM-LUXEMBOURG	Convention of Commerce with Belgium-Luxembourg Economic Union (including Belgian colonies) entered into effect Oct. 22, 1924. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BENELUX (BELGIUM-NETHERLANDS-LUXEMBOURG CUSTOMS UNION)	(See Belgium-Luxembourg and Netherlands.)	
BOLIVIA	Order in Council of July 20, 1935, accepted Article 15 of Britain-Bolivia Treaty of Commerce of Aug. 1, 1911.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BRAZIL	Trade Agreement signed Oct. 17, 1941; provisionally in force from date of signing and definitively on Apr. 16, 1943. GATT effective July 31, 1948.	Exchange of most-favoured-nation treatment.
BULGARIA	Trade Agreement signed Oct. 8, 1963; provisionally in force from date of signing.	Exchange of most-favoured-nation treatment and undertaking by Bulgaria to purchase a minimum of 300,000 metric tons of wheat or equivalent in flour during the three years validity of the Agreement. Bulgaria may buy an additional 150,000 metric tons of wheat if available in crop year 1963-64.
BURMA	GATT effective July 29, 1948.	Exchange of most-favoured-nation treatment.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963—continued

Country	Agreement	Principal Terms
BURUNDI	Burundi maintains a *de facto* application of the GATT.	Canada grants most-favoured-nation treatment.
CAMBODIA	Franco-Canadian Trade Agreement of 1933 applied to Cambodia. Although not yet a full member, Cambodia takes part in the work of GATT under a special arrangement.	Since the creation of Cambodia as an independent state in 1955, Canada has continued to grant most-favoured-nation rates.
CAMEROON	Franco-Canadian Trade Agreement of 1933 applied to Cameroons. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
CENTRAL AFRICAN REPUBLIC	Franco-Canadian Trade Agreement of 1933 applied to Central African Republic. GATT effective Aug. 14, 1960.	Exchange of most-favoured-nation treatment.
CHAD	Franco-Canadian Trade Agreement of 1933 applied to Chad. GATT effective Aug. 11, 1960.	Exchange of most-favoured-nation treatment.
CHILE	Trade Agreement signed Sept. 10, 1941; provisionally in force Oct. 15, 1941, and definitively on Oct. 29, 1943. GATT effective Mar. 16, 1948.	Exchange of most-favoured-nation treatment.
CHINA	*Modus vivendi* signed Sept. 26, 1946. Covers the territory of China and Taiwan.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
COLOMBIA	Treaty of Commerce with Britain of Feb. 16, 1866, applies to Canada. Modified by protocol of Aug. 20, 1912, and exchange of notes Dec. 30, 1938. A Trade Agreement between Colombia and Canada was signed Feb. 20, 1946, but has not been put into force.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
CONGO, REPUBLIC OF (BRAZZAVILLE)	Franco-Canadian Trade Agreement of 1933 applied to Congo (Brazzaville). GATT effective Aug. 15, 1960.	Exchange of most-favoured-nation treatment.
CONGO, REPUBLIC OF (LEOPOLDVILLE)	Belgo-Canadian Convention of Commerce of 1924 applied to Congo (Leopoldville). Maintains a *de facto* application of the GATT.	Since the Congo's independence in 1960, Canada has continued to grant most-favoured-nation rates.
COSTA RICA	*Modus vivendi* signed Nov. 18, 1950; brought into force Jan. 26, 1951.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
CUBA	GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
CZECHOSLOVAKIA	Convention of Commerce signed Mar. 15, 1928; in force Nov. 14, 1928. GATT effective May 21, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
DAHOMEY	Franco-Canadian Trade Agreement of 1933 applied to Dahomey. GATT effective Aug. 1, 1960.	Exchange of most-favoured-nation treatment.
DENMARK (INCLUDING GREENLAND)	Treaties of Peace and Commerce with Britain of Feb. 13, 1660 and July 11, 1670, apply to Canada. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment. Declaration of May 9, 1912 provides means for separate termination by Dominions on one years notice.
DOMINICAN REPUBLIC	Trade Agreement signed Mar. 8, 1940; in force Jan. 22, 1941. GATT effective May 19, 1950.	Exchange of most-favoured-nation treatment including scheduled concessions.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963—continued

Country	Agreement	Principal Terms
Ecuador	*Modus vivendi* signed Nov. 10, 1950; in force Dec. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
Egypt	(See United Arab Republic.)	
El Salvador	Exchange of notes of Nov. 2, 1937; in force Nov. 17, 1937.	Exchange of most-favoured-nation treatment. May be terminated on four months notice.
Ethiopia	Exchange of notes effective June 3, 1955.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
Finland	Exchange of notes of Nov. 13-17, 1948; effective Nov. 17, 1948. GATT effective May 25, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
France and French overseas territories.	Trade Agreement signed May 12, 1933; in force June 10, 1933. Exchange of notes of Sept. 29, 1934, and additional protocol of Feb. 26, 1935. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment including scheduled concessions. May be terminated on three months notice.
Gabon	Franco-Canadian Trade Agreement of 1933 applied to Gabon. GATT effective Aug. 17, 1960.	Exchange of most-favoured-nation treatment.
Germany, Federal Republic of.	GATT effective Oct. 1, 1951.	Exchange of most-favoured-nation treatment.
Greece	*Modus vivendi* by exchange of notes of July 24-28, 1947. GATT effective Mar. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
Greenland	(See Denmark.)	
Guatemala	Trade Agreement signed Sept. 28, 1937; in force Jan. 14, 1939.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
Guinea	Franco-Canadian Trade Agreement of 1933 applied to Guinea.	Since the creation of Guinea as an independent state in 1958, Canada has continued to grant most-favoured-nation rates.
Haiti	Trade Agreement signed Apr. 23, 1937; in force Jan. 10, 1939. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment.
Honduras	*Modus vivendi* by exchange of notes signed July 11, 1956, ratified in Honduras, Sept. 5, 1956.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
Iceland	Although there is no contractual obligation, Canada and Iceland adhere to the terms of a treaty originally concluded between Denmark and Britain on Feb. 13, 1660.	Exchange of most-favoured-nation treatment.
Indonesia	GATT effective Mar. 1, 1948.	Exchange of most-favoured-nation treatment.
Iran	Special arrangement by Order in Council effective Feb. 1, 1951. Iran accorded most-favoured-nation treatment from Sept. 5, 1956.	Canada grants most-favoured-nation tariff rates as long as Iran accords reciprocal treatment.
Iraq	Special arrangement by Order in Council effective Sept. 15, 1951.	Exchange of most-favoured-nation tariff treatment.
Ireland	Trade Agreement signed Aug. 20, 1932; in force Jan. 2, 1933.	Canada grants British preferential tariff in return for preferential rates where such exist and for most-favoured-nation rates on non-preferential items. May be terminated on six months notice.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963—continued

Country	Agreement	Principal Terms
ISRAEL	Canada-Britain Agreement of 1937 continued to apply to the State of Israel after its foundation in May 1948. GATT effective July 5, 1962.	Exchange of most-favoured-nation rates.
ITALY	*Modus vivendi* by exchange of notes of Apr. 23–28, 1948; effective Apr. 28, 1948. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
IVORY COAST	Franco-Canadian Trade Agreement of 1933 applied to the Ivory Coast. GATT effective Aug. 7, 1960.	Exchange of most-favoured-nation treatment.
JAPAN	Agreement on Commerce signed Mar. 31, 1954; effective June 7, 1954. GATT effective Sept. 10, 1955.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
KUWAIT	Canada-Britain Agreement of 1937 applied to Kuwait as a British Protectorate. GATT effective June 18, 1961.	Since independence of Kuwait in June 1961, Canada has continued to accord most-favoured-nation rates.
LAOS	Franco-Canadian Trade Agreement of 1933 applied to Laos.	Since the creation of Laos as an independent state in 1955, Canada has continued to grant most-favoured-nation rates.
LEBANON	Special arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Lebanon accords reciprocal treatment.
LIBERIA	Special arrangement by Order in Council effective Mar. 1, 1955.	Canada grants most-favoured-nation tariff rates.
LIECHTENSTEIN	(See Switzerland.)	
LUXEMBOURG	(See Belgium–Luxembourg.)	
MALAGASY REPUBLIC	Franco-Canadian Trade Agreement of 1933 applied to Malagasy Republic. GATT effective June 25, 1960.	Exchange of most-favoured-nation treatment.
MALI, FEDERATION OF	Franco-Canadian Trade Agreement of 1933 applied to Mali. Mali maintains a *de facto* application of the GATT.	Since the creation of Mali as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
MAURITANIA	Franco-Canadian Trade Agreement of 1933 applied to Mauritania. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
MEXICO	Trade Agreement signed Feb. 8, 1946; in force provisionally same date. Ratifications exchanged on May 6, 1947; definitively in force 30 days from that date.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
MOROCCO	Various agreements applied to French, Spanish and International Zones of Morocco.	Since the creation of Morocco as an independent state in 1956, Canada has continued to grant most-favoured-nation rates.
NETHERLANDS	Convention of Commerce of July 11, 1924. Suspended during war; reinstated by exchange of notes Feb. 1 and 5, 1946. Includes Netherlands Antilles and Surinam. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
NICARAGUA	Trade Agreement signed Dec. 19, 1946; in force provisionally same date. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963—continued

Country	Agreement	Principal Terms
NIGER	Franco-Canadian Trade Agreement of 1933 applied to Niger. GATT effective Aug. 3, 1960.	Exchange of most-favoured-nation treatment.
NORWAY	Convention of Commerce and Navigation with Britain of Mar. 18, 1826, applied to Canada. GATT effective July 10, 1948.	Exchange of most-favoured-nation treatment. Convention of May 16, 1913 provides means for separate termination by Dominions on one years notice.
PANAMA	Order in Council of July 20, 1935, accepted Article 12 of Britain-Panama Treaty of Commerce of Sept. 25, 1928. Treaty terminated in 1942.	While contractual obligation has expired, Canada and Panama continue to exchange most-favoured-nation treatment.
PARAGUAY	Exchange of notes of May 21, 1940; in force June 21, 1940.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
PERU	GATT effective Oct. 8, 1951.	Exchange of most-favoured-nation treatment.
PHILIPPINES	No agreement.	Canada and Philippines, without contractual obligation, continue to exchange most-favoured-nation treatment (excluding preferences accorded by the Philippines to the United States).
POLAND	Convention of Commerce signed July 3, 1935, in force Aug. 15, 1936.	Exchange of most-favoured-nation treatment including scheduled reductions. May be terminated on three months notice.
PORTUGAL, PORTUGUESE ADJACENT ISLANDS AND PORTUGUESE OVERSEAS PROVINCES.	Trade Agreement signed May 28, 1954 provisionally in effect July 1, 1954, definitively in force on ratification Apr. 29, 1955. GATT effective May 6, 1962.	Exchange of most-favoured-nation treatment. Remains in effect for two years from ratification and thereafter unless terminated on three months notice.
RWANDI	Rwandi maintains a *de facto* application of the GATT.	Canadian grants most-favoured-nation treatment.
SENEGAL	Franco-Canadian Trade Agreement of 1933 applied to Senegal. GATT effective June 20, 1960.	Exchange of most-favoured-nation treatment.
SOUTH AFRICA	Trade Agreement signed Aug. 20, 1932; in force Oct. 13, 1932.	Exchange of British preferential rates on scheduled items. May be terminated on six months notice.
	Exchange of notes Aug. 2-31, 1935; effective retroactively from July 1, 1935. GATT effective June 14, 1948.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
SPAIN AND SPANISH POSSESSIONS.	Since Aug. 1, 1928, Canada has adhered to Britain-Spain Treaty of Commerce of Oct. 31, 1922.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
	Trade Agreement signed May 26, 1954, provisionally in effect July 1, 1954, definitively in force on ratification June 30, 1955. GATT effective Aug. 29, 1963.	Supplements and amends Britain-Spain Treaty of Commerce. Remains in effect for three years from ratification, and thereafter unless terminated on three months notice.
SWEDEN	Britain-Sweden Convention of Commerce and Navigation of Mar. 18, 1826 applies to Canada. GATT effective May 1, 1950.	Exchange of most-favoured-nation treatment. Declaration of Nov. 27, 1911 provides means for separate termination by the Dominions on one years notice.

Tariff and Trade Arrangements with Non-Commonwealth Countries as at Dec. 31, 1963—concluded

Country	Agreement	Principal Terms
SWITZERLAND	Britain-Switzerland Treaty of Friendship, Commerce and Reciprocal Establishment of Sept. 6, 1855 applies to Canada. By exchange of notes Liechtenstein included under terms of this Agreement, effective July 14, 1947. Switzerland has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. Convention of Mar. 30, 1914 provides means for separate termination by the Dominions on one years notice.
SYRIAN ARAB REPUBLIC	Special Arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Syria accords reciprocal treatment.
TOGO	Franco-Canadian Trade Agreement of 1933 applied to Togo. Togo maintains a *de facto* application of the GATT.	Since the creation of Togo as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
TUNISIA	Franco-Canadian Trade Agreement of 1933 applied to Tunisia. Tunisia has acceded to GATT provisionally.	Since the creation of Tunisia as an independent state in 1956, Canada has continued to grant most-favoured-nation rates.
TURKEY	Exchange of notes signed Mar. 1, 1948; in effect Mar. 15, 1948. GATT effective Oct. 17, 1951.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
UNION OF SOVIET SOCIALIST REPUBLICS	Trade Agreement signed Feb. 29, 1956, renewed for another three years Apr. 18, 1960 and again for the same period on Sept. 16, 1963 by a protocol which provisionally entered into force on the same date (the extension to be valid from Apr. 18, 1963).	Exchange of most-favoured-nation treatment and undertaking by U.S.S.R. to purchase a minimum of 6,375,000 long tons of wheat and flour during the three-year period of validity of the extended agreement.
UNITED ARAB REPUBLIC (EGYPT)	Exchange of notes Nov. 26 and Dec. 3, 1952; in force Dec. 3, 1952. The United Arab Republic has acceded provisionally to the GATT.	Exchange of most-favoured-nation rates. May be terminated on six months notice.
UNITED STATES	Trade Agreement signed Nov. 17, 1938; suspended as long as both countries continue to be contracting parties to GATT. GATT effective Jan. 1, 1948.	Most-favoured-nation treatment exchanged.
UPPER VOLTA (VOLTAIC REPUBLIC)	Franco-Canadian Trade Agreement of 1933 applies to Upper Volta. GATT effective Aug. 5, 1960.	Exchange of most-favoured-nation treatment.
URUGUAY	Trade Agreement signed Aug. 12, 1936; in force May 15, 1940. Additional protocol signed Oct. 19, 1953. GATT effective Dec. 16, 1953.	Exchange of most-favoured-nation treatment.
VENEZUELA	*Modus vivendi* signed and brought into force Oct. 11, 1950.	Exchange of most-favoured-nation treatment. Made for one year subject to annual renewal.
VIET NAM	Franco-Canadian Trade Agreement of 1933 applied to Viet Nam.	Since the creation of Viet Nam as an independent state in 1955, Canada has continued to accord most-favoured-nation rates.
YUGOSLAVIA	Trade Agreements Act of June 11, 1928, accepted Article 30 of Britain-Serb-Croat-Slovene Treaty of Commerce and Navigation of May 12, 1927; in force Aug. 9, 1928. Yugoslavia has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.

PART IV.—TRAVEL BETWEEN CANADA AND OTHER COUNTRIES*

The Canadian border is crossed and recrossed each year by tens of millions of travellers. Much of this travel has little international financial significance but is testimony both of the important social and cultural relationships existing between Canada and the United States and of political geography. A part of it, however, contributes to a large and growing international travel industry which is of considerable significance to the balance of payments of Canada. For a long period, the travel industry was an important net earner of foreign exchange for Canada but from 1951 to 1962 Canadian travellers abroad spent more than foreign visitors to Canada. In 1963, however, travel earned a surplus for Canada; the shift of $67,000,000 to a surplus, from a deficit in 1962, represented about one fifth of the net improvement in Canada's current account balance in the period.

During 1963, visits to and from Canada numbered more than 61,500,000. Canadians returning from trips to the United States rose by 1,445,200 or about 5 p.c. and the number of United States residents entering Canada increased by 208,400 or around 0.7 p.c. Canadians returning direct from overseas countries numbered 282,057, an increase of 28,657, and there were 76,370 non-immigrant arrivals from overseas countries during the last nine months of 1963.

Estimated expenditures involved in travel between Canada and other countries reached a new high of $1,194,000,000 in 1963, between 9 and 10 p.c. above the 1962 figure. Estimated receipts from non-resident travel in Canada came to $609,000,000, an advance of between 8 and 9 p.c. over the previous year, but Canadian residents travelling to other countries spent an estimated $585,000,000, some $20,000,000 less than in 1962. The net effect of these over-all receipts and expenditures was a $24,000,000 balance of payments surplus on travel account with all countries in 1963 compared with a deficit of $43,000,000 in 1962. This credit balance was the first surplus balance since 1950. Between 1951 and 1962, Canada had experienced deficits on travel account with all countries ranging from $6,000,000 in 1951 to $207,000,000 in 1959 and 1960. The 1963 surplus was composed of a $161,000,000 credit balance on travel account with the United States and a deficit in the overseas travel account amounting to $137,000,000.

Travel Between Canada and the United States.—During 1963, some 31,864,800 residents of the United States entered Canada, 208,400 more than in the previous year. These travellers spent an estimated $549,000,000 in Canada, a gain about 7 p.c. over the corresponding 1962 figure. Between 67 and 68 p.c. of the United States residents entering Canada came for short-term visits but the expenditure of this group, which on the average is normally low, represented only about 11 p.c. of the total expenditures. On the other hand, United States residents remaining in Canada for one or more nights constituted only between 32 and 33 p.c. of the total visits but accounted for 89 p.c. of the receipts. Nearly 79 p.c. of all United States residents who entered Canada in 1963 travelled by automobile and these travellers accounted for about 66 p.c. of the total receipts.

Canadians returning from border crossings to the United States in 1963 numbered 29,389,800, an increase of 1,445,200 over the 1962 volume. Canadian travel expenditures in the United States, however, dropped between 7 and 8 p.c. to $388,000,000 in 1963. The devaluation of the Canadian dollar in May 1962 and the reduction in the value of merchandise exempt from customs duty from $100 to $25 every four months, effective in June 1962, were still major contributors to this decline. Of the Canadian travellers to the United States in 1963, about 83 p.c. were classified as short-term, and these accounted for only 14 p.c. of the total payments. Those who remained one or more nights in that country represented about 17 p.c. of the volume but their expenditures made up nearly 86 p.c. of the

* Prepared by the Travel Statistics Unit, National Accounts and Balance of Payments Division, Dominion Bureau of Statistics.

payments. Between 78 and 79 p.c. of the Canadians visiting the United States travelled by automobile and accounted for nearly 51 p.c. of the total expenditures. The balance of payments surplus on travel account with the United States was $161,000,000 in 1963, compared with the 1962 surplus of $93,000,000.

1.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, 1954-63

Year	U.S. Travellers in Canada	U.S. Expenditure in Canada	Canadians Travelling in U.S.	Canadian Expenditure in U.S.	Excess of U.S. Travellers in Canada	Balance of Payments with the U.S.
	No.	$'000	No.	$'000	No.	$'000
1954	26,412,600	283,000	23,343,400	320,000	+3,069,200	− 37,000
1955	28,283,400	303,000	24,753,800	363,000	+3,529,600	− 60,000
1956	27,666,500	309,000	27,076,700	391,000	+ 589,800	− 82,000
1957	28,619,400	325,000	27,209,400	403,000	+1,410,000	− 78,000
1958	28,530,700	309,000	27,421,700	413,000	+1,109,000	−104,000
1959	29,880,800	351,000	27,989,900	448,000	+1,890,900	− 97,000
1960	29,654,600	375,000	29,045,800	462,000[1]	+ 608,800	− 87,000
1961	30,474,200	435,000	29,288,500	459,000[1]	+1,185,700	− 24,000
1962	31,656,400	512,000	27,944,600	419,000[1]	+3,711,800	+ 93,000
1963	31,864,800	549,000	29,389,800	388,000[1]	+2,475,000	+161,000

[1] Includes Hawaii.

Many factors influence the flow of American visitors to Canada, including ease of border crossings, location of highly populated areas near the International Boundary, currency exchange rate between the two countries, prevailing economic conditions, and construction of new roads and bridges. During 1963, the year following the opening of the new bridge spanning the St. Mary's River at Sault Ste. Marie, the number of non-resident automobiles entering Canada at Sault Ste. Marie was 216,962, compared with 72,473 in 1962. Similarly, re-entries of Canadian automobiles at the same point numbered 123,325 compared with 42,537 in the previous year.

2.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, by Means of Travel and Length of Stay, 1962 and 1963

Year and Item	U.S. Travellers in Canada[1]	U.S. Expenditures in Canada	Canadians Travelling in the U.S.[1]	Canadian Expenditure in the U.S.	Excess of U.S. Travellers in Canada	Excess of U.S. Expenditures in Canada
	No.	$'000	No.	$'000	No.	$'000
1962						
Short-Term (entering and leaving the same day)	**21,576,700**	**58,634**	**23,007,000**	**48,788**	**−1,430,300**	**+ 9,846**
Automobile	16,042,800	29,996	18,588,000	33,480	−2,545,200	− 3,484
Aircraft	35,900	891	17,200	1,198	+ 18,700	− 307
Bus	87,000	756	54,100	480	+ 32,900	+ 276
Rail	288,100	421	22,100	373	+ 266,000	+ 48
Boat	219,300	1,299	16,600	72	+ 202,700	+ 1,227
Other (pedestrians, local bus, etc.)	4,903,600	25,271	4,309,000	13,185	+ 594,600	+ 12,086
Long-Term (remaining one or more nights)	**10,079,700**	**453,773**	**4,937,600**	**365,325**	**+5,142,100**	**+ 88,448**
Automobile	8,558,600	293,013	3,765,900	169,615	+4,792,700	+123,398
Aircraft	446,600	64,614	467,900	113,604	− 21,300	− 48,990
Bus	368,700	40,410	376,800	41,894	− 8,100	− 1,484
Rail	228,600	30,960	228,900	36,258	− 300	− 5,298
Boat	477,200	24,776	98,100	3,954	+ 379,100	+ 20,822
Totals, 1962	**31,656,400**	**512,407**	**27,944,600**	**414,113**[2]	**+3,711,800**	**+ 98,294**[2]

For footnotes, see end of table, p. 950.

2.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, by Means of Travel and Length of Stay, 1962 and 1963 —concluded

Year and Item	U.S. Travellers in Canada[1]	U.S. Expenditures in Canada	Canadians Travelling in the U.S.[1]	Canadian Expenditure in the U.S.	Excess of U.S. Travellers in Canada	Excess of U.S. Expenditures in Canada
	No.	$'000	No.	$'000	No.	$'000
1963						
Short-Term (entering and leaving the same day)	**21,498,800**	**59,830**	**24,413,300**	**53,940**	**−2,914,500**	**+ 5,890**
Automobile	16,116,300	32,095	19,191,500	34,838	−3,075,200	− 2,743
Aircraft	28,100	774	29,300	2,092	− 1,200	− 1,318
Bus	99,400	868	32,700	260	+ 66,700	+ 608
Rail	243,600	359	26,400	282	+ 217,200	+ 77
Boat	228,600	1,227	35,100	158	+ 193,500	+ 1,069
Other (pedestrians, local bus, etc.)	4,782,800	24,507	5,098,300	16,310	− 315,500	+ 8,197
Long-Term (remaining one or more nights)	**10,366,000**	**489,041**	**4,976,500**	**329,700**	**+5,389,500**	**+159,341**
Automobile	9,013,900	228,845	3,854,800	160,178	+5,159,100	+168,667
Aircraft	159,000	67,726	461,300	97,086	− 2,300	− 29,360
Bus	412,800	53,501	367,500	40,536	+ 45,300	+ 12,965
Rail	200,900	29,805	213,500	29,614	− 12,600	+ 191
Boat	279,400	9,164	79,400	2,286	+ 200,000	+ 6,878
Totals, 1963	**31,864,800**	**548,871**	**29,389,800**	**383,640**[2]	**+2,475,000**	**+165,231**[2]

[1] Includes substantial amounts of in-transit, commuting and local traffic. [2] Excludes Hawaii.

3.—Highway Traffic at Canadian Border Points, 1962 and 1963

Year and Province or Territory	Foreign Vehicles Inward				Canadian Vehicles Returning		
	Entering and Leaving the Same Day	One or More Nights in Canada	Repeats and Taxis	Commercial Vehicles	Leaving and Returning the Same Day	One or More Nights in U.S.	Commercial Vehicles
	No.	No.	No.	No.	No.	No.	No.
1962							
Atlantic Provinces	260,238	162,791	1,156,677	79,221	1,872,867	135,078	128,626
Quebec	324,121	339,881	172,565	107,437	1,054,946	349,027	169,100
Ontario	3,049,399	2,236,169	851,087	201,168	3,057,106	432,570	249,635
Manitoba	52,210	48,961	52,056	22,649	163,065	69,393	26,661
Saskatchewan	25,304	25,311	14,590	9,652	72,246	23,242	7,168
Alberta	14,398	46,230	21,822	8,551	59,933	28,705	9,804
British Columbia	195,588	353,631	53,790	58,299	862,118	229,889	38,819
Yukon Territory	860	17,623	189	2,155	2,374	952	731
Totals, 1962	**3,922,118**	**3,230,597**	**2,322,776**	**489,132**	**7,144,655**	**1,268,856**	**630,544**
1963							
Atlantic Provinces	280,159	171,385	1,031,629	62,831	1,907,400	113,293	125,378
Quebec	329,126	337,092	174,874	112,416	1,074,882	380,749	164,439
Ontario	3,224,274	2,439,526	774,465	214,119	3,338,450	460,495	267,769
Manitoba	55,937	56,047	59,274	19,299	170,771	78,765	22,786
Saskatchewan	29,255	30,024	15,585	10,356	74,606	25,188	7,230
Alberta	15,106	51,017	24,019	13,908	62,976	30,168	8,985
British Columbia	189,587	315,944	50,505	62,544	857,138	201,107	27,028
Yukon Territory	1,752	20,012	247	2,127	1,481	1,132	602
Totals, 1963	**4,125,196**	**3,421,047**	**2,130,598**	**497,600**	**7,487,704**	**1,290,897**	**624,217**

Travel Between Canada and Overseas Countries.—Detailed information on the volume of non-immigrant visitors from overseas countries is not available for the period 1960 to March 1963 because of changes in administrative procedures. However, during the last nine months of 1963 some 76,370 non-immigrants entered Canada direct from overseas countries. Estimated expenditures in Canada by this group amounted to $60,000,000 for the year 1963, compared with an expenditure of $50,000,000 by such travellers in 1962, a gain of 20 p.c.

Canadians returning direct from visits to overseas countries in 1963 numbered 282,057, an increase of 28,657 over 1962 and the payments by this group totalled $160,800,000, an advance of nearly 4 p.c. over the previous year. The number returning from overseas trips via the United States was estimated at 60,000, slightly more than in 1962 and their expenditures overseas were estimated at $36,600,000 compared with $31,600,000 in the previous year. Thus, total payments by Canadians in overseas countries in 1963 exceeded total receipts from overseas visitors to Canada, resulting in a debit balance of payments on travel account with overseas countries of $137,000,000; the 1962 deficit was $136,000,000.

CHAPTER XXIII.—PUBLIC FINANCE*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Combined statistics of public finance for all governments in Canada—federal, provincial and municipal—are presented in Section 1 of this Chapter and Section 2 covers the incidence of taxation at the three levels. More detailed information for each level of government is given in Sections 3, 5 and 6. Section 4 gives information on the rapidly growing list of joint federal-provincial programs and on the extent of federal financial participation in such programs.

Section 1.—Combined Statistics of Public Finance for All Governments

Combined Revenue and Expenditure.—Tables 1 and 2 give details of the federal, provincial and municipal net combined revenue by source and net combined current and capital expenditure by function, respectively, for 1960 and 1961. This net basis has been prepared by deducting from revenue, and from the appropriate expenditure, certain specified amounts such as grants-in-aid and shared-cost contributions from other governments, institutional revenue, and interest, premium, discount and exchange revenue. Amounts provided for debt retirement are excluded to avoid duplication since all expenditure resulting from capital borrowings is included.

Inter-government transfers such as subsidy payments by the Federal Government to the provincial governments are unconditional grants and therefore cannot be offset against any specific expenditure. These are set out separately in Tables 1 and 2 in order

* Except as otherwise indicated, revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

to prevent duplication and to provide additive totals. Because of the differing accounting practices of governments and variations in fiscal year-ends, discrepancies appear between the amounts recorded as inter-government transfers in the two tables.

1.—Combined Revenue of All Governments, 1960 and 1961

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Source of Revenue	1960				1961			
	Federal	Provincial	Municipal	Total	Federal	Provincial	Municipal	Total
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Taxes—								
Income—								
Corporation	1,380,128	269,072	—	1,649,200	1,302,179	267,684	—	1,569,863
Individual	1,940,560	60,678	—	2,001,238	2,051,606	85,080	—	2,136,686
Interest, dividends and other income going abroad	88,174	—	—	88,174	112,306	—	—	112,306
General sales	990,848	211,830	80,235	1,282,913	1,044,557	354,930	85,388	1,484,875
Motor fuel and fuel oil sales	—	402,909	419	403,328	—	449,548	451	449,999
Other sales	—	56,922	2,784	59,706	—	61,143	2,830	63,973
Excise duties and special excise taxes	633,216	—	—	633,216	623,636	—	—	623,636
Customs import duties	498,698	—	—	498,698	534,516	—	—	534,516
Real and personal property	—	8,386	1,287,959	1,296,345	—	8,723	1,391,064	1,399,787
Business	—	—	43,581[1]	43,581	—	—	45,463[1]	45,463
Estate taxes and succession duties	84,879	60,456	—	145,335	84,579	65,871	—	150,450
Other	1,622	177,004	9,486	188,112	1,043	188,907	15,061	205,011
Totals, Taxes	5,618,125	1,247,257	1,424,464	8,289,846	5,754,422	1,481,886	1,540,257	8,776,565
Privileges, Licences and Permits—								
Liquor control and regulation	11	47,149	—	47,160	11	50,974	—	50,985
Motor vehicle	—	172,013	—	172,013	—	181,885	—	181,885
Natural resources	4,166	276,869	—	281,035	3,805	296,467	—	300,272
Other	19,159	27,884	25,152	72,195	20,574	31,704	27,910	80,188
Totals, Privileges, Licences and Permits	23,336	523,915	25,152	572,403	24,390	561,030	27,910	613,330
Sales and services	57,030	38,286	—	95,316	64,000	50,347	—	114,347
Receipts from Government Enterprises—								
Liquor boards and commissions	—	186,157	—	186,157	—	196,950	—	196,950
Other	108,155	6,447	30,398	145,000	122,427	6,836	25,710	154,973
In lieu of municipal taxes from federal and provincial government enterprises	—	—	10,437	10,437	—	—	11,394	11,394
Totals, Receipts from Government Enterprises	108,155	192,604	40,835	341,594	122,427	203,786	37,104	363,317
Other revenue	254,813	11,837	104,463	371,113	265,642	13,619	112,805	392,066
Non-revenue and surplus receipts	41,145	3,420	—	44,565	18,477	3,991	—	22,468
Totals, Net General Revenue excluding Inter-government Transfers	**6,102,604**	**2,017,319**	**1,594,914**	**9,714,837**	**6,249,358**	**2,314,659**	**1,718,076**	**10,282,093**
Inter-government Transfers—								
Tax-sharing arrangements	—	480,875	—	480,875	—	479,270	—	479,270
Share of income tax on power utilities	—	4,226	—	4,226	—	6,276	—	6,276
Subsidies	—	53,714	68,957	122,671	—	56,555	71,288	127,843
Special payments	—	—	2,362	2,362	—	—	1,632	1,632
Grants in lieu of municipal taxes on federal and provincial property	—	—	27,753	27,753	—	—	32,935	32,935
Grand Totals, Net General Revenue	**6,102,604**	**2,556,134**	**1,693,986**	**10,352,724**	**6,249,358**	**2,856,760**	**1,823,931**	**10,930,049**

[1] Incomplete; not separable from real property taxes in some provinces.

2.—Combined Expenditure of All Governments, 1960 and 1961

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Function	1960				1961			
	Federal	Provincial	Municipal	Total	Federal	Provincial	Municipal	Total
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Defence services and mutual aid	1,534,411	—	—	1,534,411	1,647,055	—	—	1,647,055
Veterans pensions and other benefits	296,071	—	—	296,071	337,318	—	—	337,318
Health, hospital care and other	267,222	508,612	65,516	841,350	365,906	600,209	65,949	1,032,064
Social Welfare—								
Aid to aged persons	623,070[1]	63,010	[2]	686,080	656,065[1]	65,350	[2]	721,415
Aid to unemployed and unemployables	67,906	54,976	[2]	122,882	108,478	91,260	[2]	199,738
Family allowances	509,396	—	—	509,396	523,917	—	—	523,917
National employment services	99,097	—	—	99,097	102,964	—	—	102,964
Other	28,506	139,617	42,438	211,561	32,499	118,685	41,893	193,077
Education	64,480	700,123	813,822[3]	1,578,425	93,569	840,739	886,063[3]	1,820,371
Transportation and Communications—								
Highways, roads and bridges	104,964	708,057	361,320	1,174,341	88,557	653,976	345,561	1,088,094
Other	272,041	5,223	—	277,264	341,724	5,168	—	346,892
Natural resources and primary industries	366,113	200,983	—	567,096	403,323	201,565	—	604,888
Debt charges excluding debt retirement	654,411	66,878	95,918[4]	817,207	689,449	83,941	106,125[4]	879,515
Payments to own government enterprises	149,158	5,472	20,202	174,832	170,931	5,110	18,290	194,331
General government	265,603	125,150	141,447	532,200	287,117	134,896	149,397	571,410
Protection of persons and property	79,187	136,264	232,163	447,614	88,121	140,971	257,752	486,844
Sanitation and waste removal	—	—	142,182	142,182	—	—	178,858	178,858
International co-operation and assistance	81,820	—	—	81,820	67,396	—	—	67,396
Other	406,172	78,508	195,135	679,815	449,004	87,983	219,704	756,691
Non-expense and surplus payments	520	9,746	—	10,266	293	6,923	—	7,216
Totals, Net General Expenditure excluding Inter-government Transfers	**5,870,148**	**2,802,619**	**2,111,143**	**10,783,910**	**6,453,686**	**3,036,776**	**2,269,592**	**11,760,054**
Inter-government Transfers—								
Tax-sharing arrangements	480,873	—	—	480,873	479,269	—	—	479,269
Share of income tax on power utilities	4,226	—	—	4,226	6,396	—	—	6,396
Subsidies	53,718	68,692	—	122,410	56,556	69,884	—	126,440
Special payments	1,753	—	—	1,753	—	1,682	—	1,682
Grants in lieu of municipal taxes on federal and provincial property	24,722	1,464	—	26,186	25,034	1,617	—	26,651
Grand Totals, Net General Expenditure	**6,435,440**	**2,872,775**	**2,111,143**	**11,419,358**	**7,020,941**	**3,109,959**	**2,269,592**	**12,400,492**

[1] Includes pensions paid from Old Age Security Fund. [2] Included in "Other" social welfare. [3] Includes interest on debentures issued for school purposes. [4] Excludes interest on debentures issued for school purposes.

Consolidated Debt.—Table 3 gives details of combined debt of all governments for 1960 and 1961 with the aggregate debt of the federal, provincial and municipal governments; the inter-government debt is deducted to arrive at a consolidated government figure.

3.—Consolidated Debt of All Governments, 1960 and 1961

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Item	1960						1961					
	Federal	Provincial	Municipal	Total	Deduct Intergovernment Debt	Consolidated Government Debt	Federal	Provincial	Municipal	Total	Deduct Intergovernment Debt	Consolidated Government Debt
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Direct Debt—												
Funded debt[1]	14,132,915	3,790,466	4,278,455	22,201,836	189,427	22,012,409	15,060,736	4,111,231	4,734,023	23,905,990	185,377	23,720,613
Less sinking funds	17,018	655,863	152,076	824,957	—	824,957	19,432	646,429	167,165	833,026	—	833,026
Net funded debt	14,115,897	3,134,603	4,126,379	21,376,879	189,427	21,187,452	15,041,304	3,464,802	4,566,858	23,072,964	185,377	22,887,587
Treasury bills[2]	1,935,000	62,568	—	1,997,568	—	1,997,568	1,885,000	68,062	—	1,953,062	—	1,953,062
Savings deposits	28,513	[3]	—	28,513	—	28,513	27,365	[3]	—	27,365	—	27,365
Temporary loans	—	31,846	263,658	295,504	—	295,504	—	20,103	277,457	297,560	—	297,560
Other direct liabilities	5,289,877	440,723	380,974	6,111,574	55,357	6,056,217	5,698,745	511,924	411,501	6,622,170	100,381	6,521,789
Totals, Direct Debt (less sinking funds)	**21,369,287**	**3,669,740**	**4,771,011**	**29,810,038**	**244,784**	**29,565,254**	**22,652,414**	**4,064,891**	**5,255,816**	**31,973,121**	**285,758**	**31,687,363**
Indirect Debt—												
Guaranteed bonds	1,672,690	3,361,686	73,878	5,108,254	242,665	4,865,589	1,636,115	4,259,455	12,924	5,908,494	445,819	5,462,675
Less sinking funds	—	82,569	1,555	84,124	2,292	81,832	—	114,159	297	114,456	3,216	111,240
Net guaranteed bonds	1,672,690	3,279,117	72,323	5,024,130	240,373	4,783,757	1,636,115	4,145,296	12,627	5,794,038	442,603	5,251,435
Loans under the Municipal Improvement Assistance Act, 1938	—	1,636	—	1,636	1,636	—	—	1,466	—	1,466	1,466	—
Guaranteed bank loans and other indirect liabilities	3,343,623[4]	154,728	13	3,498,364	3,742	3,494,622	4,111,540[4]	175,184	86	4,286,810	4,255	4,282,555
Totals, Indirect Debt (less sinking funds)	**5,016,313**	**3,435,481**	**72,336**	**8,524,130**	**245,751**	**8,278,379**	**5,747,655**	**4,321,946**	**12,713**	**10,082,314**	**448,324**	**9,633,990**
Grand Totals	**26,385,600**	**7,105,221**	**4,843,347**	**38,334,168**	**490,535**	**37,843,633**	**28,400,069**	**8,386,837**	**5,268,529**	**42,055,435**	**734,082**	**41,321,353**

[1] Includes treasury bills having a term of two or more years. [2] Includes treasury bills having a term of less than two years. [3] Included in "Other direct liabilities". [4] Excludes contingent liability in respect of Federal Government guarantee of deposits maintained by chartered banks in the Bank of Canada and miscellaneous guarantees, the amounts of which were not finally determined or were indeterminate at the close of the fiscal year.

Section 2.—Taxation in Canada*

Canada is a federal state with a central government and ten provincial governments. In 1867 the principal colonies of the British Crown in North America joined together to form the nucleus of a new nation and the British North America Act of that year became its written constitution. This statute created a central government with certain powers while continuing the existence of political subdivisions called provinces with powers of their own.

Under the British North America Act the Parliament of Canada has the right to raise "money by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the province in order to the raising of a revenue for provincial purposes". Thus the provinces have a right to share only in the field of direct taxation while the Federal Government is not restricted in any way in matters of taxation. The British North America Act also empowered the provincial legislatures to make laws regarding "municipal institutions in the province". This means that the municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, from a practical standpoint, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it". In essence, this conception has limited the provincial governments to the imposition of income tax, retail sales tax, succession duties and an assortment of other direct levies. In turn, municipalities, acting under the guidance of provincial legislation, tax real estate, water consumption and places of business. The Federal Government levies direct taxes on income, on gifts and on the estates of deceased persons, and indirect taxes such as excise taxes, excise and customs duties, and a sales tax.

The increasing use by both the federal and the provincial governments of their rights in the field of direct taxation in the 1930's resulted in uneconomic duplication and some severe tax levies. Starting in 1941, a series of tax agreements were concluded between the federal and the provincial governments to promote the orderly imposition of direct taxes. The duration of each agreement was normally five years. Under these agreements, the participating provinces undertook, in return for compensation, not to use or permit their municipalities to use certain of the direct taxes. Under the present arrangements, the federal income tax otherwise payable in all provinces and the estate tax otherwise payable in the non-participating provinces are abated by a fixed percentage to make room for provincial levies.

The current agreement became operative on Apr. 1, 1962 and will run until Mar. 31, 1967. Basically it entails a partial federal withdrawal from the field of direct taxation and the re-entry of all provinces into the vacated area. The federal personal income tax otherwise payable on income earned in a province and on income received by a resident of a province is reduced by the following percentages: 16 p.c. in 1962; 17 p.c. in 1963; 18 p.c. in 1964; 21 p.c. in 1965;† and 24 p.c. in 1966.† In 1965 and 1966, the federal tax abatements for income earned in Quebec or received by a resident of Quebec will be 24 p.c. and 27 p.c., respectively. The additional relief of three percentage points in the case of Quebec is to allow that province to collect revenue to pay monthly allowances for students between the ages of 16 and 18. Similar allowances in the other provinces will be paid directly by the Federal Government. The special federal income tax abatements for Quebec in 1965 and 1966 have not yet been authorized by legislation. Also, the Federal Government reduces its rate of corporation income tax on taxable income of corporations earned in the provinces. The reduction is 9 p.c. of taxable income earned in any province except Quebec and 10 p.c. in Quebec; the additional 1 p.c. reduction in Quebec is to compensate for the additional tax levied by the province on corporation income to provide grants to universities. These

* Revised (July 1964) in the Taxation Division, Department of Finance, under the direction of F. R. Irwin, Director of the Division, and by the provincial authorities concerned.

† The original agreement provided for abatements of 19 p.c. in 1965 and 20 p.c. in 1966. However, following a federal-provincial conference in April 1964, the provinces were granted an additional two percentage points in 1965 and four percentage points in 1966.

provincial grants replace federal grants which in other provinces are paid to the universities by the Federal Government through the Canadian Universities Foundation. Finally, the Federal Government abates the federal estate tax otherwise payable by 75 p.c. in respect of property situated in a province which levies its own death tax. Only Ontario, Quebec and British Columbia at present levy death taxes in the form of succession duties.*

These reductions in federal income tax and estate tax under the terms of the 1962-67 fiscal arrangements do not apply to the Yukon Territory or the Northwest Territories or to income earned outside Canada. The Yukon and Northwest Territories do not impose income taxes or death taxes.

The provincial tax rates are not restricted to the extent of the federal withdrawal. The constitutional position of the provinces permits them unlimited use of direct taxes for the raising of revenue for provincial purposes. However, in all but four provinces (Ontario, Quebec, Manitoba and Saskatchewan) the provincial rates of income tax coincide with the amount of the federal abatement.

As part of the 1962-67 fiscal arrangements, the Federal Government has entered into tax collection agreements under which it collects the provincial personal income taxes for all provinces except Quebec and the provincial corporation income taxes for all provinces except Ontario and Quebec.

Subsection 1.—Federal Taxes

Individual Income Tax

Every individual who is resident in Canada at any time during a year is liable for the payment of income tax for that year. Every non-resident individual who is employed or carries on business in Canada during a year is required to pay tax on the part of his income earned in Canada. Canadian taxation practice is based to a large extent on the British experience. This is reflected particularly in the fact that taxation is on the basis of residence rather than citizenship, and in tax freedom for capital gains. The term "residence" is difficult to define simply but, generally speaking, it is taken to be the place where a person resides or where he maintains a dwelling ready at all times for his use. There are also extensions of the meaning of Canadian resident to include a person who has sojourned in Canada for an aggregate period of 183 days in a taxation year, or a person who was during the year a member of the Armed Forces of Canada, or an ambassador, a high commissioner, or an officer or servant of Canada or of any one of its provinces, or the spouse or dependent child of any such person.

The Canadian tax law uses the concepts "income" and "taxable income". The income of a resident of Canada for a taxation year comprises his revenues from all sources inside or outside Canada and includes income for the year from all businesses, property, offices and employments. It does not include capital gains unless they arise out of the conduct of a business or as a result of an adventure in the nature of trade.

In computing his income for a taxation year, an individual must include all dividends, fees, annuities, pension benefits, allowances, interest, alimony, maintenance payments and other miscellaneous sources of income. On the other hand, war service disability pensions paid by Canada or an ally of Her Majesty at the time of the war service, unemployment insurance benefits, compensation in respect of an injury or death paid under a Workmen's Compensation Act of a province and family allowances do not have to be included in the computation of income.

In computing his income, an individual who is carrying on business may deduct business expenses including depreciation (called capital cost allowances), interest on borrowed money, reserves for doubtful debts, contributions to pension plans or deferred profit-sharing

* The original agreement was for a 50-p.c. abatement. However, at the conclusion of a federal-provincial conference in late 1963, it was increased to 75 p.c. in respect of deaths occurring after Mar. 31, 1964. Currently, only the estates of domiciliaries of British Columbia qualify for the full 75 p.c. abatement. Quebec and Ontario estates are temporarily eligible for only 50 p.c. because these two provinces have decided for the time being to take a payment from the Federal Government on account of the additional 25-p.c. abatement rather than to increase their succession duty rates.

plans for his employees, bad debts, and expenses incurred for scientific research. In general, no deductions are allowed in computing income from salary and wages, although there are exceptions such as travelling expenses of employees who have to travel as they perform their work, union dues, alimony payments and contributions to registered pension plans. Individuals may deduct, within limits, amounts set aside to provide a future income under registered retirement savings plans. Students attending universities, colleges, high schools, public schools or certain other certified educational institutions in Canada may deduct their tuition fees if they exceed $25 per annum. Students in full-time attendance at universities outside Canada may deduct their tuition fees.

Having computed his income, the individual then calculates his taxable income by deducting certain exemptions and deductions. These exemptions and deductions are as follows: for single status, an exemption of $1,000; for married status, an exemption of $2,000; for dependent children eligible to receive family allowance,* $300 per child; for other dependants (as defined in the law), $550 per dependant; where the taxpayer is over 65 years of age, an additional $500; where the taxpayer is blind or confined for the whole of the taxation year to a bed or a wheelchair, an additional $500; charitable donations, up to 10 p.c. of income; and medical expenses, in excess of 3 p.c. of income. In lieu of claiming deductions for charitable donations, medical expenses and membership dues in trade unions or professional societies, an individual may claim a standard deduction of $100.

As already stated, an individual who is resident in Canada for the whole year is taxed on his income from both inside and outside Canada. An individual who is not resident in Canada at any time during the year but who carries on business in Canada or who earns salary or wages in Canada is taxed only on the income earned in Canada. In computing taxable income earned in Canada, such a non-resident individual is allowed to deduct that part of the exemptions and deductions that may reasonably be attributed to the income earned in Canada. (A non-resident who derives investment income from Canada is taxed in a different way described on p. 961.) An individual who ceases to be a resident of Canada during the year or who becomes a resident during the year so that he is resident for only part of the year will be subject to income tax in Canada on only that part of his income for the year received while he is resident in Canada. In these circumstances, the deductions from income permitted for determining taxable income will be the amount that may reasonably be considered as applicable to the period during which he is resident in Canada.

A progressive schedule of rates is applied to taxable income, beginning at 11 p.c. on the first $1,000 of taxable income and increasing to 80 p.c. on taxable income in excess of $400,000. In addition, an old age security tax is levied on taxable income at the rate of 4 p.c. with a maximum of $120 reached at the level of $3,000.

In calculating the amount of his income tax, an individual is allowed tax credits under three main headings. (1) *Dividend Tax Credit*—to partially eliminate the double taxation of corporate profits and to encourage participation in the ownership of Canadian companies, Canadian resident individuals are allowed to deduct from their tax an amount equal to 20 p.c. of the net dividends they receive from Canadian taxable companies. (2) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income. (3) *Abatement under Federal-Provincial Arrangements*—in 1964 the federal personal income tax otherwise payable on income of a resident of a province and on income earned in a province is reduced by 18 p.c.; this abatement will increase to 21 p.c. in 1965 and 24 p.c. in 1966.†

To a very large extent, individual income tax is payable as the income is earned. Taxpayers in receipt of salary or wages have tax deducted from their pay by their employer

* Family allowances are monthly welfare payments by the Federal Government to the parents or guardians of children under 16 years of age. The allowance is $6 for each child under 10 years of age and $8 for each child between the ages of 10 and 16. These allowances are not subject to income tax. In 1964 the program was extended to cover children between the ages of 16 and 18 in full-time attendance at educational institutions; such payments to be $10 per month. The right to deduct $550 for a dependent child is not affected by the receipt of these youth allowances.

† Except in the case of income earned in Quebec or received by a resident of Quebec where it will be 24 p.c. in 1965 and 27 p.c. in 1966 (see p. 956).

and in this way pay nearly 100 p.c. of their tax liability during the calendar year. The balance of the tax, if any, is payable at the time of filing the tax return before Apr. 30 in the following year. Persons with more than 25 p.c. of their income from sources other than salary or wages must pay tax by quarterly instalments throughout the year and returns must be filed before Apr. 30 in the following calendar year.

The following statement shows what taxpayers pay at various levels of income. In calculating these taxes it has been assumed that all taxpayers take the standard deduction of $100 and no allowance has been made for the 20-p.c. dividend tax credit.

Status	*Income*	*Income Tax*	*Old Age Security Tax*
	$	$	$
Single taxpayer—no dependants	1,200	11	4
	1,500	44	16
	2,000	99	36
	2,500	166	56
	3,000	236	76
	5,000	591	120
	10,000	1,840	120
	20,000	5,825	120
	50,000	20,965	120
	100,000	50,855	120
Married taxpayer—no dependants	2,200	11	4
	2,500	44	16
	3,000	99	36
	5,000	403	116
	10,000	1,544	120
	20,000	5,375	120
	50,000	20,415	120
	100,000	50,205	120
Married taxpayer—two children eligible for family allowances	2,800	11	4
	3,000	33	12
	5,000	301	92
	10,000	1,388	120
	20,000	5,105	120
	50,000	20,085	120
	100,000	49,815	120

The income taxes shown above are abated by 18 p.c. in all provinces. Where the provincial tax is the same as the federal abatement (i.e., in all provinces except Quebec, Manitoba and Saskatchewan) the taxes shown are the combined federal and provincial taxes. In Quebec the provincial tax approximates the federal abatement; in Manitoba and Saskatchewan the provincial tax exceeds the abatement by 6 p.c.

The income from a new manufacturing or processing business established in certain designated areas of slower growth by an individual or corporation during the period commencing on Dec. 5, 1963 and terminating on Mar. 31, 1967 is eligible for a three-year exemption from income tax.

Corporation Income Tax

The Income Tax Act levies a tax upon the income from everywhere in the world of corporations resident in Canada and upon the income attributable to operations in Canada of non-resident corporations carrying on business in Canada. In computing their income, corporations may deduct operating expenses including municipal real estate taxes, reserves for doubtful debts, bad debts, and interest on borrowed money. They may not deduct provincial income taxes other than provincial taxes on income derived from mining operations. (For this purpose "income from mining operations" is specially defined.)

Regulations covering capital cost allowances (depreciation) permit taxpayers to deduct over a period of years the actual cost of all depreciable property. The yearly deductions of capital cost allowances are computed on the diminishing balance principle. (Taxpayers engaged in farming and fishing may choose between this and the straight-line method.)

Published regulations establish a number of classes of property and maximum rates. There is provision for recapture of any amount allowed in excess of the ultimate net capital cost of any asset.

Accelerated depreciation is available to taxpayers in certain circumstances and for a limited period of time. Straight-line depreciation at a rate not exceeding 50 p.c. is granted in respect of new machinery and equipment that would otherwise fall in Class 8 of the Income Tax Regulations acquired in the 24-month period commencing on June 14, 1963, for use in manufacturing or processing businesses by individuals resident in Canada or by companies resident in Canada that have a degree of Canadian ownership. A company that has a degree of Canadian ownership is one which throughout the 60-day period immediately preceding the year in question complies with the following conditions: (1) it was resident in Canada; (2) for taxation years commencing after Dec. 31, 1964, not less than 25 p.c. of its directors were residents of Canada; and (3) either (*a*) not less than 25 p.c. of its shares having full voting rights and shares representing not less than 25 p.c. of its equity share capital were owned by individuals resident in Canada or corporations controlled in Canada, or (*b*) a class or classes of its shares having full voting rights were listed on a Canadian stock exchange and no one non-resident person and no one corporation that did not comply with (*a*) above owned more than 75 p.c. of the shares having full voting rights, and equity shares of the corporation representing not less than 50 p.c. of the paid-up capital of the corporation were listed on a Canadian stock exchange and no one non-resident person or no one corporation that did not comply with (*a*) above owned equity shares representing more than 75 p.c. of its equity share capital. For manufacturing or processing businesses in designated areas of slower growth there is no requirement that they have a degree of Canadian ownership to qualify for this 50-p.c. straight-line depreciation. Moreover, the period during which their expenditures on eligible assets qualify for accelerated write-off extends from Dec. 5, 1963 to Mar. 31, 1967. Depreciation at the accelerated rate of 20 p.c. on a straight-line basis is also available in respect of new buildings acquired in designated areas of slower growth in the period commencing on Dec. 5, 1963 and ending on Mar. 31, 1967.

Expenditures on scientific research by corporations qualify for special tax treatment. Generally speaking, all expenditures on scientific research related to the business of the taxpayer may be written off for tax purposes in the year when incurred. In addition, corporations are permitted to deduct, in computing income for tax purposes, 150 p.c. of their increased expenditures on scientific research in Canada.

Taxpayers operating mines, oil wells and gas wells are allowed a depletion allowance, usually computed as a percentage of profits derived from mineral, oil or gas production, which continues as long as the mine or well is in operation. This allowance is in addition to capital cost allowances on buildings, machinery and similar depreciable assets used by the taxpayer. Taxpayers operating timber limits receive an annual allowance sometimes called a depletion allowance. This is a rateable proportion of the amount invested in the limit and is based on the amount of timber cut in the year. When the amount invested in the limit has been recovered, no further allowance is given.

In computing taxable income, corporations may deduct dividends received from other Canadian taxpaying corporations and also from foreign corporations in which the Canadian corporation has at least 25 p.c. stock ownership. Business losses may be carried back one year or forward five years and deducted in computing taxable income. Corporations may also deduct donations to charitable organizations up to a maximum of 10 p.c. of their income.

The general rates of tax on corporate taxable income are 18 p.c. on the first $35,000 of taxable income plus 47 p.c. on taxable income in excess of $35,000. Corporations deriving more than one half of their gross revenue from the sale of electric energy, gas or steam pay tax on their taxable income from such sources at the rate of 18 p.c. on the first $35,000 of taxable income plus 45 p.c. on taxable income in excess of $35,000. Corporations that qualify as investment companies pay a tax of 18 p.c. on their taxable income. In addition

to these rates, all corporations pay an old age security tax of 3 p.c. of taxable income, bringing their rates up to 21 p.c. and 50 p.c. (21 p.c. and 48 p.c. for the public utility companies and 21 p.c. for investment companies).

In calculating the amount of their income tax, corporations are allowed tax credits under three headings. (1) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income. (2) *Abatement under Federal-Provincial Fiscal Arrangements*—corporations may deduct from their federal tax otherwise payable a tax abatement equal to a fixed percentage of their taxable income attributable to operations in a Canadian province. This abatement is to make room for the provincial income tax levied by each Canadian province. The amount of the abatement is 9 p.c. of taxable income attributable to operations in any province except Quebec and 10 p.c. of taxable income attributable to operations in Quebec. (3) *Provincial Logging Tax*—corporations may deduct from their federal tax otherwise payable an amount equal to two thirds of a provincial tax on income from logging operations not exceeding two thirds of 10 p.c. of the corporation's income from logging operations in the province. (At present only Ontario, Quebec and British Columbia impose logging taxes—see p. 967.)

New manufacturing and processing businesses established in certain designated areas of slower growth during the period commencing Dec. 5, 1963 and terminating Mar. 31, 1967 are eligible for a three-year exemption from income tax.

Corporations are required to pay their tax (combined income and old age security tax) in monthly instalments but the period during which they pay tax for a taxation year does not coincide with that taxation year. Until 1963, corporations started to pay tax for a taxation year in the seventh month of that year. In each of the last six months of their taxation year and in the following three, they paid one twelfth of their estimated tax for the year and in each of the following two months they paid one third of the estimated balance. In the sixth month following the end of their taxation year, the final return had to be filed and the remainder of the tax paid for the year. In 1963, a new set of rules was introduced for the payment of corporation income tax, which will become fully operative in early 1966. These rules require that corporations begin to pay their tax for a taxation year in the fifth month of that year. In each of the last eight months of their taxation year and in the following two, they pay one twelfth of their estimated tax for the year and in each of the following two months, they pay one half of the estimated balance. In the sixth month following the end of their taxation year, the final return must be filed.

Taxation of Non-residents

A non-resident is liable for payment of income tax if he was employed or was carrying on business in Canada during a taxation year. The expression "carrying on business in Canada" includes (1) maintaining a permanent establishment in Canada, (2) processing goods even partially in Canada, and (3) entering into contracts in Canada. The taxable income of a non-resident individual thus derived is taxed under the same schedule of rates as Canadian resident individuals, and non-resident corporations deriving income from carrying on business in Canada are taxed on their taxable income attributable to operations in Canada at the same rates as Canadian resident corporations. (Tax treaties with some countries provide certain exemptions from tax for remuneration for services performed in Canada by residents or employees of these countries.)

Furthermore, a tax of 15 p.c. is applied on certain forms of income going from Canada to non-resident individuals or corporations, such as interest, dividends, rentals, royalties, income from a trust or estate and alimony. The standard rate of 15 p.c. is reduced to 10 p.c. in the case of dividends paid by a company that has a degree of Canadian ownership (see p. 960), and the rate on royalties from motion picture films is also 10 p.c.

The non-resident tax is withheld at the source by the Canadian payer. It is an impersonal tax levied without regard to the status or other income of the non-resident recipient. Non-residents who receive only this kind of income from Canada do not file returns in Canada.

Profits earned in Canada by a non-resident corporation carrying on business through a branch or permanent establishment in Canada are subject to an additional tax of 15 p.c. This tax is imposed on profits attributable to the branch after deducting therefrom Canadian federal and provincial income taxes and an allowance in respect of the net increase in capital investment in property in Canada.

Gift Tax

The Income Tax Act levies a tax upon gifts. The rates range from 10 p.c. on an aggregate taxable value of $5,000 or under to 28 p.c. on an aggregate taxable value of over $1,000,000. Exemptions include complete exemption of gifts of $1,000 or less and a general deduction of $4,000 from aggregate taxable value of gifts in the year.

Estate Tax

This tax applies to property passing, or deemed to pass, at death. All the property of persons who were domiciled in Canada before their death must be taken into consideration no matter where that property is situated; for persons dying domiciled outside of Canada only their property situated in Canada is subject to tax.

In computing the tax of a Canadian domiciliary, the value of the whole estate is first determined. Once the aggregate value of the estate has been determined, estate debts and certain expenses may be deducted. From the resulting "aggregate net value" there may be deducted the amount of a basic exemption, which is increased where the decedent leaves a widow or dependent child, and also the amount of any charitable bequests to charitable organizations in Canada. After these deductions the amount left is the "aggregate taxable value" to which is applied the tax rates. From the tax so calculated may be deducted (1) a tax abatement in respect of property situated in a province that levies a succession duty, (2) a credit for gift tax paid on gifts made within three years of death (the value of which must be included in the aggregate net value of the estate), and (3) a credit for foreign taxes.

No estate valued at less than $50.000 is subject to estate tax. This $50,000 is not an exemption but the starting point for tax. The estate tax must not reduce the value of an estate after tax to less than $50,000. The basic deductible exemption which applies to all estates of Canadian domiciliaries is $40,000. This basic exemption of $40,000 is increased to $60,000 in respect of a deceased male survived by a spouse, or in respect of a deceased female survived by an incapacitated spouse and a dependent child. In both cases, there is an additional exemption of $10,000 for each surviving dependent child (i.e., under 21). Finally, the basic exemption of $40,000 is increased by $15,000 for every surviving dependent child made an orphan by the death of the deceased.

The tax on the estates of Canadian domiciliaries is calculated by applying a graduated scale of rates. For an aggregate taxable value of $5,000, or less, the rate is 10 p.c. For an aggregate taxable value of $100,000, the tax is $19,000 and anything between $100,000 and $150,000 is taxed at 24 p.c. At $2,000,000 of taxable value, the tax is $816,500 and the excess over $2,000,000 is chargeable at the highest rate of 54 p.c.

As stated above, there is an abatement from federal estate taxes otherwise payable, in respect of provincial succession duties. Generally, the abatement is a deduction of 75 p.c. from the federal tax otherwise payable in respect of property situated in a province that levies succession duties.*

The property situated in Canada of a decedent not domiciled in Canada is subject to estate tax at a flat rate of 15 p.c. No deduction is allowed against the assessed value of such property except for debts specifically chargeable to it. However, there is a special provision that exempts all such property of less than $5,000 value and also provides that the tax must not reduce the value of the property to less than $5,000. (The Estate Tax Convention between Canada and the United States increases this figure to $15,000.) Where property is subject to provincial duties, the 15-p.c. tax is abated by 75 p.c. (At present this abatement is 50 p.c. in Ontario and Quebec.)

* See footnote †, p. 958.

Excise Taxes

The Excise Tax Act levies a general sales tax and special excise taxes. Both the sales tax and the special excise taxes are levied on goods imported into Canada and on goods produced in Canada. They are not levied on goods exported. The sales tax, which is at the rate of 8 p.c., is levied on the manufacturer's sale price of goods produced or manufactured in Canada or on the duty-paid value of goods imported into Canada. For alcoholic beverages and tobacco products, the sale price for purposes of the sales tax includes excise duties levied under the Excise Act (see p. 964). An old age security tax of 3 p.c. is levied on the same basis as the 8-p.c. tax, bringing the total sales tax to 11 p.c.

Many classes of goods are exempt from sales tax. Foodstuffs, electricity and fuels for lighting or heating are generally exempt as well as articles and materials used by public hospitals. The products of farms, forests, mines and fisheries are, to a large extent, exempt as well as most equipment used in farming and fishing. Also, a variety of items are exempt from sales tax when purchased by municipalities. These and other exemptions are set forth in schedules to the Excise Tax Act.

In 1963, the application of federal sales tax was extended to the building materials and production machinery that had previously been exempt. The change was ultimately arranged to take place by stages. The 4-p.c. rate applicable between June 14, 1963 and Apr. 1, 1964 rose to 8 p.c. on the latter date. The full 11 p.c. (the 3-p.c. old age security rate being the last one to be added) will become applicable on Jan. 1, 1965.

A number of articles are subject to special excise taxes. Where these are ad valorem taxes they are levied on exactly the same price or duty-paid value as the general sales tax. Those levied at present are as follows:—

Cigarettes	2½ cents per 5 cigs.
Cigars	15 p.c. ad valorem
Jewellery, including clocks, watches, articles of ivory, amber, shell, precious or semi-precious stones, goldsmiths' and silversmiths' products except gold-plated or silver-plated ware for the preparation or serving of food or drink	10 p.c. ad valorem
Lighters	the greater of 10 cents per lighter or 10 p.c. ad valorem
Playing cards	20 cents per pack
Radios	the greater of $2 per radio or 15 p.c. ad valorem
Phonographs and television sets	15 p.c. ad valorem
Tubes for radios, phonographs and television sets, not including television picture tubes, priced under $5 per tube	the greater of 10 cents per tube or 15 p.c. ad valorem
Television set picture tubes	15 p.c. ad valorem
Slot machines—coin, disc or token-operated games or amusement devices	10 p.c. ad valorem
Matches	10 p.c. ad valorem
Tobacco—pipe tobacco, cut tobacco and snuff	80 cents per lb.
Tobacco pipes, cigar and cigarette holders and cigarette rolling devices	10 p.c. ad valorem
Toilet articles, including cosmetics, perfumes, shaving creams, antiseptics, etc.	10 p.c. ad valorem
Wines—*	
Wines of all kinds containing not more than 7 p.c. absolute alcohol by volume	25 cents per gal.
Non-sparkling wines containing more than 7 p.c. absolute alcohol by volume but not more than 40 p.c. proof spirit	50 cents per gal.
Sparkling wines	$2.50 per gal.
Insurance premiums paid to British or foreign companies not authorized to transact business in Canada or to non-resident agents of authorized British or foreign companies	10 p.c. of net premium for property, surety, fidelity and liability insurance. (Most other kinds of insurance are exempt.)

* Applicable only to wines manufactured in Canada. The customs tariff on wines includes a levy to correspond with these taxes on domestic production.

All the foregoing items, except the last, are also subject to the general sales tax of 8 p.c. and the old age security tax of 3 p.c. Cigarettes, cigars and tobacco are subject to further taxes, referred to as excise duties (see below).

Excise Duties

The Excise Act levies taxes (referred to as excise duties) upon alcohol, alcoholic beverages and tobacco products produced in Canada. The customs tariff on such products imported into Canada includes a levy to correspond with the duties levied on domestic production. These duties are not levied on goods exported.

Spirits.—The duties are on a per-gallon basis in proportion to the strength of proof of the spirits. These duties do not apply to denatured alcohol intended for use in the arts and in industry, or for fuel, light or power, or for any mechanical purpose. The various duties are as follows:—

On every gallon of the strength of proof distilled in Canada	$13.00
On every gallon of the strength of proof used in the manufacture of—	
Medicines, extracts, pharmaceutical preparations, etc.	$1.50 per gal.
Approved chemical compositions	15 cents per gal.
Spirits sold to a druggist and used in the preparation of prescriptions	$1.50 per gal.
Imported spirits when taken into a bonded manufactory in addition to other duties	30 cents per gal.

Canadian Brandy.—Canadian brandy is a spirit distilled exclusively from juices of native fruits without the addition of sweetening materials. It is subject to a duty of $11 per gal.

Beer.—All beer or other malt liquor is subject to a duty of 38 cents per gal.

Tobacco, Cigars and Cigarettes.—The excise duties make up nearly as large a part of the total tax on tobacco products as the special excise taxes already described. The rates are as follows:—

On manufactured tobacco of all descriptions, except cigarettes	35 cents per lb.
Cigarettes weighing not more than 3 lb. per thousand (nearly all of the cigarettes used in Canada are of this type)	$4.00 per thousand
Cigarettes weighing more than 3 lb. per thousand	$5.00 per thousand
Cigars	$2.00 per thousand
Canadian raw leaf tobacco when sold for consumption	10 cents per lb.

Combined Effect of Excise Taxes and Excise Duties on Tobacco Products

Bringing together the taxes imposed on tobacco products under the Excise Tax Act and the duties imposed under the Excise Act gives the following total taxes:—

Cigarettes	$9.00 per thousand (or 18 cents per pack of 20 cigarettes) plus the 11-p.c. sales tax on the manufacturer's sale price
Manufactured tobacco	$1.15 per lb. plus the 11-p.c. sales tax on the manufacturer's sale price
Cigars	$2.00 per thousand plus the 15-p.c. special excise tax and the 11-p.c. sales tax on the manufacturer's sale price.

Customs Duties*

Most goods imported into Canada are subject to customs duties at various rates as provided by tariff schedules. Customs duties, which once were the chief source of revenue for the country, have declined in importance as a source of revenue to the point where they now provide less than 10 p.c. of the total. Quite apart from its revenue aspects, however, the tariff still occupies an important place as an instrument of economic policy.

The Canadian Tariff consists mainly of three sets of rates, namely, British Preferential, Most-Favoured-Nation and General. The British Preferential rates are, with some exceptions, the lowest rates. They are applied to imported dutiable commodities shipped directly

* See also pp. 940-947.

to Canada from countries within the British Commonwealth. Special rates lower than the ordinary preferential duty are applied on certain goods imported from designated Commonwealth countries.

The Most-Favoured-Nation rates apply to goods from countries that have been accorded tariff treatment more favourable than the General Tariff but which are not entitled to the British Preferential rate. Canada has Most-Favoured-Nation arrangements with almost every country outside the Commonwealth. The most important agreement providing for the exchange of Most-Favoured-Nation treatment is the General Agreement on Tariffs and Trade.

The General Tariff applies to imports from countries not entitled to either the Preferential or Most-Favoured-Nation treatment. Few countries are in this category and in terms of trade coverage are negligible.

In all cases where the tariff applies there are provisions for drawbacks of duty on imports of materials used in the manufacture of products later exported. The purpose of these drawbacks is to assist Canadian manufacturers to compete with foreign manufacturers of similar goods. There is a second class of drawbacks known as "home consumption" drawbacks. These apply to imported materials used in the production of specified classes of goods manufactured for home consumption.

The tariff schedules are too lengthy and complicated to be summarized here but the rates that apply on any particular item may be obtained from the Department of National Revenue which is responsible for administering the Customs Tariff.

Subsection 2.—Provincial Taxes

All of Canada's ten provinces impose a wide variety of taxes to raise the revenue necessary for provincial purposes. All provinces levy a tax on the income of individuals and corporations resident within their boundaries or deriving income from activities or operations carried out therein. Only the Provinces of Ontario and Quebec impose special taxes on corporations and only the Provinces of Ontario, Quebec and British Columbia impose a tax on property passing at death. Under the terms of the existing federal-provincial fiscal arrangement, the Federal Government makes "equalization payments" to some provinces in recognition of the fact that the actual tax revenue from the fields of income tax, death duties and natural resource revenue in those provinces, measured on a per capita basis, is lower than an agreed upon level. For some provinces these payments constitute a very important source of revenue.

Some of the more important provincial levies are reviewed briefly below.

Individual Income Tax

All provinces levy a tax on the income of individuals who reside within their boundaries or who earn income therein. In nine of the ten provinces, these taxes are computed as a percentage of federal income tax otherwise payable at full federal rates and are collected by the Federal Government on behalf of these provinces. In Quebec, provincial income tax is levied at graduated rates that progress from 2.5 p.c. on the first $1,000 of taxable income to a maximum of 14.4 p.c. on the excess over $400,000. The determination of taxable income for Quebec tax is based on exemptions and deductions similar to those for federal tax. The Province of Quebec collects its own tax.

The percentages that provincial income tax liability is of federal income tax liability computed at full federal rates for 1964 are: Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Alberta and British Columbia each 18 p.c., Quebec approximately 18 p.c. and Manitoba and Saskatchewan each 24 p.c.

Corporate Income Tax

All provinces levy a tax on the profits of corporations derived from activities carried out within their boundaries. In all provinces except Ontario and Quebec the provincial tax imposed on taxable income in the province is determined on the same basis as for federal

income tax. In Ontario and Quebec the determination of taxable profits for purposes of provincial tax follows closely the federal rules. The rate of tax in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Alberta and British Columbia is 9 p.c. of corporate taxable income. The rate that applies in Manitoba and Saskatchewan is 10 p.c., in Ontario 11 p.c. and in Quebec 12 p.c.

Four of the ten provinces levy corporate income taxes at rates in excess of the abatement allowed by the Federal Government. This abatement is equal to 9 p.c. of corporate profits except in Quebec where it is 10 p.c. (see p. 961). All provinces except Ontario and Quebec have signed agreements for the collection of their income taxes by the Federal Government.

Taxes on Alcoholic Beverages and Tobacco

Generally speaking, the sale of spirits in all provinces is made through provincial agencies operating as boards or commissions which exercise monopolistic control over alcoholic beverages. The provincial mark-up over the manufacturer's price is the effective means of revenue. Beer and wine may be sold by retailers or government stores depending on the province but in all cases they contribute to provincial revenues.* The Province of Prince Edward Island imposes a tax of 10 p.c. on all beer, wine and spirits sold at retail, collected under authority of the Health Tax Act.

Newfoundland imposes a tax on tobacco sold at retail: one quarter of one cent per cigarette purchased; from one to five cents per cigar, depending on price; and one cent per half ounce or less of other tobacco. Prince Edward Island also imposes a tax on tobacco sold at retail: one fifth of one cent per cigarette purchased; from one to three cents per cigar, depending on price; and 10 p.c. of the retail price of all other tobacco purchased. Specific sales taxes on tobacco products are also levied in New Brunswick, Quebec and Manitoba.

Retail Sales Taxes

Retail sales taxes are levied on the final purchaser or user and are collected by the retailer. Eight provinces now levy this type of tax at rates varying from 3 p.c. to 6 p.c. These provinces are Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan and British Columbia.

Amusement Taxes

Each of the provinces with the exception of Alberta, Saskatchewan and British Columbia has a tax on admission to places of entertainment. In addition, there is generally a licence fee imposed on the operator or owner of these amusement places. The tax on admissions is within the range of 5 p.c. to 15 p.c.

Gasoline and Diesel Fuel Oil Taxes

Each of the ten provinces imposes a tax on the purchase of gasoline by motorists and truckers. The rates vary from 12 cents per gallon in Alberta to 19 cents in Nova Scotia and Newfoundland. The amount of tax borne by one gallon of motor vehicle fuel in each province is as follows:—

	Gasoline	*Diesel Fuel*		*Gasoline*	*Diesel Fuel*
	cts.	cts.		cts.	cts.
Newfoundland.....	19	19	Ontario.....	15	20.5
Prince Edward Island	18†	18†	Manitoba.....	14	17
Nova Scotia.....	19	27	Saskatchewan....	14	17
New Brunswick.....	18	23	Alberta.....	12	14‡
Quebec.....	15	21	British Columbia.	13	15

* The provincial mark-up over the manufacturer's price is not considered a "tax" in DBS financial statistics, but forms part of the "profits of government business enterprises".

† Gasoline and diesel fuel used by primary producers—farmers, fishermen, manufacturers and processors—is exempt from tax.

‡ Generally, fuel oil used for agricultural and industrial purposes is exempt from tax.

Motor Vehicle Licences and Fees

Each province levies a fee on the annual registration of motor vehicles which is compulsory. Upon registration a vehicle is issued with licence plates. The rates of fee vary from province to province and, in the case of passenger cars, may be assessed on the weight of the vehicle, the wheel base, the year of manufacture, the number of cylinders of the engine, or at a flat rate. The fees for commercial motor vehicles and trailers are based on the gross weight for which the vehicle is registered, i.e., the weight of the vehicle empty plus the load it is permitted to carry. Every operator or driver of a motor vehicle is required to obtain a driver's licence and pay a fee therefor. The licences are valid for periods of from one to five years and the fees vary from $1.00 to $2.50 a year.

Taxes on Mining Operations

All provinces except Prince Edward Island levy taxes of various kinds on mining operations. All provinces except Prince Edward Island and Alberta impose a tax on the income of firms engaged in mining operations in general or in specific kinds of mining operations. The Provinces of British Columbia, Alberta, Saskatchewan, Manitoba and Ontario impose a tax on the assessed value of minerals or a flat rate per acre of mining property.

Tax on Logging Operations

The Provinces of Ontario, Quebec and British Columbia levy a tax on the income from logging operations of individuals, partnerships, associations or corporations engaged in this activity. In Quebec and Ontario the rate is 10 p.c. on net income in excess of $10,000 and in British Columbia the tax is 10 p.c. on net income where in excess of $25,000. In Ontario and Quebec one third of the tax is allowed as a deduction from provincial corporate income tax, and the remainder is deductible from federal income tax.

Business Taxes

The Province of Quebec imposes a tax of one tenth of 1 p.c. on paid-up capital of corporations while Ontario levies a similar tax at the rate of one twentieth of 1 p.c.

The Provinces of Quebec and Ontario have a place-of-business tax. In Quebec, the tax ranges from $25 to $50 for each place of business with the higher amounts being levied when capital paid up is $25,000 or more. In Ontario, the tax for each permanent establishment is the lesser of $50 or one twentieth of 1 p.c. of paid-up capital of the corporation involved, but the total of the capital tax and the place-of-business tax cannot be less than $20. Ontario also imposes an office tax of $50 on every corporation that does not maintain a permanent establishment in the province but merely maintains a buying office, or merely holds certain provincial licences, or merely holds assets. A corporation that does not maintain a permanent establishment in Ontario but is represented by a resident employee or agent who is not deemed to operate a permanent establishment of the corporation in the province must pay an office tax of $50 or one tenth of 1 p.c. of the total amount of its gross Ontario sales or revenue if less than $50,000, subject to a minimum office tax of $5.

Both provinces levy special taxes on certain kinds of companies such as banks, railway companies, express companies, trust companies and sleeping-car, parlour-car and dining-car companies. In Ontario, these special taxes (except the tax payable by insurance corporations calculated on gross premiums) and the capital and place-of-business taxes are payable only to the extent that they exceed the corporate income tax otherwise payable.

The Province of Prince Edward Island charges special annual licence fees to most insurance companies, banks, acceptance companies, chain theatres and chain stores, steamship companies, telephone, telegraph and electric light companies and brokers, as well as nominal licence fees to other incorporated companies, the latter being similar to filing fees in other provinces.

Land Transfer Taxes

The Provinces of Alberta and Ontario levy a tax based on the value of the consideration at which ownership of land is transferred. In Ontario, a straight one fifth of 1 p.c. tax is imposed. In Quebec, a tax of 2½ p.c. of the valuation or purchase price (whichever is greater) is imposed only when property is transferred under the Bankruptcy or Winding-Up Acts. Other provinces do not have a land transfer tax but most have a scale of charges or fees imposed upon registration of transfer of land. These fees are not regarded as taxes since a service is rendered or an assurance given with each charge.

Tax on Security Transfers

The Provinces of Ontario and Quebec levy a tax on the sale price of securities transferred; the rates in each province are:—

Shares sold, transferred or assigned valued at—	
Under $1	1/10th of 1 p.c. of value
$ 1 to $ 5	1/4 cent per share
$ 5 to $ 25	1 cent per share
$25 to $ 50	2 cents per share
$50 to $ 75	3 cents per share
$75 to $150	4 cents per share
Over $150	4 cents per share plus 1/10th of 1 p.c. of value in excess of $150
Bonds and debentures	3 cents for every $100 or fraction thereof of par value.

Tax on Premium Income of Insurance Companies

All ten provinces impose a tax of 2 p.c. on the premium income of insurance companies relative to risks incurred in the province.

Succession Duties

Only the Provinces of Ontario, Quebec and British Columbia levy succession duties. These duties are a tax upon the right to succeed to property and are assessed upon the interest or benefit passing at death to an heir or beneficiary. The three provinces impose succession duties on all property situated in the province belonging to the deceased and passing at his death whether the deceased was domiciled in the province or elsewhere. Personal property wherever situated of a person dying domiciled within the province is also liable if passing to a successor resident or domiciled in the province.

The rates of succession duty are generally governed by the value of the estate, the relationship of the beneficiary to the deceased and the amount going to any one person. The rate of tax increases as the degree of relationship between the deceased and his successor becomes more remote.

Provincial Property Taxes

In unorganized (non-municipal) areas, British Columbia levies property taxes at varying rates according to class for provincial revenue. Improved, forest and tree-farm lands are taxed at 1 p.c. of assessed value; farm land at one half of 1 p.c.; wild land at 3 p.c.; coal land at 2 p.c. (non-operating) or 7 p.c. (operating); and timber land at 1½ p.c. In unorganized (non-municipal) areas, Ontario levies a property tax of 1½ p.c. of assessed value; the minimum annual tax in respect of any land is $6. Nova Scotia and New Brunswick also impose property taxes of limited application.

Race Track Taxes

Ontario levies a tax on operators of race meets and upon holders of winning tickets issued under the pari-mutuel system. The tax on race meeting operators is imposed at the rate of $1 for each day the meet is conducted. Holders of winning tickets must pay a tax equal to 6 p.c. upon the amount which would be payable to them if no percentage were deducted by the person holding the race meeting. A number of other provinces levy a pari-mutuel tax on money bet in the province on horse races: in Newfoundland the rate is

11 p.c., in Prince Edward Island 10½ p.c., in New Brunswick 5½ p.c., in Alberta and Saskatchewan 5 p.c., and in Quebec 1 p.c. on ordinary pools and 9 p.c. on special pools (quinella and daily-double). In British Columbia the tax is 12 p.c. but the province returns 2½ p.c. of money bet to horsemen and track operators for purses, etc.

Subsection 3.—Municipal Taxes

The municipalities in Canada levy taxes on the owners of property situated within their jurisdiction according to the assessed value of such property. Methods of determining assessed value vary widely but for taxation purposes it is generally considered to be a percentage of the actual value. The revenues from such taxes are used to pay for street maintenance, schools, police and fire protection, snow removal in certain communities and other community services. Special levies are sometimes made on the basis of street frontage to pay for local improvements to the property such as sidewalks, roads and sewers. Not only is there a widespread difference in the bases used for property tax but there is also a wide variety of rates applied, depending on the municipality.

In addition to the taxes described above, municipalities usually impose a charge for the water consumption of each property holder or a water tax based upon the rental value of the property occupied. There are no municipal income taxes although certain localities have retained the use of a poll tax. In Newfoundland, Quebec and Saskatchewan, municipalities are empowered to levy an amusement tax on the admission of persons to places of entertainment, although the amusement tax is generally a provincial preserve (see p. 966). Electricity and gas are taxed at the consumer level in some western municipalities and coal and fuel oil for heating purposes are chargeable in urban areas of Newfoundland. Telephone subscribers are subject to a special levy in Montreal and certain Ontario municipalities impose a tax on the gross receipts of telephone companies.

In most municipalities, a tax is levied directly on the tenant or the operator of a business. In general, business tax rates are lower than those applying to property. Three bases of assessment are in use—a fraction of the property assessment, the annual rental value of the premises, or the area of the premises. Certain municipalities may charge a licence fee instead of a business tax but others charge both a licence fee and a business tax. In Nova Scotia, all but one of the municipalities tax personal property (stock in trade, equipment, etc.) the same as real property.

Subsection 4.—Miscellaneous Levies

These are not generally referred to as taxes but they are similar to taxes in many ways.

Unemployment Insurance

For the past twenty-three years, a national program of unemployment insurance has been in operation in Canada. Essentially, it provides relief to those qualified persons who temporarily find themselves without work. It is administered by a federal commission appointed for this purpose and financed by equal contributions from employers and employees plus a contribution from the Federal Government. The amount paid into the fund by employee and employer is directly proportional to the weekly wages of the employee. The rates of contributions, together with statistics on the operation of the program, are given at pp. 739-743.

Workmen's Compensation

Legislation in force in all provinces provides compensation for personal injury suffered by workmen as a result of industrial accidents. In general, these provincial statutes establish an accident fund administered by a Board to which employers are required to contribute at a rate proportional with the hazards of the industry. See also pp. 745-746.

Hospital Insurance

A federal-provincial hospital insurance plan has been adopted by each of the ten Canadian provinces. Under this arrangement, the Federal Government pays approximately one half of the cost of hospitalization for patients who are participants under the plan. The provinces meet the remainder of the cost. Provincial revenues for this purpose are raised by various means. The Province of Quebec has increased its personal and corporation income tax. Certain provinces require the deduction of a monthly premium from the wages of their residents as a contribution or premium for the plan. In such provinces non-salaried people must also pay the premium directly if they wish to be covered by the plan. In some other provinces the proceeds of a retail sales tax are earmarked in whole or in part for the support of the hospital plan. See also pp. 273-276.

Section 3.—Federal Government Finance

Subsection 1 of this Section contains financial statistics of the Federal Government prepared as far as possible in accordance with the classifications, concepts and definitions used in the preparation of provincial and municipal finance statistics. These tables differ from the information presented in Subsection 2 in that the latter has been extracted directly from the *Public Accounts of Canada*. Detailed reports published by the Dominion Bureau of Statistics provide reconciliations of revenue, expenditure and debt as set out in Subsections 1 and 2. The *Public Accounts of Canada* presentation is retained for continuity and also because there is interest in and use for information on this basis.

Subsection 1.—DBS Statistics of Federal Government Finance

Revenue and Expenditure.—Table 4 shows details of net general revenue of the Federal Government for the years ended Mar. 31, 1962 and 1963.

4.—Details of Net General Revenue of the Federal Government, Years Ended Mar. 31, 1962 and 1963

Source	1962	1963	Source	1962	1963
	$'000	$'000		$'000	$'000
Taxes—			Privileges, Licences and Permits—		
Income—			Natural resources	3,805	3,928
Corporation[1]	1,302,179	1,298,087	Other	20,585	22,548
Individual[1]	2,051,606	2,018,276	Sales and services other than		
Interest, dividends and other income going abroad	112,306	129,137	institutional	64,000	62,617
General sales[1]	1,044,557	1,108,210	Fines and penalties	1,338	1,213
Excise Duties and Special Excise Taxes—			Exchange fund profits	32,606	35,227
Alcoholic beverages	206,277	219,814	Receipts from government enterprises	122,427	107,084
Tobacco	367,386	383,553	Bullion and coinage	8,144	9,706
Automobiles	25,270	—	Postal service	213,579	222,359
Other	24,703	37,889	Other revenue	9,975	11,979
Customs import duties	534,516	644,992	Non-revenue and surplus receipts	18,477	22,751
Succession duties and estate taxes	84,579	87,143			
Other	1,043	491			
Totals, Taxes	5,754,422	5,927,592	**Totals, Net General Revenue**	6,249,358	6,427,004

[1] Includes old age security taxes.

Table 5 gives details of expenditure by function for the years ended Mar. 31, 1962 and 1963 and Table 6 gives details of the amounts paid by the Federal Government to provincial governments, territories and municipal corporations for the same years.

5.—Details of Net General Expenditure of the Federal Government, Years Ended Mar. 31, 1962 and 1963

Function	1962	1963
	$'000	$'000
Defence services and mutual aid	1,648,584	1,596,134
Veterans pensions and other benefits	337,318	337,761
General Government—		
Executive and administrative	252,767	256,768
Legislative	9,547	20,634
Research, planning and statistics	24,803	12,138
Totals, General Government	287,117	289,540
Protection of Persons and Property—		
Law enforcement	8,171	8,383
Corrections	22,299	24,126
Police protection	48,630	52,967
Other	9,021	9,931
Totals, Protection of Persons and Property	88,121	95,407
Transportation—		
Air	95,866	86,912
Road	88,557	74,131
Rail	90,522	104,164
Water	115,595	135,234
Other	3,338	3,714
Totals, Transportation	393,878	404,155
Communications — telephone, telegraph and wireless	36,403	30,449
Health—		
General	5,780	7,711
Public	35,036	37,780
Medical, dental and allied services	7,937	8,706
Hospital care	317,153	371,179
Totals, Health	365,906	425,376
Social Welfare—		
Aid to aged persons[1]	656,065	772,732
Aid to blind persons	4,194	4,951
Aid to unemployed employables and unemployables	108,478	116,111
Family allowances	523,917	534,634
Labour	3,075	3,283
National employment and unemployment insurance services	102,964	106,387
Other	25,230	26,945
Totals, Social Welfare	1,423,923	1,565,043
Recreational and Cultural Services—		
Archives, art galleries, museums and libraries	3,313	3,335
Parks	20,446	19,303
Other	8,214	9,753
Totals, Recreational and Cultural Services	31,973	32,391
Education—		
Indian and Eskimo schools	35,685	36,895
Universities, colleges and other schools	55,408	234,775
Other	2,476	3,264
Totals, Education	93,569	274,934
Natural Resources and Primary Industries—		
Fish and game	23,197	23,970
Forests	15,016	16,620
Lands, settlement and agriculture	294,514	240,244
Minerals and mines	45,956	49,051
Water resources	2,353	5,488
Other	22,287	21,722
Totals, Natural Resources and Primary Industries	403,323	357,095
Trade and industrial development	13,553	15,757
National Capital area planning and development	16,794	18,389
Loss on foreign exchange	−2,095	−9,115
Debt Charges (excluding debt retirement)—		
Interest	653,382	716,093
Other	36,067	38,847
Totals, Debt Charges (excluding debt retirement)	689,449	754,940
Payments to government enterprises	170,931	155,301
Payments to Provincial Governments—		
Tax-sharing arrangements	479,269	202,295
Share of income tax on power utilities	6,396	10,000
Subsidies	56,556	66,471
Grants to Municipal Governments in lieu of taxes	25,034	29,947
Totals, Payments to Provincial and Municipal Governments[2]	567,255	308,713
Citizenship and immigration	16,393	17,042
External affairs	19,965	22,516
International co-operation and assistance	67,396	56,892
Housing research and slum clearance	4,111	4,287
Civil defence	7,586	9,172
Postal service	214,804	218,828
Royal Canadian Mint	1,714	1,978
Other	124,359	132,753
Non-expense and Surplus Payments	293	34,426
Totals, Net General Expenditure	**7,022,623**	**7,168,394**

[1] Includes pensions paid from the Old Age Security Fund. [2] Unconditional payments; grants for specific purposes are classified by function. See Table 6 for details of all grants to provincial governments and municipal corporations.

6.—Payments by the Federal Government to Provincial Governments, Territories and Municipal Corporations, Year Ended Mar. 31, 1963

Payee and Purpose	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	All Provinces	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Provincial Governments and Territories														
Federal-provincial financial arrangements	13,919	3,227	23,294	16,838	77,859	−177	18,712	28,380	14,218	2,502	198,772	1,346[1]	2,177[1]	202,295
Share of income tax on power utilities	170	52	479	40	4,481	968	47	26	2,647	1,090	10,000	—	—	10,000
Subsidies	20,156[2]	4,157[3]	12,632[3]	12,245[3]	3,964	4,624	2,089	2,116	2,816	1,672	66,471	—	—	66,471
Totals, Above Items	34,245	7,436	36,405	29,123	86,304	5,415	20,848	30,522	19,681	5,264	275,243	1,346	2,177	278,766
Grants-in-Aid and Shared-Cost Contributions—														
Transportation—														
Trans-Canada Highway	1,043	66	1,125	1,585	9,622	4,911	500	48	10	10,300	29,210	—	—	29,210
Roads leading to resources	724	904	900	906	2,281	1,391	667	582	869	1,142	10,366	—	—	10,366
Other transportation	—	200	228	388	1,123	1,419	57	98	481	530	4,524	—	—	4,524
Health—														
Hospital insurance and diagnostic services	7,473	1,674	13,520	10,895	88,714	122,103	17,349	18,278	25,785	30,049	335,840	310	523	336,673
Hospital construction	633	134	1,319	700	5,786	6,558	825	881	1,694	1,464	19,994	—	6	20,000
General Health Grants—														
General public health	358	171	614	490	1,923	3,275	685	603	1,070	1,173	10,362	—	63	10,425
Tuberculosis control	139	29	140	125	1,238	714	166	136	210	240	3,137	9	6	3,152
Mental health	210	74	368	296	2,331	2,554	422	378	644	625	7,902	21	—	7,923
Professional training	90	15	81	52	501	410	50	67	134	112	1,512	—	—	1,512
Cancer control	13	16	59	125	586	1,170	180	182	257	308	2,896	—	2	2,898
Public health research	—	—	62	—	562	529	57	38	98	104	1,450	—	8	1,458
Medical rehabilitation and crippled children	57	11	63	79	628	212	109	124	110	187	1,580	—	1	1,581
Child and maternal health	43	11	52	35	501	366	79	70	93	96	1,346	—	—	1,346
Other health	2	1	9	7	44	30	15	3	6	7	124	114[4]	390[4]	628
Social Welfare—														
Old age assistance	1,987	375	2,008	2,066	13,794	8,458	2,002	2,221	2,524	2,675	38,110	15	54	38,179
Blind persons' allowances	247	47	450	410	1,663	992	214	241	272	320	4,856	2	24	4,882
Disabled persons' allowances	533	312	1,114	791	8,578	5,537	578	631	697	853	19,624	2	8	19,634
Unemployment assistance	4,303	194	1,585	1,607	33,580	23,794	4,625	4,558	6,202	15,940	96,388	45	44	96,477
Other social welfare	22	3	30	64	—	137	141	67	31	31	526	—	—	526
Recreation—														
Campground and picnic area developments	—	—	—	32	—	535	153	104	166	282	1,272	15	13	1,300
Fitness and amateur sport	31	31	31	27	—	51	37	35	35	35	313	21	22	356
Education—														
Technical and vocational training—														
Capital assistance to trade schools, etc.	12,932	825	2,608	1,853	7,391	119,357	3,123	4,363	22,167	4,421	179,040	526	61	179,627
Vocational high school training	7	28	178	94	—	841	155	166	213	239	1,921	9	—	1,930

Technician training	—	—	15	33	5,445	948	6	117	209	15	6,788	—	6	6,794
Occupational training	61	23	148	252	5,380	544	49	196	1,016	474	8,143	9	21	8,173
Apprenticeship training	53	—	128	90	—	626	99	152	526	497	2,171	—	1	2,172
Assistance to students	8	6	10	15	100	100	7	30	10	30	316	—	3	319
Training of unemployed workers	114	88	417	206	1,655	3,928	265	281	252	541	7,747	—	4	7,751
Training of disabled persons	9	3	87	52	299	215	36	32	7	9	749	—	—	749
Other	10	2	44	28	142	72	5	13	60	24	400	—	—	400
Citizenship and language instruction for immigrants	—	2	1	—	—	180	7	11	1	13	215	1	—	216
Other training	—	—	—	—	—	—	—	—	—	—	—	327	—	327
Natural Resources—														
Registered traplines	—	—	—	—	—	78	—	34	—	—	112	—	—	112
Construction of vessels	36	—	168	122	174	—	—	—	—	—	500	—	—	500
Forest inventories, reforestation, protection and improvement	159	40	384	411	1,579	1,615	497	367	1,009	1,804	7,865	—	—	7,865
Agricultural assistance (lime, 4-H Clubs, farm labour agreements, rehabilitation and development, transport of fodder, etc., crop insurance and other)	28	103	128	167	2,357	136	451	917	157	87	4,531	—	—	4,531
Other	—	—	—	—	—	1,152[5]	1,945[5]	—	—	42	3,139	—	55	3,194
Civil defence	30	17	204	138	670	1,324	218	166	475	568	3,810	—	—	3,810
Winter works projects in municipalities	318	110	80	314	11,548	5,519	754	1,994	2,952	3,363	26,952	2	19	26,973
Grants to research councils	—	—	15	—	—	53	—	15	23	22	128	—	—	128
Other	—	—	—	—	—	—	—	—	—	—	—	25	—	25
Totals, Grants-in-Aid and Shared-Cost Contributions	31,673	5,515	28,373	24,455	210,195	321,834	36,528	38,199	170,465	78,622	845,859	1,453	1,334	848,646
Totals, Paid to Provincial Governments and Territories	**65,918**	**12,951**	**64,778**	**53,578**	**296,499**	**327,249**	**57,376**	**68,721**	**90,146**	**83,886**	**1,121,102**	**2,799**	**3,511**	**1,127,412**
Municipal Corporations														
Grants in lieu of taxes on federal property	157	123	2,096	910	5,014	15,200	1,446	939	1,710	2,229	29,824	73	50	29,947
Special grants	—	—	—	1,489[6]	—	199[7]	—	—	—	—	1,688	—	—	1,688
Grants-in-Aid and Shared-Cost Contributions—														
Transportation	—	—	4	35	8	4,487	179	13	1,052	456	6,234	—	—	6,234
Health	—	2	—	1	35	3,157	56	183	206	358	3,998	—	—	3,998
Schools operated by local authorities	—	—	—	—	507	355	121	163	180	178	1,504	—	—	1,504
Slum clearance	—	—	284	636	—	2,876	—	—	—	426	4,222	—	—	4,222
Other	—	—	—	—	—	6	—	—	—	—	6	—	—	6
Totals, Paid to Municipal Corporations	**157**	**125**	**2,384**	**3,071**	**5,564**	**26,280**	**1,802**	**1,298**	**3,148**	**3,647**	**47,476**	**73**	**50**	**47,599**
Grand Totals	**66,075**	**13,076**	**67,162**	**56,649**	**302,063**	**353,529**	**59,178**	**70,019**	**93,294**	**87,533**	**1,168,578**	**2,872**	**3,561**	**1,175,011**

[1] Federal tax abstention grant. [2] Consists of Atlantic Provinces adjustment grant $10,500, additional subsidy $8,000 and annual statutory subsidies $1,656. [3] Includes Atlantic Provinces adjustment grants: P.E.I. $3,500; N.S. $10,500; N.B. $10,500. [4] Grants for hospital care of Indians and Eskimos. [5] Conservation and control of water resources. [6] Financial assistance to the town of Oromocto. [7] Grant to city of Ottawa *re* interest on debentures issued to finance certain sewer and waterworks projects undertaken in advance of normal construction.

Debt.—In Table 7, direct debt represents total liabilities less sinking funds and indirect debt consists of guarantees of direct debt of other authorities by the Federal Government. Table 8 gives the gross bonded debt of the Federal Government and the average interest rates and terms of issue as at Mar. 31, 1960-63, together with place of payment.

7.—Direct and Indirect Debt (less Sinking Funds) of the Federal Government as at Mar. 31, 1960-63

Nature of Debt	1960	1961	1962	1963
	$'000	$'000	$'000	$'000
Direct Debt				
Funded Debt—				
Bonded debt	13,765,152	14,132,915	15,060,736	15,796,836
Less sinking funds	*85,272*	*17,018*	*19,432*	*22,312*
Net funded debt	13,679,880	14,115,897	15,041,304	15,774,524
Short-term treasury bills[1]	2,125,000	1,935,000	1,885,000	2,165,000
Accounts and other payables	967,621	999,076	1,104,607	1,468,897
Annuity, insurance and pension accounts	3,565,376	3,955,510	4,258,100	4,748,506
Other liabilities	347,206	363,804	363,403	416,767
Totals, Direct Debt (less Sinking Funds)	**20,685,083**	**21,369,287**	**22,652,414**	**24,573,694**
Indirect Debt				
Guaranteed bonds or debentures	1,430,107	1,672,690	1,636,115	1,381,361
Less sinking funds	—	—	—	—
Net guaranteed bonds or debentures	1,430,107	1,672,690	1,636,115	1,381,361
Guaranteed bank loans	169,203	208,758	168,540	141,353
Guaranteed insured loans under National Housing Act, 1954	2,671,918	3,017,404	3,640,000	4,123,000
Guarantees under Export Credits Insurance Act	97,456	109,934	291,700	333,646
Other guarantees	6,415	7,527	11,300	12,976
Totals, Indirect Debt (less Sinking Funds)[2]	**4,375,099**	**5,016,313**	**5,747,655**	**5,992,336**
Totals, Direct and Indirect Debt (less Sinking Funds)	**25,060,182**	**26,385,600**	**28,400,069**	**30,566,030**
	$	$	$	$
Direct debt (*less* sinking funds) per capita	1,158	1,172	1,220	1,300
Indirect debt (*less* sinking funds) per capita	245	275	310	317

[1] Having a term of three months. [2] Excludes deposits of chartered banks in Bank of Canada.

8.—Gross Bonded Debt of the Federal Government, Average Interest Rate and Term of Issue, and Place of Payment as at Mar. 31, 1960-63

Item		1960	1961	1962	1963
Bonded debt	$'000	13,765,152	14,132,915	15,060,736	15,796,836
Average interest rate	p.c.	3.74	3.98	4.01	4.13
Average term of issue	yrs.	13.37	13.29	12.19	13.36
Place of Payment—					
Canada	$'000	13,563,341	14,002,750	14,930,570	15,385,847
New York	"	150,000	98,175	98,175	376,405
London (England)	"	51,811	31,990	31,991	34,584

Subsection 2.—Public Accounts Statistics of Federal Government Finance

Revenue and Expenditure.—Tables **9** and **10** show details of revenue and expenditure of the Federal Government for the fiscal years ended Mar. 31, 1962 and 1963, as presented in the *Public Accounts of Canada*, and for the year ended Mar. 31, 1964, from the abridged data appearing in the *Canada Gazette*.

9.—Revenue of the Federal Government, Years Ended Mar. 31, 1962-64

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Revenue	1962	1963	1964
	$	$	$
Tax Revenue—			
Customs import duties	534,515,544	644,992,131	581,441,461
Excise duties	362,798,655	381,865,989	393,326,182
Income tax	3,107,015,319	3,056,600,380	3,248,530,746
Personal[1]	*1,792,655,915*	*1,744,626,029*	*1,865,073,635*
Corporation[1]	*1,202,053,695*	*1,182,836,979*	*1,258,957,490*
On interest, dividends, rents, and royalties going abroad	*112,305,709*	*129,137,372*	*124,499,621*
Sales tax (net)[1]	759,677,970	805,970,471	946,054,797
Estate tax, including succession duties	84,579,383	87,143,312	90,671,283
Other taxes	262,577,875	260,405,101	273,507,313
Totals, Tax Revenue	5,111,164,746	5,236,977,384	5,533,531,782
Non-tax Revenue—			
Post Office	183,678,937	192,771,815	200,717,142
Return on investments[2]	307,502,187	311,860,329	366,412,592
Bullion and coinage	7,965,169	9,404,342	9,717,080
Other	119,312,685	127,694,508	142,825,443
Totals, Non-tax Revenue	618,458,978	641,731,494	719,672,257
Grand Totals, Revenue	**5,729,623,724**	**5,878,708,878**	**6,253,204,039**

[1] Excludes tax credited to the Old Age Security Fund.

[2] Includes interest on investments and profits of the Bank of Canada.

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1962-64

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Expenditure	1962	1963	1964
	$	$	$
Agriculture	286,683,751	183,426,730[1]	225,681,474[1]
Acreage payments to western grain producers	*40,068,497*	*139,402*	—
Freight assistance on western feed grains	*17,513,254*	[2]	[2]
Other	*229,103,000*	*183,287,328*	*225,681,474*
Atlantic Development Board	—	5,033	196,331
Atomic Energy Control Board	34,711,614	63,205,370	45,955,220
Auditor General's Office	1,069,939	1,218,834	1,258,359
Board of Broadcast Governors	311,515	353,913	341,849
Canadian Broadcasting Corporation	78,160,805	80,815,947	87,575,697
Central Mortgage and Housing Corporation	[3]	8,654,465	13,469,874
Chief Electoral Officer	366,474	11,815,352	11,875,892
Citizenship and Immigration	65,016,446	66,237,381	71,545,372
Civil Service Commission	4,738,709	4,792,379	5,224,776
Defence Production	23,929,926	37,288,755[4]	48,506,997[4]
Capital assistance to defence industry	*1,947,143*	*1,903,979*	*1,476,248*
Other	*21,982,783*	*35,384,776*	*47,030,754*
External Affairs	95,571,260	85,196,666	97,022,596
Finance	1,511,953,189	1,354,779,838	1,406,434,612
Public Debt Charges—			
Interest on public debt	*802,919,207*	*881,598,898*	*954,543,790*
Annual amortization of bond discounts and commissions	*53,677,166*	*32,682,416*	*36,313,021*
Servicing of public debt	*789,553*	*1,583,487*	*995,752*
Cost of loan flotation	*1,600,475*	*1,922,438*	*1,876,812*
Totals, Public Debt Charges	*858,986,401*	*917,787,239*	*993,729,375*

For footnotes, see end of table, p. 976.

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1962-64—concluded

Expenditure	1962	1963	1964
	$	$	$
Finance—concluded			
Fiscal, tax-sharing, subsidy and other payments to provinces	*541,182,624*	*275,302,387*	*254,330,006*
Contribution to Public Service Superannuation Account	*46,930,411*	*51,076,449*	*54,015,227*
Other	*84,853,758*	*110,613,763*	*104,360,004*
Fisheries	23,097,882	23,292,700	23,716,314
Forestry	14,737,929	31,840,093[5]	41,815,947[6]
Governor General and Lieutenant-Governors	474,156	467,638	524,159
Industry	—	433,689	696,257
Insurance	1,358,022	1,422,120	1,435,005
Justice, including Penitentiaries	32,580,184	37,020,572[6]	40,995,992[6]
Labour	168,884,756	348,291,775	280,383,807
Unemployment Insurance Act, administration and Government contribution	*101,532,696*	*105,376,974*	*108,057,948*
Other	*67,352,060*	*242,914,801*	*172,325,859*
Legislation	8,438,007	8,108,063	12,923,599
Mines and Technical Surveys	67,599,290	71,130,401	67,759,325
National Defence	1,626,104,312	1,571,044,079	1,683,471,003[7]
National Film Board	5,143,773	5,610,630	5,743,931
National Gallery	1,053,582	987,271	1,067,949
National Health and Welfare	1,040,275,696	1,122,448,257	1,203,854,597
General health grants to provinces	*48,999,753*	*50,295,363*	*52,994,953*
Family allowances	*520,781,193*	*531,566,349*	*538,312,223*
Old age assistance, blind persons' and disabled persons' allowances[8]	*51,374,048*	*62,695,198*	*64,402,622*
Unemployment assistance	*92,044,244*	*96,476,627*	*107,370,707*
Contributions under the Hospital Insurance and Diagnostic Services Act	*283,883,097*	*356,672,778*	*392,244,255*
Other	*43,193,361*	*44,741,942*	*48,529,857*
National Research Council, including the Medical Research Council	38,849,279	40,596,727	47,259,773
National Revenue	75,330,063	78,602,634	82,995,521
Northern Affairs and National Resources	79,367,605	86,377,092	77,334,019
Post Office	185,003,359	189,344,410	206,894,516
Privy Council, including Prime Minister's Office	4,479,601	2,131,902	2,929,115
Public Archives and National Library	977,899	1,035,471	1,112,723
Public Printing and Stationery	4,010,195	2,038,633[9]	2,147,045[9]
Public Works	188,813,326[10]	162,730,246	167,000,704
Trans-Canada Highway	*41,594,477*	*33,057,931*	*41,325,737*
Other	*147,218,849*	*129,672,315*	*125,674,967*
Representation Commissioner's Office	—	—	37,006
Royal Canadian Mounted Police	60,497,027	65,424,359	66,899,479
Secretary of State	4,994,967	4,782,903[11]	7,732,868[11]
Trade and Commerce	42,447,107	65,767,556[12]	73,584,061[12]
Transport	410,391,113	416,019,472	423,257,874
Veterans Affairs	333,222,906	335,602,449	333,739,881
Grand Totals, Expenditure	**6,520,645,674**	**6,570,341,805**	**6,872,401,519**

[1] See footnote [12] below. [2] Included in Forestry (1963, $14,462,357; 1964, $18,750,078). [3] Included in Public Works ($5,797,957). [4] Includes Directorate of Printing (1963, $1,938,808; 1964, $1,946,288), formerly in Public Printing and Stationery, and Emergency Measures Organization (1963, $6,369,909; 1964, $6,942,249), formerly in the Privy Council, National Defence and National Health and Welfare. [5] See footnote [2] above. [6] Including patents, copyrights and trade marks (1963, $2,488,917; 1964, $2,595,856), formerly in Secretary of State. [7] Includes special contribution to Canadian Forces Superannuation Account $76,500,000. [8] Pensions under the Old Age Security Act, 1951 (effective January 1952) are paid out of the Old Age Security Fund account and are not recorded under departmental expenditure. [9] See footnote [4] above. [10] See footnote [3] above. [11] See footnote [6] above. [12] Includes assistance *re* storage costs of grain (1963, $35,256,382; 1964, $39,588,168), formerly in Agriculture.

Statements of Assets and Liabilities.—Table 11 shows the statements of assets and liabilities of the Federal Government as they appear in the *Public Accounts of Canada* for the years ended Mar. 31, 1961-63 and the *Canada Gazette* for the year ended Mar. 31, 1964.

11.—Statement of Assets and Liabilities of the Government of Canada, as at Mar. 31, 1961-64

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Item	1961	1962	1963	1964
	$	$	$	$
Assets				
Current Assets—				
Cash	486,759,770	895,321,334	511,347,154	984,642,872
Departmental Working Capital Advances and Revolving Funds	171,082,579	223,379,565	243,406,833 r	169,075,867
Securities held for the securities investment account	101,453,744	94,608,163	33,480,163	99,859,788
Other current assets	25,051,644	32,707,390	32,176,896	33,484,613
Totals, Current Assets	784,347,737	1,246,016,452	820,411,046 r	1,287,063,140
Advances to the Exchange Fund Account	2,024,000,000	1,793,000,000	2,736,000,000	2,601,000,000
Sinking fund and other investments held for retirement of unmatured debt	17,017,981	19,432,331	22,311,845	—
Loans to and Investments in Crown Corporations—				
Canadian National Railways	1,092,589,707	1,165,039,390	1,439,327,659	1,410,885,806
Central Mortgage and Housing Corporation	1,510,711,116	1,701,028,964	1,802,806,097	1,916,141,454
National Harbours Board	172,769,613	178,743,412	192,579,474	198,133,894
Miscellaneous	838,117,202	940,517,693	1,033,406,138	1,059,033,353
Totals, Loans to and Investments in Crown Corporations	3,614,187,638	3,985,329,459	4,468,119,368	4,584,194,507
Loans to national governments	1,378,196,197	1,339,796,827	1,210,776,466	1,195,684,799
Other Loans and Investments—				
Canada's Subscription to Capital of—				
International Monetary Fund	543,696,621	564,660,956	577,250,046	577,250,046
International Bank for Reconstruction and Development	73,680,062	73,680,062	80,482,713	80,482,713
Working capital advances to international organizations	1,722,095	1,706,951	7,815,457	8,076,604
Provincial governments	98,372,577	97,879,073	116,817,625	113,651,578
Veterans' Land Act advances (*less* reserve for conditional benefits)	166,092,206	177,355,101	196,018,731	216,970,307
Miscellaneous	152,087,804	78,580,945	132,269,807	201,384,852
Totals, Other Loans and Investments	1,035,651,365	993,863,088	1,110,654,379	1,197,816,100
Securities held in trust	30,042,201	25,836,647	26,016,102	38,881,823
Deferred Charges—				
Unamortized loan flotation costs	130,741,328	121,332,197	131,601,094	123,699,586
Unamortized portion of actuarial deficiencies in the superannuation account of the Canadian forces, public service and Royal Canadian Mounted Police	602,961,000	606,494,000	805,043,000	276,661,000
Totals, Deferred Charges	733,702,328	727,826,197	936,644,094	400,360,586
Suspense accounts	136,101	136,101	136,101	141,392
Capital assets	1	1	1	1
Inactive loans and investments	94,824,381	94,824,381	94,824,381	94,824,381
Totals, Assets	**9,712,105,930**	**10,226,061,484**	**11,425,893,783 r**	**11,399,966,729**
Less reserve for losses on realization of assets	*546,384,065*	*546,384,065*	*546,384,065*	*546,384,065*
Net Assets	**9,165,721,865**	**9,679,677,419**	**10,879,509,718 r**	**10,853,582,664**
Net debt	12,437,115,095	13,228,137,045	13,919,769,972	15,070,149,452
	21,602,836,960	**22,907,814,464**	**24,799,279,690 r**	**25,923,732,116**

11.—Statement of Assets and Liabilities of the Government of Canada, as at Mar. 31, 1961-64—concluded

Item	1961	1962	1963	1964
	$	$	$	$
Liabilities				
Current and Demand Liabilities—				
Outstanding treasury cheques	251,740,839	265,658,447	266,548,686r	319,894,410
Accounts payable	221,396,476	280,711,177	267,364,119	342,673,020
Non-interest-bearing notes payable on demand	383,660,444	372,031,620	757,284,519	586,996,025
Matured debt outstanding	31,872,131	36,438,562	32,466,821	26,820,209
Interest due and outstanding	66,776,824	73,845,656	79,460,893	91,893,489
Interest accrued	154,015,640	174,601,049	196,973,991	215,973,372
Other current liabilities	38,098,891	30,794,396	31,379,226	35,710,909
Totals, Current and Demand Liabilities	1,147,561,245	1,234,080,907	1,631,478,255r	1,619,961,434
Deposit and trust accounts	239,667,315	266,624,103	225,202,751	196,454,123
Annuity, Insurance and Pension Accounts—				
Government annuities	1,199,122,929	1,235,305,209	1,264,436,143	1,284,261,927
Canadian forces superannuation account	1,155,332,721	1,279,239,154	1,605,796,692	1,821,524,901
Public service superannuation account	1,468,848,108	1,586,929,399	1,724,116,105	1,856,407,623
Miscellaneous	132,205,687	144,468,047	152,667,928	168,859,360
Totals, Annuity, Insurance and Pension Accounts	3,955,509,445	4,245,941,809	4,747,016,868	5,131,053,811
Undisbursed Balances of Appropriations to Special Accounts—				
Colombo Plan Fund	67,533,227	77,625,513	85,325,167	..
Miscellaneous	36,959,474	37,509,854	34,626,531	..
Totals, Undisbursed Balances of Appropriations to Special Accounts	104,492,701	115,135,367	119,951,698	111,601,270
Deferred credits and suspense accounts	87,691,340	100,296,144	113,793,787	124,564,449
Unmatured Debt—				
Bonds—				
Payable in Canada	14,002,750,850	14,930,570,600	15,385,847,250	16,133,692,000
Payable in London	31,989,064	31,990,534	34,584,052	—
Payable in New York	98,175,000	98,175,000	376,405,029	376,405,029
Treasury Bills and Notes—				
Payable in Canada	1,935,000,000	1,885,000,000	2,165,000,000	2,230,000,000
Totals, Unmatured Debt	16,067,914,914	16,945,736,134	17,961,836,331	18,740,097,029
Totals, Liabilities	**21,602,836,960**	**22,907,814,464**	**24,799,279,690r**	**25,923,732,116**

Guaranteed Debt.—In addition to the direct debt already dealt with, the Government of Canada has assumed certain contingent liabilities. The major categories of this indirect or contingent debt are the guarantee of insured loans under the National Housing Act, the guaranteed bonds and debentures of the Canadian National Railways and the guarantee of deposits maintained by the chartered banks in the Bank of Canada. The remainder consists chiefly of guarantees of loans made by chartered banks to the Canadian Wheat Board and to farmers and veterans for certain authorized purposes and guarantees under the Export Credits Insurance Act.

12.—Guaranteed Debt of the Government of Canada, as at Mar. 31, 1963

SOURCE: *Public Accounts of Canada*

Item	Amount of Guarantee Authorized	Amount Outstanding in the Hands of the Public as at Mar. 31, 1963[1]
	$	$
Railway Securities Guaranteed as to Principal and Interest—		
Canadian National Ry. Co. 5¼ per cent bonds due 1964	199,576,000	198,576,000
Canadian National Ry. Co. 3 per cent bonds due 1966	35,000,000	35,000,000
Canadian National Ry. Co. 2¾ per cent bonds due 1967	50,000,000	50,000,000
Canadian National Ry. Co. 4½ per cent bonds due 1967	75,000,000	72,300,000
Canadian National Ry. Co. 5 per cent bonds due 1968	60,000,000	55,800,000
Canadian National Ry. Co. 2¾ per cent bonds due 1969	70,000,000	70,000,000
Canadian National Ry. Co. 2¾ per cent bonds due 1971	40,000,000	40,000,000
Canadian National Ry. Co. 5½ per cent bonds due 1971	424,000	424,000
Canadian National Ry. Co. 3¾ per cent bonds due 1974	200,000,000	200,000,000
Canadian National Ry. Co. 2¾ per cent bonds due 1975	6,486,480	6,486,480
Canadian National Ry. Co. 5 per cent bonds due 1977	90,000,000	84,600,000
Canadian National Ry. Co. 4 per cent bonds due 1981	300,000,000	300,000,000
Canadian National Ry. Co. 5¾ per cent bonds due 1985	100,000,000	99,500,000
Canadian National Ry. Co. 5 per cent bonds due 1987	175,000,000	168,675,000
Other Guarantees—		
Deposits maintained by chartered banks in Bank of Canada	Unstated	741,869,671
Loans made by lenders under Part IV of the National Housing Act, 1954, for home extensions and improvements	25,000,000	12,976,000[2]
Insured loans made by approved lenders under the National Housing Act, 1954	6,000,000,000	4,123,000,000[3]
Insurance and guarantees issued or approved under Section 21 and 21A of the Export Credits Insurance Act	700,000,000	333,645,786
Loans made by chartered banks under the Farm Improvement Loans Act	Indeterminate	47,966,702[2]
Loans made by chartered banks under the Veterans Business and Professional Loans Act	Indeterminate	71,952[2]
Loans made by chartered banks under the Prairie Grain Producers' Interim Financing Act, 1956	Indeterminate	14,214
Loans made by chartered banks and credit unions under the Fisheries Improvement Loans Act	Indeterminate	154,275[2]
Loans made by chartered banks under the Small Businesses Loans Act	30,000,000	5,564,559[2]
Loans made by chartered banks to the Canadian Wheat Board	180,000,000	80,331,172
Loans made by chartered banks under the Prairie Grain Advance Payments Act	Unstated	7,245,127
Loans made by chartered banks to the Canadian Wheat Board pursuant to the Prairie Grain Provisional Payments Act	Unstated	3,396
Loans made by chartered banks under the Prairie Grain Loans Act	Indeterminate	1,773

[1] These contingent liabilities are expressed in Canadian dollars; they are payable solely in United States dollars and are converted on the basis of $1 U.S.=$1.08108 Canadian. In addition, the government has an indeterminate contingent liability in respect of rental guarantee contracts which in 1962 amounted to approximately $15,006,000. Against this amount was a reserve of $3,872,193 held by Central Mortgage and Housing Corporation. [2] As at Dec. 31, 1962. [3] As reported (in accordance with Sect. 45, National Housing Loan Regulations) by approved lenders at Dec. 31, 1962.

Table 13 summarizes the national debt position during the period 1955-64 as to interest and amount outstanding. Details of unmatured debt and treasury bills outstanding and information on new security issues of the Federal Government may be found in the *Public Accounts of Canada*. They are summarized by standard classification in DBS publication *Financial Statistics of the Government of Canada* (Catalogue No. 68-211).

13.—Summary of the Public Debt and Interest Payments Thereon, Years Ended Mar. 31, 1955-64

NOTE.—Statistics for 1867-1913 are given in the 1942 Year Book, p. 775; for 1914-35 in the 1947 edition, p. 972; for 1936-48 in the 1951 edition, p. 1009; and for 1949-54 in the 1959 edition, p. 1063.

Year Ended Mar. 31—	Gross Debt	Net Active Assets	Net Debt	Net Debt per Capita[1]	Increase or Decrease of Net Debt during Year	Interest Paid on Debt	Interest Paid per Capita[2]
	$	$	$	$	$	$	$
1955.....	17,951,491,464	6,688,411,310	11,263,080,154	717.49	147,143,090	477,914,894	31.26
1956.....	19,124,232,779	7,843,863,815	11,280,368,964	701.47	17,288,810	492,624,067	31.38
1957.....	18,335,797,515	7,328,146,357	11,007,651,158	662.71	−272,717,806	520,189,398	32.35
1958.....	18,418,541,848	7,372,267,958	11,046,273,890	646.74	38,622,732	539,207,260	32.46
1959.....	20,246,773,669	8,568,383,809	11,678,389,860	667.99	632,115,970	606,615,887	35.52
1960.....	20,986,367,010	8,897,173,007	12,089,194,003	676.51	410,804,143	735,630,175	42.08
1961.....	21,602,836,960	9,165,721,865	12,437,115,095	681.93	347,921,092	756,664,228	42.34
1962.....	22,907,814,464	9,679,677,419	13,228,137,045	712.34	791,021,950	802,919,207	44.02
1963.....	24,799,279,690r	10,879,509,718r	13,919,769,972	736.65	691,632,927	881,598,898	47.47
1964.....	25,923,732,116	10,853,582,664	15,070,149,452	783.39	1,150,379,480	954,543,790	50.52

[1] Based on the official estimates of population for June 1 of the year indicated. [2] Based on the official estimates of population for June 1 of the year immediately preceding the one indicated.

Subsection 3.—Revenue from Taxation

The incidence of Federal Government taxation is dealt with in Section 2. This Subsection includes statistical data on revenue received from individual income tax, corporation tax, estate tax, excise duties and excise taxes; customs receipts constitute a single item in the *Public Accounts of Canada* and are not included here.

Individual and Corporation Income Tax

Statistics of income tax collections are gathered at the time the payments are made and are therefore up to date. Over 85 p.c. of individual taxpayers are wage or salary earners who have almost the whole of their tax liability deducted at the source by their employers. All other taxpayers are required to pay most of their estimated tax during the taxation year. Thus, the greater part of the tax is collected during the same year in which the related income is earned and only a limited residue remains to be collected when the returns are filed. The collections for a given fiscal year include tax deductions and instalments for twelve months, embracing portions of two taxation years, and a mixture of year-end payments for the first of these years and for the preceding year; they cannot therefore be closely related to the statistics for a given taxation year. As little information about a taxpayer is received when the payment is made and, as a single cheque from one employer may frequently cover the tax payments of hundreds of employees, the payments cannot be statistically related to taxpayers by occupation or income. Descriptive classifications of taxpayers are available only from tax returns but collection statistics, if interpreted with the current tax structure and the above factors in mind, indicate the trend of income in advance of the final compilation of statistics.

The statistics given in Table 14 pertain to tax collections by the Taxation Division of the Department of National Revenue. The collections are for fiscal years ended Mar. 31.

14.—Taxes Collected by the Taxation Division of the Department of National Revenue, Years Ended Mar. 31, 1955-64

NOTE.—Figures for 1917-34 are given in the 1947 Year Book, pp. 999-1000; for 1935-48 in the 1951 Year Book, p. 994; and for 1949-54 in the 1959 edition, p. 1066.

Year Ended Mar. 31—	Income Tax[1]			Estate Tax	Total Collections
	Individual[2]	Corporation	Total		
	$	$	$	$	$
1955	1,345,611,443	1,066,585,823	2,412,197,266	44,768,029	2,456,965,295
1956	1,354,275,414	1,081,055,818	2,435,331,232	66,607,026	2,501,938,258
1957	1,601,897,580	1,335,636,914	2,937,534,494	79,709,197	3,017,243,691
1958	1,699,123,470	1,295,470,725	2,994,594,195	71,607,758	3,066,201,953
1959	1,561,062,606	1,075,878,164	2,636,940,770	72,535,140	2,709,475,910
1960	1,825,547,063	1,234,215,702	3,059,762,765	88,430,705	3,148,193,470
1961	2,028,733,394	1,380,128,380	3,408,861,774	84,879,372	3,493,741,146
1962	2,200,573,190	1,303,502,634	3,504,075,824	84,579,382	3,588,655,206
1963[3]	2,399,882,273	1,362,655,419	3,762,537,692	87,143,312	3,849,681,004
1964[3]	2,579,083,811	1,472,175,333	4,051,529,144	90,671,283	4,141,930,427

[1] Includes old age security tax. [2] Includes "non-resident" taxes. [3] Includes amounts of provincial income tax collected by the Taxation Division.

Individual Income Tax Statistics.—Individual income tax statistics are presented in Tables 15 to 17 on a calendar-year basis and are compiled from a sample of all returns received. Taxpayers and amounts of income and tax are shown for selected cities and by occupation and income classes.

15.—Number of Taxpayers and Amounts of Income and Tax, by Selected Cities, 1961 and 1962

City and Province	1961			1962		
	Taxpayers	Total Income Assessed	Tax Payable[1]	Taxpayers	Total Income Assessed	Tax Payable[1]
	No.	$'000	$'000	No.	$'000	$'000
Brantford, Ont.	18,572	78,272	7,843	18,993	82,705	8,624
Calgary, Alta.	87,282	403,548	44,722	95,744	460,284	51,454
Edmonton, Alta.	107,559	468,110	47,816	114,077	507,981	51,683
Fort William and Port Arthur, Ont.	31,754	137,916	13,180	32,747	143,200	13,589
Halifax, N.S.	49,347	206,286	19,737	40,478	171,841	16,853
Hamilton, Ont.	120,520	559,518	58,352	125,187	602,540	63,103
Hull, Que.	12,729	50,030	3,723	24,422	102,161	7,542
Kitchener and Waterloo, Ont.	37,124	156,913	15,804	39,629	173,306	17,701
London, Ont.	60,708	260,721	26,928	62,472	280,233	29,301
Montreal, Que.	579,939	2,720,868	263,941	621,575	2,852,182	265,862
New Westminster, B.C.	19,031	84,404	7,939	34,388	156,177	14,451
Niagara Falls, Ont.	15,811	70,257	6,420	16,194	74,225	7,047
Oshawa, Ont.	23,908	110,428	11,974	25,687	127,018	13,960
Ottawa, Ont.	109,742	518,608	57,498	112,381	540,297	59,908
Quebec, Que.	70,166	296,786	24,704	78,004	331,250	27,144
Regina, Sask.	40,048	171,448	17,244	39,607	172,127	18,103
St. Catharines, Ont.	26,759	122,825	12,444	32,479	154,387	15,742
St. John's, Nfld.	18,839	79,469	7,900	22,851	92,473	8,800
Saint John, N.B.	22,785	89,832	7,862	23,533	91,836	7,595
Saskatoon, Sask.	31,488	131,640	12,789	31,939	134,260	13,344
Sherbrooke, Que.	17,082	64,608	4,849	19,275	77,346	5,760
Sudbury and Copper Cliff, Ont.	34,639	165,645	16,443	33,437	159,781	15,582
Sydney and Glace Bay, N.S.	12,137	49,190	3,830	19,730	79,540	5,832
Toronto, Ont.	667,153	3,099,817	370,082	690,538	3,268,218	386,390
Vancouver (incl. West Van.), B.C.	216,669	1,007,549	110,503	222,627	1,075,271	119,055
Victoria, B.C.	43,638	191,818	18,804	46,776	211,095	20,813
Windsor, Ont.	47,307	216,525	20,981	49,758	237,845	23,632
Winnipeg, Man.	155,243	663,631	67,869	158,846	690,044	74,017
Other localities	1,829,788	7,424,920	628,089	1,847,853	7,714,603	658,875
Totals	**4,507,767**	**19,601,582**	**1,910,270**	**4,681,227**	**20,764,226**	**2,021,762**

[1] Includes old age security tax.

16.—Number of Taxpayers and Amounts of Income and Tax, by Occupational Class, 1961 and 1962

Occupational Class	1961			1962		
	Taxpayers	Total Income Assessed	Tax Payable[1]	Taxpayers	Total Income Assessed	Tax Payable[1]
	No.	$'000	$'000	No.	$'000	$'000
Farmers	74,469	324,331	26,963	86,585	389,315	34,440
Fishermen	4,792	20,553	1,796	4,836	25,428	2,873
Professionals—						
Accountants	4,471	51,985	10,123	4,390	49,092	9,050
Medical doctors	14,588	248,087	56,842	14,169	257,107	60,166
Dentists	4,865	60,018	11,599	4,653	63,780	12,389
Lawyers and notaries	7,113	111,800	27,196	7,703	118,348	27,712
Engineers and architects	2,505	36,804	8,484	2,546	37,033	8,583
Employees	3,947,599	16,312,768	1,471,217	4,090,943	17,293,679	1,570,151
Salesmen	55,219	320,942	36,617	54,441	324,718	36,557
Business proprietors	201,605	1,063,988	121,584	195,599	1,058,568	117,485
Investors	123,895	783,044	113,307	133,052	819,863	113,161
Pensioners	38,973	125,801	7,640	51,220	164,795	9,773
All others	27,673	141,461	16,910	31,090	162,500	19,422
Totals	**4,507,767**	**19,601,582**	**1,910,278**	**4,681,227**	**20,764,226**	**2,021,762**

[1] Includes old age security tax.

17.—Individual Income Tax Statistics, by Income Class, 1961 and 1962

Taxable Income	Taxpayers		Total Income Assessed		Tax Payable[1]		Average Tax[1]	
	1961	1962	1961	1962	1961	1962	1961	1962
	No.	No.	$'000	$'000	$'000	$'000	$	$
Under $1,000	23,566	30,811	10,979	13,918	1,780	2,228	76	72
$ 1,000 and under $ 2,000	619,275	593,160	966,594	910,079	34,972	33,755	56	57
$ 2,000 " " $ 3,000	876,115	874,307	2,203,013	2,157,813	127,805	126,589	146	145
$ 3,000 " " $ 5,000	1,812,992	1,828,140	7,147,065	7,147,818	501,788	500,687	277	274
$ 5,000 " " $10,000	1,015,124	1,173,963	6,492,705	7,481,337	647,617	732,656	638	624
$10,000 " " $25,000	141,363	160,128	1,970,635	2,205,894	341,487	370,411	2,416	2,313
$25,000 " " $50,000	15,766	17,112	520,042	565,259	147,359	154,322	9,347	9,070
$50,000 and over	3,566	3,606	290,549	282,108	107,462	101,114	30,135	28,040
Totals	**4,507,767**	**4,681,227**	**19,601,582**	**20,764,226**	**1,910,270**	**2,021,762**	**424**	**432**

[1] Includes old age security tax.

Corporation Income Tax Statistics.—Corporation statistics presented in Tables 18 and 19 are on a taxation-year basis prior to assessment. The data were extracted and compiled from the returns shortly after they were filed and are as declared by the taxpayer without the scrutiny or revision of the Department of National Revenue. Provincial figures contain an unavoidable bias in favour of Ontario and Quebec because many large corporations operating across Canada file their returns in one or other of these provinces.

18.—Summary Statistics for Corporations Reporting a Profit, Taxation Years 1961 and 1962

Item	1961			1962		
	Corporations Reporting	Current Year Profit	Total Tax Declared[1]	Corporations Reporting	Current Year Profit	Total Tax Declared[1]
	No.	$'000,000	$'000,000	No.	$'000,000	$'000,000
Active taxable corporations—excluding co-operatives and Crown corporations	68,090	3,571.4	1,301.6	74,567	3,897.3	1,363.3
Inactive corporations	2,341	2.9	0.6	2,030	1.6	0.2
Co-operatives	1,852	8.5	2.3	1,638	7.7	1.7
Crown corporations	7	41.1	18.6	6	36.1	17.9
Totals, Taxable Corporations	72,290	3,623.9	1,323.0	78,241	3,942.7	1,383.2
Personal corporations	2,302	33.3	—	2,262	37.5	—
Other exempt corporations	3,039	31.0	—	3,416	41.7	—
Totals, Taxable and Exempt	**77,631**	**3,688.2**	**1,323.0**	**83,919**	**4,021.9**	**1,383.2**

[1] Includes old age security tax.

19.—Distribution of Active Taxable Corporations Reporting a Profit, by Industry and Province, Taxation Years 1961 and 1962

Industrial Group and Province	1961			1962		
	Corporations Reporting	Current Year Profit	Total Tax Declared[1]	Corporations Reporting	Current Year Profit	Total Tax Declared[1]
	No.	$'000,000	$'000,000	No.	$'000,000	$'000,000
Industrial Group						
Agriculture, fishing and forestry	1,442	19.3	4.2	1,658	24.5	5.6
Mining	600	199.7	82.8	775	204.2	82.6
Manufacturing	12,850	1,598.6	620.6	13,862	1,854.0	691.3
Construction	7,289	143.5	36.2	8,010	139.8	29.3
Transportation, storage and communications; Public utilities	3,120	407.6	165.1	3,056	426.9	175.3
Wholesale trade	10,342	277.0	86.4	11,725	305.9	90.4
Retail trade	11,772	254.4	83.8	13,201	270.0	85.1
Finance	13,450	565.1	194.5	14,355	550.8	174.9
Service	7,225	106.2	27.1	7,925	121.2	28.8
Totals	**68,090**	**3,571.4**	**1,301.6**	**74,567**	**3,897.3**	**1,363.3**
Province						
Newfoundland	653	30.7	13.0	787	31.4	13.1
Prince Edward Island	224	8.3	1.9	256	11.7	2.5
Nova Scotia	1,780	47.1	17.4	1,959	52.4	17.6
New Brunswick	1,347	35.4	13.4	1,291	42.2	13.7
Quebec	16,952	1,134.8	403.3	18,534	1,209.1	417.2
Ontario	25,310	1,684.2	607.0	27,199	1,817.0	633.8
Manitoba	3,475	120.0	45.9	3,573	120.1	45.4
Saskatchewan	1,962	32.4	11.2	2,266	38.9	13.0
Alberta	6,598	189.3	70.9	7,298	216.4	73.6
British Columbia	9,789	289.4	117.6	11,304	358.1	133.4

[1] Includes old age security tax.

20.—Corporations Reporting a Profit, by Income Class and Size of Total Assets, Taxation Years 1961 and 1962

NOTE.—Figures are for corporations described as "fully tabulated", which means corporations for which sufficient information has been received for complete analyses.

Income Class and Size of Assets	1961		1962	
	Corporations Reporting	Current Year Profit	Corporations Reporting	Current Year Profit
	No.	$'000,000	No.	$'000,000
Income Class				
Under $5,000	27,783	47.3	30,491	64.3
$5,000 under $10,000	12,103	81.7	13,207	88.9
$10,000 under $25,000	15,174	240.6	16,958	262.3
$25,000 under $50,000	7,305	228.4	8,015	265.7
$50,000 under $100,000	1,966	136.5	2,122	147.0
$100,000 under $250,000	1,511	238.2	1,636	254.7
$250,000 under $500,000	627	219.6	664	232.8
$500,000 under $1,000,000	363	249.5	341	236.9
$1,000,000 under $5,000,000	321	665.8	349	703.0
$5,000,000 or over	85	1,191.0	96	1,411.8
Totals	**67,238**	**3,308.6**	**73,879**	**3,667.4**
Total Assets				
Under $100,000	29,980	156.8	35,328	190.7
$100,000 under $250,000	18,221	214.8	18,955	237.7
$250,000 under $500,000	9,025	180.5	9,093	189.5
$500,000 under $1,000,000	4,878	178.2	4,987	186.7
$1,000,000 under $5,000,000	3,804	457.7	4,130	487.9
$5,000,000 under $10,000,000	604	229.7	614	227.9
$10,000,000 under $25,000,000	376	296.2	413	341.4
$25,000,000 under $100,000,000	262	574.5	258	613.3
$100,000,000 or over	88	1,020.2	101	1,192.4

Succession Duties and Estate Taxes

A history of succession duties is given in the 1956 Year Book, pp. 1064-1068. From Jan. 1, 1947 to Mar. 31, 1963, only Ontario and Quebec among the provinces levied succession duties, the other provinces having leased this field to the Federal Government under the terms of the 1947, 1952 and 1957 tax agreements (see p. 956). However, British Columbia re-entered the field, effective for all deaths occurring on or after Apr. 1, 1963. The incidence of the estate tax is discussed at p. 962.

Federal revenue from succession duties and estate taxes in the year ended Mar. 31, 1963 amounted to $87,143,312. In the same year, Quebec's revenue from succession duties amounted to $27,842,000 and Ontario's revenue from succession duties to $44,149,000.

Excise Taxes

Excise taxes collected by the Excise Division of the Department of National Revenue are given for the years ended Mar. 31, 1962 and 1963 in Table 21.

21.—Excise Taxes Collected, by Commodity, Years Ended Mar. 31, 1962 and 1963

Commodity	1962	1963	Commodity	1962	1963
	$	$		$	$
Domestic—			Domestic—concluded		
Automobiles, tires and tubes	21,798,810	219	Sales, domestic	912,351,027	995,279,424
Cigars, cigarettes and tobacco	205,752,998	215,892,786	Television sets and tubes	9,038,063	9,800,838
Lighters	88,792	122,398	Toilet preparations	9,123,032	9,840,248
Matches	550,526	622,684	Wines	3,350,026	3,727,029
Other taxes on manufactures	5,345,222	5,148,562	Penalties and interest	615,683	440,048
Phonographs, radios and tubes	5,116,086	6,520,265	Totals, Domestic	1,173,997,534	1,248,276,801
Playing cards	867,269	882,300	Imported	179,250,404	159,593,537
			Grand Totals	**1,353,247,938**	**1,407,870,338**

Excise Duties

Gross excise duties collected and other data of interest arising as a by-product of administration, such as the quantities of grain and other products used in distillation and the quantities of goods taken out of bond and subject to excise duty, are given in Table 22 for the years ended Mar. 31, 1962 and 1963. The totals do not agree with net excise duties as shown in Table 9 because refunds and drawbacks are included. A drawback of 99 p.c. of the duty may be granted when domestic spirits, testing not less than 50 p.c. over proof, are delivered in limited quantities for medicinal or research purposes to universities, scientific or research laboratories, public hospitals, or health institutions in receipt of federal and provincial government aid. The quantity of spirits manufactured has fluctuated during the past ten years from 24,710,625 proof gal. in 1954 to a record 38,276,930 proof gal. in 1963.

22.—Excise Duties Collected and Statistics of Licences and Distillation, Years Ended Mar. 31, 1962 and 1963

Item		1962	1963	Item		1962	1963
Excise Duties Collected (gross)	$	367,359,286	386,758,441	Molasses used	lb.	53,248,172	55,224,884
Spirits	$	*113,689,182*	*122,020,603*				
Beer or malt liquor	$	*93,051,457*	*98,097,105*	Wine and other materials	"	10,452,687	8,655,348
Tobacco and cigarettes	$	*159,883,233*	*165,875,416*				
Cigars	$	*699,421*	*731,736*	Sulphide liquor	gal.	372,834,237	330,490,564
Licences	$	*35,993*	*33,581*				
				Proof spirits manufactured	proof gal.	36,420,769	38,276,930
Grain, etc., Used for Distillation	lb.	456,144,910	401,763,208				
Malt	"	*47,653,185*	*40,785,120*				
Indian corn	"	*328,255,668*	*305,756,245*	Licences issued	No.	30	31
Rye	"	*77,422,706*	*54,651,873*				
Wheat and other grain	"	*2,813,351*	*569,970*	Licence fees	$	7,750	8,000

Section 4.—Federal-Provincial Conditional Grants and Shared-Cost Programs* †

During the past decade there has been a rapid increase in federal expenditures on joint federal-provincial programs. These programs take three forms: (1) the Federal Government contributes financial assistance to a program administered by a province; (2) the federal and provincial governments each assume the sole responsibility for the construction, administration and financing of separate aspects of a joint project; or (3) the province contributes financially to a joint program administered by the Federal Government.

The first category of joint programs is by far the most common and such programs are commonly called conditional grant programs. They are characterized by the Federal Government agreeing to make money available to a province on certain conditions, such conditions always specifying the field, service or project to which the money must be applied. In addition, the province may be required to make a financial contribution to the program

* Prepared (October 1964) in the Federal-Provincial Relations Division, Department of Finance, Ottawa.

† The Prime Minister, in a letter dated Aug. 15, 1964 to the provincial premiers, stated that the Government of Canada was prepared to allow a province to assume sole responsibility for certain conditional grant programs and reimburse such a province for its assumption of the federal share of the programs' cost through the device of equalized tax abatement or cash compensation. For copies of the letters, see Appendix to House of Commons Debates of Sept. 10, 1964.

Additional Readings:—

Donald V. Smiley. *Conditional Grants and Canadian Federalism* (Canadian Tax Papers No. 32). Toronto. Canadian Tax Foundation, February 1963. Federal-Provincial Relations Division, Department of Finance. *Federal-Provincial Conditional Grant and Shared-Cost Programmes 1962* Ottawa, Queen's Printer, October 1963. $3. (Catalogue No. F2-2563).

or to provide certain facilities; although the province will be entrusted with the administration of the program, it is usually required to maintain it at certain specified standards. The various programs in the welfare field are good examples of conditional grant programs. Under the old age assistance program, the Federal Government undertakes to share with a province the cost of assistance to persons who have attained the age of 65 years to the extent of 50 p.c. of a monthly assistance allowance of $75; the recipient, besides being above a certain age, must have been a resident of Canada for 10 years and his income, including the assistance, must not be in excess of $1,260 a year if unmarried, $2,220 if married, and $2,580 if married to a blind spouse. The provinces are entrusted with the administration of the program and are required to bear the administrative costs as well as one half of the monthly allowance.

While the old age assistance program, with its specification of the standards for eligibility, the level of the allowance and the federal share of the joint costs, is characteristic of conditional grant programs, there are some in which the conditions are nominal. For example, under the unemployment assistance program the Federal Government undertakes to share one half the cost of relief paid to social assistance recipients, the scale and conditions of the assistance to be determined by the provinces. In general, it may be said that the old age assistance program conforms to the traditional pattern of conditional grants, whereas the unemployment assistance program marks a newer approach in which flexibility and adaptability to local circumstances has been allowed to modify insistence on a national uniform standard.

The federal payments to the provinces under the conditional grant programs increased from $75,000,000 in the year ended Mar. 31, 1954, to an estimated $880,000,000 in 1963-64. The increase was attributable largely to the introduction of the unemployment assistance program in 1955 and the hospital insurance and diagnostic services program in 1958, to the increase in the level of old age assistance, disabled persons' and blind persons' allowances, and to the enlargement and reorientation of the vocational and technical training program (see Index). In 1963-64, federal contributions to the programs under the unemployment assistance and the hospital insurance and diagnostic services programs were estimated at $107,000,000 and $391,000,000, respectively.

The second category of joint programs, in which the federal and provincial governments undertake to accept sole responsibility for portions of a total project, are not numerous and are generally of a public works type. The joint irrigation projects carried out by the Prairie Farm Rehabilitation Administration and the Province of Alberta on the St. Mary's and Bow Rivers in southern Alberta are of this nature, as are the bridges recently built or under construction between Cross Point in Quebec and Campbellton in New Brunswick, or between Ottawa in Ontario and Hull in Quebec. In the St. Mary's irrigation project, the Federal Government has undertaken the responsibility for the construction of all main reservoirs, large dams and connecting works, and Alberta has assumed responsibility for the construction of the distribution system and the development and colonization of the new irrigable areas.

Joint programs in the third category are also few in number and the sums of money involved are seldom large. The Fraser River Board and the South Saskatchewan River Dam are two examples. The Fraser River Board was established by Canada and British Columbia in 1955 to investigate flood control and hydro-electric power generation on the Fraser River. Canada undertook to pay the costs of the Board in the first instance with British Columbia subsequently reimbursing Canada for half of the expenditures of the Board. In the case of the South Saskatchewan River project, Saskatchewan is to reimburse Canada for 25 p.c. (up to a maximum of $25,000,000) of the federal expenditure on the dam and reservoir. In the year ended Mar. 31, 1963, British Columbia's share of the joint expenditures on the Fraser River Board amounted to $156,327, and Saskatchewan's share of the expenditures on the South Saskatchewan River project was $4,376,329.

Table **23** presents pertinent information on the various federal-provincial joint programs.

23.—Conditional Grants and Shared-Cost Programs as at Mid-1964

Department and Project	Year Established	Basis of Provincial Apportionment of Federal Funds	Provinces Participating[1]	Provincial Share[2]	Maximum Limitation on Grant[3]	Federal Contribution 1962–63[4]
				p.c.		$'000
Agriculture—						
Premiums on purebred sires, etc.	1913	Extent of provincial programs	10	[5]	[5]	66
Freight assistance on livestock shipments to Royal Winter Fair	1946	Extent of provincial programs	9 (Ont.)	25	O	50
4-H Club Activities	1900	Extent of provincial programs	10	50	O	120
Potato Warehouse Construction	1947	Estimated cost	P.E.I., Man., Sask., B.C.	37½	O	25
Agricultural Lime Assistance	1943	Extent of provincial programs	7 (Prairie)	40	O	2,471
Land Protection and Reclamation—						
Riding and Duck Mountains	1949	Estimated cost	Man.	50	F	53
Newfoundland Barrens	1955	Estimated cost	Nfld.	50	F	—
Maritime Marshland Rehabilitation (Act)	1943	Estimated cost	Maritime	[6]	O	643
St. Mary's Irrigation	1950	Estimated cost	Alta.	[7]	F	2,965
Bow River Irrigation	1950	Estimated cost	Alta.	[7]	F	1,157
South Saskatchewan Dam (dams and reservoir)	1958	Estimated cost	Sask.	25	P	14,820
Assistance in Fodder Transportation	ad hoc	Estimated cost	Prairie	50	O	707
Shipment of Seed Oats	ad hoc	Estimated cost	Man., Sask.	50	F	17
Crop Insurance	1961	Extent of provincial programs	P.E.I., Man., Sask.	0–50 of admin. costs	O	348
Agricultural Rehabilitation and Development (Act)	1962	Flat grant—ratio of net value of agricultural production, number of sub-marginal farms and rural population to the national totals	9	33⅓–50	F	542
Community well drilling	1961	Extent of provincial programs	Prairie	35	F	118
Indemnity for Losses due to Disease—						
Rabies	1959	Incidence of disease	Ont.	60	O	21
Citizenship and Immigration—						
Hospitalization and welfare of indigent immigrants	1947	Estimated cost	9 (N.B.)	50	O	34
Instruction for immigrants	1954	Extent of provincial programs	9 (Que.)	50	O	215
Fur conservation	1939	Extent of provincial programs	Ont., Man., Sask., Alta.	40–50	F	123
Roads on and to Indian Reserves—						
Saskatchewan Region	ad hoc	Estimated cost	Sask.	50	O	58
Six Nations Reserve	ad hoc	Estimated cost	Ont.	50–80	O	74
Fisher River Reserve	ad hoc	Estimated cost	Man.	50	O	20
Non-Reserve Schools for Indians—						
Capital contribution	ad hoc	Estimated cost	various school districts	ratio white to Indian children	O	1,330
Instructional contribution	1948	Estimated tuition costs	various school districts	—	O	3,413

23.—Conditional Grants and Shared-Cost Programs as at Mid-1964—continued

Department and Project	Year Established	Basis of Provincial Apportionment of Federal Funds	Provinces Participating[1]	Provincial Share[2]	Maximum Limitation on Grant[3]	Federal Contribution 1962–63[4]
				p.c.		$'000
Citizenship and Immigration—concluded						
Welfare services to Indians	1960	Specified in each agreement	N.S., Ont., Man., Sask., B.C.	0–50	varies	29
Civil Defence	1952	Population	10	25–50[5]	F	3,810
Fisheries—						
Construction subsidy—fishing vessels	1942	Extent of provincial programs	Atlantic, Que.	—	O	500
Income Sustenance Works program	ad hoc	Extent of provincial programs	Nfld.	15	O	1
Industrial Development	1959	Extent of provincial programs	Atlantic	50	O	70
Forestry—						
Forest inventory	1951	Flat grant to P.E.I.; other provinces ratio of their productive forest lands to the total.	7 (Nfld., P.E.I., Que.)	50	F	898
Reforestation	1951		7 (Nfld., N.B., Que.)	75	F	606
Forest Fire Protection	1957		10	50	F	2,126
Forest Access Roads	1958		8 (Nfld.)	50	F	3,543
Forest Stand Improvement	1962		6 (Nfld., Sask.)	50	F	491
Forest Stand Improvement (Cape Breton)	1961	—	N.S.	50	F	236
Spruce Budworm Eradication	1953	Incidence of infestation	N.B.	33⅓	F	190
Labour—						
Agricultural Manpower	1941	Specified in Agreement	9 (Nfld.)	50	F	154
Rehabilitation of Disabled Persons	1953	Extent of provincial programs	9 (Que.)	50	O	333
Technical and Vocational Training—						
Vocational High School Training	1950	Flat grant and population (15–19 age group)	9 (Que.)	50	F	1,921
Technician Training	1960	Extent of provincial programs	10	50	O	6,788
Trade and Other Occupational Training	1960	Extent of provincial programs	10	50	O	8,142
Training in Co-operation with Industry	1946	Extent of provincial programs	10	25	O	56
Training of Unemployed	1948	Extent of provincial programs	10	10–50	O	7,747
Training of the Disabled	1950	Extent of provincial programs	10	50	O	749
Training of Technical and Vocational Teachers	1960	Extent of provincial programs	10	50	O	233
Training for Federal Departments and Agencies	1942	Estimated cost	10	0–25	O	69
Student Aid	1937	Specified in Agreement	10	50	F	316
Technical and Vocational Correspondence Courses	1950	Extent of provincial programs	10	50	O	42

Capital Contribution	1945	Extent of provincial programs	10	25 to Mar. 31, 1967 and 50 thereafter	F	179,041
Apprenticeship Training	1944	Extent of provincial programs	9 (Que.)	50	O	2,172
Municipal Winter Works	1958	Extent of approved municipal programs	10	[6]	O	26,951
National Health and Welfare—						
National Health Grants—						
Hospital Construction	1948	Estimated construction	10	50	F	19,994
Professional Training	1948	Flat grant and population	10	[7]	F	1,511
Mental Health	1948	Flat grant and population	10	[7]	F	7,902
Tuberculosis Control	1948	Flat grant, population and TB deaths	10	[7]	F	3,137
Public Health Research	1948	Based on research needs	10	[7]	F	1,450
Cancer Control	1948	Flat grant and population	10	50	F	2,896
General Public Health	1948	Flat grant and population	10	[9]	F	10,363
Child and Maternal Health	1953	Flat grant, provincial infant birth and death ratio	10	[7]	F	1,346
Medical Rehabilitation and Crippled Children	1953–48	Flat grant and population	10	50[10]	F	1,580
Hospital Insurance	1958	Population eligible for hospitalization × (25 p.c. of average national per capita costs + 25 p.c. of average provincial per capita costs)	10	[6]	O	335,839
Old Age Assistance	1952	Needy population (age group 65–69)	10	50	O	38,109
Blind Persons' Allowances	1937	Needy blind population (age group 18–69)	10	25	O	4,856
Disabled Persons' Allowances	1954	Needy disabled population (age group 18–69)	10	50	O	19,624
Unemployment Assistance	1955	Needy unemployed	10	50	O	96,388
Fitness and Amateur Sport	1962	Flat grant and population	9 (Que.)	40	F	313
Disability Advisory Services	1954	Extent of provincial programs	9 (Ont.)	50	O	23
Blind Pensioners—treatment	1948	Extent of provincial programs	8 (Alta., B.C.)	25	O	21
National welfare grants						
—welfare research	1962	Based on need	8 (P.E.I., Que.)	[7]	F	100
—general welfare and professional training				50[8]		
Northern Affairs and National Resources—						
Water Conservation	1938	Estimated construction costs	Ont.	37½–62½	F	1,152
Nelson River Study	1963	Estimated survey cost	Man.	50	F	50
Lake of the Woods Control Board	1921	Estimated capital cost	Man., Ont.	66⅔	O	—
Greater Winnipeg Floodway	1962	Estimated cost	Man.	25–62½	F	1,945
Assiniboine River—Shellmouth Dam and Portage Diversion	1962	Estimated cost	Man.	50	O	—
Roads to Resources	1958	Flat grant for province	10	50	F	10,366
Campgrounds—Picnic Areas—						
Winter Works	1958	Extent of provincial programs	7 (Nfld., P.E.I., Que.)	50	O	1,170
Trans-Canada Highway	1959	Provincial trans-Canada milage	8 (Que., Ont.)	50	F	102

For footnotes, see end of statement, p. 990.

23.—Conditional Grants and Shared-Cost Programs as at Mid-1964—concluded

Department and Project	Year Established	Basis of Provincial Apportionment of Federal Funds	Provinces Participating[1]	Provincial Share[2]	Maximum Limitation on Grants[3]	Federal Contribution 1962–63[4]
				p.c.		$'000
Public Works—						
Trans-Canada Highway	1950	Provincial milage and extent of provincial programs	10	10–50	O	29,210
Okanagan Flood Control	1950	Estimated cost	B.C.	50	O	42
Campobello-Lubec Bridge	1958	Estimated cost	N.B.	33⅓	O	86
Ottawa-Hull Bridge	1961	Estimated cost	Ont., Que.	33⅓	O	153
Urban Redevelopment[11]	1944	Project cost	10	50[8]	O	4,222
Urban Renewal Studies[11]	1956	Project cost	10	25–50[8]	O	1,006
Land Assembly and Low-Rental Housing[11]	1949	Project losses	10	25[8]	O	1,205
Trade and Commerce—						
Vital Statistics	1909	Estimated cost	10	[7]	O	71
Privy Council—						
Centennial observance	1961	Flat grant and population	10	—	F	250
Transport—						
Railway Grade Crossing Fund	1909	Approved construction	10	12½–15[8]	F	8,472
Municipal Airports	1927	—	10	—	O	—
Operational subsidy	—	Related to airport operational deficit	—	—	O	68
Capital	—	Approved capital projects	—	50[8]	F	88

[1] Provinces excepted are shown in parenthesis.

[2] As here used, 50 p.c. may mean the province must contribute 50 p.c. of the cost of the project or must match the federal contribution.

[3] F=a maximum limit set to the federal share; P=a maximum limit to the provincial share; and O=federal and provincial shares are open-ended.

[4] Source: *Public Accounts of Canada*, 1962–63.

[5] Not uniform.

[6] Each government undertakes to carry out an aspect of the program and bear the costs associated with that aspect.

[7] Provinces to provide administration, services, facilities, land, loans or to undertake a specific portion of the project, etc.

[8] Represents the provincial and/or municipal share.

[9] Provinces to maintain existing level of expenditures.

[10] Share for provision of services only.

[11] Disbursement made by Central Mortgage and Housing Corporation as Federal Government agent.

Section 5.—Provincial Public Finance

Provincial government accounting and reporting practices vary considerably so that certain adjustments to the *Public Accounts* figures are required in order to produce comparable statistics. For example, transactions relating to a specific function are sometimes excluded from ordinary account; therefore special or administrative funds of this nature have been added to provincial ordinary account in the tables of this Section. The fiscal years of all provinces end on Mar. 31.

Revenue and Expenditure.—Table **24** shows net revenue and expenditure of provincial governments for the years ended Mar. 31, 1958-62, and Tables **25** and **26** give details of such revenue and expenditure for the fiscal year ended Mar. 31, 1962. "Net general revenue" and "net general expenditure" are arrived at by first analysing the combined revenues and expenditures of capital account, current or ordinary account and those working capital funds and special funds for which separate accounts are kept. Then the following types of revenue are deducted from revenue and offset against related expenditure: interest, premium, discount and exchange; institutional revenue; grants-in-aid and shared-cost contributions from other governments; and capital revenue. Table **27** gives details of the amounts paid to other governments by provincial governments, according to nature of payment.

24.—Net Revenue and Expenditure of Provincial Governments, Years Ended Mar. 31, 1958-62

Province or Territory	1958	1959	1960	1961	1962
	NET GENERAL REVENUE				
	$'000	$'000	$'000	$'000	$'000
Newfoundland	39,479	62,381	60,266	64,461	68,859
Prince Edward Island	9,441	12,568	13,819	16,093	17,877
Nova Scotia	64,480	75,752	90,532	92,225	102,259
New Brunswick	61,616	71,007	77,343	86,628	84,255
Quebec	515,384	556,723	605,035	640,711	758,110
Ontario	594,480	647,067	778,450	833,128	927,113
Manitoba	73,594	76,573	99,814	104,145	118,020
Saskatchewan	135,965	141,409	145,658	148,920	156,651
Alberta	246,013	236,370	278,882	245,483	272,978
British Columbia	281,796	295,722	313,758	320,288	346,420
Yukon Territory	2,056	1,885	2,082	2,308	2,357
Northwest Territories	1,269	1,412	1,597	1,744	1,861
Canada	**2,025,573**	**2,178,869**	**2,467,236**	**2,556,134**	**2,856,760**
	NET GENERAL EXPENDITURE[1]				
	$'000	$'000	$'000	$'000	$'000
Newfoundland	47,878	61,530	64,863	74,713	83,559
Prince Edward Island	10,766	14,388	20,049	15,386	19,351
Nova Scotia	74,474	86,336	91,804	111,689	107,559
New Brunswick	63,486	70,928	79,630	94,868	94,719
Quebec	493,374	533,026	600,942	749,296	847,612
Ontario	656,481	741,936	898,230	937,308	1,036,709
Manitoba	75,615	97,821	127,695	137,055	137,237
Saskatchewan	124,353	137,513	142,248	150,027	158,744
Alberta	199,420	215,030	234,657	266,314	279,128
British Columbia	287,465	266,584	283,163	331,476	338,567
Yukon Territory	2,070	2,148	2,297	2,610	2,925
Northwest Territories	1,605	1,934	1,354	2,033	2,167
Canada	**2,036,987**	**2,229,174**	**2,546,932**	**2,872,775**	**3,108,277**

[1] Excludes debt retirement.

25.—Net General Revenue of Provincial Governments, Year Ended Mar. 31, 1962

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Taxes—													
Corporations	271	90	897	698	29,576	16,996	1,287	850	2,138	2,954	—	—	55,757
Income—													
Corporations	—	—	—	—	118,813	148,871	—	—	—	—	—	—	267,684
Individuals	—	—	—	—	85,080	—	—	—	—	—	—	—	85,080
Property	—	—	96	277	—	2,258	—	11	—	5,856	220	5	8,723
Sales—													
Alcoholic beverages	[1]	422	[1]	[1]	140	—	—	[1]	—	[1]	80	—	642
Amusements and admissions	87	65	394	302	7,836	10,872	760	112	901	3,126	14	—	24,469
Motor fuel and fuel oil	6,795	2,713	19,040	15,264	107,798	174,417	21,728	25,830	33,796	41,682	264	221	449,548
Tobacco	[1]	336	[1]	1,963	24,329	—	—	[1]	—	—	—	—	26,628
General	13,787	2,058	16,162	9,499	115,883	82,371	—	22,498	—	92,672	—	—	354,930
Other commodities and services	—	—	343	—	9,061	—	—	—	—	—	—	—	9,404
Succession duties	—	—	1	—	25,469	40,397	—	3	1	—	—	—	65,871
Hospital insurance premiums	—	1,093	[1]	—	—	89,509	19,162	12,048	—	—	—	—	121,812
Other	328	—	94	78	2,054	7,886	483	121	51	240	3	—	11,338
Totals, Taxes	21,268	6,777	37,027	28,081	526,039	573,577	43,420	61,473	36,887	146,530	581	226	1,481,886
Federal-Provincial Tax-Sharing Arrangements	20,078	4,781	32,317	26,233	60,448	120,652	40,411	40,569	58,386	74,382	446	567	479,270
Privileges, Licences and Permits—													
Liquor control and regulation	2,183	26	310	7	16,878	26,996	2,896	102	965	526	11	74	50,974
Motor vehicles	2,512	800	6,046	5,120	43,482	72,713	8,434	8,026	13,968	20,575	166	43	181,885
Natural resources	1,392	16	1,354	3,901	34,800	43,097	4,144	20,879	125,310	61,451	34	89	296,467
Other	564	140	658	549	10,943	10,378	1,946	1,538	2,086	2,790	76	36	31,704
Totals, Privileges, Licences and Permits	6,651	982	8,368	9,577	106,103	153,184	17,420	30,545	142,329	85,342	287	242	561,030
Sales and services	415	366	1,774	1,127	15,257	13,415	1,786	3,807	6,037	6,311	27	25	50,347
Fines and penalties	313	70	299	240	1,456	2,358	422	784	1,634	720	14	17	8,327
Government of Canada—													
Share of income tax on power utilities	149	54	475	92	2,064	651	53	56	1,754	928	—	—	6,276
Subsidies	17,156	3,157	9,632	9,245	3,963	4,624	2,089	2,116	2,816	1,672	40	45	56,555
Liquor profits	2,431	1,397	12,317	9,534	37,031	56,802	11,989	13,858	21,117	28,866	874	734	196,950
Other revenue	261	2	28	96	5,471	1,387	31	3,183	1,268	391	9	1	12,128
Totals, excluding Non-revenue and Surplus Receipts	68,722	17,586	102,237	84,225	757,832	926,650	117,621	156,391	272,228	345,142	2,278	1,857	2,852,769
Non-revenue and surplus receipts	137	291	22	30	278	463	399	260	750	1,278	79	4	3,991
Totals, Net General Revenue	**68,859**	**17,877**	**102,259**	**84,255**	**758,110**	**927,113**	**118,020**	**156,651**	**272,978**	**346,420**	**2,357**	**1,861**	**2,856,760**

[1] Taxed under the general sales tax.

26.—Net General Expenditure of Provincial Governments, Year Ended Mar. 31, 1962

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
General Government	6,430	885	4,180	3,132	41,424	36,428	4,990	6,825	13,529	16,631	333	109	134,896
Protection of Persons and Property	3,403	463	3,218	2,690	33,898	52,120	6,062	6,888	16,284	15,881	1	63	140,971
Transportation and Communications—													
Highways, roads and bridges	15,336	6,608	27,976	28,804	139,202	246,135	26,444	28,094	64,083	70,891	309	94	653,976
Waterways	91	72	687	666	410	31	37	295	322	1,868	22	—	4,501
Other	4	6	55	—	170	—	—	429	—	—	—	3	667
Totals, Transportation and Communications	15,431	6,686	28,718	29,470	139,782	246,166	26,481	28,818	64,405	72,759	331	97	659,144
Health and Social Welfare—													
Health—													
General health	185	39	119	280	2,170	3,043	615	506	822	1,154	52	17	9,002
Public health	760	242	1,607	1,499	10,666	6,803	1,889	3,560	1,992	4,301	72	229	33,620
Medical, dental and allied services	1,567	74	185	164	672	2,609	377	2,143	2,189	4,857	1	8	14,846
Hospital care	12,882	2,583	18,126	16,134	126,199	215,856	27,829	34,286	40,802	47,403	444	197	542,741
Social Welfare—													
Aid to aged persons	1,790	585	1,813	1,966	15,573	14,043	2,294	3,951	9,747	13,478	63	47	65,350
Aid to blind persons	90	−36	137	127	525	539	113	149	163	300	—	8	2,115
Aid to unemployed employables and unemployables	7,192	257	3,568	1,277	36,935	15,298	5,912	4,472	5,113	11,130	61	45	91,260
Mothers' allowances	—	132	—	1,356	19,480	13,650	—	500	1,879	—	—	—	36,997
Child welfare	524	131	787	510	27,357	5,627	1,878	1,235	2,675	3,142	41	38	43,945
Labour	73	18	273	359	6,401	1,777	323	263	508	452	—	—	10,447
Other social welfare	1,110	49	62	200	12,886	3,236	1,358	2,284	2,062	1,925	—	9	25,181
Totals, Health and Social Welfare	26,173	4,074	26,677	23,872	258,864	282,481	42,588	53,349	67,952	88,142	734	598	875,504
Recreational and Cultural Services	368	190	798	328	4,123	11,443	817	2,118	3,291	3,019	22	50	26,567
Education—													
Schools operated by local authorities	16,931	2,688	18,659	10,616	156,384	188,777	26,043	33,638	62,714	61,446	1,179	1,033	580,108
Universities, colleges and other schools	2,837	784	3,403	3,541	86,428	57,811	7,108	6,698	18,828	12,399	4	—	199,841
Education of the handicapped	213	22	637	258	300	4,398	503	260	733	479	—	—	7,803
Superannuation and pensions	−56	3	1,833	191	780	17,409	516	1,064	1	3,493	—	—	25,234
Other	713	128	854	357	15,606	2,627	878	1,173	4,099	1,306	2	10	27,753
Totals, Education	20,638	3,625	25,386	14,963	259,498	271,022	35,048	42,833	86,375	79,123	1,185	1,043	840,739

26.—Net General Expenditure of Provincial Governments, Year Ended Mar. 31, 1962—concluded

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Natural Resources and Primary Industries—													
Fish and game	1,743	98	313	188	8,879	3,113	375	368	816	1,232	19	40	17,184
Forests	75	87	1,423	3,011	15,348	19,473	1,155	2,186	8,402	18,785	—	—	69,945
Lands: settlement and agriculture	610	737	1,540	1,544	36,786	9,498	6,278	8,332	7,400	4,154	—	—	76,879
Minerals and mines	136	1	566	158	1,548	1,428	369	1,443	4,778	2,229	—	—	12,656
Water resources	—	—	25	39	2,314	3,532	1,032	865	3,239	599	—	—	11,645
Other	125	28	140	388	3,072	2,346	4,348	1,841	487	491	—	−10	13,256
Totals, Natural Resources and Primary Industries	2,689	951	4,007	5,328	67,947	39,390	13,557	15,035	25,122	27,490	19	30	201,565
Trade and industrial development	508	147	992	856	4,312	4,877	1,073	1,495	578	1,134	19	13	16,004
Local government planning and development	350	18	1,061	196	997	2,015	339	1,220	1,649	366	77	59	8,347
Debt charges excluding debt retirement	4,861	1,622	10,607	7,856	19,786	51,709	3,106	−1,076	−16,268	1,699	39	—	83,941
Unconditional grants to local governments	1,371	361	1,275	5,561	250	33,220	2,821	8	15,218	11,199	130	87	71,501
Contributions to government enterprises	1,167	—	413	—	—	544	—	—	—	2,986	—	—	5,110
Other expenditure	170	311	155	145	14,424	3,179	204	709	722	17,028	—	18	37,065
Totals, excluding Non-expense and Surplus Payments	**83,559**	**19,333**	**107,487**	**94,397**	**845,305**	**1,034,594**	**137,086**	**158,222**	**278,857**	**337,457**	**2,890**	**2,167**	**3,101,354**
Non-expense and surplus payments	—	18	72	322	2,307	2,115	151	522	271	1,110	35	—	6,923
Totals, Net General Expenditure (excluding debt retirement)	**83,559**	**19,351**	**107,559**	**94,719**	**847,612**	**1,036,709**	**137,237**	**158,744**	**279,128**	**338,567**	**2,925**	**2,167**	**3,108,277**

27.—Specified Amounts Paid to Other Governments by Provincial Governments, Year Ended Mar. 31, 1962

Nature of Payment	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Paid to Local Governments—													
Shared-revenue contributions[1]	—	—	9	—	—	1,132	—	—	218	—	—	—	1,359
Subsidies	1,364	359	1,266	5,519	250	30,734	2,617	—	15,000	11,199	130	87	68,525
Grants in lieu of local taxes on provincial government property[2]	7	2	—	42	—	1,354	204	8	—	—	—	—	1,617
Grants-in-Aid and Shared-Cost Contributions—													
Corrections	—	—	—	40	—	115	—	—	—	—	—	—	155
Police protection	—	—	—	—	—	277	—	—	626	—	—	—	903
Fire protection	—	2	—	—	1,500	177	—	—	—	—	—	—	1,679
Other protection	—	—	7	—	45	9	—	—	—	—	—	—	61
Highways, roads and bridges	223	27	201	250	9,170	71,191	2,923	6,043	7,372	593	86	10	98,089
Public health	183	—	705	—	4,736	2,912	90	188	1,951	313	—	—	11,078
Medical, dental and allied services	—	—	—	—	—	58	89	68	—	—	—	—	215
Hospital care[3]	—	—	—	—	—	—	—	3	—	—	—	—	3
Aid to aged persons (homes)	—	—	—	—	—	7,211	—	—	—	40	—	—	7,251
Aid to unemployed employables and unemployables	—	—	1,300	2,225	—	24,501	1,999	5,651	2,797	18,163	—	73	56,709
Child welfare	—	—	—	230	—	4,099	11	—	—	—	—	—	4,340
Other health and social welfare	—	—	—	—	2	230	33	—	—	—	—	3	268
Parks, beaches and other recreational areas	20	—	—	—	—	465	—	—	1,379	—	—	—	1,864
Other recreational and cultural services	—	—	—	—	—	569	—	3	—	—	—	—	572
Schools operated by local authorities[4]	[5]	2,524	17,502	9,745	150,029[6]	191,612	26,274	32,749	60,878	60,254	[7]	315[8]	551,882
Lands—													
Settlement and agriculture	—	—	—	—	187	791	448	118	246	3	—	—	1,793
Other	—	—	—	—	30	48	—	638	—	—	—	—	716
Local government planning and development	23	—	—	160	16	616	—	270	—	—	—	—	1,085
Civil defence	—	—	108	112	—	866	—	—	182	515	—	—	1,783
Winter works projects	214	—	22	—	16,509	7,194	691	1,741	3,152	4,384	—	—	33,907
Other payments	—	—	—	—	46	—	—	15	—	4	—	—	65
Totals, Paid to Local Governments	**2,034**	**2,914**	**21,120**	**18,323**	**182,520**	**346,161**	**35,379**	**47,495**	**93,801**	**95,468**	**216**	**488**	**845,919**
Paid to Government of Canada—													
Police services—RCMP	738	136	719	532	—	—	919	1,173	1,663	1,971	—	—	7,851
Totals, Paid to All Governments	**2,772**	**3,050**	**21,839**	**18,855**	**182,520**	**346,161**	**36,298**	**48,668**	**95,464**	**97,439**	**216**	**488**	**853,770**

[1] N.S.—Crown land leases; Ont.—share of liquor licences; Alta.—share of liquor fines. [2] Excludes grants in lieu of taxes paid by provincial government enterprises. [3] Excludes amounts paid directly to municipal hospital boards. [4] Includes grants paid directly to teachers in P.E.I., N.B., and Que. [5] Primary and secondary schools are operated on a denominational basis; grants to denominational schools amounted to $15,830,000. [6] Excludes $4,576,000 expenditures by the province to meet debt charges of various school corporations. [7] Local schools are operated by the territorial government and by religious denominations. [8] Local schools are operated by the Federal Government, religious denominations and school districts; amount shown was paid to school districts.

Debt of Provincial Governments.—Table **28** shows total bonded debt, by province, as at Mar. 31, 1961-63. Table **29** shows that the majority of bond issues are payable in Canada. Table **30** provides details of total direct and indirect debt of provincial governments as at Mar. 31, 1963.

28.—Gross Bonded Debt (exclusive of Treasury Bills) of Provincial Governments, as at Mar. 31, 1961-63

Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue	Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue
	$'000	p.c.	yrs.		$'000	p.c.	yrs.
Newfoundland—				Ontario—concluded			
1961	76,500	4.86	18.8	1962	1,820,378	4.14	18.3
1962	86,500	4.97	19.5	1963	1,871,610	4.20	21.5
1963	139,378	5.38	19.2				
				Manitoba—			
Prince Edward Island—				1961	298,892	3.94	15.4
1961	28,480	4.33	14.7	1962	305,302	4.18	15.7
1962	29,960	4.59	14.5	1963	294,328	4.34	16.4
1963	31,110	4.75	15.5				
				Saskatchewan—			
Nova Scotia—				1961	449,127	4.40	18.2
1961	295,860	3.72	16.4	1962	487,734	4.51	18.3
1962	330,870	4.06	17.5	1963	530,815	4.63	18.7
1963	341,470	4.22	18.3				
				Alberta—			
New Brunswick—				1961	16,164	2.78	17.0
1961	244,881	4.01	18.1	1962	14,528	2.80	17.6
1962	250,138	4.15	18.4	1963	12,915	2.82	18.1
1963	262,590	4.26	18.8				
				British Columbia—			
Quebec—				1961	75,806	3.42	24.0
1961	532,153	3.88	18.1	1962	74,916	3.41	24.1
1962	635,975	4.27	18.4	1963	74,207	3.42	24.1
1963	781,975	4.52	18.5				
				Totals—			
Ontario—				**1961**	**3,709,394**	**4.02**	**18.1**
1961	1,691,521[1]	4.02	18.7	**1962**	**4,036,301**	**4.21**	**17.9**
				1963	**4,340,398**	**4.35**	**19.8**

[1] Excludes bonds assumed by the province.

29.—Gross Bonded Debt[1] (exclusive of Treasury Bills) of Provincial Governments, by Place of Payment, as at Mar. 31, 1961-63

Payable in—	1961	1962	1963
	$'000	$'000	$'000
Canada	2,711,043	3,060,981	3,316,134
Britain	2,312	2,312	—
Britain and Canada	2,974	2,974	2,974
United States	839,024	836,959	894,212
United States and Canada	84,487	67,710	66,076
Britain, United States and Canada	60,451	56,262	51,899
Switzerland	9,103	9,103	9,103
Totals	**3,709,394**	**4,036,301**	**4,340,398**

[1] Excludes bonds assumed by the provinces.

30.—Provincial Government Direct and Indirect Debt (less Sinking Funds), as at Mar. 31, 1963

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Direct Debt—													
Funded Debt—													
Bonded debt	139,378	31,110	341,470	262,590	781,975	1,871,610[1]	294,328	530,815	12,915[2]	74,207	—	—	4,340,398
Less sinking funds	*17,606*	*4,447*	*73,717*	*72,258*	*137,013*	*183,789*	*46,543*	*72,668*	—	*74,207*	—	—	*682,248*
Net bonded debt	121,772	26,663	267,753	190,332	644,962	1,687,821	247,785	458,147	12,915	—	—	—	3,658,150
Net treasury bills (term of 2 or more years)	—	—	—	15,869	—	—	24,809	22,327	7,170	—	—	—	70,175
Net Funded Debt	121,772	26,663	267,753	206,201	644,962	1,687,821	272,594	480,474	20,085	—	—	—	3,728,325
Short-term treasury bills (term of less than 2 years)	—	—	1,500	—	—	—	48,585	13,000	—	—	—	—	63,085
Temporary loans and overdrafts	6,205	7,575	—	7,699	—	7,358	5,537	5,234	—	—	—	—	39,608
Trust funds, savings and other deposits	—	4,022	250	1,253	51,812[3]	162,958	2,276	7	20	10,338	86	—	233,022
Accounts and other payables	21,926	5	15,463	20,129	161,396[4]	77,186[5]	2,451	5,850	15,689[2]	22,283	5,968	2,353	350,699
Accrued interest and other accrued expenditure	111	444	3,707	6,764	10,833	42,489	17,550	6,895	122	—	—	—	88,915
Totals, Direct Debt (less Sinking Funds)	**150,014**	**38,709**	**288,673**	**242,046**	**869,003**[6]	**1,977,812**	**348,993**	**511,460**	**35,916**	**32,621**[6]	**6,054**	**2,353**	**4,503,654**
Indirect Debt—													
Guaranteed bonds or debentures	18,553	5,057	3,403[7]	61,665	1,063,045	1,628,706	243,362	13,063	303,553	1,307,087	—	—	4,647,494
Less sinking funds	—	—	*519*	*546*	*46,105*	*22,050*	*6,244*	—	*4,779*	*57,314*	—	—	*137,557*
Net guaranteed bonds or debentures	18,553	5,057	2,884	61,119	1,016,940	1,606,656	237,118	13,063	298,774	1,249,773	—	—	4,509,937
Guaranteed bank loans	11,814	6,203[8]	2,790	5,234	1,927	14,599	30	6,204	1,383	1,426	—	—	51,610
Municipal Improvement Assistance Act loans	—	1	190	82	727	—	—	95	61	138	—	—	1,294
Other guarantees	—	—	—	—	—	—	20,000	2,598	—	94,622	—	—	117,220
Totals, Indirect Debt (less Sinking Funds)	**30,367**	**11,261**	**5,864**	**66,435**	**1,019,594**	**1,621,255**	**257,148**[9]	**21,960**	**300,218**[10]	**1,345,959**	—	—	**4,680,061**
Totals, Direct and Indirect Debt (less Sinking Funds)	**180,381**	**49,970**	**294,537**	**308,481**	**1,888,597**	**3,599,067**	**606,141**	**533,420**	**336,134**	**1,378,580**	**6,054**	**2,353**	**9,183,715**
	$	$	$	$	$	$	$	$	$	$	$	$	$
Direct debt (*less* sinking funds) per capita	312	362	382	394	159	307	367	548	26	19	404	98	238
Indirect debt (*less* sinking funds) per capita	63	105	8	108	186	251	271	24	214	794	—	—	248

[1] Includes bonds issued by the Ontario Junior Farmer Establishment Loan Corporation $20,000,000 and by the Ontario Municipal Improvement Corporation $37,800,000. [2] Excludes bonds due $2,000. [3] Includes $51,185,000 deposits on Quebec savings bonds to be dated Apr. 1, 1963. [4] Includes debts assumed by the province as follows: Metropolitan Boulevard $67,265,000, bonds issued by the Quebec Municipal Commission in the name of school corporations $17,516,000, University Financing Act $5,845,000, and bonds of St. Lambert General Hospital $800,000. [5] Includes net liability of the province *re* Ontario Savings Office $75,671,000 at Mar. 31, 1963. [6] Excludes debt of toll road authority. [7] Excludes bonds of the Halifax-Dartmouth Bridge Commission $6,236,000. [8] Amount authorized; information *re* amounts outstanding not available. [9] In addition, the province has guaranteed the interest on school district debentures having a par value of $5,223,000 and on sewage disposal and water supply debentures having a par value of $2,985,000. [10] Excludes guaranteed interest under the School Borrowing Assistance Act and the School Building Assistance Act on principal borrowings of $13,769,000; includes guarantee of debentures issued by the Alberta Municipal Financing Corporation to finance the purchase of municipal debentures (see footnote [2], Table 35).

Section 6.—Municipal Public Finance

Municipal Taxation.—Table 31 shows, for the year 1962, local taxes levied by municipalities and by some school authorities and total taxes outstanding at the end of the year. Because of the considerable differences in the division of responsibility for services between the provincial governments and their respective municipalities, these figures should not be used as a basis for interprovincial comparisons of the relative burden of municipal taxation.

31.—Municipal Taxation, by Province, 1962

Item		Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
Taxation							
Taxation revenue	$'000	5,070	3,058	43,134	33,671	395,229	690,806
Tax Collections, Current and Arrears—Total	$'000	4,802	2,830	40,837	32,523	387,151	686,306
Percentage of taxation revenue	p.c.	94.71	92.55	94.67	96.59	97.96	99.35
Taxes receivable, current and arrears	$'000	1,970	965	15,048	11,659	71,347	75,895
Percentage of taxation revenue	p.c.	38.86	31.55	34.89	34.63	18.05	10.99

Item		Manitoba	Saskatchewan	Alberta	British Columbia	Yukon	N.W.T.
Taxation revenue	$'000	83,139	89,528	135,461	146,582	226	400
Tax Collections Current and Arrears—Total	$'000	79,421	88,051	132,648	146,000	190	399
Percentage of taxation revenue	p.c.	95.53	98.35	97.92	99.60	84.07	99.75
Taxes receivable, current and arrears	$'000	14,861	20,351	24,228	8,422	108	97
Percentage of taxation revenue	p.c.	17.87	22.73	17.88	5.70	47.79	24.25

Municipal Revenue, Expenditure and Debt.—Tables 32, 33 and 34 show comparative totals and details of gross ordinary revenue and expenditure of municipal governments, by province; and Table 35 sets out the direct and indirect debt of local governments for the fiscal years ended nearest Dec. 31, 1961.

32.—Gross Ordinary Revenue and Expenditure of Municipal Governments, by Province, Fiscal Years Ended Nearest Dec. 31, 1961

Province	Gross Ordinary Revenue[1]	Gross Ordinary Expenditure[2]	Province or Territory	Gross Ordinary Revenue[1]	Gross Ordinary Expenditure[2]
	$'000	$'000		$'000	$'000
Newfoundland	7,194	7,185	Saskatchewan	114,117	112,299
Prince Edward Island	3,571	3,499	Alberta	181,455	178,443
Nova Scotia	50,791	50,942	British Columbia	201,126	199,065
New Brunswick	44,529	44,078	Yukon Territory	549	510
Quebec	455,693	467,068	Northwest Territories	598	571
Ontario	849,476	834,876			
Manitoba	96,902	95,230	**Canada**	**2,006,001**	**1,993,766**

[1] Includes surplus from previous years (see Table 33). [2] Includes deficit from previous years (see Table 34).

33.—Details of Gross Ordinary Revenue of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1961

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Taxes, General and School—													
Real property	2,604	2,293	28,825	20,474	226,444	620,288	65,221 [1]	79,423	105,980	125,031	178	264	1,277,025
Personal property	4	160	6,465	5,015	..	...	...	...	...	...	...	...	11,644
Business	1,001	278	1,509	2,424	23,890	[1]	5,592	[1]	7,129	3,639	...	1	45,463
Poll	299	158	1,498	2,522	..	117	[2]	1,101	...	...	...	7	5,702
Amusement	83	...	...	...	1,577	...	...	151	...	...	...	...	1,811
Sales	451	...	...	...	85,388	...	459	711	...	...	...	...	87,009
Household and tenant	17	...	7	[3]	..	...	...	...	...	...	...	...	24
Other	26	[2]	97	182	8,024	—	60	775	—	20	...	...	9,184
Special assessments (owners' share) and charges	250	18	434	92	50,331	22,195	6,750	3,660	10,574	7,985	40	66	102,395
Totals, Taxes	4,735	2,907	38,835	30,709	395,654	642,600	78,082	85,821	123,683	136,675	218	338	1,540,257
Licences and permits	163	62	435	251	5,601	7,413	1,495	2,206	3,556	6,681	36	11	27,910
Interest, tax penalties, etc.	7	8	498	301	7,303	6,429	1,446	1,422	1,683	2,889	4	3	21,993
Contributions, Grants and Subsidies—													
Governments	1,654	426	7,635	11,412	20,321	141,270	9,683	12,401	28,513	35,210	263	232	269,020
Government enterprises	54	82	931	435	4,842	6,900	2,340	6,689	10,914	3,899	12	6	37,104
Other	235	4	430	32	2,110	874	342	777	107	1,173	—	—	6,084
Miscellaneous revenue	214	55	1,170	734	15,958	32,164	2,408	4,447	12,625	12,193	16	8	81,992
Totals, Revenue	**7,062**	**3,544**	**49,934**	**43,874**	**451,789**	**837,650**	**95,796**	**113,763**	**181,081**	**198,720**	**549**	**598**	**1,984,360**
Surplus from previous years	132	27	857	655	3,904	11,826	1,106	354	374	2,406	—	—	21,641
Grand Totals	**7,194**	**3,571**	**50,791**	**44,529**	**455,693**	**849,476**	**96,902**	**114,117**	**181,455**	**201,126**	**549**	**598**	**2,006,001**

[1] Included with real property. [2] Less than $500. [3] Included with business.

34.—Details of Gross Ordinary Expenditure of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1961

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
General government	878	209	3,541	2,909	44,649	52,500	6,969	7,250	10,095	10,691	65	75	139,831
Protection of persons and property	418	381	6,528	4,707	58,884	105,978	11,208	8,248	19,272	27,719	81	31	243,455
Public works	2,115	391	2,608	2,963	64,428	113,504	14,082	21,144	25,219	16,086	89	82	262,711
Sanitation and waste removal	692	24	1,144	746	11,703	37,962	3,151	2,638	5,554	6,503	50	36	70,203
Health	17	1	2,911	756	7,669	16,692	1,773	6,052	9,228	2,306	—	12	47,417
Social welfare	[1]	64	2,797	3,387	3,929	49,661	4,534	6,519	5,498	24,688	—	51	101,128
Education	202	1,627	22,314	20,395	169,542	292,495	34,448	42,177	59,412	60,991	...	152	703,755
Recreation and community services	137	69	934	925	13,490	31,279	2,796	3,335	6,193	9,306	18	14	68,496
Debt Charges—													
Debenture and other long term	880	480	5,010	4,415	61,474	69,339	7,014	5,231	20,870	26,455	39	36	201,243
Other	83	57	506	334	9,023	14,135	639	1,058	447	721	[1]	[1]	27,003
Utilities and other municipal enterprises (deficits and levies)	473	32	43	178	—	10,888	1,482	1,817	3,180	2,057	—	17	20,167
Provision for reserves	48	91	1,027	620	—	7,938	2,214	1,851	3,455	2,852	7	3	20,106
Contributions to capital and loan fund	1,082	57	795	339	17,727	20,035	2,973	3,010	6,279	7,299	156	51	59,803
Joint or special expenditure	—	—	—	9	—	3,422	232	—	146	269	—	—	4,078
Miscellaneous expenditure	160	16	472	1,381	4,550	7,366	615	1,795	3,520	1,122	5	11	21,013
Totals, Expenditure	**7,185**	**3,499**	**50,630**	**44,064**	**467,068**	**833,194**	**94,130**	**112,125**	**178,368**	**199,065**	**510**	**571**	**1,990,409**
Deficit from previous years	—	—	312	14	—	1,682	1,100	174	75	—	—	—	3,357
Grand Totals	**7,185**	**3,499**	**50,942**	**44,078**	**467,068**	**834,876**	**95,230**	**112,299**	**178,443**	**199,065**	**510**	**571**	**1,993,766**

[1] Less than $500.

35.—Debt of Municipal and School Corporations, as at Fiscal Year Ends Nearest Dec. 31, 1961

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Direct Debt (less Sinking Funds)—													
Debenture debt	18,615	9,351	96,460	93,138	1,536,032[1]	1,701,647	180,749	160,693	456,472	479,699	955	212	4,734,023
Less sinking funds	129	1,669	4,037	7,932	14,501	62,380	15,915	9,685	3,020	47,897	—	—	167,165
Net debenture debt	18,486	7,682	92,423	85,206	1,521,531	1,639,267	164,834	151,008	453,452	431,802	955	212	4,566,858
Temporary loans and bank overdrafts	500	1,960	16,924	7,258	132,235	82,724	10,873	7,373	8,865	8,734	11	—	277,457
Accounts payable and other liabilities	3,152	468	9,680	8,189	116,487	159,242	14,642	19,449	49,589	30,369	143	91	411,501
Totals, Direct Debt (less Sinking Funds)	**22,138**	**10,110**	**119,027**	**100,653**	**1,770,253**	**1,881,233**	**190,349**	**177,830**	**511,906[2]**	**470,905**	**1,109**	**303**	**5,255,816**
Indirect Debt (less Sinking Funds)—													
Guaranteed bonds or debentures	—	—	1,380	4,683	—	4,149	2,712	—	—	—	—	—	12,924
Less sinking funds	—	—	297	—	—	—	—	—	—	—	—	—	297
Net guaranteed bonds or debentures	—	—	1,083	4,683	—	4,149	2,712	—	—	—	—	—	12,627
Guaranteed bank loans	—	—	—	75	—	—	—	—	11	—	—	—	86
Totals, Indirect Debt (less Sinking Funds)	**—**	**—**	**1,083**	**4,758**	**—**	**4,149**	**2,712**	**—**	**11**	**—**	**—**	**—**	**12,713**
Grand Totals	**22,138**	**10,110**	**120,110**	**105,411**	**1,770,253**	**1,885,382**	**193,061**	**177,830**	**511,917**	**470,905**	**1,109**	**303**	**5,268,529**

[1] Includes $57,529 debentures of the Montreal Transportation Commission guaranteed by the City of Montreal.

[2] Includes debentures sold to the Alberta Municipal Financing Corporation; see footnote [10], Table **30**.

CHAPTER XXIV.—TRENDS IN ECONOMIC AGGREGATES*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

In this Chapter various statistical statements and studies are presented in which broad areas of Canadian economic activity are covered in a comprehensive but summary form. These integrated aggregative economic accounts provide an interrelated framework for economic analysis and the observation of changes in the functioning of the Canadian economy and its structure and in economic and financial relationships with other countries.

Section 1.—National Accounts

The national accounts constitute a set of accounting summaries for the nation as a whole and portray economic activity in terms of transactions taking place between different sections of the economy. By combining and summarizing these operations into their various classes, information may be obtained on the functioning of the economy which is of particular interest to governments concerned with problems of full employment, taxation and prices, and to businessmen concerned with programs of investment and marketing.

This measurement of the nation's output is in terms of established market prices; hence it is necessary to keep in mind that the value of the nation's production may change because of price variations as well as through increase or decrease in volume of output.

Data are available showing volume changes in gross national expenditure in addition to the value figures. Gross national expenditure is shown in Table 4 in constant dollars (i.e., in terms of 1949 prices). Because the gross national expenditure equals the gross national product, these data also reflect volume changes in the production of goods and services as measured by the gross national product. In the other tables in which the data are expressed in current dollars, year-to-year changes must be considered in relation to price changes over the period.

National accounts calculated on a quarterly basis are a logical extension of the annual national accounts and have been published since 1953. However, their preparation on a reliable and analytically useful basis is rather more difficult because of the scarcity of quarterly data, special problems arising from the measurement of farm production and problems in connection with seasonal variation.

* Sections 1, 2 and 3 were prepared in the National Accounts and Balance of Payments Division, Dominion Bureau of Statistics.

The tables on pp. 1009-1013 cover the more important aspects of the national income analysis in annual terms. Table **1** gives total gross national product in current and constant dollars for the years 1927-63. Tables **2** and **3** show the main aggregates of national income, gross national product, gross national expenditure and their components; other tables are included to show the source and disposition of personal income and expenditure and government revenue and expenditure.

National Income.—Net national income at factor cost measures the current earnings of Canadian factors of production (i.e., land, labour, capital) from productive activity. It includes wages and salaries, profits, interest, net rent and net income of farm and non-farm unincorporated business.

Gross National Product.—Gross national product, by totalling all costs arising in production, measures the market value of all final goods and services produced in the current period by Canadian factors of production. It is equal to national income plus net indirect taxes (indirect taxes less subsidies), plus capital consumption allowances and miscellaneous valuation adjustments.

Personal Income.—Personal income is the sum of current receipts of income whether or not these receipts represent earnings from production. It includes transfer payments from government (such as family allowances, unemployment insurance benefits and war service gratuities) in addition to wages and salaries, net income of unincorporated business, interest and dividends and net rental income of persons. It does not include undistributed profits of corporations and other elements of the national income not paid out to persons.

Gross National Expenditure.—Gross national expenditure measures the same aggregate as gross national product, namely, total production of final goods and services at market prices, by tracing the disposition of production through final sales to persons, to governments, to business on capital account (including changes in inventories) and to non-residents (exports). Imports of goods and services, including net payments of interest and dividends to non-residents, are deducted since the purpose is to measure only Canadian production.

Economic Activity in 1963.—During 1963, gross national product (GNP) experienced continuous growth, registering an increase of 6.6 p.c. in value over the previous year; at a level of $43,007,000,000 the additional value of output amounted to $2,668,000,000. Since over-all prices for the year increased by less than 2 p.c., more than two thirds of the value increase represented a gain in real output. The year ended on a particularly strong note with a 3-p.c. increase in the final quarter, one of the sharpest gains since the beginning of the expansion in early 1961; the increase between the fourth quarters of 1962 and of 1963 was over 7 p.c., somewhat greater than that registered by the annual averages.

The 1963 expansion was widespread. All components of final demand shared in the growth and there was little change in the moderate rate at which inventories were being built-up. A notable 11-p.c. rise in the level of merchandise exports and a contraction in Canada's deficit on current merchandise account with other countries were the most prominent developments. The rise in exports was dominated by exceptionally large shipments of wheat to Russia in the final quarter, although increased foreign demand was spread over many commodities. This growth in exports took place against a background of increasing world trade, expanding economic activity in the main industrial countries, and an improvement in Canada's competitive position. Imports rose more moderately, by about 6 p.c., but the annual average increase does not reveal the growing importance of the supply of foreign goods during the course of the year. Also noteworthy was the performance of business fixed capital formation, including residential construction which registered the sharpest relative year-to-year increase since 1957. The increase was particularly pronounced toward the end of the year, especially in housing, when special Federal

Government legislation designed to stimulate winter building of houses came into effect. Consumer demand registered a higher than average year-to-year increase and was particularly strong in the second half of the year, accounting for more than half of the increase in GNP. This pattern was partly the result of general increases in non-durable goods in the third quarter and the notably buoyant demand for automobiles in the fourth quarter.

The year-to-year increase of under 5 p.c. in government expenditure on goods and services was smaller than the increase in GNP and less than that experienced in both 1961 and 1962. The net result of total revenue and expenditure of all levels of government was a decline in the deficit from that of 1962; the deficit declined progressively after the second quarter of the year and in the final quarter was the lowest since early 1960. Increases in demand were paralleled by a 7-p.c. rise to $32,553,000,000 in national income, in which both profits and labour income registered similar relative gains. Accrued net farm income rose more sharply owing to the record wheat crop which was over one quarter greater than in 1962 and more than one and a half times the size of the 1961 crop. Personal income rose somewhat less than national income.

Despite the almost three years of continuous expansion in the economy, evidence of unutilized labour resources persisted during 1963. The unemployment rate (seasonally adjusted) in the fourth quarter stood at just over 5 p.c. of the labour force, compared with close to 6 p.c. at the end of 1962. This decline was less than would be suggested by the increase in employment of more than 4 p.c. over the same period because of the 3-p.c. growth in the total labour force (about 200,000 persons) between the fourth quarters of 1962 and of 1963.

Prices rose by nearly 2 p.c. during the year, about the same amount as in 1962; these increases were moderate compared with those experienced in the 1954-57 and 1949-52 business expansions. The rise in prices of certain foodstuffs, notably sugar and to a lesser extent citrus fruits, affected the indexes for personal expenditure and for imports.

The Components of Demand.—Consumer markets were strong in 1963, particularly in the second half of the year. Consumer purchasing rose to $27,230,000,000, almost 6 p.c. higher than in the previous year and the largest increase since 1959. Prices were 1½ p.c. higher, partly because of the already noted rise in certain foodstuffs, so that the increase in real terms was about 4½ p.c., slightly more than in 1962.

Durable goods made a notable contribution to the over-all increase in personal expenditure; the 9½-p.c. increase, following the 8-p.c. rise in 1962, was the largest since 1955 and contrasted particularly with 1960 and 1961 when purchases of such goods showed little change. Automobile sales, particularly in the last quarter, were an extremely important expansionary element; net purchases of new and used automobiles rose more than 14 p.c. over the previous year and accounted for three quarters of the increase in durables. Home furnishings increased by almost 8 p.c. and each of the remaining items increased about 3 p.c.

Expenditures on services rose by more than 6½ p.c., making the largest contribution to the increase in personal spending. This increase was somewhat higher than in the three preceding years and was a reflection, mainly, of higher shelter expenses. Again in 1963 the movement in services was dampened by changes in net expenditure abroad,* as the balance on tourist and travel account with the external sector moved to a surplus for the first time in more than a decade.

The 4-p.c. increase in non-durables was more moderate, reflecting in part lower than usual growth in alcoholic beverages and tobacco products, each of which increased by about 3 p.c. Expenditures on food and clothing were 4 p.c. higher and expenditures on fuel (including gas) were up only 2 p.c., probably reflecting the mild weather during the autumn of 1963.

Private capital spending totalled $7,495,000,000 in 1963, an amount nearly 8 p.c. higher than in 1962; outlays on residential construction and machinery and equipment were

* Includes the expenditures abroad of Canadian tourists and excludes foreign tourist expenditures in Canada.

both higher by over 8 p.c. and non-residential construction by just over 6½ p.c. The spending trend through the year was continuously upward with sharp increases in the spring and final quarters of the year; the hesitancy between the second and third quarters possibly reflected uncertainty regarding changes in the building materials sales tax. The surge at the year-end, which was centred in housing, carried the fourth quarter level to an annual rate 5½ p.c. above the annual average. The over-all advance in business spending on fixed capital matched the increase in GNP and the ratio of capital spending to GNP remained over 17 p.c.

Investment in new housing fluctuated more widely than other components of fixed capital formation in the period 1961-63, and the 8-p.c. increase in 1963 to an average annual level of $1,705,000,000 concealed some sharp movements within the year. Dwelling unit starts rose moderately in the first three quarters when those for multiple dwelling units offset some decline in single units, but very sharply in the final quarter when the Federal Government's winter house-building incentive program and direct lending by the Central Mortgage and Housing Corporation stimulated house-building activity. At the year-end, the number of units under construction stood at a record high of 96,600—20,000 above the number at the previous year-end; starts for the year totalled 148,600, 14 p.c. higher than for 1962. The value of non-residential construction rose by just over 6½ p.c. to $2,811,000,000, the sharpest year-to-year gain to emerge in the business expansion period beginning in 1961. During the year the gains were even more notable as the value of work put in place rose by over 11½ p.c. between the fourth quarters of 1962 and of 1963. The strength was centred mainly in the development of such utilities as electric power, railway and urban transit systems, oil and gas pipeline facilities and communications systems. Within manufacturing, which had a slightly smaller construction program than in 1962, the machinery and transportation equipment industries stand out as the two groups with much heavier spending programs than in the previous year.

Investment in machinery and equipment rose by 8½ p.c. in 1963 to almost $2,979,000,000. Most of the strength occurred in the second half of the year when the seasonally adjusted annual rate was running 12 p.c. above the 1962 average. The increases stemmed mainly from a sharply higher level of investment in farm implements, machinery and equipment; a larger investment program in the manufacturing sector of the economy, particularly in the paper, chemical and transportation equipment industries; and higher outlays by the telephone utilities. Two of these areas reflected to some extent the buoyancy of farm incomes following two good crop years, the high level of overseas demand for Canadian wheat for three years, and sustained strength in the demand for new automobiles for two years.

During 1963 there were a number of special factors operating on economic activity. Measures were introduced by the Federal Government designed to stimulate employment and investment in slow-growth areas and in certain industries. New manufacturing or processing enterprises located in designated areas of slower growth were offered exemption from income tax for three years and the concession of writing off new machinery and equipment in two years and new buildings in five. Accelerated depreciation was extended on certain new facilities for manufacturing and processing enterprises owned by Canadian residents and to companies having a specified minimum degree of Canadian ownership and control. Oil and gas transmission companies were also allowed to deduct from income, for tax purposes, expenditures on drilling for oil, gas or minerals. Another factor was the introduction in June of a 4-p.c. sales tax on certain previously exempt building materials and machinery and equipment; this was to be increased by stages to 11 p.c. in January 1965.

On the other hand, the building up of stocks did not contribute to expansion in 1963. Business inventories showed an accumulation of $166,000,000, a moderately lower rate than in the previous year. In total, the quarterly pattern revealed virtually no net change in inventories in the first half of the year and a growing rate of accumulation in the second half. The figures at the total level suggest a continuation of the downward drift in the

ratio of stocks to output which has been apparent for a number of years. The main build-up in stocks appears to have taken place in the hands of retail dealers, partly representing increased holdings of new automobiles in the closing months of the year as producers' shipments had run slightly ahead of sales; manufacturers' stocks showed little change.

Against a background of general expansion in world trade and economic activity, Canada's transactions with non-residents in both merchandise and non-merchandise trade rose in 1963. With exports of goods and services rising by 10 p.c. to a level of $9,054,000,000 and imports 5½ p.c. higher at $9,542,000,000, the deficit on current account transactions with non-residents (on a national accounts basis) fell to just under $500,000,000 from a little over $800,000,000 in 1962. The entire improvement was attributable to transactions on merchandise trade, the surplus rising from $155,000,000 to $484,000,000; little change occurred in the balance on service and non-merchandise transactions account, which stood at $972,000,000.

The gains in exports of goods, after allowance for seasonal influences, were concentrated in the second and final quarters. In the second quarter, exports of nickel were particularly strong and higher newsprint exports reflected the settlement of a labour dispute in the United States. In the fourth quarter, heavy shipments of wheat and wheat flour began to flow to Russia as a result of the agreement signed with that country in September. The increase of 11 p.c. in exports for the year, which carried the total value to $7,064,000,000, reflected sizable increases in iron ore, softwood lumber, wood pulp, railway rolling-stock, navigational systems and electronic control equipment, as well as sharply higher wheat sales. Although gains were widespread over many other commodities and the relative rise in the general grouping of manufactured products was notable, close to half the total increase was accounted for by four of the main commodities noted above (wheat, iron ore, softwood lumber and wood pulp). The rise in prices of exports was around 1 p.c. in 1963, indicating that most of the increase was in real terms.

The 6-p.c. rise in imports of goods was spread more evenly through the year, although some irregularity appeared in the third quarter when there were unusually large imports of raw sugar. The 1963 increase of $371,000,000, which carried imports to a total of $6,580,000,000, was mainly the result of heavier inflows of raw sugar, farm equipment and tractors, crude petroleum and automobile parts, although the increase in automobile parts was largely offset by a decline in finished automobile imports; some of the increase may be attributable to the elimination at the end of March of the remaining temporary surcharges imposed at the time of the exchange crisis in mid-1962. Prices of imports rose more significantly than exports; sugar prices were notably higher among the commodities. In addition, the impact of the devaluation of the Canadian dollar influenced year-to-year comparisons for part of the year.

Receipts from non-merchandise transactions increased by 7 p.c. to reach $1,990,000,000 in 1963. Close to three quarters of the change was accounted for by sharply higher receipts from travel and from freight and shipping. The rise of 5 p.c. to $2,962,000,000 in payments for services was accounted for by increases of between 6 p.c. and 8 p.c. in freight and shipping, interest and dividends and miscellaneous services. The latter includes official contributions which nearly doubled mainly as a result of aid financed under the Colombo Plan; this was at an unusually low level in 1962. The balance on service transactions showed little year-to-year change. However, among the individual items the most noteworthy was the shift in the balance on travel account from a deficit of $50,000,000 in 1962 to a surplus of $13,000,000,* the continuation of an improving trend that had been apparent since 1960. This improvement was largely offset by a widened deficit on account of interest and dividends and the increase in official contributions.

The Government Sector.—Total expenditure of all governments advanced by almost 5 p.c. or $683,000,000 in 1963. All components showed increases with the exception of federal expenditure on goods and services which registered a decline, reflecting a 6-p.c.

* See footnote to p. 1022.

reduction in defence outlays. Non-defence expenditures rose slightly as a result of offsetting changes: increases included a 7-p.c. rise in wages and salaries and a doubling of payments from the Colombo Plan Fund; decreases were registered in non-defence investment and in the changes in inventories of the Agricultural Stabilization Board. Transfer payments to persons increased by 4 p.c. to a total of $3,829,000,000. The larger part of the increase occurred at the provincial-municipal level, reflecting higher payments under the hospital insurance programs, larger grants to universities and increased social assistance payments.

Meanwhile, the expansion of activity in the economy was reflected in advances in all major components of government revenue. Indirect taxes rose by over 5½ p.c., the largest contribution to the increase occurring at the provincial-municipal level. Provincial revenues rose as a result of higher volume of sales or upward revisions of tax rates or both. The gain in property taxes accounted for most of the rise at the municipal level, the year-to-year change being about the same as had occurred in previous years. Federal indirect taxes rose by 2 p.c. but the total masks offsetting changes in the components. Federal excise taxes rose sharply, partly as a result of the imposition of the 4-p.c. sales tax on building materials and production machinery and equipment effective in June 1963, but revenues from customs import duties declined as a result of the elimination in the first quarter of 1963 of the last of the temporary emergency surcharges imposed in mid-1962.

Personal and corporate direct tax revenues contributed almost as much as indirect taxes to the rise in total revenue. Both the federal and provincial governments shared in the rise in direct taxes, although unevenly; the federal share of personal direct taxes rose by 5 p.c. and of the corporate income taxes by 6½ p.c. compared with 14 p.c. and 6 p.c. for the provinces. The sharper increase in the provincial income tax collections was partly attributable to the fact that, under the terms of the federal-provincial fiscal arrangement that became effective in 1962, the federal share of the taxes on personal incomes dropped slightly, the difference going to the participating provinces. In addition, British Columbia imposed its own succession duties in April 1963, thus contributing to a sharp increase in this component at the provincial level.

Investment income accruing to government rose by 7½ p.c., the largest increase occurring in trading profits of government enterprises and in interest on government-held public funds. At the federal level, investment income increased by 10 p.c., reflecting mainly increases in profits of the Bank of Canada, earnings of the Exchange Fund Account and interest on government-held public funds. Increased trading profits of liquor commissions and higher interest income were responsible for most of the increases at the provincial-municipal level.

Because of the greater increase in revenue than in expenditure, the total deficit for 1963 amounted to $735,000,000, a decline of $86,000,000 from 1962. The 1962 federal deficit of $543,000,000 was almost halved to $278,000,000 in 1963 but the provincial-municipal deficit increased from $278,000,000 to $457,000,000. It should be noted that in 1962 the federal deficit was irregularly high by about $75,000,000 and the provincial-municipal deficit correspondingly low, as a consequence of the introduction in 1962 of the new tax collection arrangements.

Income Flows.—All major shares of national income were up in 1963 when the level reached $32,553,000,000, an amount 7 p.c. higher than in 1962. This rise was paralleled by an almost 7-p.c. gain in labour income which totalled $21,550,000,000. Reflecting gains in both wage rates and labour inputs, the increase was broadly based, occurring in all

industrial groups. The quarterly pattern showed continuous increases, the largest of which occurred in the final quarter. Wages and salaries originating in the goods-producing industries accounted for 41½ p.c. of the total; this represents a slight decline in their relative importance between 1962 and 1963, a continuation of the postwar trend toward the growing relative importance of the service industries.

Profits increased by a little less than 8 p.c. to reach $3,920,000,000, largely a reflection of a gain in the first quarter of the year and a particularly sharp pick-up in the final quarter. The main increases over 1962 were recorded in the food and metal industries of manufacturing, the wholesale and retail trades and the transportation, storage and communication groups. After allowance for corporate taxes and distribution of dividends, undistributed profits rose by 15½ p.c. to $964,000,000.

In 1963, accrued net income of farm operators from farm production amounted to $1,786,000,000, almost 16 p.c. higher than in 1962. This figure, the third highest on record, was exceeded only in 1951 and 1952. Contributing most to the 1963 increase was an accumulation of farm-held stocks of grain and livestock and increased profits of the Canadian Wheat Board. The estimate of the value of field crop production was $1,381,000,000, 17 p.c. higher than in 1962 and fractionally higher than in the previous all-time record year, 1952. Farm cash receipts increased over 2 p.c. in 1963 to reach an all-time high. The most important gains were made in returns from the sales of wheat, oats, barley, tobacco, dairy and poultry products. Farm operating expenses were about 5 p.c. higher than in 1962. Higher outlays for fertilizers, feed and seed, and the operation of farm machinery, including repairs, were the factors contributing most to the increase.

Personal income rose by over 6 p.c. to $32,771,000,000 in 1963, the main increases occurring in the second and fourth quarters as a result of unusually large payments to farmers by the Canadian Wheat Board in the second quarter and the combined effects of higher labour income, farm income and increased old age security transfer payments from the government in the final quarter. Disposable personal income rose faster than personal spending with a resultant increase in saving. Personal net saving, which includes unincorporated business saving, increased to $2,631,000,000 in 1963 and, as a proportion of disposable income, rose to 8.8 p.c. from 8.4 p.c. in 1962.

Production.—Real gross domestic product at factor cost in 1963 increased by more than 5 p.c., goods- and service-producing industries rising by about 5½ p.c. and 5 p.c., respectively. Real domestic product less agriculture increased slightly less than 5 p.c. Manufacturing increased faster during the expansion than total production, accounting for almost one third of the aggregate increase during the 1961-63 period. The primary industry group (agriculture, forestry, fishing and trapping and mining) accounted for over 20 p.c. of the growth, as did the cyclically sensitive trade and transportation group.

In 1963, the index of industrial production reached a level of 196.2 for the year, up by 5½ p.c. from 1962. Manufacturing also advanced 5½ p.c., mining just over 3 p.c. and electric power and gas utilities almost 9 p.c. With the exception of utilities, these gains were lower than those recorded in 1962. However, the annual averages do not reveal the increasing strength during the latter half of 1963; the index of industrial production from the fourth quarter of 1962 to the corresponding quarter of 1963 recorded a gain of 8 p.c. as against 6 p.c. in the comparable 1961-62 period.

Durables continued to expand in 1963, again led by transportation equipment, where output of motor vehicles and parts was up by almost 25 p.c. Iron and steel products contributed heavily, with both iron castings and primary steel higher by about 12 p.c., partly

reflecting the strength in the transportation equipment industry. Wood products, with greater strength appearing toward the end of the year, advanced by 5 p.c., as did electrical apparatus and supplies; the latter group was particularly influenced by higher refrigerator and appliance output. Non-metallic mineral products moved up slightly but non-ferrous metal products showed little change.

Non-durable manufacturing showed a gain of 4½ p.c. over 1962, with all major groups contributing. Leather products gained only marginally, tobacco and printing and publishing by about 2 p.c., and other increases ranged from 3 p.c. in paper products and foods and beverages to 13 p.c. in rubber products. Solid gains of 7 p.c. to 9 p.c. were recorded in chemicals, textiles and petroleum products, and clothing gained about 5 p.c.

Mining showed a smaller gain in 1963 than in 1962, reflecting weaknesses in metals; with the exception of iron ore, all major metals showed declines of up to about 5 p.c. in nickel, gold and lead. However, the fuels component of mining continued to expand with good gains in all three industries—coal, crude petroleum and natural gas—and asbestos, among the non-metals, was up by more than 2 p.c.

Among the service-producing industries, the transportation, storage and communication group advanced 7 p.c. Storage and transportation, influenced by record wheat movements, showed increases of 18 p.c. and 8 p.c., respectively, and shipping and pipelines increased by more than 10 p.c. Railways, with a 7-p.c. advance, accounted for about two fifths of the gain in transportation. Wholesale and retail trade each gained 4 p.c. over 1962. Growth was widespread at the retail level, with a particularly strong advance in farm implement dealer sales. Motor vehicle dealers and garages and filling stations were also among the more rapidly expanding components. Public administration and defence showed little change in 1963, expansion in the provincial component being offset by declines in the other two components. The remaining service-producing industry groups increased at rates slightly above their long-term trends.

1.—Gross National Product, in Current and Constant (1949) Dollars, 1927-63

Year	Millions of Current Dollars	Millions of Constant (1949) Dollars	Year	Millions of Current Dollars	Millions of Constant (1949) Dollars
1927	5,549	8,270	1947	13,165	15,446
1928	6,046	9,037	1948	15,120	15,735
1929	6,134	9,061	1949	16,343	16,343
1930	5,728	8,679	1950	18,006	17,471
1931	4,699	7,567	1951	21,170	18,547
1932	3,827	6,798			
1933	3,510	6,359	1952	23,995	20,027
1934	3,984	7,127	1953	25,020	20,794
1935	4,315	7,678	1954	24,871	20,186
1936	4,653	8,022	1955	27,132	21,920
1937	5,257	8,820	1956	30,585	23,811
1938	5,278	8,871			
1939	5,636	9,536	1957	31,909	24,117
1940	6,743	10,911	1958	32,894	24,397
1941	8,328	12,486	1959	34,915	25,242
1942	10,327	14,816	1960r	36,287	25,849
1943	11,088	15,357	1961r	37,391	26,466
1944	11,850	15,927			
1945	11,835	15,552	1962r	40,339	28,083
1946	11,850	15,251	1963	43,007	29,380

2.—National Income and Gross National Product, by Component, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1122, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Wages, salaries and supplementary labour income	17,459	18,245	18,989	20,183	21,550
Military pay and allowances	496	509	550	586	598
Corporation profits before taxes[1]	3,003	2,880	2,814	3,070	3,327
Rent, interest and miscellaneous investment income	2,315	2,470	2,651	2,809	3,025
Accrued net income of farm operators from farm production[2]	1,121	1,186	1,009	1,546	1,786
Net income of non-farm unincorporated business[3]	2,210	2,213	2,274	2,354	2,451
Inventory valuation adjustment	−122	−70	−91	−133	−184
Net National Income at Factor Cost	**26,482**	**27,433**	**28,196**	**30,415**	**32,553**
Indirect taxes less subsidies	4,259	4,470	4,711	5,277	5,565
Capital consumption allowances and miscellaneous valuation adjustments	4,204	4,423	4,574	4,865	5,124
Residual error of estimate	−30	−39	−90	−218	−235
Gross National Product at Market Prices	**34,915**	**36,287**	**37,391**	**40,339**	**43,007**

[1] Excludes dividends paid to non-residents. [2] Includes changes in farm inventories. [3] Includes net income of independent professional practitioners.

3.—Gross National Expenditure, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Personal expenditure on consumer goods and services	22,591	23,540	24,451	25,739	27,230
Government expenditure on goods and services	6,490	6,769	7,259	7,709	8,076
Current expenditure	*4,967*	*5,199*	*5,722*	*6,954*	*6,259*
Gross fixed capital formation	*1,523*	*1,570*	*1,587*	*1,755*	*1,817*
Business gross fixed capital formation	6,894	6,692	6,635	6,960	7,495
New residential construction	*1,734*	*1,443*	*1,458*	*1,577*	*1,705*
New non-residential construction	*2,589*	*2,577*	*2,683*	*2,638*	*2,811*
New machinery and equipment	*2,571*	*2,672*	*2,494*	*2,745*	*2,979*
Value of physical change in inventories	357	410	−132	522	459
Non-farm business inventories	*421*	*325*	*278*	*301*	*166*
Farm inventories and grain in commercial channels	*−64*	*85*	*−410*	*221*	*293*
Exports of goods and services	6,683	7,008	7,631	8,224	9,054
Deduct: Imports of goods and services	−8,131	−8,172	−8,542	−9,033	−9,542
Residual error of estimate	31	40	89	218	235
Gross National Expenditure at Market Prices	**34,915**	**36,287**	**37,391**	**40,339**	**43,007**

4.—Gross National Expenditure in Constant (1949) Dollars, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Personal expenditure on consumer goods and services	17,392	17,945	18,501	19,220	20,040
Government expenditure on goods and services	4,155	4,197	4,407	4,498	4,489
Current expenditure	*3,055*	*3,067*	*3,240*	*3,270*	*3,294*
Gross fixed capital formation	*1,109*	*1,141*	*1,175*	*1,239*	*1,201*
Adjusting entry	*−9*	*−11*	*−8*	*−11*	*−6*
Business gross fixed capital formation	4,575	4,345	4,272	4,369	4,581
New residential construction	*1,157*	*937*	*941*	*989*	*1,033*
New non-residential construction	*1,683*	*1,637*	*1,698*	*1,634*	*1,692*
New machinery and equipment	*1,735*	*1,770*	*1,627*	*1,744*	*1,856*
Adjusting entry	—	*1*	*6*	*2*	—
Value of physical change in inventories	308	361	−121	451	392
Non-farm business inventories	*334*	*262*	*220*	*226*	*128*
Farm inventories and grain in commercial channels	*−91*	*86*	*−486*	*258*	*327*
Adjusting entry	*65*	*13*	*145*	*−33*	*−63*
Exports of goods and services	5,574	5,806	6,240	6,522	7,096
Deduct: Imports of goods and services	−6,776	−6,743	−6,845	−6,938	−7,126
Residual error of estimate	22	28	63	151	160
Adjusting entry	−8	−90	−51	−190	−252
Gross National Expenditure in Constant (1949) Dollars	**25,242**	**25,849**	**26,466**	**28,083**	**29,380**
Index of gross national expenditure (1949=100)	154.4	158.2	161.9	171.8	179.8

5.—Personal Income, by Source, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Wages, salaries and supplementary labour income	17,459	18,245	18,989	20,183	21,550
Deduct: Employer and employee contributions to social insurance and government pension funds	−652	−751	−787	−811	−838
Military pay and allowances	496	509	550	586	598
Net income received by farm operators from farm production	1,126	1,177	978	1,541	1,650
Net income of non-farm unincorporated business	2,210	2,213	2,274	2,354	2,451
Interest, dividends and net rental income of persons	2,599	2,882	3,024	3,244	3,487
Transfer Payments (excluding interest)—					
From governments	2,755	3,120	3,425	3,676	3,829
Charitable contributions from corporations	43	40	40	44	44
Totals, Personal Income	**26,036**	**27,435**	**28,493**	**30,817**	**32,771**

6.—Disposition of Personal Income, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Personal Direct Taxes—					
Income taxes	1,744	1,979	2,131	2,311	2,487
Succession duties and estate taxes	130	158	144	166	171
Miscellaneous taxes	214	223	238	243	252
Personal expenditure on consumer goods and services	22,591	23,540	24,451	25,739	27,230
Personal net saving	1,357	1,535	1,529	2,358	2,631
Totals, Personal Income	**26,036**	**27,435**	**28,493**	**30,817**	**32,771**

7.—Personal Expenditure on Consumer Goods and Services, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Food	5,465	5,713	5,817	6,023	6,280
Tobacco and alcoholic beverages	1,552	1,606	1,682	1,792	1,845
Clothing and personal furnishings	2,267	2,355	2,422	2,514	2,628
Shelter	3,442	3,621	3,807	3,999	4,322
Household operation	2,873	2,919	3,030	3,132	3,274
Transportation	2,723	2,807	2,873	3,099	3,340
Personal and medical care and death expenses	1,769	1,925	2,044	2,209	2,379
Miscellaneous	2,500	2,594	2,776	2,971	3,162
Totals	**22,591**	**23,540**	**24,451**	**25,739**	**27,230**
Durable goods	2,678	2,664	2,716	2,930	3,207
Non-durable goods	11,373	11,813	12,171	12,839	13,379
Services	8,540	9,063	9,564	9,970	10,644

8.—Federal, Provincial and Municipal Government Revenue and Expenditure, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Revenue					
Direct Taxes: Persons—					
Income taxes	1,744	1,979	2,131	2,311	2,487
Succession duties and estate taxes	130	158	144	166	171
Miscellaneous taxes	214	223	238	243	252
Direct taxes: corporations	1,581	1,544	1,600	1,700	1,810
Withholding taxes	74	79	116	125	128
Indirect taxes	4,464	4,705	4,965	5,563	5,878
Investment Income—					
Interest	415	463	484	534	576
Profits of government business enterprises	583	600	650	706	757
Employer and employee contributions to social insurance and government pension funds	652	751	787	811	838
Totals, Revenue	**9,857**	**10,502**	**11,115**	**12,159**	**12,897**
Expenditure					
Personal expenditure on consumer goods and services	6,490	6,769	7,259	7,709	8,076
Transfer Payments—					
Interest	963	1,095	1,174	1,309	1,414
Other	2,755	3,120	3,425	3,676	3,829
Subsidies	205	235	254	286	313
Surplus or deficit (on transactions relating to the national accounts)	−556	−717	−997	−821	−735
Totals, Expenditure	**9,857**	**10,502**	**11,115**	**12,159**	**12,897**

9.—Analysis of Corporation Profits, 1959-63

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1127, and for later years in succeeding editions.

(Millions of dollars)

Item	1959	1960r	1961r	1962r	1963
Corporation profits before taxes	3,003	2,880	2,814	3,070	3,327
Dividends paid to non-residents	501	458	586	570	593
Corporation profits including dividends paid to non-residents	3,504	3,338	3,400	3,640	3,920
Deduct: Corporation income tax liabilities	−1,581	−1,544	−1,600	−1,700	−1,810
Excess of tax liabilities over collections	*156*	*−122*	*49*	*45*	*35*
Tax collections	*1,425*	*1,666*	*1,551*	*1,655*	*1,775*
Corporation profits after taxes	1,923	1,794	1,800	1,940	2,110
Deduct: Dividends paid to non-residents	−501	−458	−586	−570	−593
Corporation profits retained in Canada	1,422	1,336	1,214	1,370	1,517
Deduct: Dividends paid to Canadian persons	−393	−459	−449	−491	−509
Deduct: Charitable contributions from corporations	−43	−40	−40	−44	−44
Undistributed Corporation Profits	**986**	**837**	**725**	**835**	**964**

10.—Corporation Profits before Taxes (including Dividends Paid to Non-residents), by Industry, 1959-63

NOTE.—Comparable figures for the years 1954 and 1955 are given in the 1957-58 Year Book, p. 1127, and for later years in succeeding editions.

(Millions of dollars)

Industry	1959	1960r	1961r	1962r	1963
Agriculture, Forestry, Fishing and trapping	11	5	15	21	21
Mining, quarrying and oil wells	326	348	357	405	422
Manufacturing	1,658	1,516	1,533	1,745	1,908
Construction	113	78	89	69	72
Transportation	134	132	125	114	142
Storage	15	14	14	12	15
Communication	116	129	138	157	165
Electric power, gas and water utilities	72	85	89	92	76
Wholesale trade	272	228	212	230	255
Retail trade	256	212	209	217	238
Finance, insurance and real estate	446	510	545	497	525
Service	85	81	74	81	81
Totals	**3,504**	**3,338**	**3,400**	**3,640**	**3,920**

Section 2.—Industry Production Trends

Indexes of Real Domestic Product

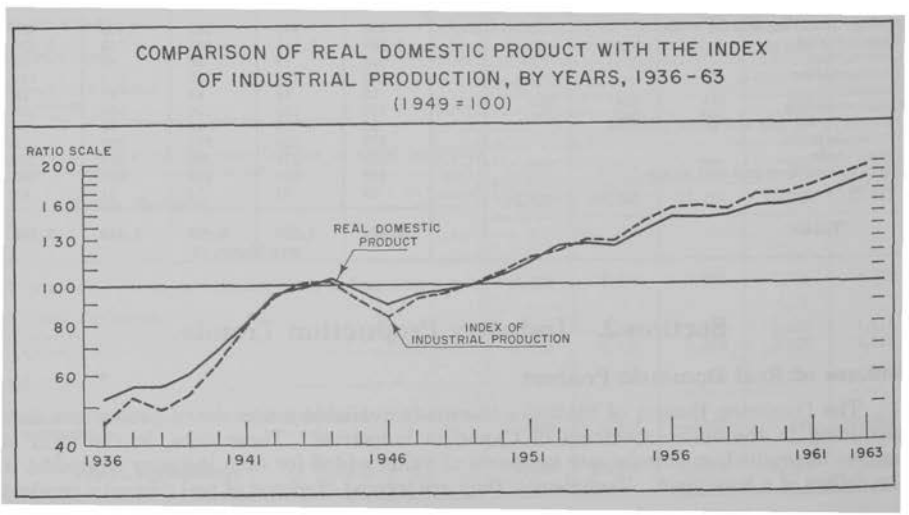
The Dominion Bureau of Statistics has made available a new set of production data pertaining to the entire spectrum of Canadian industries. These data, in the form of volume of production indexes, are measures of value added for each industry expressed in the dollars of a base year. Technically, they are termed "indexes of real domestic product

(GDP) at factor cost originating by industry".* The value added, or GDP, volume indexes can be regarded as an extension of the index of industrial production† to encompass the remainder of the economy. Concepts and basic methods used to construct both indexes are the same. Thus, industry production index coverage is extended from mining, manufacturing and electric power and gas utilities, for which volume indexes have been published since the 1920's, to include all other major industrial divisions—agriculture, forestry, fishing and trapping, construction, retail and wholesale trade, finance, insurance and real estate, transportation, storage and communication, public administration and defence, and community, recreation, business and personal service. However, only the index of industrial production is published on a monthly basis; for the remaining industries only quarterly and annual indexes are currently being published. The GDP indexes can also be regarded as an extension of the national accounting framework, i.e., as an elaboration of the supply side of the national income accounts.*

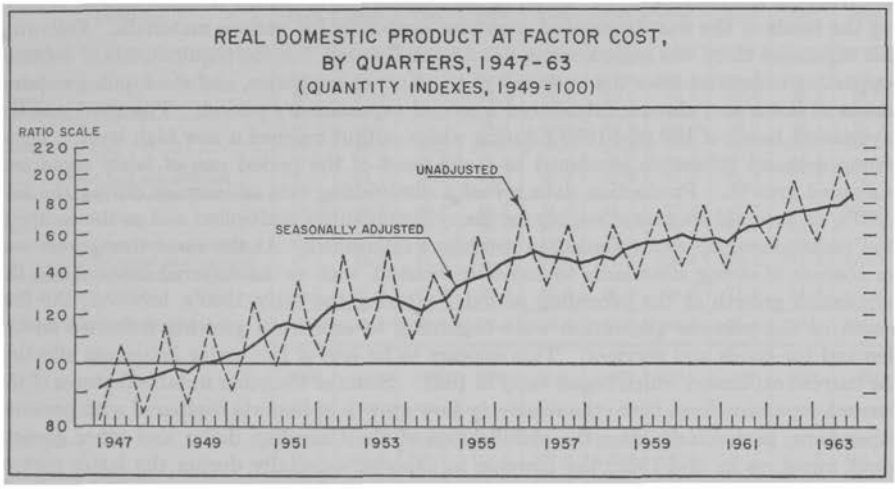
In measuring the output of a single product such as steel, it is normal to think in terms of tons of steel when the question of quantity arises. When measuring the combined production of steel and natural gas, there is an obvious need for a common denominator and it is appropriate to use the average unit prices of a certain time period (chosen as the base) to value the quantities produced before adding them together. The resultant quantity, volume or real output measure can be subsequently left in its constant or base period dollar form or it can be expressed in index number form. The latter is accomplished by dividing the constant dollar aggregate of the current period by the dollar aggregate for the base period and multiplying by 100. In constructing a quantity index for a combination of industries where the output of one industry becomes the input of another, the portion double-counted must be eliminated. This is accomplished by revaluing both intermediate input (materials, fuel, etc.) and total output in terms of the dollars of a common base year and subtracting the constant dollar value of the former from the latter to yield a constant dollar value added aggregate.* This aggregate is the quantity or volume measure represented by the indexes presented herein.

* *Indexes of Real Domestic Product by Industry of Origin, 1935-61* (Catalogue No. 61-505). This paper provides a detailed explanation of concepts, uses and limitations, data sources, methodology, etc., and covers a much wider range of industries than provided in this Section. Current quarterly data are published in DBS monthly *Index of Industrial Production* (Catalogue No. 61-005).

† See *Revised Index of Industrial Production, 1935-57* (Catalogue No. 61-502) and the current monthly publication *Index of Industrial Production* (Catalogue No. 61-005).



The annual indexes are well suited for studies of production trends, growth rates and inter-industry comparisons, but the quarterly indexes provide a much better tool for the study of the cyclical behaviour of industries, short-term changes in production and, in fact, for most types of current analysis. Statistics computed for less than annual intervals, however, are frequently subject to strong seasonal influences, and variations in the number of working days during a quarter may cause differences in the levels of output between two quarters which otherwise would not exist. Accordingly, the quarterly real output indexes have been adjusted for both seasonal and calendar variation. The effects of the seasonal adjustment are shown on the quarterly chart for the period 1947-63.



Factors Underlying Industrial Output Trends, 1935-63.—Over the course of the past three decades, the world has undergone profound economic changes, the more dramatic and far-reaching of which were: the depression of the 1930's and the subsequent slow recovery; the unprecedented upheaval of the Second World War; the emergence of new national and international spheres of influence in the postwar era, both on the political and on the economic fronts; the ever-present social flux with its attendant changes in the mode of living, and the striking advances in the fields of science and technology—two forces which are themselves among the greatest contributors to change. Because Canada has an open economy, sensitive to changes in the world economic climate and affected in many ways by the powerful and technologically advanced economy of the United States, it may be said to be particularly susceptible to these influences.

During the 1935-63 period, Canada's real domestic product more than tripled, growing at an average annual compound rate of 4.4 p.c. as a result of combined pressures brought to bear upon the various industries by interrelated changes in demand (both domestic and foreign), technology, capital formation, marketing techniques and the labour force. The domestic market expanded considerably during this period, especially in the 1950's when immigration and net family formation reached a postwar peak. The population of Canada increased from 10,845,000 in mid-1935 to 18,896,000 in mid-1963, an average annual compound rate of increase of 2.2 p.c.

The tremendous expansion in productive activity following the outbreak of World War II, when output almost doubled within a period of five years, was facilitated by the existence of a large unused labour pool at the outset of hostilities. During the war years a

large proportion of resources was diverted to the war effort, resulting in the expansion of many defence-oriented industries. At the same time, shortages of consumer goods and investment goods were created in other areas while income and savings were rising. During the immediate postwar period a certain amount of industrial dislocation occurred as a result of re-tooling and a large-scale changeover to peacetime production, coupled with major labour unrest in some industries. This phase of readjustment, however, did not generally extend beyond 1946, following which production resumed its upward trend.

The postwar period was marked by several major expansions. The first was based on satisfying the backlog of war-deferred investment and consumer demand and on supplying the needs of the war-devastated countries, especially for various materials. Following this expansion there was some slowing down in production, but the requirements of defence-supporting industries after the outbreak of the Korean hostilities, and stock-piling requirements at home and abroad, introduced a second expansionary period. The third was the investment boom of the mid-1950's during which output reached a new high level. These strong demand influences combined to make most of the period one of fairly rapid and sustained growth. Production data reveal a diminishing rate of increase during the late 1950's, as external sources of supply for many commodities multiplied and as the competition encountered by many Canadian producers intensified. At the same time, there was an absence of strong stimulants to domestic demand, such as the deferred demand and the population growth of the preceding periods. During the early 1960's, however, the first waves of the postwar generation were beginning to exercise a growing influence on the demand for goods and services. This appears to be one of the major influences affecting the current expansion which began early in 1961. Some of the other notable features of the current expansion have been: the relatively slow growth of imports compared with previous expansions, particularly after the stabilization of the Canadian dollar and other government measures in mid-1962; the increase in exports, especially during the latter part of 1963, reflecting large wheat sales abroad; the substantial gains in motor vehicle and primary iron and steel production; and the above-average output of mining and agriculture during 1962 and 1963.

Along with the increases in total final demand, there were also shifts in the composition of demand, which affected the output of the various industries. Imports retained roughly the same relative share of the GNP but the share of exports declined from 26.4 p.c. in 1935 to 21.1 p.c. in 1963, an indication of the growing importance of the domestic market as an outlet for the products of Canadian industry. Government expenditure and business gross fixed capital formation made considerable relative gains but personal expenditure on goods and services as a percentage of total expenditure declined from 77.4 p.c. in 1935 to 63.3 p.c. in 1963.

Even more remarkable than some of the demand-induced changes were the striking changes brought about by the technological discoveries and innovations that transformed whole production processes and opened up previously unknown areas in the fields of manufacturing, transportation and communication. Newer industries, such as air transport, assumed major importance in a comparatively short time; entirely new industries, such as gas pipelines, appeared; and a profusion of new products were created, such as the petrochemicals of the chemicals industry and the television and other electronic products of the telecommunication equipment industry. As was to be expected, the industries in a position to benefit from such innovations were among the most rapidly expanding in the economy, although the impact of the expansion spread through the entire economic system. The changes in production and demand also influenced the level of employment in the various industries; there was a considerable shift in employment during the postwar period from

the goods-producing to the service-producing industries and most of the loss in the former took place in agriculture. From 1946 to 1963, agriculture decreased its share of total employment by over 15 p.c. but total employment continued to expand. In the same period the service-producing industries increased their share from 39 p.c. to 53 p.c. of the total.

11.—Quantity Indexes of Real Domestic Product at Factor Cost, by Industry of Origin, 1935-63

(1949=100)

Industry	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Agriculture	95.0	85.0	85.5	109.5	126.8	127.8	106.6	164.2	102.4	126.2
Forestry	59.2	66.8	87.1	56.8	71.1	83.7	82.9	81.5	84.1	87.1
Fishing and trapping	72.4	76.0	73.9	75.5	78.4	79.8	83.9	80.0	80.9	78.5
Mining[1]	60.8	68.3	79.4	83.7	90.3	96.2	101.0	99.1	88.8	79.7
Manufacturing[2]	39.0	43.0	49.2	45.3	48.7	60.4	78.7	96.1	104.0	106.1
Construction	33.5	37.5	44.7	42.2	43.4	49.1	63.6	67.9	65.6	53.5
Electric power and gas utilities	39.1	42.1	46.1	46.3	49.7	55.9	64.2	72.2	77.2	78.2
Transportation, storage, communication	43.2	46.8	49.7	48.7	51.6	63.4	77.8	87.7	98.0	100.1
Trade	45.1	48.5	52.3	50.9	53.4	58.4	65.1	67.2	68.8	72.8
Finance, insurance and real estate	58.4	60.7	60.4	59.8	60.4	61.3	64.3	67.4	69.7	72.1
Public administration and defence	47.9	49.0	51.6	56.3	61.6	104.8	159.6	235.3	311.2	342.1
Community, recreation, business and personal service	55.7	57.9	61.4	61.8	62.5	66.2	70.9	71.9	74.4	77.1
Real Domestic Product	**49.7**	**52.4**	**56.7**	**56.5**	**60.2**	**69.2**	**80.6**	**95.0**	**99.0**	**103.0**

Industry	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
Agriculture	94.8	109.4	102.8	106.1	100.0	106.2	120.9	148.8	136.3	104.3
Forestry	93.5	103.1	118.7	118.8	100.0	118.9	141.5	129.7	123.7	128.4
Fishing and trapping	87.6	87.1	81.0	87.6	100.0	108.9	111.5	101.6	103.6	112.3
Mining[1]	77.2	74.3	78.5	90.0	100.0	109.5	123.4	131.0	142.1	158.7
Manufacturing[2]	92.9	85.2	93.2	97.3	100.0	106.2	115.0	118.5	126.4	122.9
Construction	54.9	68.4	79.7	89.2	100.0	106.7	110.6	123.2	130.1	129.8
Electric power and gas utilities	75.7	79.4	89.8	94.8	100.0	113.2	129.4	140.7	147.9	161.4
Transportation, storage, communication	98.7	90.5	98.2	99.8	100.0	103.3	113.1	119.4	120.9	117.9
Trade	77.4	89.4	97.3	96.0	100.0	106.9	108.1	114.6	121.3	120.6
Finance, insurance and real estate	75.5	81.6	87.7	93.4	100.0	105.6	113.4	118.4	123.2	129.9
Public administration and defence	309.3	124.7	92.6	92.3	100.0	106.6	119.0	136.3	144.2	151.3
Community, recreation, business and personal service	81.5	89.3	92.9	95.9	100.0	103.3	107.9	112.1	115.7	117.3
Real Domestic Product	**97.0**	**89.8**	**93.8**	**97.1**	**100.0**	**106.4**	**114.6**	**122.7**	**126.7**	**123.9**

Industry	1955	1956	1957	1958	1959	1960	1961	1962	1963
Agriculture	132.1	141.7	117.5	125.1	125.2	128.0	116.0	134.7	147.6
Forestry	135.7	143.4	130.5	115.6	130.6	141.8	130.8	140.5	149.4
Fishing and trapping	105.6	111.6	105.5	117.8	105.9	104.1	115.7	130.4	125.2
Mining[1]	185.2	212.3	227.8	227.0	251.1	253.3	266.9	287.4	294.4
Manufacturing[2]	134.7	145.1	142.9	140.7	149.8	149.3	153.0	164.9	173.9
Construction	139.8	165.7	174.7	178.4	170.7	163.0	168.4	171.0	173.6
Electric power and gas utilities	183.2	204.9	220.3	239.1	268.7	298.0	317.7	337.7	367.4
Transportation, storage, communication	133.6	149.2	149.5	146.6	160.6	163.9	172.1	179.2	192.0
Trade	132.0	144.2	144.6	147.4	156.4	156.6	158.2	166.8	173.2
Finance, insurance and real estate	136.5	141.5	150.9	156.1	163.5	169.5	175.5	182.9	194.5
Public administration and defence	156.3	158.9	163.7	171.3	175.0	177.8	183.9	187.9	188.1
Community, recreation, business and personal service	119.9	127.0	130.6	135.2	141.4	147.4	152.2	158.2	165.0
Real Domestic Product	**136.3**	**147.7**	**147.0**	**148.9**	**156.5**	**158.5**	**161.4**	**171.4**	**180.2**

[1] Contract drilling (excluding drilling for oil and gas) is not included here but is included in the total "Real Domestic Product". [2] Repair service establishments classified to manufacturing are not included here but are included in the total "Real Domestic Product"

Industrial Expansion, 1935-63.—Industrial development since 1935 showed certain well-defined patterns. Individual industries flourished or, in rare instances such as coal mining, declined but all the major industry groups expanded. Development, however, was not uniform throughout the period. Three major types of factors affecting the expansionary paths of industries were in evidence in the Canadian economy at some point during the period.

The first may be described as some special factor at work in a particular industry, the effects of which would be most noticeable in that industry—for example the demand for uranium which had an important influence on the mining industry during the latter half of the 1950's; the opening up of new mineral resources such as the iron ore mines in Quebec-Labrador; and certain technological innovations such as the development of synthetic textiles or television. The second type of factor is much more general in its effects and in its causes. Such factors as increased demand for consumer goods resulting from a rising standard of living and a growing population, shifts in world trading patterns or shortages causing increased demand for export goods; the surge of investment activity associated with replacement cycles; attempts to broaden the base of economic activity through investment in research, social overhead capital, education, improved management and marketing techniques, or a more efficient production process (or a confluence of all these factors) appear to lie at the root of such postwar expansions as the investment boom of the mid-1950's or the rapid expansion in production immediately following the Second World War. The third type of factor would be some unique and far-reaching event, of which the Second World War and the Korean War might serve as conspicuous examples. Each afforded a powerful stimulus to growth in a large cross-section of industries.

All three factors, jointly or in turn, have reacted on the various industries resulting in the upswings in aggregate production. The effect of these factors on the individual industries is revealed to some extent by their relative rates of growth.

12.—Growth Rates of the Main Industrial Groups, 1935-63 and 1946-63

Industry	1935-63	1946-63	Industry	1935-63	1946-63
	p.c.	p.c.		p.c.	p.c.
Agriculture	1.0	1.4	Trade	5.1	4.0
Forestry	3.1	1.4	Finance, insurance and real estate	4.9	5.0
Fishing and trapping	2.0	1.9	Public administration and defence	3.3	4.3
Mining	7.3	9.0	Community, recreation, business and personal service	4.0	3.6
Manufacturing	4.9	3.9			
Construction	6.5	5.4			
Electric power and gas utilities	8.4	9.6			
Transportation, storage and communication	5.0	4.3	**Real Domestic Product**	4.4	4.1

Foremost in growth was the electric power and gas utilities industry which showed an average annual compound rate of growth of close to 10 p.c. during the postwar period and a longer-term growth rate of 8.4 p.c.; large-scale hydro-electric power developments along with the expansion of natural gas distribution helped to sustain this remarkable performance. The mining and construction industries ranked second and third, respectively. All three industries were strongly affected by technological advances, new discoveries and a fairly well sustained demand for their products. In the case of mining, this demand frequently came from abroad, resulting in relatively high export sales and providing incentive for the opening up and developing of new mineral resource areas. Some slackening in construction activity was evident following the unusually high levels reached during the mid-1950's, but demand for housing proved to be a sustaining influence during most of the period.

The industry divisions consisting of manufacturing, transportation, storage and communication, trade, and finance, insurance and real estate all expanded at roughly the same average rate during the 1935-63 period—about 5 p.c. During the postwar period the rates of these industries diverged slightly but still fell within the range of 4 to 5 p.c. and public administration and defence also had growth rates within this range. Although these industries expanded at about the same rates, the manufacturing, trade, and transportation, storage and communication industry divisions, which together account for about one half of total output, also showed strikingly similar cyclical patterns. In fact, these are the three industry divisions within the Canadian economy that showed the most pronounced and consistent patterns of cyclical behaviour during the postwar period.

The Second World War and, to some extent, the Korean War provided strong impetus to the output of the manufacturing industries and transportation. Within manufacturing, it was the durables manufacturing component which expanded considerably during both periods of hostilities and which benefited from the need for machinery and equipment during the investment boom and from consumer demand during the early part of the postwar expansion. Non-durables maintained a fairly steady rate of expansion for most of the period, largely in response to increased population and demand for industrial materials. Trade was less strongly affected by defence requirements than some of the other industries. Retail trade in particular exhibited a relatively smooth expansionary trend.

The community, recreation, business and personal service industry division was relatively insensitive both to cyclical and irregular influences but, along with some other steadily expanding industries such as finance, insurance and real estate, non-durables and retail trade, it helped to sustain aggregate production and growth during periods of contraction and expansion. Within the division, business services showed very rapid advances, reflecting increased use of advertising, accounting and legal services. Among the community services group, education and hospitals showed very pronounced gains but recreation services did not participate in the general upsurge during the 1950's. Within the personal services group, one of the more interesting developments was the relative decline in the domestic service component while other industries, such as restaurants, hotels and motels made considerable gains. Thus, while this division as a whole showed a less-than-average rate of growth, some of its components were among the most rapidly and steadily expanding in the economy.

The rates of growth in the forestry, agriculture and fishing and trapping divisions were also below average and were subject to pronounced irregular fluctuations in output. Forestry experienced sharp year-to-year fluctuations because of the nature of its production processes and also, to some extent, because of its sensitivity to changes in world demand and price. The volume of agricultural output varies largely with the grain crop, as this constitutes a considerable part of agricultural output. Therefore, marked differences from year to year in agricultural output are more often caused by changes in weather conditions and similar factors than by changes in prices and demand conditions. It is interesting to note, however, that particularly poor crop years coincided with cyclical declines in the gross domestic product during the postwar period. Generally speaking, there was a lack of buoyant expansion in agricultural production but, although the rate of growth was low, the year-to-year changes were sometimes quite spectacular. In absolute terms, the industry production levels continued to rise over the longer term and this increase was accomplished with a declining labour force.

Production of Commodity-Producing Industries

The data contained in the tables of this section are published in the DBS report *Survey of Production*.* The scope of the survey of production is limited to industries chiefly engaged in the production of commodities and it measures production in current dollars. This is in contrast to the real domestic product series (pp. 1013-1019) which encompasses all industries and measures production in terms of the dollars of a base year.

*DBS Catalogue No. 61-202.

Tables 13 and 14 give "census value added" production data, classified by province and industry, respectively. Census value added is derived by deducting the cost of materials, fuel, electricity and process supplies consumed in the production process from the gross value of output (shipments or sales adjusted for inventories). The figures include interim classification and valuation changes in mining and manufacturing brought about by the adoption of the 1960 standard industrial classification of establishments. However, the two industry aggregates continue to consist of census value added accruing from their primary activity only. Standard industrial classification changes have not yet been implemented for other industries.

13.—Census Value Added for Commodity-Producing Industries, by Province, 1959-61

Province or Territory	1959		1960		1961	
	$'000	p.c.	$'000	p.c.	$'000	p.c.
Newfoundland[1]	207,072	1.1	241,446	1.3	261,636	1.4
Prince Edward Island	45,046	0.2	49,581	0.2	44,707	0.2
Nova Scotia	398,823	2.1	426,842	2.2	405,007	2.1
New Brunswick	307,784	1.7	344,913	1.8	332,456	1.7
Quebec	4,785,326	25.7	4,943,077	25.9	5,033,002	26.1
Ontario	7,873,316	42.3	7,871,140	41.2	8,039,571	41.8
Manitoba	735,831	4.0	739,561	3.9	704,812	3.7
Saskatchewan	875,302	4.7	1,050,042	5.5	760,779	3.9
Alberta	1,537,090	8.3	1,548,519	8.1	1,738,389	9.0
British Columbia[2]	1,812,995	9.7	1,855,662	9.7	1,898,301	9.9
Yukon and Northwest Territories[2]	33,414	0.2	36,513	0.2	30,449	0.2
Canada	**18,612,010**	**100.0**	**19,107,294**	**100.0**	**19,249,110**	**100.0**

[1] Excludes agriculture. [2] Construction figures for the Yukon and Northwest Territories are included with British Columbia.

14.—Census Value Added for Commodity-Producing Industries, by Province and Industry, 1961

Industry	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	$'000	p.c.	$'000	p.c.	$'000	p.c.	$'000	p.c.
Agriculture	..	..	12,333	27.6	25,808	6.4	23,775	7.2
Forestry	20,265	7.8	722	1.6	11,575	2.9	34,856	10.5
Fisheries	14,922	5.7	4,489	10.0	27,741	6.8	7,730	2.3
Trapping	46	--	1	--	179	--	142	0.1
Mining	53,753	20.5	125	0.3	45,489	11.2	7,725	2.3
Electric power	10,725	4.1	2,301	5.2	24,951	6.2	21,045	6.3
Manufactures	70,010	26.8	8,131	18.2	159,218	39.3	159,979	48.1
Construction	91,916	35.1	16,605	37.1	110,045	27.2	77,204	23.2
Totals	**261,636**[1]	**100.0**	**44,707**	**100.0**	**405,007**	**100.0**	**332,456**	**100.0**

Industry	Quebec		Ontario		Manitoba		Saskatchewan	
	$'000	p.c.	$'000	p.c.	$'000	p.c.	$'000	p.c.
Agriculture	272,955	5.4	543,207	6.8	116,040	16.5	219,388	28.8
Forestry	174,283	3.5	115,324	1.4	4,261	0.6	3,556	0.5
Fisheries	4,710	0.1	5,746	0.1	3,174	0.5	1,385	0.2
Trapping	1,888	--	2,470	--	1,601	0.2	1,591	0.2
Mining	256,962	5.1	414,013	5.1	34,060	4.8	170,208	22.4
Electric power	242,067	4.8	311,511	3.9	37,864	5.4	36,192	4.7
Manufactures	3,207,856	63.8	5,429,853	67.6	315,235	44.7	120,972	15.9
Construction	872,281	17.3	1,217,448	15.1	192,577	27.3	207,487	27.3
Totals	**5,033,002**	**100.0**	**8,039,571**	**100.0**	**704,812**	**100.0**	**760,779**	**100.0**

[1] Excludes agriculture.

14.—Census Value Added for Commodity-Producing Industries, by Province and Industry 1961—concluded

Industry	Alberta		British Columbia		Yukon and Northwest Territories		Canada	
	$'000	p.c.	$'000	p.c.	$'000	p.c.	$'000	p.c.
Agriculture	368,271	21.2	93,593	4.9	—	—	1,675,370	8.7
Forestry	17,330	1.0	284,041	15.0	201	0.7	666,414	3.5
Fisheries	883	--	38,778	2.0	675	2.2	110,232	0.6
Trapping	1,715	0.1	647	--	1,425	4.7	11,704	--
Mining	460,199	26.5	95,502	5.0	23,954	78.7	1,561,989	8.1
Electric power	52,608	3.0	97,647	5.2	3,187	11.4	840,397	4.4
Manufactures	346,732	20.0	863,443	45.5	708	2.3	10,682,138	55.5
Construction	490,651	28.2	424,652[1]	22.4[1]	[2]	[2]	3,700,866	19.2
Totals	**1,738,389**	**100.0**	**1,898,301**	**100.0**	**30,449**	**100.0**	**19,249,110**	**100.0**

[1] Includes the Yukon and Northwest Territories. [2] Included with British Columbia.

Section 3.—Canadian Balance of International Payments*

Canada's total commercial and financial transactions with residents of other countries are presented in summary form in statements of the Canadian balance of international payments. The current account shows separately the principal types of transactions in goods and services with non-residents. The capital account provides a distribution of capital movements into direct and portfolio investments and into long-term and short-term forms. The difference between the current account balance and the balance of these capital movements in an accounting period is reflected in the change in the official holdings of gold and foreign exchange, including Canada's net International Monetary Fund position and other special international financial assistance.

Since the beginning of the 1950's, apart from 1952 when there was a small surplus on current transactions, a wide degree of imbalance has characterized Canada's international payments. Larger current account deficits have customarily been associated with periods of Canadian prosperity. High levels of investment, rising personal consumption and the growth in government expenditures, including defence outlays abroad, have contributed to the deficits. These large current deficits, which reached a peak of $1,504,000,000 in 1959, have reflected and been financed by substantial inflows of capital. Following this record high level, the imbalances in current transactions have narrowed in successive years to $557,000,000 in 1963.

Current Account Transactions.—The surplus on merchandise trade,† which emerged in 1961 for the first time since 1954, was maintained in 1962 at about the same level of $177,000,000, and expanded sharply to $503,000,000 in 1963; an important element in this rise was the extraordinary sales of wheat and flour to the U.S.S.R. Net payments on non-merchandise transactions remained almost unchanged between the two years at slightly more than $1,050,000,000. Thus, the enlarged trade surplus caused the deficit on current transactions in goods and services to fall over one third from $874,000,000 in 1962 to $557,000,000 in 1963. The balance on merchandise trade has varied widely; the record deficit of $728,000,000 occurred in 1956 when it accounted for more than one half of the total current account deficit and the unusually large surplus of $503,000,000 for 1963 exceeded the level of the merchandise surpluses of the immediate postwar years. The

* More detailed information is given in DBS annual report *Canadian Balance of International Payments and International Investment Position* (Catalogue No. 67-201) and in *Quarterly Estimates of the Canadian Balance of International Payments* (Catalogue No. 67-001).

† Commodity trade statistics have been adjusted to reflect more closely the timing of transactions, particularly for investment goods, and to exclude commodities which are either covered elsewhere in the accounts or are not pertinent for balance of payments purposes.

non-merchandise deficit rose steadily from 1952 to a recent peak of $1,155,000,000 in 1961 but remained at a lower level in the following two years mainly because of an improvement in the travel account.

Since 1954, when merchandise exports and imports were almost equal at $3,900,000,000, exports have increased fairly steadily to a record $7,082,000,000 in 1963, an advance of 80 p.c. Imports, on the other hand, have shown wider fluctuations in their growth pattern. The value of imports in current dollars rose more than 40 p.c. in two years to $5,565,000,000 in 1956 and, except for a substantial drop of nearly 8 p.c. to $5,066,000,000 in 1958, remained at about that level until 1961. In 1962 it rose more than 8 p.c. over 1961 to $6,203,000,000, and a further 6 p.c. to a record of $6,579,000,000 in 1963.

In the past decade or so, the relative importance of exports of metals and minerals has increased markedly, that of other materials for industry, such as chemicals and fertilizers, has advanced more moderately, and the percentage shares for farm and forest products have narrowed visibly. The relative position of wheat and wheat flour, which had been diminishing, recovered sharply in 1961 as a result of the large shipments of grain to Mainland China and other communist countries. The very heavy shipments of wheat on the Russian account, together with sizable exports to Japan, Mainland China and Eastern European countries, boosted the total value of wheat and wheat flour exports in 1963 to some $880,000,000, well above the previous record reached in 1952. In addition to newer products for export, such as iron ore, uranium, petroleum and natural gas, there were general increases in more traditional staples such as lumber, pulp and paper, nickel, aluminum and copper, with the metal and mineral items showing above-average gains. About 80 p.c. of the rise of more than $700,000,000 in exports in 1963 originated from larger shipments—in addition to wheat—of lumber, wood pulp, iron ore, primary steel, aluminum, chemicals, rolling-stock, motor vehicles, machinery and specialized measuring equipment. For the fourth successive year, exports of uranium dropped in 1963 to a level less than half that of the peak year 1959. Contributing to the $376,000,000 rise in imports in 1963 were raw sugar and other food products, industrial materials, petroleum and products, automobile parts and machinery. Notwithstanding the complete rescinding in the first quarter of the surcharges imposed in late June of 1962 in the face of an exchange emergency, imports of motor vehicles in the year declined over one third from 1962 and were valued at less than one half of the 1960 import total.

The deficit on non-merchandise transactions of $1,060,000,000, down 8 p.c. from the high level of $1,155,000,000 in 1961, was over nine times as great as that of 1949 and more than double that of as recent a year as 1955. This expansion was attributable largely to the continuing rapid growth in Canada's indebtedness to foreign countries and to the rising population with higher per capita incomes. A total of $646,000,000, or about 60 p.c. of the 1963 deficit on 'invisibles', was directly related to Canada's indebtedness abroad, with total interest and dividend payments by Canadians to non-resident investors reaching $869,000,000. In addition, transfers in other forms of investment income amounted to over $150,000,000, and there were also substantial payments for a variety of business services by Canadian subsidiaries to their home offices and to other non-residents. Furthermore, some hundreds of millions of dollars worth of earnings, which accrued to foreigners but were retained in Canada for reinvestment, are excluded from the current account.

Among non-merchandise items, the most noteworthy change in 1963 was a turnaround of $63,000,000 in the travel account balance from a deficit of $43,000,000 in 1962 to a surplus of $20,000,000, the first since 1950.* Although the favourable trend was evident since 1960, this betterment was less than in 1962. The improvement was concentrated in transactions with the United States, since the deficit with overseas rose gradually over the three years 1961-63. Since 1960, expenditures in Canada by visitors from the United States increased nearly 50 p.c. to about $550,000,000 in 1963, while travel outlays by Canadians in the United States declined 15 p.c. to nearly $400,000,000. In 1963 alone, the

* This balance is somewhat lower than that given in Chapter XXII, Part IV, p. 948, due to incorporation of estimates at differing stages of revision.

rise in travel receipts exceeded 7 p.c. while the contraction in payments was over 6 p.c. Following the reduction at the end of June 1962 in the privilege of duty-free tourist purchases, the value of these imports recorded from the United States was well over $10,000,000 lower in the first half of 1963 than in the corresponding period of the preceding year. Other non-merchandise transactions yielded deficits of $81,000,000 on freight and shipping services, $33,000,000 on inheritances and transfers by migrants and $474,000,000 covering government transactions, personal remittances, business services and miscellaneous income. Included in government expenditures were official contributions amounting to $61,000,000, up considerably from the unusually low total of $36,000,000 in 1962. Against these net payments was an amount of $154,000,000 representing gold production available for export.

The characteristic bilateral distribution of the Canadian current account balances was maintained in 1963; a surplus from transactions with overseas countries partially covered a deficit with the United States. However, an approximate 5-p.c. rise in this deficit from $1,122,000,000 to $1,183,000,000, which was considerably smaller than the more than twofold increase in the overseas surplus to $626,000,000, contributed to reducing the over-all deficit from $874,000,000 to $557,000,000. In current dollars, the 1963 deficit with the United States approximated the 1958 level and was much higher than in any year before 1956. The surplus on current transactions with Britain continued to grow in 1963—from $218,000,000 to $400,000,000—while the surplus with other overseas countries more than tripled to $108,000,000, following the substantial decline in the previous year from the large surplus of $217,000,000 in 1961.

Capital Movements.—In 1963, Canada continued to draw substantially on the resources, both real and financial, of the other countries of the world. However, the net capital inflow (excluding the change in official exchange holdings) of $703,000,000 was less than 70 p.c. of the inward movement of $1,029,000,000 in 1962 and was of the same order of magnitude as 1955, before the crest of the investment boom in the resource industries. Over 80 p.c. of the decline in 1963 was attributable to short-term forms of capital. The estimate of $90,000,000 was only one fourth as large as the 1962 total and was about the same fraction of the average for the four years 1959-62. Capital movements in long-term forms, covering direct investment, portfolio security transactions, official loans and other long-term investments, totalled $613,000,000 in 1963, down 8 p.c. from $668,000,000 in the year before. The long-term capital inflow exceeded the current account deficit by 10 p.c. in 1963. This was the first year since 1956 that long-term investment was ample to cover the deficit on current transactions. In the intervening years, the financing of the current account deficits by long-term capital ranged between 72 p.c. and 98 p.c.; the proportion for the whole period since the conclusion of World War II averaged more than 95 p.c.

The net inflow in 1963 of $240,000,000 of capital for direct investment in foreign-controlled enterprises in Canada was less than one half the movement of $495,000,000 in 1962 and was the lowest on record since 1950. In 1962 there was a sizable net inflow of capital for take-over of Canadian business and for refinancing but in 1963 outflows covering repurchase of Canadian enterprises exceeded by a small margin inflows for take-over of existing concerns by non-residents. This change in the direction of movement accounted for well over one half of the $255,000,000 drop in net inflow of direct investment capital in 1963. In the main, however, the inflows in 1963 continued to reflect investment by foreign corporations in their subsidiaries and branches, which contributed to new capital formation in Canada. Petroleum and natural gas received the largest share of net direct investment inflows, followed by manufacturing and mining. Over 70 p.c. of the reduced inflows originated from the United States compared with more than 60 p.c. in 1962, and the balance

was distributed about equally between Britain and the European Economic Community. The flow of direct investment abroad of Canadian capital was estimated at $110,000,000 in 1963, hardly changed from the total in 1962 but considerably higher than the outflow for each of the preceding five years. Nearly two thirds of the movement was destined for Britain and the EEC countries.

Capital inflows arising from transactions in Canadian and foreign securities amounted to $526,000,000 in 1963, an increase of roughly 80 p.c. over the levels of 1961 and 1962. New issues of provincial bonds sold to investors in the United States accounted for the largest part of the expanded inflow, a substantial portion of the proceeds of the new issues being received before the proposal in July in the United States of the interest equalization tax.

A turn-around from a fairly large outflow in 1962 to a more moderate inflow of capital in 1963 from transactions in outstanding foreign securities was offset by outflows from retirements and trade in outstanding Canadian securities and purchases of new foreign issues. As in the two preceding years, the over-all movement into Canada in 1963 of portfolio security capital originated entirely in the United States, net inflows from that country being $632,000,000. There were outflows of $87,000,000 to Britain and $19,000,000 to other countries.

In 1963, the Government of Canada made loans aggregating $10,000,000 to India in connection with aircraft purchases. Repayments by foreign borrowers dropped sharply to $25,000,000 from $129,000,000 in 1962. Included in the latter total were prepayments of principal amounting to $91,000,000, which contributed to easing temporary difficulties in Canada's international financial position in 1962. The remaining capital movements in long-term forms led in 1963 to an outflow of $58,000,000, considerably below that of $131,000,000 in the previous year. Large repayments of bank loans, which were financed from the sale to non-residents of a new corporate bond issue, constituted an important element in the 1962 outflow.

Following large inflows of capital through reductions in 1961 and 1962, bank balances and other short-term funds held abroad by Canadian residents reverted to the trend characteristic of the 1950's with a net capital outflow in 1963 of over $250,000,000. This reversal accounted for more than the entire drop of $271,000,000 in the short-term inflow between 1962 and 1963. Changes in non-resident holdings of Canadian funds, loans and accounts receivable and payable contributed to increased inflows, which were offset in part by a reduced inflow from transactions in Canadian commercial and finance paper.

Canada's external reserves rose by a smaller amount in 1963 than in either of the two preceding years. The official holdings of gold and foreign exchange increased by $60,000,000 and Canada's net International Monetary Fund position by $86,000,000.

Since the shift upward at the beginning of the 1950's, direct investment inflows have been a significant ingredient in the capital account. Continuing and substantial for nearly the entire period, these receipts contributed in particular to resource development and the growth of associated industries. By far the largest part of the new capital went into the petroleum and natural gas industry, a dynamic element in the expansion of the Canadian economy since about the mid-1950's. Large amounts were also invested in other mining industries, particularly for the development of iron ore, and in various branches of manufacturing. From 1956 to 1959, the inflow for direct investment, substantial though it was, was less than the inflow of portfolio capital, as some of the sharply increased demands for new capital were channelled to foreign capital markets through the sale to non-residents of new issues of Canadian bonds and debentures. Corporations, provincial governments and municipalities were all important borrowers in this period.

15.—Current Account Transactions Between Canada and All Countries, 1944-63

(Millions of dollars)

Year	Current Receipts[1]	Current Payments[2]	Balance including Mutual Aid Exports	Wartime Grants and Mutual Aid	Net Balance on Current Account indicating Net Movement of Capital
1944	4,557	3,539	+1,018	−960	+58
1945	4,456	2,910	+1,546	−858	+688
1946	3,365	3,002[r]	+363[r]	—	+363
1947	3,748	3,699	+49	—	+49
1948	4,147	3,696	+451	—	+451
1949	4,089	3,912	+177	—	+177
1950	4,297	4,574	−277	−57	−334
1951	5,311	5,683	−372	−145	−517
1952	5,858	5,494	+364	−200	+164
1953	5,737	5,934	−197	−246	−443
1954	5,520	5,668	−148	−284	−432
1955	6,072	6,548	−476	−222	−698
1956	6,621	7,830	−1,209	−157	−1,366
1957	6,622	7,970	−1,348	−107	−1,455
1958	6,579	7,568	−989	−142	−1,131
1959	6,855	8,296	−1,441	−63	−1,504
1960	7,153	8,353	−1,200	−43	−1,243
1961	7,769	8,716	−947	−35	−982
1962	8,424	9,257	−833	−41	−874
1963	9,249	9,783	−534	−23	−557

[1] Includes Mutual Aid exports. [2] Excludes Mutual Aid offsets.

16.—Geographical Distribution of the Balance on Current Account Between Canada and Other Countries, 1944-63

NOTE.—In the years 1944-46 balances include exports of currently produced goods provided as Mutual Aid or Official Contributions. (See also Table 15.)

(Millions of dollars)

Year	United States[1]	Britain	Other Overseas Countries	All Countries	Year	United States[1]	Britain	Other Overseas Countries	All Countries
1944	+31	+746	+241	+1,018	1954	−807	+229	+146	−432
1945	+36	+747	+763	+1,546	1955	−1,035	+330	+7	−698
1946	−607	+500	+470[r]	+363[r]	1956	−1,639	+252	+21	−1,366
1947	−1,134	+633	+550	+49	1957	−1,579	+118	+6	−1,455
1948	−393	+486	+358	+451	1958	−1,176	+104	−59	−1,131
1949	−601	+446	+332	+177	1959	−1,230	+13	−287	−1,504
1950	−400	+24	+42	−334	1960	−1,361	+166	−48	−1,243
1951	−951	+223	+211	−517	1961	−1,386	+187	+217	−982
1952	−849	+388	+625	+164	1962	−1,122	+218	+20	−874
1953	−904	+133	+328	−443	1963	−1,183	+400	+226	−557

[1] Includes all net exports of non-monetary gold.

17.—Balance of International Payments Between Canada and All Countries, 1957-63

(Millions of dollars)

Item	1957	1958	1959	1960	1961	1962r	1963
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted)	4,894	4,887	5,150	5,392	5,889	6,380	7,082
Mutual Aid to NATO countries	107	142	63	43	35	41	23
Gold production available for export	147	160	148	162	162	155	154
Travel expenditures	363	249	391	420	482	562	609
Interest and dividends	154	168	182	173	209	202	223
Freight and shipping	445	401	420	442	486	509	560
All other current credits	512	472	501	521	506	575	598
TOTALS, CURRENT RECEIPTS	6,622	6,579	6,855	7,153	7,769	8,424	9,249
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted)	5,488	5,066	5,572	5,540	5,716	6,203	6,579
Travel expenditures	525	542	598	627	642	605	589
Interest and dividends	589	612	671	653	770	794	869
Freight and shipping	515	460	525	533	568	595	641
Official contributions[1]	147	195	135	104	91	77	84
All other current debits	813	835	858	939	964	1,024	1,044
TOTALS, CURRENT PAYMENTS	8,077	7,710	8,359	8,396	8,751	9,298	9,806
Balance on merchandise trade	−594	−179	−422	−148	+173	+177	+503
Balance on other transactions	−861	−952	−1,082	−1,095	−1,155	−1,051	−1,060
C. CURRENT ACCOUNT BALANCE	−1,455	−1,131	−1,504	−1,243	−982	−874	−557
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada	+514	+420	+550	+650	+520	+495	+240
Direct investment abroad	−68	−48	−80	−50	−75	−109	−110
Canadian Securities—							
Trade in outstanding issues	+92	+88	+201	+54	+100	−52	−130
New issues	+798	+677	+707	+447	+538	+728	+968
Retirements	−133	−158	−258	−265	−300	−320	−335
Foreign security transactions	+6	+3	−33	−19	−34	−65	+23
Net repayments on Government of Canada loans	+50	+30	+33	+32	+37	+122	+15
Change in Canadian dollar holdings of foreigners	−34	+105	+16	+123	−26	−13	+14
Other capital movements[2]	+125	+123	+357	+232	+512	+243	+18
E. NET CAPITAL MOVEMENT, EXCLUSIVE OF CHANGES IN OFFICIAL HOLDINGS	+1,350	+1,240	+1,493	+1,204	+1,272	+1,029	+703
H. OFFICIAL HOLDINGS OF GOLD AND FOREIGN EXCHANGE—							
Change in holdings	−105	+109	−70	−39	+229	+537	+60
Net International Monetary Fund position	—	—	+59	—	+61	−378	+86
Other special international financial assistance	—	—	—	—	—	−4	—

[1] Includes Mutual Aid to NATO countries.

[2] Includes unrecorded capital movements, errors and omissions.

18.—Current and Capital Account Transactions Between Canada and the United States, 1957-63

(Millions of dollars)

Item	1957	1958	1959	1960	1961	1962r	1963
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted)	2,931	2,908	3,191	3,040	3,213	3,760	3,970
Gold production available for export	147	160	148	162	162	155	154
Travel expenditures	325	309	351	375	435	512	549
Interest and dividends	95	100	99	102	109	120	152
Freight and shipping	222	206	228	220	230	259	274
All other current receipts	350	327	363	380	361	392	378
TOTALS, CURRENT RECEIPTS	4,070	4,010	4,380	4,279	4,510	5,198	5,477

18.—Current and Capital Account Transactions Between Canada and the United States, 1957-63—concluded

Item	1957	1958	1959	1960	1961	1962[r]	1963
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted)	3,878	3,443	3,727	3,713	3,828	4,205	4,458
Travel expenditures	403	413	448	462	459	419	392
Interest and dividends	480	500	547	531	642	661	736
Freight and shipping	251	294	326	324	333	353	378
All other current payments	537	536	562	610	634	682	696
TOTALS, CURRENT PAYMENTS	5,649	5,186	5,610	5,640	5,896	6,320	6,660
C. CURRENT ACCOUNT BALANCE	−1,579	−1,176	−1,230	−1,361	−1,386	−1,122	−1,183
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada	+390	+303	+424	+446	+335	+318	+176
Direct investment abroad	−35	−3	−7	−19	−26	+7	−6
Canadian Securities—							
Trade in outstanding issues	−65	+60	+94	+47	+196	+72	−63
New issues	+722	+600	+622	+381	+473	+691	+915
Retirements	−105	−132	−211	−214	−215	−249	−245
Foreign security transactions	+9	+2	−36	+4	−7	−55	+25
Subscriptions in gold and U.S. dollars to international financial agencies	—	—	−59	−3	—	−1	−1
Change in Canadian dollar holdings of foreigners	−10	+83	+8	+60	−23	+24	+4
Change in official holdings of gold and foreign exchange (increase, minus)	+104	−108	+67	+39	−227	−535	−59
Other capital movements[1]	+58	+147	+447	+285	+633	+283	+89
E. NET CAPITAL MOVEMENT	+1,068	+952	+1,349	+1,026	+1,139	+555	+835
F. BALANCE SETTLED BY EXCHANGE TRANSFERS	+511	+224	−119	+335	+247	+567	+348
TOTALS, FINANCING OF CURRENT ACCOUNT BALANCE (item C)	+1,579	+1,176	+1,230	+1,361	+1,386	+1,122	+1,183

[1] Includes unrecorded capital movements, errors and omissions.

19.—Current Account Transactions Between Canada and Britain, 1957-63

(Millions of dollars)

Item	1957	1958	1959	1960	1961	1962[r]	1963
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted)	734	766	781	924	924	924	1,017
Travel expenditures	18	18	18	20	21	22	28
Interest and dividends	10	32	35	32	34	29	29
Freight and shipping	95	84	80	93	100	98	105
All other current receipts	81	60	69	76	74	91	117
TOTALS, CURRENT RECEIPTS	938	960	983	1,145	1,153	1,164	1,296
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted)	520	537	618	611	593	578	521
Travel expenditures	47	52	62	70	71	71	76
Interest and dividends	78	76	90	83	86	89	88
Freight and shipping	69	70	85	89	93	88	92
All other current payments	106	121	115	126	123	120	119
TOTALS, CURRENT PAYMENTS	820	856	970	979	966	946	896
C. CURRENT ACCOUNT BALANCE	+118	+104	+13	+166	+187	+218	+400

Section 4.—Economic Council of Canada

This Crown corporation was established by Act of Parliament (SC 1963, c.11) assented to on Aug. 2, 1963. The Council has very broad terms of reference. The Act directs it to advise how Canada can achieve the highest possible levels of employment and efficient production, so that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards. As part of this general responsibility, Sect. 9 of the Act sets out a number of duties. In particular, the Council is instructed "to recommend what government policies will best help to realize the potentialities of growth of the economy". In order to provide the analytical basis for such recommendations, the Council is "regularly to assess on a systematic and comprehensive basis, the medium-term and long-term prospects of the economy and to compare such prospects with the potentialities of growth of the economy".

It is the duty of the Council to advise and recommend to the Minister (the Secretary of State) how Canada can achieve certain national economic objectives. The Act directs the attention of the Council particularly to the basic national policies that are the responsibility of the Federal Government; these include the fiscal and monetary policies that influence incentives and the general economic climate; the policies that determine Canada's relationship with the outside world in trade and finance; the policies regarding national developmental works, national transportation and communication; and the policies regarding manpower and its effective utilization.

The Council consists of 28 members appointed by the Governor in Council including a chairman and two directors who serve on a full-time basis and 25 other members broadly representative of different sectors and groups in the economy; all were appointed between Sept. 12 and Dec. 21, 1963. (See Register of Official Appointments, Chapter XXVIII.)

During its first year of operation, the Council assigned the highest priority to the preparation of the first of its Annual Reviews of Canada's medium-term and long-term prospects and problems.* Four working committees of the Council were established to facilitate development of work on a number of other projects and studies: a Committee on Economic Growth and Problems of Adjustment to consider means of dealing with problems of adjustment in the Canadian economy associated with economic growth; a Committee on Labour-Management Relations to consider how best to implement the provisions of the Act in the field of labour-management relations consultation and co-operation; a Productivity Committee to review how best to carry on the work begun by the National Productivity Council which ceased to exist on the establishment of the Economic Council of Canada and the duties of which were taken up under the authority of the Act; and an Advisory Committee on Industrial Research and Technology to consider the role of research and technology in Canadian economic growth. The membership of the latter Committee includes, in addition to members drawn from the Council, a number of leading Canadian business men.

As part of its program in the labour-management relations area, the Council sponsored the National Conference on Labour-Management Relations held on Nov. 9 and 10, 1964, which was attended by leaders of business and labour. The Conference was based on research studies concerned with two broad fields—the current status of labour-management co-operation in Canada and the implications for the Canadian economy of developments and experiments in the field of labour-management co-operation and relations in Europe and in the United States. A study was also undertaken on the recent experiments in labour-management relations in Nova Scotia. These studies, along with a general summary of the discussion that took place at the Conference, forms the basis for a Council publication.

A number of special studies by outside experts have been sponsored by the Council, which has authority to publish the reports and studies prepared for its use. Through this means, the Council hopes to provide not only advice to governments but also valuable information to the private sector of the economy.

*Economic Council of Canada, *First Annual Review: Economic Goals for Canada to 1970*. Queen's Printer, Ottawa. December 1964. $3.50 (Catalogue No. EC 21-1/1964).

The Act provides for the Council to study how national economic policies can best foster the balanced economic development of all areas of Canada. It also provides that the Council shall seek consultation with appropriate agencies in the several provinces. On Mar. 2, 1964, the Chairman and Vice-Chairman of the Economic Council met in Ottawa with representatives of the following provincial institutions:—

Ontario Economic Council
Conseil d'orientation économique du Québec
Voluntary Planning Board of Nova Scotia
New Brunswick Research and Productivity Council
Manitoba Economic Consultative Board
Interim Committee for the Establishment of a British Columbia Development Council
Saskatchewan Industry Advisory Council
Saskatchewan Economic Advisory and Planning Board
Alberta Economic Development and Productivity Council

As the work of the Council proceeds, liaison and consultation will be progressively developed with provincial economic and productivity councils.

Section 5.—Organization for Economic Co-operation and Development

The Organization for Economic Co-operation and Development (OECD) was established in October 1961 as successor to the OEEC, with Canada and the United States joining the countries of Western Europe as full members of the new body. Japan, previously a member of the Development Assistance Committee, became, in May 1964, a full member of the OECD and the first member from outside Western Europe or North America.

The prime purpose of the OECD is to promote among member governments co-operation in the fields of economic policy, trade and assistance to developing countries, though it also provides a valuable forum for discussion of common problems in agriculture, industry, finance, technology and manpower policy. In 1963, Ministers approved an annual growth target for member countries for the next seven years of 4 p.c. in real gross national product. Because of its development from the former OEEC, the Organization was at first largely concerned with questions of primarily European interest but, as its membership expanded, it has become increasingly a recognized forum for broader consultation among advanced industrial countries, particularly on questions of economic and financial policy and on the problems of the developing countries. Following the holding of the United Nations Conference on Trade and Development in Geneva in the spring of 1964, the OECD offered valuable opportunity for consultation among developed countries concerning the recommendations of the Conference.

The OECD brings together government officials as well as representatives of private business, labour unions, universities and other non-governmental bodies in both deliberative and consultative capacities, and provides for international liaison among such groups. Within Canada, liaison has been established with the business community through the Canadian Business and Industry Advisory Committee, which was established in 1962 and comprises representatives of the Canadian Chamber of Commerce, the Canadian Council of the International Chamber of Commerce and the Canadian Manufacturers' Association. Parallel arrangements exist for consultation with Canadian labour organizations.

CHAPTER XXV.—CURRENCY, BANKING AND MISCELLANEOUS COMMERCIAL FINANCE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—The Bank of Canada*

The Bank of Canada is Canada's central bank. It was incorporated under the Bank of Canada Act in 1934 and commenced operations on Mar. 11, 1935. The Act of Parliament which established the central bank charged it with the responsibility for regulating "credit and currency in the best interests of the economic life of the nation", and conferred on it certain specific powers for discharging this responsibility. Through the exercise of these powers, the Bank of Canada determines broadly the combined total of the basic forms of Canadian money held by the community—currency outside banks plus deposit balances in chartered bank accounts.

By virtue of the provisions of the Bank of Canada Act, which enable the central bank to increase or decrease the total amount of cash reserves available to the chartered banks as a group, the Bank of Canada is able to determine broadly the over-all level of the total assets and deposit liabilities of the group, and hence of the combined total of currency and bank deposits. The Bank Act requires that each chartered bank maintain a minimum amount of cash reserves in the form of deposits at the Bank of Canada and holdings of Bank of Canada notes. This minimum requirement is 8 p.c. of the bank's total Canadian dollar deposit liabilities on a monthly average basis. The ability of the chartered banks as a group to expand their total assets and deposit liabilities therefore depends on the level of total cash reserves. An increase in cash reserves will encourage the banks to expand their total assets (which consist chiefly of loans and marketable securities) with a concomitant increase in deposit liabilities; a decrease in cash reserves will bring about a decline in their total assets and deposit liabilities as they seek to restore their cash reserve ratios.

The chief method by which the Bank of Canada can affect the level of cash reserves of the chartered banks, and through them the total of chartered bank deposits, is by purchases and sales of government securities. Payment by the central bank for the securities it purchases in the market adds to the cash reserves of the chartered banks as a group and puts them in a position to expand their assets and deposit liabilities. Conversely, payment to the central bank for securities it sells causes a reduction in reserves of the chartered banks and makes it necessary for them to reduce their assets and deposit liabilities.

* Revised by the Research Department of the Bank of Canada.

The influence that the Bank of Canada has on credit conditions and hence on economic behaviour stems from its ability to determine broadly the level of total holdings of currency and chartered bank deposits. The trend of total holdings of these forms of money can have an influence on liquidity generally, including effects on interest rates and bond prices and the availability of credit, and on expectations regarding future financial and economic trends, all of which have some effect on decisions to spend or to save. However, many factors other than changes in the money supply also have important influences on financial and economic developments, such as: the state of economic conditions and prospects outside Canada; the competitive strength of Canadian business enterprises both at home and abroad; the character of the investment decisions and price and wage policies in domestic industries; the skills and degree of mobility of labour; and the nature of public policies at all levels of government with regard to such matters as expenditure, taxation, subsidies and the regulation of industry. In forming its judgments, the Bank of Canada is bound by criteria laid down by Act of Parliament in the preamble to the Bank of Canada Act of 1934. Its operations must be based, not on any simple mechanical formula, but rather on continuous observation and appraisal of the constantly changing state of the economy as reflected in the complex pattern of economic and financial developments.

While the Bank of Canada has the power to determine the combined total of currency and chartered bank deposits, it has no means of determining how much of this total is held in the form of currency and how much in the form of chartered bank deposits. That depends on the wishes of the public, since deposits can be converted freely into notes and coin and back again. Nor does the Bank have any direct control over the growth of other forms of money or of close substitutes for money as a store of wealth in liquid form, of which there are many varieties in Canada—mainly deposit balances in savings institutions other than chartered banks and short-term securities issued by governments and corporations.

The cash reserve system in Canada, which is similar to that in a number of other countries, while placing the central bank in a position where it can determine within broad limits the total amount of chartered bank assets and deposits, leaves the allocation of bank credit and other forms of credit to the private sector of the economy. Each chartered bank can attempt to gain as large a share as possible of the total cash reserves by competing for deposits. Each bank determines how its assets will be distributed, for example, between various kinds of securities and loans to various types of borrowers. The Bank of Canada has no power to direct banks or other lenders to make funds available to certain groups or in certain regions on the same terms or on different terms than to other groups or in other regions. The influence of the central bank—based in essence on its power to expand or contract chartered bank cash reserves through its market purchases or sales of securities—is both indirect and impersonal and is brought to bear on financial conditions generally through the chartered banks and the numerous inter-connected channels of the capital market.

The powers of the Bank are set forth in the Bank of Canada Act, 1934 (RSC 1952, c. 13), revisions in which were made in 1936, 1938 and 1954. Some of these powers are outlined below.

The Bank may buy and sell securities issued or guaranteed by Canada or any province, short-term securities issued by Britain, treasury bills or other obligations of the United States, and certain classes of short-term commercial paper. The Bank is authorized by the Industrial Development Bank Act to purchase bonds and debentures issued by the Industrial Development Bank. The Bank may buy and sell gold, silver, nickel and bronze coin, and gold and silver bullion, and may also deal in foreign exchange. The Bank may accept deposits that do not bear interest from the Government of Canada, the government of any province, any chartered bank or any bank to which the Quebec Savings Bank Act applies. The Bank does not accept deposits from individuals and does not compete with the chartered banks in commercial banking fields. The Bank acts as the fiscal agent for

the Government of Canada in the payment of interest and principal and generally in respect of the management of the public debt of Canada. The Bank has the sole right to issue paper money for circulation in Canada. Details regarding the note issue are given on p. 1034.

The Bank of Canada may vary the minimum cash reserve requirement of the chartered banks between 8 p.c. and 12 p.c. of their Canadian dollar deposit liabilities, provided that the chartered banks are given a minimum notice period of one month before each increase becomes effective and that any increase is not more than 1 p.c. during any one month. When this legislation became effective on July 1, 1954, the requirement was 8 p.c. and it has since remained at that level.

The Bank may make loans or advances for periods not exceeding six months to chartered banks, or to banks to which the Quebec Savings Bank Act applies, on the pledge or hypothecation of certain classes of securities. Loans or advances on the pledge or hypothecation of readily marketable securities issued or guaranteed by Canada or any province may be made to the Government of Canada or the government of any province for periods not exceeding six months. Other loans may be made to the Government of Canada or the government of any province in amounts not exceeding a fixed proportion of such government's revenue; such loans must be repaid before the end of the first quarter after the end of the fiscal year of the borrower.

The Bank of Canada is required to make public at all times the minimum rate at which it is prepared to make loans or advances; this rate is known as the Bank Rate. From Nov. 1, 1956 until June 24, 1962, the Bank Rate was established weekly at a fixed margin of ¼ of 1 p.c. above the latest weekly average tender rate for 91-day treasury bills. On June 24, 1962, the Bank Rate was fixed at 6 p.c.; it was reduced to 5½ p.c. on Sept. 7, 1962, to 5 p.c. on Oct. 12, 1962, to 4 p.c. on Nov. 13, 1962 and to 3½ p.c. on May 6, 1963; it was increased again to 4 p.c. on Aug. 11, 1963 and to 4¼ p.c. on Nov. 23, 1964. Since June 24, 1962, the Money Market Rate, the rate at which the Bank of Canada is prepared to enter into purchase and resale agreements with money market dealers, has been ¼ of 1 p.c. above the average rate on 91-day treasury bills at the preceding weekly tender, or the Bank Rate, whichever is lower. The Bank of Canada is not required to maintain a minimum or fixed ratio of gold or foreign exchange to its liabilities unless the Governor in Council prescribes otherwise.

The Bank is under the management of a Board of Directors composed of a Governor, a Deputy Governor and twelve Directors. The Governor and Deputy Governor are appointed for terms of seven years each by the Directors, with the approval of the Governor General in Council. The Directors are appointed by the Minister of Finance, with the approval of the Governor General in Council, for terms of three years each. The Deputy Minister of Finance is a member of the Board but does not have the right to vote. There is an Executive Committee of the Board composed of the Governor, the Deputy Governor, one Director and the Deputy Minister of Finance (who is without a vote) which has the same powers as the Board except that its decisions must be submitted to the Board at its next meeting. In addition to the Deputy Governor who is a member of the Board, there may be one or more Deputy Governors appointed by the Board of Directors to perform such duties as are assigned by the Board.

The capital of the Bank is $5,000,000 and is held entirely by the Minister of Finance. In accordance with the provisions of the Bank of Canada Act as amended in 1954, 20 p.c. of the Bank's annual profits were allocated to the Rest Fund until that Fund reached a required maximum of $25,000,000 at the end of 1957. Since that date, the whole of the Bank's profits have been transferred to the Receiver General.

The head office of the Bank is at Ottawa. It has agencies at Halifax, Saint John, Montreal, Ottawa, Toronto, Winnipeg, Regina, Calgary and Vancouver and is represented in St. John's and Charlottetown.

1.—Assets and Liabilities of the Bank of Canada, as at Dec. 31, 1959-63

Item	1959	1960	1961	1962	1963
Assets	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Foreign exchange	41.2	54.5	44.8	47.4	42.4
Bankers' acceptances	—	—	—	3.3	—
Investments—					
Treasury bills of Canada	305.9	404.4	312.2	455.2	465.6
Other securities issued or guaranteed by Canada maturing within 2 years	514.5	353.4	513.9	446.6	688.0
Other securities issued or guaranteed by Canada not maturing within 2 years	1,800.2	1,931.9	1,999.6	1,980.8	1,881.7
Bonds and debentures issued by Industrial Development Bank	58.6	64.4	88.0	127.1	150.6
Other securities	18.5	24.4	25.0	25.7	21.5
Industrial Development Bank capital stock	25.0	25.0	27.0	31.0	33.0
Bank premises	10.9	11.5	10.6	10.7	11.8
All other assets	193.3	175.0	221.9	103.3	150.4
Totals, Assets	**2,968.1**	**3,044.4**	**3,242.9**	**3,231.1**	**3,444.9**
Liabilities					
Capital paid up	5.0	5.0	5.0	5.0	5.0
Rest Fund	25.0	25.0	25.0	25.0	25.0
Notes in Circulation—					
Held by chartered banks	315.7	329.8	346.6	416.8	418.4
All other	1,704.8	1,731.9	1,800.2	1,817.0	1,886.2
Deposits—					
Government of Canada	45.6	35.7	41.4	42.9	49.4
Chartered banks	637.0	662.6	749.4	745.6	811.4
Other	34.8	33.3	33.4	38.1	38.9
Foreign currency liabilities	50.0	68.6	59.0	61.1	52.8
All other liabilities	150.2	152.5	182.8	79.6	157.8
Totals, Liabilities	**2,968.1**	**3,044.4**	**3,242.9**	**3,231.1**	**3,444.9**

The Industrial Development Bank.—The Industrial Development Bank, a subsidiary of the Bank of Canada, was incorporated by Act of Parliament during 1944 and its banking operations commenced on Nov. 1, 1944. Its functions are described in the preamble to the Act as follows:—

> "To promote the economic welfare of Canada by increasing the effectiveness of monetary action through ensuring the availability of credit to industrial enterprises which may reasonably be expected to prove successful if a high level of national income and employment is maintained, by supplementing the activities of other lenders and by providing capital assistance to industry with particular consideration to the financing problems of small enterprises."

The President of the Industrial Development Bank is the Governor of the Bank of Canada and the Directors are the Directors of the Bank of Canada and the Deputy Minister of Trade and Commerce. The authorized capital of the Bank is $50,000,000 and it may also raise funds by the issue of bonds and debentures provided that its total direct liabilities and contingent liabilities in the form of guarantees and underwriting agreements do not exceed five times the aggregate of the Bank's paid-up capital and Reserve Fund.

The Bank may extend financial assistance to industrial enterprises in Canada which, by definition in the Act, include any industry, trade or other business undertaking of any kind. With respect to such enterprises the Bank is empowered to lend money or guarantee loans and where an enterprise is a corporation the Bank may also enter into underwriting agreements with regard to any issue of stock, bonds or debentures; acquire stock, bonds or debentures from the issuing corporation or any person with whom the Bank has entered into an underwriting agreement; and acquire certificates issued by a trustee to finance the purchase of transportation equipment. The total amount of commitments of the Bank, in the form of loans, guarantees, etc., in excess of $200,000 each, may not exceed $200,000,000.

The Bank may accept any form of collateral security against its advances, including realty and chattel mortgages which constitute the usual kind of security taken. The Bank is intended to supplement the activities of other lending agencies, not to compete with them, and the Act of Incorporation provides that it should extend credit only when, in the Bank's opinion, credit or other financial resources would not otherwise be available on reasonable terms and conditions. Its lending takes the form of fixed-term capital loans rather than current operating loans. The Bank is specifically prohibited from engaging in the business of deposit banking. It has branch offices in the following cities: St. John's, Halifax, Saint John, Moncton, Rimouski, Quebec, Trois Rivières, Montreal, Ottawa, Toronto, Hamilton, Waterloo, London, Windsor, Sudbury, Port Arthur, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Kelowna, Vancouver and Victoria.

2.—Assets and Liabilities of the Industrial Development Bank, as at Sept. 30, 1959-63

Item	1959	1960	1961	1962	1963
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000
Assets—					
Loans outstanding[1]	96.9	103.1	123.3	164.9	200.9
Other assets	1.8	3.7	1.7	2.2	3.7
Totals, Assets	**98.7**	**106.8**	**125.0**	**167.1**	**204.6**
Liabilities—					
Capital and reserves	39.4	41.8	44.2	49.0	53.3
Bonds and debentures outstanding	57.7	63.6	78.9	115.3	147.6
Other liabilities	1.6	1.4	1.9	2.8	3.7
Totals, Liabilities	**98.7**	**106.8**	**125.0**	**167.1**	**204.6**
Loan Transactions—					
Disbursements	29.3	29.7	47.5	74.3	74.0
Repayments	20.4	23.4	27.1	32.6	38.2
Loans outstanding plus undistributed authorizations	109.1	119.8	154.2	203.6	232.6
	No.	No.	No.	No.	No.
Customers on books	1,609	1,966	2,768	4,083	5,105

[1] Includes investments; the change in loans outstanding does not equal the difference between disbursements and repayments because of year-end accounting adjustments.

Section 2.—Currency

Note Circulation.—The development by which bank notes became the chief circulating medium in Canada prior to 1935 is described in the 1938 Year Book, pp. 900-905. Those features of the development which then became permanent are outlined in the 1941 Year Book, pp. 809-810.

When the Bank of Canada commenced operations in 1935 it assumed liability for Dominion notes outstanding. These were replaced in public circulation and partly replaced in cash reserves by the Bank's legal tender notes in denominations of $1, $2, $5, $10, $20, $50 and $100. Deposits of chartered banks at the Bank of Canada completed the replacement of the old Dominion notes of $1,000 to $50,000 denomination that had previously been used as cash reserves.

The chartered banks were required under the Bank Act of 1934 to reduce gradually the issue of their own bank notes during the years 1935-45 to an amount not in excess of 25 p.c. of their paid-up capital on Mar. 11, 1935. Bank of Canada notes thus replaced chartered bank notes as the issue of the latter was reduced. Further restrictions introduced by the

1944 revision of the Bank Act cancelled the right of chartered banks to issue or re-issue notes after Jan. 1, 1945, and in January 1950 the chartered banks' liability for such of their notes issued for circulation in Canada as then remained outstanding was transferred to the Bank of Canada in return for payment of a like sum to the Bank of Canada.

3.—Bank of Canada Note Liabilities and Other Notes in Circulation, as at Dec. 31, 1959-63

Denomination	1959	1960	1961	1962	1963
	$'000	$'000	$'000	$'000	$'000
Bank of Canada Notes—					
$1	78,402	81,733	86,114	91,426	94,853
$2	55,076	57,622	60,640	63,837	66,670
$5	144,702	149,545	156,501	162,643	167,743
$10	521,309	519,559	533,041	548,442	558,688
$20	647,276	676,549	719,713	766,974	811,119
$25	46	46	46	46	46
$50	145,461	147,596	152,106	155,938	158,277
$100	395,383	396,328	407,307	413,460	415,563
$500	46	41	38	37	37
$1,000	19,549	19,547	18,198	17,951	18,603
Totals	2,007,250	2,048,567	2,133,704	2,220,755	2,291,600
Chartered banks' notes[1]	8,519	8,423	8,363	8,314	8,291
Dominion of Canada notes[1]	4,641	4,638	4,637	4,637	4,637
Provincial notes[1]	28	28	28	28	28
Defunct banks' notes[1]	88	88	88	88	88
Totals, Bank of Canada Note Liabilities	**2,020,525**	**2,061,743**	**2,146,820**	**2,233,822**	**2,304,644**
Held by—					
Chartered banks	315,703	329,841	346,630	416,845	418,405
Others	1,704,822	1,731,902	1,800,190	1,816,977	1,886,239

[1] Note issues in the process of being retired, the liability for which has been taken over by the Bank of Canada from the original issuers.

4.—Note Circulation in the Hands of the Public, as at Dec. 31, 1954-63

As at Dec. 31—	Bank of Canada Notes[1]	Per Capita	As at Dec. 31—	Bank of Canada Notes[1]	Per Capita
	$	$		$	$
1954	1,361,874,433	89.09	1959	1,704,822,198	97.51
1955	1,449,045,166	92.31	1960	1,731,902,386	96.92
1956	1,497,765,781	93.14	1961	1,800,190,122	98.70
1957	1,555,115,143	93.63	1962	1,816,977,132	97.84[r]
1958	1,659,870,299	97.18	1963	1,886,238,792	99.82

[1] Total issue less notes held by chartered banks.

Coinage.*—Under the Currency, Mint and Exchange Fund Act (RSC 1952, c. 315), gold coins may be issued in denominations of twenty dollars, ten dollars and five dollars (nine-tenths fine or millesimal fineness, 900). Subsidiary coins include: silver coins in denominations of one dollar, 50 cents, 25 cents, 10 cents (eight-tenths fine or millesimal fineness, 800); pure nickel five-cent coins; and bronze (copper, tin and zinc) one-cent coins. Provision is made for the temporary alteration of composition in event of a shortage of prescribed metals. A tender of payment of money in coins is a legal tender in the case of gold coins issued under the authority of Sect. 4 of the Currency, Mint and Exchange Fund Act for the payment of any amount; in the case of silver coins for the payment of an amount up to $10; nickel coins for payment up to $5; and bronze coins up to 25 cents.

5.—Canadian Coin in Circulation, as at Dec. 31, 1954-63

NOTE.—The figures shown are of net issues of coin. Figures from 1901 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

As at Dec. 31—	Silver	Nickel	Tombac[1]	Steel	Bronze	Total	Per Capita
	$	$	$	$	$	$	$
1954	91,350,637	7,810,723	560,577	3,458,758	12,392,389	115,573,084	7.56
1955	95,574,457	8,076,800	555,912	3,457,712	12,956,807	120,621,688	7.68
1956	100,922,477	8,545,507	552,868	3,456,782	13,742,282	127,219,916	7.91
1957	107,116,450	8,910,869	550,743	3,455,886	14,745,243	134,779,191	8.11
1958	115,120,076	9,289,481	549,630	3,455,062	15,322,156	143,736,405	8.42
1959	123,344,059	9,865,012	549,237	3,454,209	16,150,222	153,362,739	8.77
1960	136,710,958	11,599,263	549,090	3,452,876	16,895,953	169,208,140	9.47
1961	146,902,352	14,110,198	549,021	3,451,708	18,311,853	183,325,132	10.05
1962	162,928,707	16,433,088	549,009	3,450,676	20,595,543	203,957,023	10.98
1963	180,492,972	18,627,687	548,999	3,449,476	23,383,788	226,502,922	11.99

[1] Tombac, a copper-zinc alloy, was used to conserve nickel for war purposes; no coins of this metal have been issued since 1944.

*The Royal Canadian Mint.**—The Mint at Ottawa was established as a branch of the Royal Mint under the (Imperial) Coinage Act 1870 and opened on Jan. 2, 1908. In 1931 (RSC 1952, c. 240) it was constituted a branch of the Canadian Department of Finance and has since operated as the Royal Canadian Mint. In its earlier years the operations of the Mint in Canada were confined to the production of gold, silver and bronze coins for domestic circulation and of British sovereigns and small coins struck under contract for Newfoundland and Jamaica. Before 1914 only small quantities of gold bullion were refined but during World War I the Mint came to the assistance of the British Government by establishing a refinery in which nearly 20,000,000 oz.t. of South African gold were treated on Bank of England account. The subsequent development of the gold mining industry in Canada resulted in gold refining becoming one of the principal activities of the Mint. Fine gold produced from the rough bullion shipments received from the mines is purchased by the Mint and later delivered to the Bank of Canada for account of the Minister of Finance in bars of approximately 400 oz.t. each or, for those mines authorized to sell gold in the open market, the bullion is shipped according to instructions from the mines. The fine silver extracted from the rough gold is generally used for coinage purposes.

* Revised by the Master of the Royal Canadian Mint, Ottawa.

6.—Receipts of Gold Bullion at the Royal Canadian Mint and Bullion and Coinage Issued, 1954-63

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Gold Received	Gold Bullion Issued	Silver Coin Issued	Nickel Coin Issued	Steel Coin Issued	Bronze Coin Issued
	oz. t.	oz. t.	$	$	$	$
1954	3,829,431	3,998,836	1,864,968	27	350,229	263,897
1955	3,947,637	3,952,764	4,269,157	267,801	—	566,863
1956	3,801,789	3,774,599	5,389,464	469,993	—	786,855
1957	3,896,084	3,776,711	6,236,429	366,493	—	1,004,221
1958	3,958,459	4,088,706	8,044,753	379,616	—	578,274
1959	3,908,640	3,836,680	8,273,563	576,680	—	829,116
1960	4,024,626	4,014,771	13,432,251	1,735,707	—	748,101
1961	3,800,137	3,812,054	10,299,581	2,512,369	—	1,417,544
1962	3,488,974	3,520,406	16,114,240	2,324,212	—	2,284,925
1963	3,457,092	3,467,554	17,688,668	2,196,217	—	2,790,679

Dollar Currency and Bank Deposits.—Bank of Canada statistics concerning currency and chartered bank deposits are given in Table 7.

7.—Canadian Dollar Currency and Chartered Bank Deposits, as at Dec. 31, 1954-63

(Millions of dollars)

As at Dec. 31—	Currency Outside Banks			Chartered Bank Deposits				Total Currency and Chartered Bank Deposits[1]		
	Notes	Coin	Total	Personal Savings Deposits[2]	Government of Canada Deposits	Other Deposits[1,2]	Total[1]	Total Including Government Deposits	Held by General Public	
									Including Personal Savings Deposits	Excluding Personal Savings Deposits[2]
1954	1,362	96	1,458	5,218	176	3,462	8,856	10,314	10,137	4,920
1955	1,449	101	1,550	5,633	517	3,697	9,847	11,397	10,880	5,248
1956	1,498	108	1,605	6,007	246	3,580	9,833	11,438	11,192	5,185
1957	1,555	112	1,667	6,108[2]	423	3,725[2]	10,256	11,923	11,500	5,392[2]
1958	1,660	121	1,781	6,844	319	4,303	11,466	13,247	12,927	6,084
1959	1,705	128	1,832	6,900	404	4,057	11,360	13,193	12,789	5,890
1960	1,732	144	1,876	7,215	510	4,313	12,037	13,914	13,404	6,189
1961	1,800	158	1,959	7,618	588	4,998	13,205	15,163	14,575	6,957
1962	1,817	177	1,994	7,932	564	5,193	13,689	15,683	15,119	7,187
1963	1,886	198	2,084	8,443	914	5,623	14,980	17,064	16,150	7,707

[1] Less total float, i.e., cheques and other items in transit. [2] The deposit balances of religious, educational and welfare institutions and personal accounts used mainly for business purposes were reclassified from "personal savings deposits" to "other notice deposits" as at Sept. 30, 1957 in the returns of the banks to the Department of Finance; from that date the figures are thus not comparable with those for previous years. The amount of deposits reclassified was approximately $140,000,000.

Section 3.—The Commercial Banking System*

The Canadian commercial banking system consists of eight privately owned banks, chartered by Parliament and operating under the provisions of the Bank Act.† Of these eight, five are nation-wide institutions; two operate mainly in the Province of Quebec and in other French-speaking areas and one, affiliated with a New York bank, has branches

* More detail is included in an article appearing in the 1961 Year Book, pp. 1115-1120, prepared by J. Douglas Gibson, General Manager of The Bank of Nova Scotia. The early history of currency and banking in Canada is given in the 1938 Year Book, pp. 900-905. A list of the banks at Confederation appears in the 1940 Year Book, p. 897, and bank absorptions since 1867 are given in the 1941 edition, pp. 812-813. A table in the 1937 Year Book, pp. 894-895, shows the insolvencies since Confederation; the last insolvency occurred in 1923.

† The Senate Banking Committee, on July 28, 1964, approved the granting of charters to two additional banks—the Bank of Western Canada and the Laurentide Bank.

in four large cities. At the end of 1963, these banks together operated 5,626 banking offices of which 5,447 were in Canada and 179 abroad. Thus, the chief distinguishing feature of the Canadian banking system is the relatively small number of large banks having an extensive network of branches, operating under a single legislative jurisdiction (the Federal Government) and under one detailed and comprehensive statute (the Bank Act).

Since the first banks were established during the first quarter of the nineteenth century, the commercial banking system has developed in response to the changing needs of the Canadian economy, an evolution which is still in rapid progress. Canadian economic development has been characterized by two main features—successive but by no means continuous periods of rapid geographical expansion of settlement, and a continued dependence on export markets as new natural resources (agricultural land, forests and minerals) were exploited. Thus, Canadian banking has continually had to migrate to new areas and to find appropriate methods of financing new industries and new products; and it has from the beginning possessed a strongly 'international' character* with much emphasis on the financing of foreign trade, on foreign exchange operations, and on correspondent relations with foreign banks. At the same time, as regional isolation has gradually broken down and the economy has been integrated, banks originating in local areas have become part of a nation-wide banking system, in part by process of amalgamation particularly marked in the first twenty-five years of the present century.

Bank Legislation

From the first, banks in what is now Canada sought to operate under Acts of incorporation (charters) passed by the legislatures of the colonies in which they operated. As new banks were incorporated and older ones obtained charter renewals, there developed in the bank charters themselves a quite extensive and fairly uniform code of banking law. At Confederation, responsibility for banking and currency was given to the Dominion Government and in 1871 the first general Bank Act was passed. This legislation is subject to review and revision every ten years, a feature that has helped to keep the banking system adapted to the needs of a changing economy. The decennial revision was due in 1964, but the Bank Act was extended for one year in order to provide time to consider recommendations made by the Royal Commission on Banking and Finance.

Certain characteristic features of the Canadian financial system have thus emerged—notably the traditional emphasis of the chartered banks on "commercial" banking. The early banks were established by merchants for merchants. Their note issues provided a badly needed medium of internal exchange and they advanced working capital to finance the processes of trade. The aim was to make lending as far as possible short-term and self-liquidating. The bank charters from the first contained prohibitions against lending on the security of real property, except as secondary or subsequent security. Now, however, exceptions to the rule against lending upon security of real property, incorporated in the Bank Act in 1944 and 1954, allow the banks to participate in government-guaranteed loans to farmers and fishermen and for housing constructed under the National Housing Act, to lend to oil companies on the security of oil "in, under or upon the ground" and production equipment, and to extend their consumer-finance lending by taking chattel mortgages. It is also permissible for banks to make advances on the security of natural products and goods, wares and merchandise while they remain in the borrower's possession. These 'pledge' arrangements have facilitated loans to small businesses and farmers and have aided in commercial and manufacturing development, while giving the banks a reasonable degree of protection for their loans.

Today the Bank Act has become a most detailed and comprehensive piece of legislation which provides for the internal regulation and organization of the banks, for the auditing of their accounts, and for the ways in which their capital stock may be issued and transferred, their dividends paid, and their affairs settled in case of amalgamation, winding-up

* The larger Canadian banks have long maintained offices in London and New York. In addition, some Canadian banks for more than half a century have been providing an important part of the commercial banking facilities in the Caribbean area (see Table 10, p. 1043).

or insolvency. In addition, it states what cash reserves the banks must keep, what reports they must make to the Government and to the Bank of Canada about their affairs and sets forth a variety of rules governing the conduct of business with the public. The Bank Act also specifies the maximum rate of interest that may be charged on bank loans. (Since the 1944 Bank Act revision this ceiling has been 6 p.c., replacing the 7-p.c. ceiling that had prevailed since 1871.) The banks derive their corporate existence from the Act, which states that "each bank. . . . is a body politic and corporate and this Act is its charter"; successive Bank Acts have empowered the banks to do business for a period of ten years, until the next revision of the Act.

Banking Operations

Operating under the Bank Act, the chartered banks at their branches accept deposits from the public, make loans covering a wide range of commercial, industrial, agricultural and consumer activities, deal in foreign exchange, receive and pay out Bank of Canada notes and coin, provide safekeeping facilities, and perform a variety of other services coming within the scope of the general business of banking. The head office of a Canadian bank does not transact ordinary day-to-day business with the public; it performs general administration and policy-making functions, manages the bank's investment portfolio, does its centralized accounting work, and maintains specialized departments devoted to inspection of branch operations, the development of branch office methods, the acquisition of new business, premises, staff, arrangements with foreign banks, advertising, etc.

Under its branch system, Canadian banking is able to provide standard banking facilities throughout the country. Every branch, even the smallest, can provide all banking services, and each has behind it the resources of a large bank, which means that lending requirements can be met just as well by a branch in a small town or a suburban branch as in the main branches of a large city. Branch banking also provides an excellent training for Canadian bank officers through the system of promotion and transfer from branch to branch. Almost without exception, the chief executives of the Canadian banks have grown up in the service and have been trained in this way.

The branch system has proved to be most flexible and Canadian banking has been able to keep pace with settlement and economic development during its periods of most rapid growth. Particularly during the past quarter-century, with a rapidly expanding economy, sharply rising population and growing urbanization, new branches have opened at a very rapid rate. Offices have been established in suburban areas, in new towns, oil fields and mining camps, as well as in the long-established urban centres where industrial and commercial growth have so enlarged the demand for banking services. In all, the number of banking offices in Canada, which was about 3,300 at the end of 1939 and 3,100 at the end of 1945, grew by over 2,300 in the next eighteen years. As this growth suggests, Canadian banks have taken full advantage of the recent expansive atmosphere to extend the volume and variety of their services to industry and to individuals. Strongly competing for customers, they offer a wide variety of new deposit arrangements, including new savings programs, new forms of chequing accounts, and greatly broadened lending facilities.

By the end of the War, the banks had experienced more than fifteen years of restricted demand for commercial credit. Loans had declined sharply during the depression and shown only a slightly rising trend during the prewar years of incomplete recovery and, of course, in the wartime economy bank lending was subject to a variety of restrictive influences. The result was a marked change in the composition of bank assets; by the end of 1945 security holdings accounted for about 55 p.c. of the banks' total assets, compared with a little over 40 p.c. just before the War and only about 15 p.c. in 1930. In the early years of postwar reconstruction, the economic control apparatus created for the War was gradually dismantled. The expansion of the private sector of the economy and the contraction of the government sector were quickly reflected in a shift of bank assets from government securities to commercial loans. Between the end of 1945 and the end of 1950,

bank loans in Canadian currency increased from about 21 p.c. to 31 p.c. of total assets. There was, at the same time, a rapid growth in total assets, as the monetary authorities leaned to the side of relatively easy money conditions to stimulate the economy and to ward off the widely anticipated postwar recession. In the five years ended Dec. 31, 1950, total assets expanded from about $7,300,000,000 to $9,400,000,000, almost all of the increase being in Canadian assets.

It was not until the outbreak of the Korean War in June 1950 that the fear of inflation, arising from the heavy demands on Canadian resources, led to the adoption of restraining measures. Since then the banks have experienced substantial changes in their credit-granting capacity, as the country's official monetary policy was adapted to meet changes in business conditions. Alternating periods of ease and restraint have been marked by periods of rapidly rising bank assets followed by levelling-off phases.

The Korean boom of 1950-51 was followed, after only a short pause, by the investment boom of 1953-54. Recession in 1954-55 was accompanied by an easy monetary policy, during which the banks built up their liquid assets in the form of government bonds. Then a second and greater investment boom got under way in late 1955, which carried the Canadian economy and the banking system into another period when resources were strained to the limit. At this time, new measures of restraint were introduced into the Canadian banking system by the monetary authorities, including an agreed secondary reserve ratio of 7 p.c. in addition to the cash reserves of 8 p.c. already prescribed in the Bank Act revision of 1954. A further agreement with the Bank of Canada was aimed at restraining term loans for capital purposes* and in 1956 bank loans to instalment finance companies were also put under some restraint. The boom of 1955-57 was followed by a mild recession in 1957-58, moderate recovery in 1958-59, slackening in 1960 and recovery again in 1961-63. In this period the banks have not regained the liquidity that characterized earlier postwar recessions, and there has been a growing need to husband resources carefully for the various and growing alternative outlets which developed as the result of economic growth, and of the efforts of both the Federal Government and the banks themselves to provide new uses for bank credit.

One of the first government measures was the Farm Improvement Loans Act of 1944, under which the chartered banks were authorized to make loans to farmers for the purchase of equipment and livestock and for making various improvements to their farm buildings and facilities. These loans are often for sizable amounts (an average of about $1,500) and the terms have been gradually extended to a maximum sum of $7,500 outstanding to any one borrower with a maximum period of ten years (four years for implements). The banks are guaranteed against loss up to 10 p.c. of their loans made during the three-year "lending periods", up to a maximum total of loans by all banks. This total is $400,000,000 for the lending period to end in mid-1965. By the end of 1963 the total amount of loans made under this Act was approximately $1,376,000,000 (see also pp. 452-453).

The 1954 revision of the Bank Act introduced a major change in banking practice by enabling the banks to acquire mortgages issued under the National Housing Act. About 35 p.c. of all NHA mortgage loans in the years 1954-59 were made by the chartered banks, but at the end of 1959 the NHA interest rate was raised to 6¾ p.c. and the banks withdrew from this field of lending. Notwithstanding this, by Dec. 31, 1963 they held some $891,000,000 in NHA mortgages, representing about 4 p.c. of total assets. Another change affecting housing in the 1954 revision enabled the banks to make home improvement loans under a guarantee system rather similar to the one developed for farm improvement loans. By the end of 1963, home improvement loans amounting to more than $312,000,000 had been approved and the banks had about $72,000,000 of such loans on their books.

* Such loans were almost entirely a postwar innovation in Canadian lending practice, and had increased markedly during the easy-money period of 1954-55. Since 1956, term lending has been generally confined within narrower limits, although it is still practised when conditions permit.

In November 1960, the Small Businesses Loans Act was passed guaranteeing, under terms to the banks similar to those of the Farm Improvement Loans Act, certain types of bank loan to small businesses for the purposes of making capital improvements to premises and equipment. This provides for loans that do not fall within the usual scope of bank lending to small business, by reason of the term nature of the loan, together with the lack of collateral resources of the borrower. Of course, chartered banks make loans to small businesses for a great variety of purposes, including many of a medium-term character; indeed, the working capital loan to the small-size or medium-size industry or commercial enterprise is the traditional stock-in-trade business of the chartered banks.

In April 1961, the charter of the Export Finance Corporation of Canada Limited, which had been incorporated by special Act of Parliament in June 1959 for private interests, was acquired by the chartered banks. The principal purpose of the Corporation is to assist in the medium-term (one to five years) financing of exports which have been insured by the Export Credit Insurance Corporation, a Crown company.

Still another area of lending which has expanded greatly in recent years is that of consumer credit. While the banks have always made some personal loans, they have recently moved aggressively into the field of lending to the general public for the purchase of automobiles, consumer durables and debt consolidation. Following the 1954 Bank Act revision, and partly as a result of the change then made which enabled the banks to take chattel mortgage security, some banks have developed extensive consumer credit divisions. Personal loans made by the banks, other than those secured by stocks and bonds and home improvement loans, mounted from $420,000,000 at the end of 1957 to $1,672,000,000 outstanding at June 30, 1964.

Outside of Canada, the Canadian banks have continued to expand their branch systems in the Caribbean area (although the two Canadian banks operating in Cuba found it necessary to withdraw), in South America, Europe and Asia. In recent years the growth of an international money market, following the economic recovery in Europe and the restoration of confidence in the stability of the Western economies and their currencies, has led to large movements of Western capital from one centre to another. The Canadian banks have participated extensively in this international money market, mainly through New York and London where most of them maintain large offices.

The postwar growth in bank assets has been accompanied by a substantial increase in total earnings. Earnings per share of capital employed did not increase to the same extent, however, as the banks found it necessary to raise new funds from time to time after 1950 in order to maintain an appropriate relationship between their shareholders' capital and the rapidly rising level of risk assets. The banks have been among the largest issuers of new share capital to Canadians in the past quarter-century.

Subsection 1.—Statistics of Chartered Banks

Branches of Chartered Banks.—Although there are fewer chartered banks now than at the beginning of the century, there has been a great increase in the number of branch banking offices. As a result of amalgamations, the number of banks declined from 34 in 1901 to 10 in 1931, and remained at that figure until the incorporation of a new bank—The Mercantile Bank of Canada—in 1953 brought the total to 11. Since then the amalgamation in 1955 of The Bank of Toronto and The Dominion Bank as The Toronto-Dominion Bank, the amalgamation of Barclays Bank (Canada) with the Imperial Bank of Canada in 1956 and the amalgamation of the Canadian Bank of Commerce and the

Imperial Bank of Canada as the Canadian Imperial Bank of Commerce on June 1, 1961 have reduced this number to eight.* The number of branches of chartered banks in each province periodically from 1868 to 1963 is given in Table 8.

* See footnote †, p. 1037.

8.—Branches of Chartered Banks, by Province, as at Dec. 31 for Certain Years 1868-1963

NOTE.—Figures for 1920 and subsequent years include sub-agencies in Canada receiving deposits for the banks employing them; there were 767 such sub-agencies at Dec. 31, 1963.

Province or Territory	1868	1902	1905	1920	1926	1930	1940	1950	1960	1961	1962	1963
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland	—	—	—	—	—	—	—	39	71	76	81	88
Prince Edward Island	—	9	10	41	28	28	25	23	27	27	27	26
Nova Scotia	5	89	101	169	134	138	134	144	173	176	178	180
New Brunswick	4	35	49	121	101	102	97	100	113	117	118	121
Quebec	12	137	196	1,150	1,072	1,183	1,083	1,164	1,427	1,454	1,489	1,515
Ontario	100	349	549	1,586	1,326	1,409	1,208	1,257	1,785	1,869	1,916	1,967
Manitoba	—	52	95	349	224	239	162	165	234	246	248	255
Saskatchewan	—	30	87	591	427	447	233	238	296	301	299	303
Alberta				424	269	304	172	246	394	409	417	431
British Columbia	2	46	55	242	186	229	192	294	514	534	545	546
Yukon and N.W.T.	—	—	3	3	3	4	5	9	17	15	14	15
Canada	**123**	**747**	**1,145**	**4,676**	**3,770**	**4,083**	**3,311**	**3,679**	**5,051**	**5,224**	**5,332**	**5,447**

9.—Branches of Individual Canadian Chartered Banks, by Province, as at Dec. 31, 1963

NOTE.—This table includes 767 sub-agencies in Canada for receiving deposits.

Bank	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Bank of Montreal	23	2	26	18	176	340
The Bank of Nova Scotia	36	8	51	40	57	266
Banque Canadienne Nationale	—	—	—	—	583	19
Banque Provinciale du Canada	—	2	—	18	319	24
Canadian Imperial Bank of Commerce	9	8	27	16	160	575
The Mercantile Bank of Canada	—	—	—	—	1	1
The Royal Bank of Canada	20	5	73	24	156	383
The Toronto-Dominion Bank	—	1	3	5	63	359
Totals	**88**	**26**	**180**	**121**	**1,515**	**1,967**

Bank	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.
Bank of Montreal	54	59	100	125	5	928
The Bank of Nova Scotia	21	33	55	70	—	637
Banque Canadienne Nationale	4	—	—	—	—	606
Banque Provinciale du Canada	—	—	—	—	—	363
Canadian Imperial Bank of Commerce	65	88	134	175	7	1,264
The Mercantile Bank of Canada	—	—	—	1	—	3
The Royal Bank of Canada	72	85	88	113	3	1,022
The Toronto-Dominion Bank	39	38	54	62	—	624
Totals	**255**	**303**	**431**	**546**	**15**	**5,447**

10.—Branches of Individual Canadian Chartered Banks Outside Canada, as at Dec. 31, 1963

NOTE.—This table does not include sub-agencies operating outside Canada, of which there were 30 in 1963.

Bank and Location	Number	Bank and Location	Number	Bank and Location	Number
Bank of Montreal—		Canadian Imperial Bank of Commerce—		The Royal Bank—concl.	
Britain	2	Britain	2	Haiti	1
United States	3	British West Indies	13	Dominican Republic	8
France	3	United States	5	France	1
Germany	4			The Toronto-Dominion Bank—	
The Bank of Nova Scotia—		The Royal Bank of Canada—		Britain	2
Britain	2	Britain	2	United States	1
British West Indies	29	British West Indies	30	Banque Canadienne Nationale—	
Dominican Republic	2	United States	1	France	1
United States	2	Puerto Rico	5		
Puerto Rico	3	Central and South America	24	**Total**	**149**
Trinidad	3				

Financial Statistics of the Chartered Banks.—The classification of chartered bank assets and liabilities was revised by the Bank of Canada Act 1954, so that the statistical series given in the following tables begins with that year. Month-end data are available from Dec. 31, 1954 to date in the Bank of Canada *Statistical Summary*.

11.—Assets and Liabilities of the Chartered Banks, as at Dec. 31, 1954-63

(Millions of dollars)

As at Dec. 31—	ASSETS							
	Bank of Canada Deposits and Notes	Canadian Day-to-Day Loans	Treasury Bills	Government of Canada Direct and Guaranteed Bonds	Other Canadian Securities, Insured Residential Mortgages and Loans in Canada	Canadian Dollar Items in Transit (net)	Foreign Cash Items, Securities and Loans	Total Assets[1]
1954	791	68	360	2,953	4,963	827	1,142	11,433
1955	840	81	427	2,632	6,207	1,002	1,127	12,702
1956	882	74	740	1,675	6,820	1,330	1,486	13,428
1957	866	210	805	1,835	6,953	1,151	1,970	14,244
1958	1,001	123	950	2,562	7,365	1,224	2,165	15,840
1959	953	101	974	1,827	8,172	919	2,393	15,835
1960	992	172	967	2,088	8,510	884	2,725	16,917
1961	1,096	215	1,157	2,639	8,886	981	3,510	19,153
1962	1,162	293	1,127	2,241	9,737	1,010	3,876	20,273
1963	1,230	253	1,282	2,660	10,357	1,119	4,236	22,094

As at Dec. 31—	LIABILITIES							
	Canadian Dollar Deposits					Foreign Currency Deposits	Shareholders' Equity	Total Liabilities[1]
	Government of Canada	Notice		All Other	Total			
		Personal Savings	Other Notice					
1954	176	5,218	397	3,891	9,683	1,030	521	11,433
1955	517	5,633	464	4,234	10,848	1,056	567	12,702
1956	246	6,007	444	4,465	11,162	1,369	653	13,428
1957	423	6,108	548	4,328	11,407	1,827	732	14,244
1958	319	6,844	618	4,909	12,690	2,077	813	15,840
1959	404	6,900	558	4,418	12,279	2,372	926	15,835
1960	510	7,215	576	4,621	12,921	2,654	1,004	16,917
1961	588	7,618	929	5,051	14,186	3,488	1,071	19,153
1962	564	7,932	997	5,205	14,699	3,958	1,097	20,273
1963	914	8,443	1,191	5,551	16,099	4,214	1,152	22,094

[1] Includes other items not specified.

12.—Detailed Statement of Chartered Bank Assets and Liabilities, as at Dec. 31, 1961-63

Assets and Liabilities	1961	1962	1963
	$'000	$'000	$'000
Assets—			
Gold and coin in Canada	30,980	38,311	36,148
Gold and coin outside Canada	1,085	1,117	1,043
Notes of and deposits with Bank of Canada	1,096,060	1,162,415	1,229,815
Government and bank notes other than Canadian	46,650	46,537	50,814
Deposits with other banks in Canadian currency	9,683	8,879	9,325
Deposits with other banks in currencies other than Canadian	1,007,270	1,204,006	1,110,206
Cheques and other items in transit (net)	844,782	867,398	1,068,794
Government of Canada treasury bills	1,156,888	1,126,584	1,282,250
Other Government of Canada direct and guaranteed securities maturing within two years, not exceeding market value	1,088,500	753,552	1,335,170
Government of Canada direct and guaranteed securities maturing after two years, not exceeding market value	1,550,743	1,487,313	1,325,190
Canadian provincial government direct and guaranteed securities, not exceeding market value	351,980	407,355	385,558
Canadian municipal and school corporation securities, not exceeding market value	231,264	249,943	286,917
Other Canadian securities, not exceeding market value	470,319	457,196	461,808
Securities other than Canadian, not exceeding market value	672,745	705,238	538,214
Mortgages and hypothecs insured under the National Housing Act 1954, less provision for estimated loss	952,671	921,112	890,658
Call and short loans in Canada to brokers and investment dealers, secured	344,897	481,998	397,486
Call and short loans outside Canada to brokers and investment dealers, secured	843,833	683,678	1,013,047
Loans to Canadian provincial governments	45,450	28,937	47,697
Loans to Canadian municipalities and school corporations, less provision for estimated loss	247,172	243,739	301,023
Other current loans in Canada, less provision for estimated loss	6,455,888	7,237,913	7,837,351
Other current loans outside Canada, less provision for estimated loss	1,068,744	1,365,984	1,565,668
Non-current loans, less provision for estimated loss	1,423	1,424	1,349
Bank premises at cost, less amounts written off	254,255	276,763	296,868
Shares of and loans to corporations controlled by the bank	52,979	53,675	55,216
Customers' liability under acceptances, guarantees and letters of credit as *per contra*	323,086	456,706	559,144
Other assets	4,137	4,935	6,945
Totals, Assets	**19,153,484**	**20,272,708**	**22,093,704**
Liabilities—			
Deposits by Government of Canada in Canadian currency	587,955	563,616	913,694
Deposits by Canadian provincial governments in Canadian currency	134,313	155,293	182,597
Deposits by other banks in Canadian currency	216,095	171,172	186,573
Deposits by other banks in currencies other than Canadian	702,518	693,759	816,179
Personal savings deposits payable after notice, in Canada, in Canadian currency	7,618,100	7,932,383	8,442,777
Other deposits payable after notice, in Canadian currency	928,971	997,463	1,191,137
Other deposits payable on demand, in Canadian currency	4,700,545	4,878,869	5,182,311
Other deposits in currencies other than Canadian	2,785,945	3,264,074	3,397,832
Acceptances, guarantees and letters of credit	323,086	456,706	559,144
Other liabilities	84,918	62,450	69,888
Capital paid up	275,366	276,957	281,930
Rest account	786,791	812,070	862,502
Undivided profits at latest fiscal year-end	8,881	7,896	7,140
Totals, Liabilities	**19,153,484**	**20,272,708**	**22,093,704**

13.—Canadian Cash Reserves, 1955-63

NOTE.—Bank of Canada deposits are averages of the juridical days in the month shown; Bank of Canada notes and Canadian dollar deposits are averages of the four consecutive Wednesdays ending with the second last Wednesday in the previous month.

(Millions of dollars)

Year	Cash Reserves			Canadian Dollar Deposit Liabilities	Average Cash Reserve Ratio
	Bank of Canada Deposits	Bank of Canada Notes	Total		
1955	541	293	834	9,915	8.4
1956	548	325	873	10,527	8.3
1957	535	335	870	10,601	8.2
1958	607	336	943	11,452	8.2
1959	648	351	999	12,187	8.2
1960	625	360	985	12,052	8.2
1961	673	367	1,040	12,804	8.1
1962	748	376	1,124	13,812	8.1
1963	775	394	1,169	14,400	8.1

14.—Classification of Chartered Bank Deposit Liabilities Payable to the Public in Canada in Canadian Currency, as at Sept. 30, 1962 and 1963

Deposit Accounts of the Public of—	1962			1963		
	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public
	No.	No.	No.	No.	No.	No.
Less than $100	6,214,773	1,353,989	7,568,762	6,468,580	1,438,893	7,907,473
$100 or over but less than $1,000	3,334,923	948,452	4,283,375	3,436,216	1,005,848	4,442,064
$1,000 or over but less than $10,000	1,737,532	378,535	2,116,067	1,807,534	397,425	2,204,959
$10,000 *or over* but less than $100,000	90,676	62,362	153,038	98,820	67,647	166,467
$100,000 or over	899	6,252	7,151	1,088	6,744	7,832
Totals, Deposits	**11,378,803**	**2,749,590**	**14,128,393**	**11,812,238**	**2,916,557**	**14,728,795**

15.—Classification of Chartered Bank Loans in Canadian Currency, as at Dec. 31, 1961-63

Class of Loan	1961	1962	1963
	$'000,000	$'000,000	$'000,000
General Loans—			
Personal	1,431.0	1,624.4	1,895.6
To individuals, fully secured by marketable bonds and stocks	*335.6*	*372.0*	*392.3*
Home improvement loans	*65.7*	*69.8*	*71.5*
To individuals, not elsewhere classified	*1,029.7*	*1,182.6*	*1,431.8*
Farmers—			
Farm Improvement Loans Act	194.3	212.6	242.6
Other farm loans	290.7	343.4	392.7
Industry	1,369.0	1,470.6	1,511.4
Chemical and rubber products	*50.0*	*59.8*	*58.1*
Electrical apparatus and supplies	*67.3*	*79.9*	*76.0*
Foods, beverages and tobacco	*243.0*	*276.5*	*297.0*
Forest products	*185.7*	*195.5*	*191.7*
Furniture	*28.0*	*31.0*	*33.5*
Iron and steel products	*206.0*	*220.9*	*225.0*
Mining and mine products	*101.3*	*105.6*	*122.5*
Petroleum and products	*102.6*	*111.3*	*104.7*
Textiles, leather and clothing	*170.4*	*195.3*	*192.2*
Transportation equipment	*111.3*	*83.3*	*89.2*
Other products	*103.3*	*111.5*	*121.4*
Merchandisers	888.6	987.4	1,060.2
Construction contractors	315.6	364.4	396.6
Public utilities, transportation and communications	165.4	224.9	220.1

15.—Classification of Chartered Bank Loans in Canadian Currency, as at Dec. 31, 1961-63—concluded

Class of Loan	1961	1962	1963
	$'000,000	$'000,000	$'000,000
General Loans—concluded			
Other business	784.3	991.1	1,165.5
Religious, educational, health and welfare institutions	268.3	226.5	234.1
Totals, General Loans	**5,647.2**	**6,445.3**	**7,118.9**
Other Loans—			
Provincial governments	45.5	28.9	47.7
Municipal governments and school districts	247.2	243.7	301.0
Stockbrokers	64.5	65.2	53.6
Investment dealers	65.1	124.1	91.0
Loans to finance the purchase of Canada Savings Bonds	189.2	199.6	198.3
Grain dealers and exporters	348.0	310.8	219.5
Instalment and other finance companies	272.9	283.7	302.0
Totals, Other Loans	**1,232.3**	**1,256.0**	**1,213.1**
Grand Totals, Loans in Canadian Currency	**6,879.5**	**7,701.3**	**8,332.0**

16.—Chartered Bank Earnings, Expenses and Additions to Shareholders' Equity, Fiscal Years Ended in 1961-63

NOTE.—The financial years of five banks end on Oct. 31, two on Nov. 30 and one on Sept. 30.

Item	1961	1962	1963
	$'000,000	$'000,000	$'000,000
Current Operating Earnings—			
Interest and discount on loans	540.5	611.5	663.1
Interest, dividends and trading profits on securities[1]	196.6	211.3	232.0
Exchange, commission, service charges and other current operating earnings	143.1	154.0	169.9
Totals, Current Operating Earnings	880.2	976.8	1,065.0
Current Operating Expenses—[2]			
Interest on deposits	290.8	355.3	398.5
Remuneration to employees	243.8	260.9	276.1
Contributions to pension funds	13.3	13.6	13.8
Provision for depreciation of bank premises	19.6	22.4	23.7
Other current operating expenses[3]	122.8	135.4	146.4
Totals, Current Operating Expenses[2]	690.3	787.6	858.5
Net current operating earnings[2]	189.9	189.2	206.5
Capital profits and non-recurring items[4]	1.5	2.0	1.7
Less provision for losses and addition to inner reserves, net[5]	*—10.6*	*24.7*	*24.3*
Less provision for income taxes[6]	*101.7*	*84.7*	*88.5*
Leaving for dividends and shareholders' equity	100.3	81.8	95.4
Dividends to shareholders	57.8	60.3	63.3
Additions to shareholders' equity	42.5	21.5	32.1
ADDITIONS TO SHAREHOLDERS' EQUITY			
Undivided Profits—			
From operating earnings, net after transfers to rest account	1.0	—1.0	—0.8
Rest Account—			
From operating earnings and undivided profits	14.5	19.6	20.3
From retransfers from inner reserves	27.1	3.0	12.5
From premium on new shares	14.6	3.5	17.5
Capital Paid Up—			
From issue of new shares	9.4	2.1	5.0
NET ADDITIONS TO SHAREHOLDERS' EQUITY	66.6	27.2	54.5

[1] Realized profits and losses on disposal of securities are included in operating earnings. [2] Before provision for income taxes, losses, and transfers to inner reserves. [3] Includes taxes other than income taxes. [4] Profits and losses on sale of fixed assets and adjustments relating to prior years. [5] After amounts retransferred to rest account. [6] Includes income taxes on taxable portion of additions to and amounts retransferred from inner reserves, and foreign income taxes.

Cheque Payments.—A monthly record of the value of cheques charged to customer accounts at all chartered bank offices in 35 major clearing-house centres of Canada is available from 1924. During the ten-year period 1954-63, the total value of cheques cashed in these centres showed a gain of 143.3 p.c., an advance well distributed throughout the five economic areas. Quebec reported the largest gain with an increase of 153.9 p.c. followed by Ontario with 147.2 p.c., the Prairie Provinces with 135.1 p.c., the Atlantic Provinces with 112.6 p.c., and British Columbia with an advance of 109.7 p.c.

All the reporting centres with the exception of Victoria, B.C., Sarnia, Ont., and Medicine Hat, Alta., reported increases in 1963 over 1962. The largest advances in this comparison were made by Winnipeg, Man., with a gain of 25.3 p.c., Edmonton, Alta., with one of 23.3 p.c., St. John's, Nfld., with 18.5 p.c., Windsor, Ont., with 16.8 p.c. and Halifax, N.S., with 14.7 p.c.

17.—Cheques Cashed at 35 Clearing-House Centres, 1962 and 1963

NOTE.—Figures for earlier years will be found in the corresponding table of previous Year Books.

Clearing-House Centre	1962	1963	Clearing-House Centre	1962	1963
	$'000	$'000		$'000	$'000
Atlantic Provinces	**6,509,096**	**7,405,754**	**Ontario**—concluded		
Halifax	3,101,706	3,557,104	Sarnia	761,867	745,363
Moncton	771,911	819,463	Sudbury	792,746	812,918
Saint John	1,352,215	1,508,102	Toronto	121,733,430	130,999,231
St. John's	1,283,264	1,521,085	Windsor	2,517,840	2,939,769
Quebec	**97,851,664**	**108,813,868**	**Prairie Provinces**	**48,301,500**	**56,777,845**
Montreal	88,211,662	98,803,788	Brandon	271,465	289,517
Quebec	8,818,728	9,092,942	Calgary	11,415,990	12,291,349
Sherbrooke	821,273	917,138	Edmonton	7,550,912	9,311,561
			Lethbridge	580,068	616,173
Ontario	**149,812,492**	**162,200,060**	Medicine Hat	295,133	292,610
Brantford	791,851	855,872	Moose Jaw	422,339	424,312
Chatham	665,473	756,246	Prince Albert	253,269	257,849
Cornwall	476,467	519,027	Regina	5,326,695	5,727,082
Fort William	500,329	544,409	Saskatoon	1,265,700	1,361,303
Hamilton	6,709,167	7,429,937	Winnipeg	20,919,929	26,206,089
Kingston	627,367	709,932	**British Columbia**	**23,089,746**	**25,069,589**
Kitchener	1,580,719	1,796,074	New Westminster	19,602,381	21,679,909
London	4,184,759	4,759,177	Vancouver		
Ottawa	6,765,125	7,472,755	Victoria	3,487,365	3,389,680
Peterborough	615,616	696,514			
St. Catharines	1,089,736	1,162,836	**Totals**	**325,564,498**	**360,267,116**

Subsection 2.—Government and Other Banking Institutions

There are three distinct types of savings banks in Canada in addition to the savings departments of the chartered banks and of trust and loan companies: (1) the Post Office Savings Bank, in which deposits are a direct obligation of the Government of Canada; (2) Provincial Government savings banking institutions in Ontario and Alberta, where the depositor becomes a direct creditor of the province; and (3) two important savings banks in the Province of Quebec—the Montreal City and District Savings Bank and La Banque d'Économie de Québec—established under federal legislation and reporting monthly to the federal Department of Finance. In addition, co-operative credit unions encourage savings among low-income classes and extend small loans to their members.

Post Office Savings Bank.—The Post Office Savings Bank was established under the Post Office Act of 1867 (SC 1867, c. 10) to "enlarge the facilities now available for the deposit of small savings, to make the Post Office available for that purpose, and to give the direct security of the nation to every depositor for repayment of all money deposited by him together with the interest due thereon". Branches of the Government of Canada's

Savings Bank under the Department of Finance were gradually amalgamated with this Bank over a period of 50 years and the amalgamation was completed in March 1929. Summary financial statistics for the years ended Mar. 31, 1961-64 follow. Figures back to 1868 are available in previous editions of the Year Book.

Item	1961	1962	1963	1964
	$	$	$	$
Deposits and interest	6,898,062	6,466,358	5,714,720	5,422,181
Deposits	6,199,420	5,790,429	5,072,613	4,813,401
Interest on deposits	698,642	675,929	642,107	608,779
Withdrawals	7,757,737	7,614,025	7,199,360	6,697,740
Balance on deposit	28,512,786	27,365,119	25,880,479	24,604,919

Provincial Government Savings Banks.—Institutions for the deposit of savings are operated by the Provincial Governments of Ontario and Alberta.

Ontario.—The establishment of the Province of Ontario Savings Office was authorized by the Ontario Legislature at the 1921 Session and the first branches were opened in March 1922. Interest at the rate of 3 p.c. per annum, compounded half-yearly, is paid on accounts, and deposits are repayable on demand. Total deposits at Mar. 31, 1964 were $82,700,000 and the number of depositors was approximately 94,000; 21 branches were in operation throughout the province.

Alberta.—Savings deposits are accepted at 60 Province of Alberta Treasury Branches throughout the province. The total of these deposits at Mar. 31, 1964 was $61,446,423, of which $44,794,441 was payable on demand bearing interest at 3½ p.c. per annum, $3,233,036 was in term savings for terms of from one to five years bearing interest at 4 p.c. to 4½ p.c. per annum depending on the term, and $13,418,947 was in term deposit receipts for terms of from 30 days to 365 days bearing interest at rates comparable to those paid on the open market.

Quebec Savings Banks.—The Montreal City and District Savings Bank, founded in 1846 and now operating under a charter of 1871 had, at Mar. 31, 1964, a paid-up capital and reserve of $11,500,000, savings deposits of $312,178,599 and total liabilities of $326,188,480. Total assets amounted to $326,188,480, including $131,849,057 of federal, provincial, municipal and other securities.

La Banque d'Économie de Québec, founded in 1848 (as La Caisse d'Économie de Notre-Dame de Québec) under the auspices of the St. Vincent de Paul Society, incorporated by Act of the Canadian Legislature in 1855 and given a federal charter by SC 1871, c. 7, had, at Mar. 31, 1964, savings deposits of $52,733,443 and a paid-up capital and reserve of $3,500,000. Total liabilities amounted to $57,984,535 and total assets to a like amount.

Credit Unions.—Credit unions are savings and loan associations operated by people with a common bond. The bond of association may be in a parish, club, lodge or labour union, that of employment in a plant, industry or department, or that of a residence in a rural or a well-defined urban community. During the ten-year period 1953-62, the number of credit unions chartered increased by 33 p.c.; the number of members in reporting organizations by 103 p.c.; and the assets of reporting organizations by 241 p.c. Membership reached 2,906,902 in 1962, Quebec reporting over half that membership and 59 p.c. of the total assets. In the Atlantic Provinces, Quebec and Saskatchewan the credit unions are predominantly rural but non-rural credit unions accounted for 62 p.c. of the total in Manitoba, 65 p.c. in Alberta, 75 p.c. in British Columbia and 93 p.c. in Ontario.

Savings, which include shares and deposits, amounted to $1,516,000,000 in 1962, a 10-p.c. increase over 1961; the average saving per credit union member in the later year was $521. Loans made to members from these savings amounted to $672,490,000 at interest rates of 1 p.c. per month or less on the unpaid balance.

There were 27 central credit unions in 1962; these central unions act as credit unions for the credit unions, mainly by accepting deposits from them and making loans to them, and they facilitate the flow of funds to credit unions that cannot meet the demand for local loans. Some of them admit co-operative associations to membership. The centrals had assets of $237,958,000 in 1962, an increase of 19 p.c. over 1961; they made loans amounting to $114,716,000 to member credit unions and co-operatives. The Canadian Co-operative Credit Society serves as a central credit union for provincial centrals and co-operatives all across Canada. In 1962, membership in this national organization included four provincial centrals, four commercial co-operatives, the Co-operative Life Insurance Company and the Co-operative Fire and Casualty Insurance Company. This central had assets of $2,144,914 in 1962, made loans to members amounting to $1,755,000, and had member deposits of $1,550,000.

18.—Credit Unions in Canada, 1953-62

Year	Credit Unions Chartered	Credit Unions Reporting	Members[1]	Assets[1]
	No.	No.	No.	$'000
1953	3,606	3,413	1,434,270	489,266
1954	3,920	3,690	1,560,715	552,363
1955	4,100	3,899	1,731,328	652,554
1956	4,253	3,973	1,870,227	761,256
1957	4,389	4,044	2,059,835	852,219
1958	4,485	4,156	2,187,494	1,009,363
1959	4,570	4,202	2,360,047	1,157,995
1960	4,608	4,345	2,553,951	1,314,290
1961	4,697	4,348	2,740,251	1,506,167
1962	4,784	4,431	2,906,902	1,665,788

[1] Reporting organizations only.

19.—Summary Statistics of Credit Unions, by Province, 1962

Province	Credit Unions Chartered	Credit Unions Reporting	Members	Assets	Shares	Deposits	Loans to Members	Total Loans since Inception
	No.	No.	No.	$'000	$'000	$'000	$'000	$'000
Newfoundland	62	40	3,017	466	387	14	385	5,308
Prince Edward Island	57	46	9,409	1,841	1,519	88	831	12,460
Nova Scotia	212	189	64,241	19,026	16,079	626	12,920	112,629
New Brunswick	165	163	86,647	20,177	17,723	291	9,113	89,252
Quebec[1]	1,512	1,464	1,547,045	972,460	99,844	812,885	252,615	2,072,907
Desjardins	*1,258*	*1,251*	*1,392,147*	*866,873*	*63,220*	*753,458*	*202,796*	*1,814,072*
Quebec League	*224*	*183*	*65,357*	*28,952*	*21,286*	*4,356*	*24,033*	*125,338*
Montreal Federation	*24*	*24*	*68,775*	*64,706*	*4,769*	*54,966*	*17,885*	*117,281*
Cendel Federation	*6*	*6*	*20,516*	*11,668*	*10,470*	—	*7,808*	*32,913*[2]
Ontario[2]	1,567	1,395	609,864	298,877	205,652	52,605	200,441	1,220,563
Manitoba	264	247	109,749	60,603	45,135	7,696	39,581	242,021
Saskatchewan	285	282	172,778	141,027	104,036	22,136	67,852	378,811
Alberta	333	304	96,468	41,609	34,160	2,078	32,154	179,152
British Columbia	327	301	207,684	109,702	86,196	6,523	56,598	498,978
Totals	**4,784**	**4,431**	**2,906,902**	**1,665,788**	**610,731**	**901,942**	**672,490**	**4,812,081**

[1] Includes credit unions not in Federation or League. [2] Estimated.

Section 4.—Foreign Exchange

The dollar, established officially as the currency of the united provinces of Canada on Jan. 1, 1858, and extended to cover the New Dominion by the Uniform Currency Act of 1870, was defined as 15/73 of the British gold sovereign.* That is, the par rate of exchange between the dollar and the pound sterling was fixed at $4.866, making the Can-

* The gold sovereign remained the standard for the Canadian dollar until 1910 when the currency was defined in terms of fine gold, making it the exact gold equivalent of the United States dollar. Both British and United States gold coins were, however, legal tender in Canada for this whole period.

adian currency the equivalent of the United States dollar at parity. With minor variations between the import and export gold points representing the cost of shipping gold in either direction, the value of the pound sterling in Canada remained at this level until the outbreak of World War I. The United States dollar, on the other hand, was at a discount in terms of Canadian funds for the first eleven years after Confederation since it was not redeemable in gold from February 1862 to January 1879. On the basis of gold equivalents it would appear that the greatest monthly average discount on the United States dollar after Confederation was approximately 31 p.c., reached in August 1868. From 1879 to 1914 the dollars of the two countries remained at par, varying only within the gold points or under $2 per thousand.

On the outbreak of World War I, Canada and Britain suspended the gold standard. For some weeks both the pound and the Canadian dollar rose to a premium in New York. Subsequently both fell back with the pound going to a slight discount. In January 1916 the pound was officially pegged at $4.76 in American funds. This level was maintained with the help of funds realized by sales of United States securities owned by residents of Britain, by borrowing in the United States and, after the American entry into the War, by the United States Government financing Allied purchases in that country.

From 1915 to the end of 1917, fluctuations in the rate of exchange between the Canadian and United States dollars did not exceed 2 p.c. on either side of parity; the pound was stable in terms of United States dollars during this period. In 1918 the Canadian dollar began to weaken. After the pound was unpegged in 1919, the Canadian dollar declined further and in 1920 it fell to 82 cents in New York with sterling going as low as $3.18.

By the latter half of 1922 the Canadian dollar had returned practically to par in New York. Despite some further weakness in sterling, the dollar remained close to that level during the next two years, averaging 98.04 and 98.73 cents in terms of the United States dollar in 1923 and 1924, respectively, and fluctuating between a discount of about 3.6 cents and a premium of approximately 0.4 cents. After Britain resumed gold payments in April 1925, the range of fluctuation of the Canadian dollar narrowed further. From Canada's return to the gold standard in the period July 1, 1926 to January 1929, the exchange rate remained within the gold points. The Canadian dollar then went to a slight discount in New York. With the exception of the period July to November 1930, when it went to a small premium in New York, the dollar remained below parity until Britain abandoned the gold standard in September 1931. After that month the pound sterling depreciated sharply and the Canadian dollar followed, reaching lows* in New York of 80.5 cents in December 1931 and 82.6 cents in April 1933.

Following the prohibition of gold exports in the latter month by the United States, the pound and the Canadian dollar strengthened rapidly in terms of American funds. By November 1933 both currencies had reached a premium in New York. Meanwhile, in a series of steps beginning with permitting the export of newly mined gold in August 1933, the United States moved toward resumption of the gold standard. As of Feb. 1, 1934, the United States Treasury undertook to buy all gold offered at $35 per ounce. After that the exchange rate between the Canadian and United States dollars stabilized. Until the outbreak of war in 1939 much of the trading was conducted within one cent of parity although the Canadian dollar in New York did go as high as 103.6 cents (September 1934) and as low as 98.0 cents (September 1938).*

On the outbreak of World War II in September 1939, Britain and other sterling countries introduced foreign exchange control involving fixed buying and selling rates of $4.02½ and $4.03½, respectively, in terms of the United States dollar. The Canadian dollar in New York declined until Sept. 16, 1939, when the Government instituted foreign exchange control† in Canada and established fixed buying and selling rates of $1.10 to $1.11 for the

* Noon quotations. Daily highs and lows may have exceeded these rates.

† The operations of the Foreign Exchange Control Board from the time of its establishment to the termination of exchange control in December 1951 are reviewed in the 1941 to 1952-53 editions of the Year Book.

U.S. dollar and $4.43 to $4.47 for sterling. As compared with previous months, the depreciation of the Canadian dollar in terms of United States funds was approximately half as great as that of the pound sterling.

Apart from a minor adjustment on Oct. 15, 1945, when selling rates for U.S. dollars and sterling were lowered to $1.10½ and $4.45, respectively, the official rates for the Canadian dollar remained unchanged until July 5, 1946. At that time the rate on the U.S. dollar was restored to par, with buying and selling rates for that currency of $1.00 to $1.00½ and for sterling $4.02 to $4.04. These rates continued in effect until Sept. 19, 1949 when, following a 30.5-p.c. reduction by Britain in the value of sterling to $2.80 U.S. (an action which was paralleled in varying degrees by numerous other currencies), Canada returned to the former official rates of $1.10 and $1.10½ for United States funds. Sterling was quoted at $3.07¼ and $3.08¾ on the basis of the New York cross rate.

On Sept. 30, 1950, the Minister of Finance announced that official fixed foreign exchange rates which had been in effect at varying levels since 1939 would be withdrawn effective Oct. 2, and that the rate would henceforth be determined in the market for foreign exchange. This policy was carried out within the framework of exchange control until Dec. 14, 1951, at which time the Foreign Exchange Control regulations were revoked by the Governor in Council, terminating the period of exchange control that had prevailed in Canada since 1939. The Foreign Exchange Control Act was repealed in 1952. On May 2, 1962, the Minister of Finance announced that the Canadian dollar was being stabilized at a fixed par value of 92½ cents in terms of United States currency. This action was taken with the concurrence of the International Monetary Fund and, in accordance with the Articles of Agreement of that organization, the Government of Canada undertook to maintain the Canadian exchange rate within a margin of 1 p.c. on either side of the established par value.

The movements of the U.S. dollar in Canadian funds from January 1956 to December 1964 are shown in Table 20.

20.—Price of the United States Dollar in Canada, by Month, 1956-64

NOTE.—Rates published by Bank of Canada. Noon average market rate for business days in period.
(Canadian cents per U.S. dollar)

Month	1956	1957	1958	1959	1960	1961	1962	1963	1964
January	99.87	96.07	98.47	96.69	95.31	99.29	104.50	107.71	108.02
February	99.91	95.83	98.10	97.49	95.17	98.96	104.88	107.76	108.00
March	99.87	95.61	97.73	96.98	95.09	98.73	104.94	107.80	108.05
April	99.68	95.97	97.06	96.35	96.29	98.89	104.98	107.68	108.09
May	99.18	95.56	96.69	96.29	97.81	98.75	108.23	107.72	108.09
June	98.53	95.32	96.18	95.88	98.2?	100.55	108.79	107.82	108.09
July	98.18	95.09	96.00	95.74	97.84	103.41	107.89	107.97	108.13
August	98.12	94.80	96.46	95.44	96.98	103.15	107.76	108.29	107.87
September	97.77	95.92	97.68	95.16	97.25	103.08	107.68	107.98	107.61
October	97.32	96.47	97.07	94.77	97.85	103.03	107.60	107.79	107.53
November	96.44	96.24	96.83	95.03	97.67	103.57	107.68	107.76	107.39
December	96.05	97.74	96.46	95.12	98.24	104.27	107.60	107.93	107.46
Annual Average	**98.41**	**95.88**	**97.06**	**95.90**	**96.97**	**101.32**	**106.89**	**107.85**	**107.86**

21.—Canada's Official Holdings of Gold and United States Dollars, as at Dec. 31, 1945-63

NOTE.—Holdings comprise gold, U.S. dollars and short-term securities of the U.S. Government held by the Exchange Fund Account, other government accounts and net holdings of the Bank of Canada.

(Millions of U.S. dollars)

Year	Gold	U.S. Dollars	Total	Year	Gold	U.S. Dollars	Total
1945	353.9	1,154.1	1,508.0	1955	1,133.9	766.9	1,900.8
1946	536.0	708.9	1,244.9	1956	1,103.3	832.9	1,936.2
1947	286.6	215.1	501.7	1957	1,100.3	728.0	1,828.3
1948	401.3	596.5	997.8	1958	1,078.1	861.0	1,939.1
1949	486.4	630.7[1]	1,117.1[1]	1959	959.6[2]	909.6	1,869.2[2]
1950	580.0	1,161.5	1,741.5	1960	885.3	943.9	1,829.2
1951	841.7	936.9	1,778.6	1961	946.2	1,109.6	2,055.8
1952	885.0	975.2	1,860.2	1962	708.5	1,830.9	2,539.4[3]
1953	986.1	832.4	1,818.5	1963	817.2	1,777.8	2,595.0[4]
1954	1,072.7	869.9	1,942.6				

[1] Does not include $18,200,000 in U.S. funds borrowed in the U.S. in August 1949 by the Government of Canada and set aside for the purpose of retiring an equal amount of certain securities payable in U.S. dollars on Feb. 1, 1950. [2] On Oct. 1, 1959, $62,500,000 representing the gold portion of Canada's increased quota was transferred to the International Monetary Fund. [3] Includes the proceeds of a drawing equivalent to U.S. $300,000,000 which was made from the International Monetary Fund in June 1962 and which was outstanding at year-end; the amount of Canada's net obligation to the International Monetary Fund was $276,000,000 at the end of 1962. [4] The amount of Canada's net obligation to the International Monetary Fund was $196,000,000 at the end of 1963.

Section 5.—Loan and Trust Companies*

Canadian loan and trust companies, registered with either the federal or provincial governments, operate under the Loan and Trust Companies Acts (RSC 1952, c. 170 as amended by SC 1953, c. 5, SC 1958, c. 35, and SC 1961, c. 51; and RSC 1952, c. 272 as amended by SC 1953, c. 10, SC 1958, c. 42, and SC 1961, c. 55, respectively) and corresponding provincial legislation. Although statistics of provincially registered companies are not collected in detail, it is estimated that more than 95 p.c. of the business of such companies is represented in the figures of this Section, so that they may be accepted as fairly inclusive and representative of the volume of business transacted.

The principal function of loan companies is the lending of funds on first-mortgage security, the money thus made available for development purposes being secured mainly by the sale of debentures to the investing public and by savings department deposits. The extent of investments in mortgages by federal and provincial loan companies may be gauged by the following figures: total assets of such companies for the years 1961 and 1962 amounted to $771,995,209 and $925,956,326, respectively, which amounts include mortgage loans of $595,251,243 and $722,303,761, respectively; thus, the resulting percentages of mortgages to total assets for those years were approximately 77 p.c. and 78 p.c., respectively.

Trust companies act as executors, trustees and administrators under wills or by appointment, as trustees under marriage or other settlements, as agents in the management of the estates of the living, as guardians of minor or incapable persons, as financial agents

* Revised under the direction of the Superintendent of Insurance for Canada, Ottawa.

for municipalities and companies, as transfer agents and registrars for stocks and bond issues, as trustees for bond issues and, where so appointed, as authorized trustees in bankruptcy. Such companies receive deposits for investment but the investing and lending of such deposits and of actual trust funds are restricted by law. The assets of trust companies (not including estates, trust and agency funds, which cannot be regarded as assets in the same sense as company and guaranteed funds) increased from $489,740,530 in 1953 to $1,907,095,811 in 1962. In the former year the total of estates, trust and agency funds administered amounted to $4,102,013,154 and in 1962 to $9,014,208,791.

A summary of operations of provincial and federal loan and trust companies is given in Table 22. As a result of the nature of the operations of the latter companies, which are intimately connected with the matter of probate, the larger trust companies usually choose to operate under provincial charters. The statistics of Tables 23, 24 and 25 refer to those companies incorporated both by the Government of Canada and by the provinces. Included in the statistics of federal companies are data of loan and trust companies incorporated by Nova Scotia and brought by the laws of that province under the examination of the federal Department of Insurance, as well as data for trust companies in New Brunswick and Manitoba.

22.—Operations of Provincial and Federal Loan and Trust Companies, as at Dec. 31, 1961 and 1962

Item	1961			1962		
	Provincial Companies	Federal Companies	Total	Provincial Companies	Federal Companies	Total
	$	$	$	$	$	$
Loan Companies—						
Assets (book values)	205,483,633	566,511,576	771,995,209	256,439,854	669,516,472	925,956,326
Liabilities to the public	146,060,226	506,328,076	652,388,202	192,289,290	602,964,243	795,253,533
Capital paid up	23,158,009	20,410,770	43,568,779	25,226,797	23,048,264	48,275,061
Reserve and contingency funds	29,986,605	38,914,179	68,900,784	31,980,414	42,616,400	74,596,814
Surplus	6,278,793	858,551	7,137,344	6,943,353	887,565	7,830,918
Total liabilities to shareholders	59,423,407	60,183,500	119,606,907	64,150,564	66,552,229	130,702,793
Gross profits realized during year[1]	5,206,685	8,475,977	13,682,662	5,564,661	9,644,393	15,209,054
Trust Companies—						
Assets (book values)—						
Company funds	129,352,820	59,858,136	189,210,956	140,787,304	72,443,013	213,230,317
Guaranteed funds	899,871,495	519,401,875	1,419,273,370	1,061,205,513	632,659,981	1,693,865,494
Totals, Assets	1,029,224,315	579,260,011	1,608,484,326	1,201,992,817	705,102,994	1,907,095,811
Estates, trust, and agency funds	*6,170,097,541*	*1,948,445,628*	*8,118,543,169*	*6,818,580,561*	*2,195,628,230*	*9,014,208,791*
Capital paid up	32,945,340	22,004,140	54,949,480	36,917,543	24,706,315	61,623,858
Reserve and contingency funds	60,400,074	32,823,231	93,223,305	71,507,051	42,135,004	113,642,055
Surplus	7,494,702	1,901,965	9,396,667	8,821,534	2,115,300	10,936,834
Gross profits realized during year[1]	13,517,267	7,979,311	21,496,578	14,221,156	9,039,634	23,260,790

[1] Profits before income taxes.

23.—Assets and Liabilities of Loan Companies, 1958-62

Item	Chartered by Government of Canada[1]				
	1958	1959	1960	1961	1962
	$	$	$	$	$
Assets					
Real estate[2]	8,503,266	9,568,209	9,995,987	11,315,716	13,507,438
Mortgage loans and agreements of sale	269,539,879	312,248,782	360,338,064	425,789,259	506,731,590
Collateral loans	238,477	1,654,320	295,504	1,434,676	6,901,896
Bonds and debentures	51,544,496	50,748,166	57,399,876	79,903,391	85,566,281
Stocks	17,894,334	18,437,649	17,841,824	29,313,096	30,317,279
Cash	7,382,089	11,596,706	8,782,834	9,881,139	12,201,988
Totals, Assets[3]	**358,735,601**	**408,793,088**	**460,640,322**	**566,511,576**	**669,516,472**
Liabilities					
Liabilities to Shareholders—					
Capital paid up	18,726,524	18,675,472	18,727,117	20,410,770	23,048,264
Reserves	24,020,837	25,605,974	27,997,648	38,914,179	42,616,400
Totals, Liabilities to Shareholders[4]	43,764,477	45,106,321	47,403,413	60,183,500	66,552,229
Liabilities to the Public—					
Debentures	183,237,073	242,286,755	277,599,798	322,937,934	389,158,825
Deposits	124,444,060	112,227,274	124,733,566	168,310,007	194,904,131
Totals, Liabilities to the Public[5]	314,971,124	363,686,767	412,236,909	506,328,076	602,964,243
Totals, Liabilities	**358,735,601**	**408,793,088**	**460,640,322**	**566,511,576**	**669,516,472**

	Chartered by Provinces[6]				
	1958	1959	1960	1961	1962
	$	$	$	$	$
Assets					
Real estate[2]	3,086,620	2,593,080	2,424,620	2,694,255	4,573,968
Mortgage loans and agreements of sale	187,149,974	197,420,587	223,644,471	169,461,984	215,572,171
Collateral loans	2,938,213	2,892,144	2,974,674	1,448,931	3,962,675
Bonds and debentures	34,005,594	33,936,518	35,799,773	9,766,188	9,641,413
Stocks	7,707,552	11,128,378	12,100,803	12,550,584	15,655,484
Cash	6,549,746	7,685,644	4,472,163	5,342,941	3,464,197
Totals, Assets[3]	**246,637,900**	**262,715,544**	**290,728,768**	**205,483,633**	**256,439,854**
Liabilities					
Liabilities to Shareholders—					
Capital paid up	20,085,710	20,902,070	24,045,050	23,158,009	25,226,797
Reserves	39,933,681	41,683,880	30,824,333	29,986,605	31,980,414
Totals, Liabilities to Shareholders[4]	68,288,901	70,274,619	67,664,075	59,423,407	64,150,564
Liabilities to the Public—					
Debentures	81,935,674	87,454,173	99,559,183	119,196,291	141,210,394
Deposits	91,774,807	98,592,261	117,120,690	18,109,616	36,113,215
Totals, Liabilities to the Public[5]	178,348,999	192,440,925	223,064,693	146,060,226	192,289,290
Totals, Liabilities	**246,637,900**	**262,715,544**	**290,728,768**	**205,483,633**	**256,439,854**

[1] Includes companies chartered by the Government of Nova Scotia which, by arrangement, are inspected by the federal Department of Insurance. [2] Book value of real estate for company use and other real estate. [3] Includes interest due and accrued and other assets. [4] Includes surplus. [5] Includes other liabilities to the public. [6] Exclusive of Nova Scotia.

24.—Assets and Liabilities of Trust Companies, 1958-62

Item	1958	1959	1960	1961	1962
	Chartered by Government of Canada[1]				
	$	$	$	$	$
Assets					
Company Funds[2,3]	**36,551,294**	**39,702,594**	**42,503,686**	**59,858,136**	**72,443,013**
Real estate[4]	3,500,377	3,496,168	3,510,871	7,334,471	7,980,688
Mortgage loans and agreements of sale	8,678,270	8,609,888	7,914,553	9,398,702	11,355,243
Collateral loans	293,660	324,523	417,349	676,996	750,375
Bonds and debentures	14,235,122	16,567,028	18,411,140	25,475,554	29,969,972
Stocks	5,765,935	6,542,623	6,862,014	9,615,703	13,039,069
Cash	3,155,689	2,903,129	4,032,202	5,537,837	6,128,310
Guaranteed Funds[2,3]	**238,743,359**	**261,752,047**	**325,792,913**	**519,401,875**	**632,659,981**
Mortgage loans and agreements of sale	122,379,881	147,003,172	178,921,263	278,153,089	383,434,559
Collateral loans	7,180,379	6,786,105	9,659,284	11,556,406	12,327,614
Bonds and debentures	99,188,148	96,526,399	124,867,826	210,620,896	218,251,215
Stocks	1,650,340	1,524,926	2,753,835	4,426,981	4,178,170
Cash	6,058,157	7,158,607	5,764,685	9,583,905	8,186,938
Liabilities					
Company Funds[5]	**36,551,294**	**39,702,594**	**42,503,686**	**59,858,136**	**72,443,013**
Capital paid up	16,565,308	17,072,542	17,553,140	22,004,140	24,706,315
Reserves	16,385,119	18,832,621	21,214,519	22,823,231	42,135,004
Guaranteed Funds—Trust Deposits and Certificates	**238,743,359**	**261,752,047**	**325,792,913**	**519,401,875**	**632,659,981**
	Chartered by Provinces[6]				
	$	$	$	$	$
Assets					
Company Funds[2,3]	**106,914,805**	**117,135,913**	**116,836,442**	**129,352,820**	**140,787,304**
Real estate[4]	15,173,335	16,810,602	12,960,356	14,186,725	17,966,216
Mortgage loans and agreements of sale	9,770,939	9,674,177	9,571,288	10,007,435	8,673,612
Collateral loans	12,896,627	14,546,216	12,803,895	16,277,588	12,492,154
Bonds and debentures	24,235,427	24,584,011	26,406,676	24,104,945	23,049,533
Stocks	31,922,199	37,574,200	40,189,275	48,001,106	53,254,583
Cash	6,673,663	6,928,724	6,465,350	7,245,667	10,849,812
Guaranteed Funds[2]	**588,188,712**	**660,663,751**	**820,656,210**	**899,871,495**	**1,061,205,513**
Mortgage loans and agreements of sale	202,195,999	243,457,590	277,110,007	329,404,454	432,117,245
Collateral loans	41,652,942	38,379,063	37,858,967	39,809,753	62,187,479
Bonds and debentures	301,913,159	325,946,836	443,027,864	481,645,708	524,673,307
Stocks	2,597,947	2,846,691	2,752,126	4,642,875	4,571,162
Cash	36,316,995	45,666,001	52,660,881	23,650,461	25,177,931
Liabilities					
Company Funds[5]	**106,914,805**	**117,135,913**	**116,836,442**	**129,352,820**	**140,787,304**
Capital paid up	31,724,725	31,847,000	33,614,925	32,945,340	36,917,543
Reserves	44,356,427	53,707,938	54,760,891	60,400,074	71,507,051
Guaranteed Funds—Trust Deposits and Certificates	588,188,712	660,663,751	820,656,210	899,871,495	1,061,205,513

[1] Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba, which, by arrangement, are inspected by the federal Department of Insurance. [2] Includes other assets. [3] Includes interest due and accrued. [4] Book value of real estate for company use and other real estate. [5] Includes other company fund liabilities. [6] Chartered by all provinces except Nova Scotia, New Brunswick and Manitoba (see text, p. 1053).

25.—Estates, Trust and Agency Funds of Trust Companies, Chartered by or Supervised by the Federal Government and by Provincial Governments, as at Dec. 31, 1953-62

Year	Federal Companies[1]	Provincial Companies[2]	Total	Year	Federal Companies[1]	Provincial Companies[2]	Total
	$	$	$		$	$	$
1953	631,231,540	3,470,781,614	4,102,013,154	1958	990,078,160	5,328,920,074	6,318,998,234
1954	663,520,956	3,734,874,516	4,398,395,472	1959	1,127,767,607	5,774,745,226	6,902,512,833
1955	734,670,479	3,985,662,299	4,720,332,778	1960	1,246,508,258	6,143,921,379	7,390,429,637
1956	815,367,349	4,318,560,879	5,133,928,228	1961	1,948,445,628	6,170,097,541	8,118,543,169
1957	886,560,559	4,695,817,867	5,582,378,426	1962	2,195,628,230	6,818,580,561	9,014,208,791

[1] Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba which, by arrangement, are inspected by the federal Department of Insurance. [2] Excludes provincial companies of Nova Scotia, New Brunswick and Manitoba which are included with federal companies.

Section 6.—Licensed Small Loans Companies and Licensed Money-Lenders*

Licensed small loans companies and licensed money-lenders are subject to the provisions of the Small Loans Act (RSC 1952, c. 251, as amended by c. 46 of the Statutes of 1956) an enactment of the Parliament of Canada regulating personal loans not in excess of $1,500 made on the security of promissory notes of borrowers. Most of these notes are additionally secured by endorsements or chattel mortgages. The Act permits, in the case of licensed lenders, maximum rates of cost of loan, including charges of every kind, of 2 p.c. per month on that portion of the unpaid balance of a loan not exceeding $300, 1 p.c. per month on that portion of the balance exceeding $300 but not exceeding $1,000, and one half of 1 p.c. per month on any remainder of the balance exceeding $1,000. The maximum rate permitted to be charged by an unlicensed lender is 1 p.c. per month. Prior to Jan. 1, 1957, the scope of the Act extended only to loans of $500 and under and the maximum rate permitted to be charged by licensed lenders was 2 p.c. per month and by unlicensed lenders 12 p.c. per annum. The small loans companies—seven in number—were incorporated by special Acts of the Parliament of Canada, the first such company commencing business in 1928. Money-lenders, of which there are 80, are made up of companies otherwise incorporated and include a few partnerships and individuals. Table 26 gives the combined financial experience of small loans companies and licensed money-lenders for the years 1959-62.

* Further details are given in the Department of Insurance report *Small Loans Companies and Money-Lenders* for the year ended Dec. 31, 1962.

26.—Assets and Liabilities of Small Loans Companies and Money-Lenders, 1959-62

Assets and Liabilities	1959	1960	1961	1962
	$	$	$	$
Assets	**489,458,577**	**549,397,569**	**589,671,958**	**677,428,408**
Small loan balances	360,019,949	391,548,554	426,157,274	482,246,944
Balances, large loans and other contracts	117,019,123	143,809,201	149,610,423	179,888,234
Cash	5,422,060	7,136,432	6,114,919	5,924,323
Other	6,997,445	6,903,382	7,789,342	9,368,907
Liabilities	**489,458,577**	**549,397,569**	**589,671,958**	**677,428,408**
Borrowed money	398,296,116	446,112,043	477,639,594	553,914,368
Reserves for losses	9,536,367	10,966,543	11,603,200	13,202,526
Paid-up capital	36,106,703	39,495,327	42,375,438	45,030,972
Surplus paid in by shareholders	377,890	390,390	390,390	407,390
Earned surplus	17,999,186	20,107,677	25,195,896	29,462,148
Other	27,142,315	32,325,589	32,467,440	35,411,004

The combined companies showed a substantial increase in the amount of business done in 1962 compared with 1961. The number of small loans made to the public during 1962 increased from 1,169,699 to 1,304,155, or by about 11 p.c., and the amount of such loans rose from $605,687,740 to $700,906,537, or by about 16 p.c. The average small loan made was approximately $537 compared with $518 in 1961. At the end of the year, small loans outstanding numbered 1,055,266 for an amount of $482,246,944 or an average of $457 per loan; comparable figures for 1961 were 992,169, $426,157,274 and $430, respectively.

Gross profits of small loans companies and money-lenders before income taxes and before taking into account any increase or decrease in reserves for bad debts increased from $28,975,756 in 1961 ($20,746,644 being the profit on small loans and $8,229,112 the profit on business other than small loans) to $30,517,560 in 1962 ($19,781,761 being the profit on small loans and $10,735,799 the profit on business other than small loans).

CHAPTER XXVI.——INSURANCE*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Insurance, for the purpose of statistical analysis, is usually classified as life, fire and casualty. Most companies operate under Federal Government registration although some have provincial licences only. Also many fraternal orders and societies are engaged in this kind of business. A specially prepared article on the life insurance business in Canada, its regulation, its growth and its place in the life of the individual and in the economic structure of the country appeared in the 1963-64 Year Book pp. 1071-1077; other special articles appearing in previous editions are listed in Part II of Chapter XXVIII under the heading "Insurance"

Section 1.—Life Insurance

Life insurance in force in Canada with companies registered by the Federal Government (exclusive of fraternal benefit societies) amounted to nearly $56,804,000,000 at the end of 1963, an increase of $4,571,000,000 during the year. The ratio of gain in business in force, expressed as a percentage of the amount in force at the beginning of the same year, stood at 8.8 p.c. in 1963.

Year	*In Force at Beginning of Year*	*Increase in Force for the Year*	*Percentage Gain*
	$'000,000	$'000,000	
1930	6,157	335	5.4
1935	6,221	38	0.6
1940	6,776	200	2.9
1945	9,140	612	6.7
1950	14,409	1,337	9.3
1955	23,135	2,317	10.0
1956	25,452	3,635	14.3
1957	29,087	4,000	13.8
1958	33,087	3,409	10.3
1959	36,496	4,378	12.0
1960	40,874	3,775	9.2
1961	44,649	3,635	8.1
1962	48,284	3,949	8.2
1963	52,233	4,571	8.8

* Material in this Chapter, except as otherwise indicated, was prepared under the direction of the Superintendent of Insurance for Canada, Ottawa. More detailed data are available in the annual reports of the Department of Insurance.

Subsection 1.—Summary of Life Insurance in Canada

Tables 1 and 2 summarize insurance premiums, claims, amounts of new policies effected, and amounts of insurance in force on Dec. 31 for the years 1962 and 1963. These data are presented in Table 1 on the basis of the supervising government authorities for the companies and societies concerned, and the same data are presented in Table 2 classified on the basis of nationality of company or society and by supervising government authorities.

1.—Summary of Life Insurance in Canada according to Supervising Government Authority, 1962 and 1963

Year and Supervising Authority	Insurance Premiums	Claims[1]	New Policies Effected	Insurance in Force, Dec. 31
	$'000	$'000	$'000	$'000
1962				
Federally Registered	**818,873**	**292,235**	**6,174,991**	**53,023,230**
Companies	807,135	287,472	6,027,070	52,233,370
Societies	11,738	4,763	147,921	789,860
Provincially Licensed Only	**53,875**	**19,016**	**647,669**	**3,318,825**
Within Province of Incorporation—				
Companies	41,391	12,754	517,416	2,601,357
Societies	3,196	2,245	17,443	168,927
Outside Province of Incorporation—				
Companies	6,628	2,032	93,631	408,719
Societies	2,660	1,985	19,179	139,822
Totals, 1962	**872,748**	**311,251**	**6,822,660**	**56,342,055**
1963				
Federally Registered	**864,819**	**322,360**	**7,080,538**	**57,648,966**
Companies	851,379	316,927	6,933,120	56,803,852
Societies	13,440	5,433	147,418	845,114
Provincially Licensed Only	**59,695**	**21,409**	**764,590**	**3,737,916**
Within Province of Incorporation—				
Companies	45,993	14,543	612,169	2,943,583
Societies	3,092	2,380	24,880	187,473
Outside Province of Incorporation—				
Companies	7,891	2,380	99,938	463,253
Societies	2,719	2,106	27,603	143,607
Totals, 1963	**924,514**	**343,769**	**7,845,128**	**61,386,882**

[1] Death, disability and maturity under insurance and annuity contracts.

2.—Summary of Life Insurance in Canada, by Nationality of Company or Society, 1962 and 1963

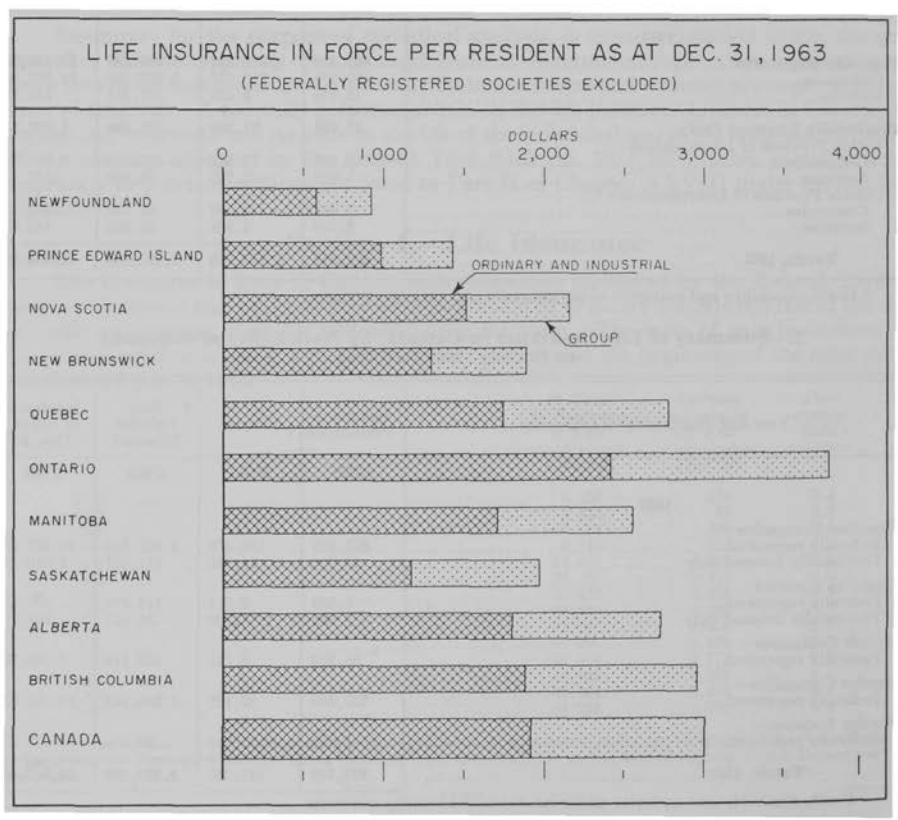
Year and Nationality of Company	Insurance Premiums	Claims[1]	New Policies Effected	Insurance in Force, Dec. 31
	$'000	$'000	$'000	$'000
1962				
Canadian Companies—				
Federally registered	537,361	196,570	4,081,610	35,907,033
Provincially licensed only	48,019	14,786	611,047	3,010,076
Canadian Societies—				
Federally registered	6,565	2,914	118,676	567,532
Provincially licensed only	5,856	4,230	36,622	308,749
British Companies—				
Federally registered	36,213	8,781	350,148	2,040,700
Foreign Companies—				
Federally registered	233,560	82,121	1,595,312	14,285,637
Foreign Societies—				
Federally registered	5,174	1,849	29,245	222,328
Totals, 1962	**872,748**	**311,251**	**6,822,660**	**56,342,055**

[1] Death, disability and maturity under insurance and annuity contracts.

2.—Summary of Life Insurance in Canada, by Nationality of Company or Society, 1962 and 1963—concluded

Year and Nationality of Company	Insurance Premiums	Claims[1]	New Policies Effected	Insurance in Force, Dec. 31
	$'000	$'000	$'000	$'000
1963				
Canadian Companies—				
Federally registered	566,875	220,925	4,661,935	39,135,222
Provincially licensed only	53,884	16,923	712,107	3,406,836
Canadian Societies—				
Federally registered	8,006	3,416	119,167	613,059
Provincially licensed only	5,811	4,486	52,483	331,080
British Companies—				
Federally registered	40,091	8,914	406,985	2,328,770
Foreign Companies—				
Federally registered	244,413	87,088	1,864,200	15,339,860
Foreign Societies—				
Federally registered	5,434	2,017	28,251	232,055
Totals, 1963	**924,514**	**343,769**	**7,845,128**	**61,386,882**

[1] Death, disability and maturity under insurance and annuity contracts.



Subsection 2.—Operational Statistics for Life Insurance Transacted in Canada by Companies under Federal Registration

The amount of life insurance in force in Canada has shown an almost continuous advance year by year since the beginning of the record in 1869. The amount per capita of the estimated population has almost doubled since 1953—evidence of the general recognition of the value of life insurance for the adequate protection of dependants against misfortune.

The operations analysed in the tables of this Subsection, with the exception of Table 7, include only those of companies under federal registration and are exclusive of fraternal organizations and provincial licensees. However, companies under federal registration account for over 92 p.c. of the life insurance in force in Canada.

3.—Life Insurance Effected and in Force in Canada by Companies under Federal Registration, Decennially 1880-1950 and Annually 1951-63

NOTE.—Figures for 1869-1900 are given in the 1938 Year Book, p. 958; for 1901-39 in the 1942 edition, p. 855; and for 1940-49 in the 1957-58 edition, p. 1168. Statistics of fraternal society insurance, excluded here, are given at pp. 1066-1067.

Year	New Insurance Effected during Year	Insurance in Force Dec. 31				Insurance in Force per Capita[1]
		Canadian Companies	British Companies	Foreign Companies	Total	
	$	$	$	$	$	$
1880	13,906,887	37,838,518	19,789,863	33,643,745	91,272,126	21.45
1890	39,802,956	135,218,990	31,613,730	81,591,847	248,424,567	51.98
1900	67,729,115	267,151,086	39,485,344	124,433,416	431,069,846	81.32
1910	150,785,305	565,667,110	47,816,775	242,629,174	856,113,059	122.51
1920	630,110,900	1,664,348,605	76,883,090	915,793,798	2,657,025,493	310.55
1930	884,749,748	4,319,370,209	117,410,860	2,055,502,125	6,492,283,194	636.00
1940	590,205,536	4,609,213,977	145,603,299	2,220,505,184	6,975,322,460	612.89
1950	1,798,864,211	10,756,249,942	342,878,530	4,646,707,595	15,745,836,067	1,148.33
1951	1,990,926,006	11,807,992,826	391,382,883	5,036,207,593	17,235,583,302	1,230.28
1952	2,287,264,465	13,085,349,418	443,275,711	5,562,003,368	19,090,628,497	1,320.33
1953	2,551,393,073	14,526,740,295	519,137,847	6,181,027,477	21,226,905,619	1,429.90
1954	2,656,722,341	15,765,916,390	596,756,619	6,771,905,859	23,134,578,868	1,513.35
1955	3,154,670,863	17,401,229,498	691,660,141	7,358,681,886	25,451,571,525	1,621.33
1956	4,119,767,664	19,783,194,985	819,968,279	8,484,252,879	29,087,416,143	1,808.83
1957	4,936,358,903	22,262,730,280	994,762,620	9,829,563,601	33,087,056,501	1,992.00
1958	5,129,714,126	24,560,264,322	1,170,343,106	10,765,171,257	36,495,778,685	2,136.76
1959	5,622,229,317	27,695,965,612	1,332,991,403	11,844,852,757	40,873,809,772	2,337.92
1960	5,692,887,763	30,418,380,871	1,554,844,168	12,675,749,459	44,648,974,498	2,498.54
1961	6,113,480,078	33,143,378,921	1,778,255,673	13,362,848,638	48,284,483,232	2,647.47
1962	6,027,069,888	35,907,032,820	2,040,700,311	14,285,636,913	52,233,370,044	2,812.78
1963	6,933,120,080	39,135,221,497	2,328,769,718	15,339,860,385	56,803,851,600	3,006.13

[1] Based on official estimates of population.

4.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1961-63

Item		1961	1962	1963
Canadian Companies—				
New policies effected during year	No.	382,511	372,400	387,786
	$	4,201,873,094	4,081,609,538	4,661,935,501
Policies in force Dec. 31	No.	5,171,891	5,228,321	5,300,787
	$	33,143,378,921	35,907,032,820	39,135,221,497
Policies ceased by death or maturity	No.	49,955	52,077	55,028
	$	174,004,921	187,491,327	206,767,303
Insurance premiums	$	513,673,584	537,360,977	566,875,249
Claims incurred[1]	$	183,170,511	196,569,562	220,924,829

[1] Death, disability and maturity under insurance and annuity contracts.

4.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1961-63—concluded

Item		1961	1962	1963
British Companies—				
New policies effected during year	No.	30,232	35,986	34,361
	$	310,020,907	350,148,518	406,984,738
Policies in force Dec. 31	No.	265,501	282,913	295,008
	$	1,778,255,673	2,040,700,311	2,328,769,718
Policies ceased by death or maturity	No.	1,948	2,068	2,394
	$	5,766,859	7,429,904	7,806,134
Insurance premiums	$	35,374,844	36,213,550	40,091,286
Claims incurred[1]	$	7,004,949	8,781,188	8,914,208
Foreign Companies—				
New policies effected during year	No.	291,849	284,165	269,090
	$	1,601,586,077	1,595,311,832	1,864,199,841
Policies in force Dec. 31	No.	4,784,618	4,726,342	4,653,937
	$	13,362,848,638	14,285,636,913	15,339,860,385
Policies ceased by death or maturity	No.	57,882	60,962	65,590
	$	70,842,616	77,322,635	84,410,910
Insurance premiums	$	222,394,427	233,560,185	244,412,339
Claims incurred[1]	$	75,608,283	82,121,435	87,087,771
All Companies—				
New policies effected during year	No.	704,592	692,551	691,237
	$	6,113,480,078	6,027,069,888	6,933,120,080
Policies in force Dec. 31	No.	10,222,010	10,237,576	10,249,732
	$	48,284,483,232	52,233,370,044	56,803,851,600
Policies ceased by death or maturity	No.	109,785	115,107	123,012
	$	250,614,396	272,243,866	298,984,347
Insurance premiums	$	771,442,855	807,134,712	851,378,874
Claims incurred[1]	$	265,783,743	287,472,185	316,926,808

[1] Death, disability and maturity under insurance and annuity contracts.

5.—Ordinary and Industrial Life Insurance Policies Effected and in Force in Canada by Companies under Federal Registration, 1961-63

Year, Type of Policy and Nationality of Company	New Policies Effected			Policies in Force Dec. 31		
	No.	Amount	Average Amount per Policy	No.	Amount	Average Amount per Policy
		$	$		$	$
1961						
Ordinary Policies—						
Canadian	379,029	2,844,106,136	7,504	5,010,227	21,937,706,027	4,379
British	30,122	280,458,908	9,311	236,723	1,579,552,517	6,673
Foreign	257,848	1,236,539,455	4,796	2,589,688	7,787,245,977	3,007
Industrial Policies—						
Canadian	619	687,290	1,110	142,821	74,134,955	519
British	—	—	—	28,310	3,551,382	125
Foreign	30,871	16,677,383	540	2,177,031	830,179,381	381
1962						
Ordinary Policies—						
Canadian	369,696	2,860,037,465	7,736	5,075,006	23,230,070,969	4,577
British	35,873	325,791,058	9,082	255,171	1,808,510,021	7,087
Foreign	252,176	1,242,399,386	4,927	2,661,281	8,278,944,823	3,111
Industrial Policies—						
Canadian	—	—	—	133,151	70,187,291	527
British	—	—	—	27,191	3,365,876	124
Foreign	29,079	16,013,266	551	2,047,127	793,138,724	387

5.—Ordinary and Industrial Life Insurance Policies Effected and in Force in Canada by Companies under Federal Registration, 1961-63—concluded

Year, Type of Policy and Nationality of Company	New Policies Effected			Policies in Force Dec. 31		
	No.	Amount	Average Amount per Policy	No.	Amount	Average Amount per Policy
		$	$		$	$
1963						
Ordinary Policies—						
Canadian	384,803	3,128,717,327	8,131	5,155,816	24,715,103,219	4,794
British	34,199	364,112,229	10,647	268,371	2,051,522,470	7,644
Foreign	247,712	1,367,535,580	5,521	2,720,131	8,812,138,127	3,240
Industrial Policies—						
Canadian	—	—	—	123,601	66,491,681	538
British	—	—	—	25,979	3,167,291	122
Foreign	18,140	10,237,154	564	1,915,433	753,487,915	393

6.—Group Life Insurance Effected and in Force in Canada by Companies under Federal Registration, 1961-63

Year and Nationality of Company	Effected		In Force Dec. 31			
	Policies	Amount	Policies	Certificates	Amount	Average Amount per Certificate
	No.	$	No.	No.	$	$
1961						
Canadian	2,863	1,357,079,668	18,843	10,170,774	11,131,537,939	1,094
British	110	29,561,999	468	38,097	195,151,774	5,122
Foreign	3,130	348,369,239	17,899	3,336,581	4,745,423,280	1,422
1962						
Canadian	2,704	1,221,572,073	20,164	11,112,827	12,606,774,560	1,134
British	113	24,357,460	551	46,905	228,824,414	4,878
Foreign	2,910	336,899,180	17,934	3,765,010	5,213,553,366	1,385
1963						
Canadian	2,983	1,533,218,174	21,370	11,821,095	14,353,626,597	1,214
British	162	42,872,509	658	56,516	274,079,957	4,850
Foreign	3,238	486,427,107	18,373	4,355,598	5,774,234,343	1,326

7.—Insurance Death Rates in Canada, 1961-63

Type of Insurer	1961			1962			1963		
	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000
	No.	No.		No.	No.		No.	No.	
All companies, ordinary	7,778,686	41,728	5.4	7,935,499	42,901	5.4	8,090,829	45,882	5.7
All companies, industrial	2,439,055	29,102	11.9	2,292,344	29,057	12.7	2,151,118	29,754	13.8
Fraternal benefit societies	482,395	4,248	8.8	486,537	4,067	8.4	490,374	4,251	8.7
Totals	**10,700,136**	**75,078**	**7.0**	**10,714,380**	**76,025**	**7.1**	**10,732,321**	**79,887**	**7.4**

Subsection 3.—Finances of Companies Transacting Life Insurance under Federal Registration

The financial statistics in Tables 8 and 9 relate only to life insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising outside of Canada as well as in Canada.

8.—Total Assets and Liabilities for Life Insurance of Canadian Companies under Federal Registration and Assets and Liabilities in Canada for Life Insurance of British and Foreign Companies under Federal Registration, 1961-63.

Assets and Liabilities	1961	1962	1963
	$	$	$
Canadian Companies			
Total Assets[1]	**9,192,620,682**	**9,811,701,596**	**10,522,735,490**
Bonds	4,230,778,406	4,406,499,653	4,647,180,012
Stocks	507,218,934	555,714,167	573,590,242
Mortgage loans on real estate	3,397,570,991	3,743,923,588	4,110,569,893
Agreements of sale of real estate	3,765,566	3,512,059	4,654,431
Real estate	297,128,710	304,103,625	315,589,652
Policy loans	453,973,133	476,525,931	496,321,955
Cash	87,816,509	83,011,556	104,317,302
Investment income, due and accrued	93,178,342	102,193,008	108,531,777
Outstanding insurance premiums and annuity considerations	73,905,317	75,725,020	74,322,044
Shares of company's capital stock (purchased under mutualization plan)	22,873,520	19,099,930	15,450,000
Other assets	24,411,254	41,393,059	72,208,182
Total Liabilities	**8,615,294,163**	**9,187,473,406**	**9,839,190,502**
Actuarial reserve for contracts in force	7,215,971,954	7,678,852,499	8,169,630,509
Outstanding claims under contracts	76,416,994	80,100,665	99,187,150
Amounts on deposit pertaining to contracts	703,505,689	754,200,963	823,005,097
Other liabilities	619,399,526	674,319,279	747,367,746
Surplus	557,540,660	607,392,331	666,533,584
Capital stock paid up	19,785,859	16,835,859	17,011,404
British Companies			
Assets in Canada[2]	**551,309,311**	**623,746,252**	**707,601,679**
Bonds	300,467,547	340,868,997	373,526,632
Stocks	84,996,944	77,198,096	94,153,880
Mortgage loans on real estate	129,070,439	160,111,821	190,607,375
Real estate	15,808,174	19,679,296	18,693,373
Policy loans	10,668,212	11,798,349	12,809,738
Cash	2,662,733	3,531,247	1,430,067
Investment income, due and accrued	2,000,117	2,634,383	2,830,979
Outstanding insurance premiums and annuity considerations	2,511,341	2,918,754	2,770,709
Other assets	3,123,804	5,005,309	10,778,926
Liabilities in Canada	**502,023,947**	**563,941,164**	**638,317,037**
Actuarial reserve for contracts in force	489,006,601	549,445,711	618,620,367
Outstanding claims under contracts	2,812,169	3,575,044	3,822,893
Other liabilities	10,205,177	10,920,409	15,873,777
Excess of assets over liabilities in Canada	**49,285,364**	**59,805,088**	**69,284,642**
Foreign Companies			
Assets in Canada[2]	**1,721,578,778**	**1,799,646,595**	**1,912,181,644**
Bonds	1,179,089,631	1,212,682,813	1,237,865,939
Stocks	1,920,000	1,840,000	2,055,300
Mortgage loans on real estate	409,757,513	448,767,256	531,673,132
Real estate	6,706,778	6,452,347	6,455,398
Policy loans	78,286,854	81,478,818	84,427,998
Cash	15,618,067	17,292,824	17,191,928
Investment income, due and accrued	20,048,688	20,611,625	22,125,990
Outstanding insurance premiums and annuity considerations	8,886,999	8,933,139	8,906,606
Other assets	1,264,248	1,587,773	1,479,353
Liabilities in Canada	**1,528,542,691**	**1,604,248,722**	**1,706,619,834**
Actuarial reserve for contracts in force	1,404,745,501	1,467,513,801	1,555,014,242
Outstanding claims under contracts	17,245,736	19,147,501	20,413,617
Other liabilities	106,551,454	117,587,420	131,191,975
Excess of assets over liabilities in Canada	**193,036,087**	**195,397,873**	**205,561,810**

[1] At book values. The liabilities include a reserve equal to the amount, if any, by which the total book value of bonds, stocks and real estate exceeds the total market value (or amortized value where applicable). [2] At market values.

9.—Total Revenue and Expenditure for Life Insurance Transacted by Canadian Companies under Federal Registration and Revenue and Expenditure in Canada for Life Insurance Transacted by British and Foreign Companies under Federal Registration, 1961-63.

Revenue and Expenditure	1961	1962	1963
	$	$	$
Canadian Companies			
Total Revenue	**1,532,091,118**	**1,634,090,425**	**1,741,361,787**
Insurance premiums and annuity considerations	1,060,250,335	1,120,269,350	1,181,394,382
Investment income	439,062,495	481,375,636	525,631,408
Sundry items	32,778,288	32,445,439	34,335,997
Total Expenditure	**1,444,709,755**	**1,548,186,744**	**1,660,232,913**
Claims incurred	540,804,416	572,056,264	623,342,919
Normal increase in actuarial reserve	426,277,286	465,387,915	488,743,250
Taxes, licences and fees	30,107,179	30,130,778	32,386,030
Commissions and general expenses	235,390,544	249,722,492	266,156,383
Sundry items	70,584,904	76,154,607	82,684,163
Dividends to policyholders	127,180,903	139,293,991	151,641,798
Increase in provision for profits to policyholders	14,364,523	15,440,697	15,278,370
Analysis of Increase in Surplus—			
Excess of revenue over expenditure	87,381,363	85,903,681	81,128,874
Net capital gain on investments	16,578,525	−7,099,234	−448,835
Other credits to surplus (net)	−35,318,179[1]	−10,396,264[1]	−1,339,600[1]
Net increase in special reserves or funds	−18,196,397	−13,696,955	−16,383,266
Special increase in actuarial reserve	−2,470,435	−2,566,340	−2,034,760
Dividends to shareholders	−3,293,123[2]	−2,293,217[2]	−2,243,932[2]
Increase in surplus (policyholders and shareholders)	44,681,754	49,851,671	58,678,481
British Companies			
Revenue in Canada	**103,298,332**	**114,601,159**	**129,472,597**
Insurance premiums and annuity considerations	76,872,177	82,146,635	92,545,611
Investment income	25,144,687	29,906,324	35,130,197
Sundry items	1,281,468	2,548,200	1,796,789
Expenditure in Canada	**48,643,560**	**53,667,088**	**61,027,253**
Claims incurred	24,130,823	28,129,382	32,547,385
Taxes, licences and fees	1,019,476	966,112	1,342,136
Commissions and general expenses	14,847,539	16,817,232	18,310,000
Other expenditure	1,189,895	1,523,438	1,782,492
Dividends to policyholders	7,455,827	6,230,924	7,045,240
Foreign Companies			
Revenue in Canada	**324,386,707**	**344,544,290**	**361,360,019**
Insurance premiums and annuity considerations	229,401,765	242,888,277	252,158,377
Investment income	80,765,032	86,410,033	92,530,394
Sundry items	14,219,910	15,245,980	16,671,248
Expenditure in Canada	**232,317,535**	**252,397,524**	**264,764,518**
Claims incurred	118,305,427	128,109,843	132,062,919
Taxes, licences and fees	7,359,836	9,455,446	12,763,771
Commissions and general expenses	55,995,768	58,015,357	59,618,377
Other expenditure	13,614,606	14,427,634	14,673,762
Dividends to policyholders	37,041,898	42,389,244	45,645,689

[1] Includes amounts written off shares purchased under mutualization plan. [2] Dividends on shares other than those purchased by the company under mutualization plan.

Subsection 4.—Life Insurance in Canada Transacted by Fraternal Benefit Societies

In addition to life insurance, some fraternal benefit societies grant other insurance benefits to members, notably sickness benefits, but these are relatively unimportant. Table **10** gives statistics of life insurance in Canada transacted by fraternal benefit societies and Table **11** shows statistics of assets, liabilities, income and expenditure relating to all business of Canadian societies and to the business in Canada of foreign societies. The rates charged by these societies are computed to be sufficient to provide the benefits granted, having regard for actuarial principles. The benefit funds of each society must be valued annually by a qualified actuary (Fellow, by examination, of the Institute of Actuaries of Great Britain, of the Faculty of Actuaries in Scotland, or of the Society of Actuaries) and a readjustment of rates or benefits must be made, unless the actuary certifies to the solvency of each fund. The first sections of Tables **10** and **11** relate to the 16 Canadian societies registered by the federal Department of Insurance, only one of which does not grant life insurance benefits.

Under an amendment to the Insurance Act, effective Jan. 1, 1920, all foreign fraternal benefit societies were required to obtain authority from the Federal Government prior to transacting business in Canada. However, any such societies which at that date were transacting business under provincial licences, though forbidden to accept new members, were permitted to continue all necessary transactions in respect of insurance already in force. Most of these societies and some foreign societies that had not been licensed previously by the provinces have since obtained federal authority to transact business. At the end of 1963 there were 33 foreign fraternal benefit societies federally registered to transact business in Canada, although two of these do not grant life insurance benefits.

10.—Summary of Life Insurance in Canada Transacted by Fraternal Benefit Societies under Federal Registration, 1961-63

Item		1961	1962	1963
Canadian Societies				
Premiums	$	6,420,343	6,564,923	8,005,661
Claims incurred	$	4,197,859	4,435,946	5,034,573
New certificates effected	No.	37,636	36,039	33,576
	$	125,982,733	118,675,589	119,167,173
Certificates in force Dec. 31	No.	309,189	311,446	315,836
	$	531,985,025	567,531,469	613,059,254
Certificates ceased by death or maturity	No.	3,069	3,034	3,213
	$	2,733,349	2,770,094	3,158,037
Foreign Societies				
Premiums	$	4,609,789	5,173,554	5,434,266
Claims incurred	$	2,587,711	2,707,101	2,869,636
New certificates effected	No.	10,916	11,481	11,403
	$	26,759,469	29,245,429	28,250,934
Certificates in force Dec. 31	No.	147,304	148,233	148,785
	$	207,507,569	222,328,090	232,054,345
Certificates ceased by death or maturity	No.	1,735	1,875	2,022
	$	1,702,662	1,828,257	1,954,786

11.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1961-63

Item	1961	1962	1963
	$	$	$
Canadian Societies[1]			
Assets	**173,606,986**	**192,263,253**	**213,233,586**
Bonds	124,777,449	132,951,478	142,250,011
Stocks	9,580,436	11,322,422	12,440,391
Mortgage loans on real estate	23,282,350	30,284,391	38,688,077
Agreements of sale of real estate	403,807	405,059	35,117
Real estate	3,596,287	3,607,453	3,822,715
Certificate loans and liens	6,730,608	7,360,999	8,350,108
Cash	2,297,974	2,419,145	3,216,114
Investment income, due and accrued	1,459,824	1,645,887	1,801,353
Outstanding premiums, contributions and dues	1,269,047	1,957,571	2,361,783
Other	209,204	308,848	267,917
Liabilities and Surplus	**173,606,986**	**192,263,253**	**213,233,586**
Actuarial reserve	128,964,130	140,845,711	155,452,383
Outstanding claims	1,535,805	1,457,825	1,913,027
Amounts on deposit	402,090	542,849	737,617
Other	23,662,356	28,431,567	32,110,490
Surplus	19,042,605	20,985,301	23,020,069
Revenue	**38,289,664**	**44,342,262**	**49,992,366**
Premiums, contributions and dues	29,834,982	34,794,396	39,285,596
Investment income	7,750,053	8,721,235	9,803,584
Other	704,629	826,631	903,186
Expenditure	**35,506,483**	**40,812,433**	**47,172,222**
Claims incurred	8,874,771	10,696,001	11,967,435
Increase in actuarial reserve	10,312,912	11,881,581	14,607,794
Taxes, licences and fees	108,759	96,869	113,634
Commissions	6,188,583	7,009,477	7,133,026
General expenses	6,356,590	6,694,172	8,404,755

[1] All funds, business in and out of Canada.

11.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1961-63 —concluded

Item	1961	1962	1963
	$	$	$
Canadian Societies[1]—concluded			
Expenditure—concluded			
Other	1,235,041	1,126,233	1,213,365
Dividends to members	1,775,035	2,695,021	2,976,584
Increase in provision for dividends to members	654,792	613,079	755,629
Analysis of Increase in Surplus—			
Excess of revenue over expenditure	2,783,175	3,529,829	2,820,144
Net capital gain on investments	−1,107	86,014	87,248
Other credits to surplus (net)	15,296	82,211	85,535
Net increase in special reserves	−496,150	−1,759,769	−958,714
Increase in surplus	2,301,214	1,938,285	2,034,213
Foreign Societies[2]			
Assets	**52,552,293**	**52,906,594**	**55,482,457**
Bonds	44,508,740	45,771,552	47,871,417
Stocks	250,000	334,040	464,750
Mortgage loans on real estate	1,474,777	1,472,865	1,350,869
Real estate	952,595	—	—
Certificate loans and liens	2,542,856	2,623,076	2,832,371
Cash	1,846,928	1,791,091	2,062,798
Investment income, due and accrued	634,604	659,546	682,984
Outstanding premiums, contributions and dues	341,366	254,270	210,261
Other	427[r]	154[r]	7,007
Liabilities	**41,683,461**	**43,769,029**	**46,254,544**
Actuarial reserve	37,667,397	39,354,481	41,354,123
Outstanding claims	512,067	475,423	508,114
Other	3,503,997	3,939,125	4,392,307
Revenue	**9,285,348**	**9,781,189**	**10,443,354**
Premiums, contributions and dues	6,782,855	7,088,986	7,342,649
Investment income	2,120,999	2,303,665	2,393,765
Other	381,494	388,538	706,940
Expenditure	**5,177,739**	**5,372,850**	**5,828,623**
Claims incurred	3,484,887	3,554,448	3,791,696
Taxes, licences and fees	41,953	47,378	56,498
Commissions	524,638	569,707	592,104
General expenses	465,595	459,189	493,743
Other	196,978	215,839	297,437
Dividends to members	463,688	526,289	597,145

[1] All funds, business in and out of Canada. [2] All funds, business in Canada only.

Subsection 5.—Life Insurance Effected and in Force Outside Canada by Canadian Companies under Federal Registration

In this Subsection, there are given for the years 1962 and 1963 summary statistics of insurance effected and insurance in force at the end of the year in currencies other than Canadian dollars, as written by Canadian companies under federal registration. The statistics for individual companies are shown in Table 12 and for individual currencies in Table 13. The data given in both of these tables are in terms of Canadian dollars, the conversions from the various foreign currencies having been made at the book rates of exchange used by the various companies. Although these book rates of exchange do not follow the day-to-day fluctuations in the current rates of exchange, they are adjusted when necessary to keep them reasonably in line with the current rates.

Canadian life insurance companies operating under federal registration at Dec. 31, 1963 had life insurance in force amounting to $16,469,828,198 in countries outside Canada. Insurance in force in currencies other than Canadian dollars amounted to $16,421,281,141; the difference between these figures is presumably the net amount of business in countries outside Canada transacted in Canadian currency. The business in force in Canada of Canadian companies registered by the Federal Government amounted to $39,135,221,497 at Dec. 31, 1963, and the total business on the books of these companies, in and out of Canada, amounted to $55,605,049,695. Thus, about 30 p.c. of the total business in force

for Canadian companies registered by the Federal Government was in force in countries outside Canada.

In connection with their business outside Canada, the Canadian life insurance companies registered by the Federal Government held, at the end of 1963, Commonwealth and foreign investments in the amount of $3,245,406,327.

12.—Life Insurance Effected and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Company, 1962 and 1963.

Year and Company	Insurance Effected			Insurance in Force Dec. 31		
	Commonwealth Currencies	Foreign Currencies	Total	Commonwealth Currencies	Foreign Currencies	Total
	$	$	$	$	$	$
1962						
Alliance Mutual	—	883,667	883,667	—	4,196,462	4,196,462
Canada	62,063,315	152,248,381	214,311,696	410,354,112	1,010,885,855	1,421,239,967
Canadian Reassurance	106,857	20,920	127,777	213,712	20,920	234,632
Commercial	—	—	—	—	42,348	42,348
Confederation	47,322,073	137,681,050	185,003,123	325,853,153	673,619,714	999,472,867
Continental	—	—	—	6,333	109,161	115,494
Crown	28,374,974	241,552,479	269,927,453	132,305,526	1,342,029,113	1,474,334,639
Dominion	9,054,954	58,576,406	67,631,360	42,556,072	305,911,810	348,467,882
Dom. of Canada General	—	—	—	1,634,421	17,050	1,651,471
T. Eaton	102,000	—	102,000	331,460	3,333	334,793
Equitable	—	—	—	—	43,861	43,861
Excelsior	—	673,517	673,517	35,700	788,487	824,187
Great-West	—	287,118,686	287,118,686	—	2,135,887,395	2,135,887,395
Imperial	57,656,848	3,413,608	61,070,456	267,049,931	43,727,353	310,777,284
London	—	1,097,724	1,097,724	—	10,091,695	10,091,695
Manufacturers	95,901,258	354,691,958	450,593,216	671,244,298	1,894,203,374	2,565,447,672
Maritime	5,015,784	57,199	5,072,983	9,498,597	651,373	10,149,970
Monarch	—	27,317	27,317	—	276,094	276,094
Montreal	—	—	—	86,330	251,060	337,390
Mutual	—	3,143,731	3,143,731	618,580	28,908,019	29,526,599
National	7,087,887	25,780,247	32,868,134	36,680,554	79,472,904	116,153,458
North American	23,800,273	109,043,313	132,843,586	104,516,574	470,484,651	575,001,225
Northern	—	4,475,736	4,475,736	19,500	38,582,870	38,602,370
Sauvegarde	—	—	—	—	5,000	5,000
Sun	176,877,257	344,540,124	521,417,381	1,332,750,649	3,708,906,427	5,041,657,076
Western	—	4,988,431	4,988,431	—	6,176,055	6,176,055
Totals, 1962	**513,363,480**	**1,730,014,494**	**2,243,377,974**	**3,335,755,502**	**11,755,292,384**	**15,091,047,886**
1963						
Alliance Mutual	—	460,845	460,845	—	4,364,046	4,364,046
Canada	69,732,544	160,016,429	229,748,973	452,877,760	1,097,201,764	1,550,079,524
Canadian Reassurance	243,900	219,200	463,100	321,800	356,600	678,400
Commercial	—	—	—	—	42,348	42,348
Confederation	57,085,605	127,072,344	184,157,949	362,090,568	753,791,232	1,115,881,800
Continental	—	—	—	6,333	162,390	168,723
Crown	30,063,585	239,583,603	269,647,188	146,607,082	1,433,378,124	1,579,985,206
Dominion	9,459,807	58,602,053	68,061,860	49,091,765	348,344,855	397,436,620
Dom. of Canada General	—	19,536	19,536	1,477,876	30,786	1,508,662
T. Eaton	—	—	—	327,380	3,333	330,713
Equitable	—	—	—	—	40,062	40,062
Excelsior	75,400	303,599	378,999	104,800	1,128,215	1,233,015
Great-West	—	282,205,454	282,205,454	—	2,313,177,217	2,313,177,217
Imperial	59,254,864	1,994,215	61,249,079	305,070,868	41,563,487	346,634,355
London	—	1,236,664	1,236,664	—	9,906,266	9,906,266
Manufacturers	103,088,628	414,119,982	517,208,610	724,514,788	2,156,231,083	2,880,745,871
Maritime	5,305,692	657,855	5,963,547	12,943,849	1,307,044	14,250,893
Monarch	—	37,966	37,966	—	296,910	296,910
Montreal	—	—	—	78,410	232,488	310,898
Mutual	—	1,514,243	1,514,243	600,456	27,154,915	27,755,371
National	9,457,225	63,191,877	72,649,102	42,007,032	133,576,778	175,583,810
North American	35,545,059	102,826,075	138,371,134	131,166,870	538,770,949	669,937,819
Northern	—	5,993,754	5,993,754	19,500	41,725,165	41,744,665
Sauvegarde	—	—	—	—	5,000	5,000
Sun	194,661,151	373,141,989	567,803,140	1,437,730,674	3,842,703,718	5,280,434,392
Western	—	4,760,241	4,760,241	—	8,748,555	8,748,555
Totals, 1963	**573,973,460**	**1,837,957,924**	**2,411,931,384**	**3,667,037,811**	**12,754,243,330**	**16,421,281,141**

Approximately 71 p.c. of all business in force in currencies other than Canadian is in United States currency and 17 p.c. is in sterling. From a slightly different point of view, approximately 22 p.c. of this business in force is in currencies of Commonwealth countries other than Canada, and 78 p.c. in currencies of foreign countries.

13.—Life Insurance Effected and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Currency, 1962 and 1963.

Currency	1962		1963	
	Insurance Effected	Insurance in Force	Insurance Effected	Insurance in Force
	$	$	$	$
Commonwealth Currencies	**513,363,480**	**3,335,755,502**	**573,973,460**	**3,667,037,811**
Pounds—				
Sterling	384,620,474	2,612,726,900	419,841,021	2,860,585,759
Australia	—	4,367	—	3,060
British West Indies, Bahamas, Bermuda and Jamaica	27,422,251	172,266,917	40,236,958	199,977,328
Cyprus	4,103,462	10,328,648	3,526,176	12,855,308
Rhodesia and Nyasaland	34,461,798	140,604,622	36,841,923	159,599,578
Dollars—				
British Honduras	—	606,281	—	540,799
British West Indies, British Guiana and Trinidad	57,649,424	296,327,650	69,084,428	333,783,911
Hong Kong	2,347,425	17,960,760	3,445,052	21,769,246
Malaya	2,088,384	31,507,423	—	29,568,578
Rupees—				
Ceylon	—	27,597,438	—	25,455,481
India	—	4,319,388	—	3,703,586
Pakistan	—	692,014	—	596,812
Shillings—				
East Africa	670,262	20,813,094	997,902	18,598,365
Foreign Currencies	**1,730,014,494**	**11,755,292,384**	**1,837,957,924**	**12,754,243,330**
Bahts (Thailand)	—	12,743	—	10,994
Bolivars (Venezuela)	11,261,591	43,694,159	9,412,305	47,795,894
Colones (El Salvador)	—	801,000	—	774,000
Cordobas (Nicaragua)	—	1,899	—	1,613
Dollars (United States of America)	1,573,329,317	10,685,823,622	1,651,121,400	11,577,096,468
Escudos (Chile)	—	2	—	12
Francs (France)	—	496	—	492
Francs (Switzerland)	—	2,080	—	2,080
Guilders (Netherlands)	3,100	253,297	—	223,546
Guilders (Netherlands Antilles)	3,272,032	19,977,431	3,332,279	21,088,128
Kyats (Burma)	—	55,301	—	45,482
Pesos (Argentina)	—	1,497,367	—	1,345,125
Pesos (Colombia)	—	4,960	—	5,920
Pesos (Cuba)	585,000	131,618,589	87,000	110,042,535
Pesos (Dominican Republic)	4,965,850	22,587,966	12,038,867	32,610,481
Pesos (Mexico)	26,000	3,337,259	—	2,965,097
Pesos (Philippines)	12,445,908	74,875,278	13,797,153	84,355,323
Pounds (Egypt)	—	10,336,652	—	9,468,514
Pounds (Republic of Ireland)	15,873,828	86,543,015	17,639,509	98,546,072
Pounds (Israel)	7,769,722	26,895,582	13,012,556	38,688,060
Rand (South Africa)	100,482,146	646,662,121	117,516,855	728,880,503
Rupiahs (Indonesia)	—	238,386	—	229,146
Soles (Peru)	—	69,973	—	64,615
Yen (Japan)	—	3,206	—	3,230
Totals	**2,243,377,974**	**15,091,047,886**	**2,411,931,384**	**16,421,281,141**

Section 2.—Fire and Casualty Insurance

At the end of 1963 there were 275 companies registered by the Federal Government to transact fire insurance in Canada (85 Canadian, 75 British and 115 foreign). Of these companies, 267 (79 Canadian, 75 British and 113 foreign) were also registered to transact casualty insurance. In addition, 100 companies were registered by the Federal Government to transact casualty insurance but not fire insurance (22 Canadian, 7 British and 71 foreign). Of the companies registered to transact fire and/or casualty insurance, 75 were also registered to transact life insurance; 14 of these were registered for fire, life and casualty insurance and 61 for life and casualty but not fire insurance. It should be noted also that, in addition to the companies registered by the Federal Government to transact casualty insurance, there were 26 registered fraternal benefit societies transacting accident and sickness insurance, of which 23 also transacted life insurance.

The operations analysed in the tables of this Section, with the exception of Table 14, include only those companies under federal registration. As shown in Table 14, some fire and casualty insurance is transacted in Canada by companies that are provincially licensed only. These companies generally confine their operations to the province of incorporation but may be allowed to sell insurance in other provinces. Many of them are mutual organizations transacting only fire insurance on a county, municipal or parish basis.

Table 14 summarizes net premiums written and net claims incurred for the years 1962 and 1963 in the fields of fire insurance and casualty insurance in Canada. These data are presented on the basis of the supervising government authorities for the companies concerned. The table relates to insurance companies only; no data are included with respect to fraternal benefit societies.

14.—Fire and Casualty Insurance Transacted in Canada, 1962 and 1963

Item	1962		1963	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	$	$	$	$
Fire Insurance				
Federally registered companies[1]	215,296,755	113,693,026	211,639,863	134,305,829
Provincial licensees	32,237,560	18,425,946	32,822,077	19,133,580
In province by which incorporated	*28,305,278*	*16,110,691*	*29,201,767*	*16,905,711*
Outside province by which incorporated	*3,932,282*	*2,315,255*	*3,620,310*	*2,227,869*
Lloyds, London	7,400,611	6,744,769	7,519,346	6,754,478
Totals, Fire[1]	**254,934,926**	**138,863,741**	**251,981,286**	**160,194,887**
Casualty Insurance				
Federally registered companies[1]	649,530,458	399,990,133	702,055,298	476,469,032
Provincial licensees	70,000,749	43,504,385	75,669,860	49,880,125
In province by which incorporated	*61,718,442*	*37,974,100*	*66,628,522*	*43,669,458*
Outside province by which incorporated	*8,282,307*	*5,530,285*	*9,041,338*	*6,210,667*
Lloyds, London	29,141,562	15,859,655	28,602,199	27,894,319
Totals, Casualty[1]	**748,672,769**	**459,354,173**	**806,327,357**	**554,243,476**
Totals, Fire and Casualty[1]	**1,003,607,695**	**598,217,914**	**1,058,308,643**	**714,438,363**

[1] Registered or licensed reinsurance deducted from all companies. Prior to 1961, all reinsurance was deducted for Canadian companies included in the data of federally registered companies; these figures are therefore not strictly comparable with the same items in previous years.

Subsection 1.—Fire Insurance Transacted in Canada by Companies under Federal Registration

Net premiums written and net claims incurred during each year from 1954 to 1963 are given in Table **15** and the figures for 1962 and 1963 are classified by province and nationality of company in Table **16.**

15.—Fire Insurance Transacted in Canada by Companies under Federal Registration, 1954-63

(Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies)

Year	Net Premiums Written during Year	Net Claims Incurred during Year	Year	Net Premiums Written during Year	Net Claims Incurred during Year
	$	$		$	$
1954	148,446,105	70,445,544	1959	196,702,991	96,054,754
1955	146,444,845	77,836,245	1960	200,735,958	100,501,460
1956	155,506,787	86,088,850	1961	200,859,825	96,343,611
1957	156,246,117	109,757,161	1962	200,768,495	104,472,605
1958	177,364,450	88,151,837	1963	196,915,780	125,252,467

16.—Fire Insurance in Canada classified by Province and by Nationality of Company under Federal Registration, 1962 and 1963

(Registered or licensed reinsurance deducted)

Year and Province or Territory	Canadian Companies		British Companies		Foreign Companies	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	$	$	$	$	$	$
1962						
Newfoundland	853,684	358,274	1,425,502	386,832	773,818	223,282
Prince Edward Island	307,409	133,770	409,326	164,951	173,331	62,131
Nova Scotia	2,544,503	1,294,766	3,196,012	1,706,109	1,799,603	915,390
New Brunswick	2,151,012	1,028,625	2,417,740	1,168,203	1,868,669	859,598
Quebec	22,911,722	12,916,228	22,500,816	13,947,772	22,848,113	11,330,934
Ontario	29,276,354	13,559,567	21,608,789	11,428,104	28,379,714	13,710,195
Manitoba	4,515,617	2,701,527	2,407,833	1,357,539	2,540,514	1,308,933
Saskatchewan	3,118,742	1,033,108	1,093,863	516,547	1,635,005	677,948
Alberta	5,069,494	2,539,536	3,823,988	2,971,779	3,847,533	2,597,275
British Columbia	6,219,877	3,716,551	6,561,858	3,767,675	8,305,630	5,012,241
Yukon and Northwest Territories	172,143	66,427	409,612	190,848	128,929	30,361
Canada, 1962	**77,140,557**	**39,348,379**	**65,855,339**	**37,606,359**	**72,300,859**	**36,738,288**
1963						
Newfoundland	922,763	713,646	1,216,818	2,013,529	835,191	596,847
Prince Edward Island	306,733	131,083	390,247	201,821	149,530	102,443
Nova Scotia	2,599,489	1,281,524	2,962,356	1,618,294	1,517,432	909,353
New Brunswick	2,184,538	1,683,281	2,309,834	1,811,743	1,744,811	1,661,350
Quebec	24,820,548	14,004,709	21,427,851	16,078,686	23,084,360	15,720,095
Ontario	29,591,927	15,400,576	20,827,768	14,520,861	27,002,359	16,869,338
Manitoba	4,449,162	2,547,656	2,270,743	1,569,190	2,460,631	1,180,689
Saskatchewan	3,364,308	1,882,969	1,056,773	1,226,224	1,514,550	1,351,718
Alberta	5,074,160	2,283,361	3,502,094	2,159,711	3,808,492	1,747,314
British Columbia	5,932,001	3,685,056	6,051,479	4,555,561	7,587,415	4,620,217
Yukon and Northwest Territories	205,012	62,285	353,520	58,067	113,968	57,632
Canada, 1963	**79,451,641**	**43,676,146**	**62,369,483**	**45,813,687**	**69,818,739**	**41,816,996**

Subsection 2.—Fire Losses

The information in Tables **17** to **19**, which deals with the loss of property and life caused by fire, has been summarized from the annual report *Fire Losses in Canada* prepared by the Dominion Fire Commissioner, Department of Public Works. Federal losses not included in these figures in 1962 amounted to $4,556,973 from 2,237 fires; average federal losses for the period 1953-62 amounted to $4,734,810 from an annual average of 2,265 fires.

17.—Statistics of Fire Losses, 1953-62

NOTE.—Figures for 1926-46 are given in the 1947 Year Book, p. 1078, and those for 1947-52 in the 1960 edition, p. 1169. Figures from 1922 may be obtained from the Dominion Fire Commissioner, Department of Public Works.

Year	Fires Reported	Property Loss[1]	Loss per Capita	Deaths by Fire	Year	Fires Reported	Property Loss[1]	Loss per Capita	Deaths by Fire
	No.	$	$	No.		No.	$	$	No.
1953	67,519	84,270,896	5.68	477	1958	86,919	120,258,696	7·04	532
1954	68,638	91,440,478	5.98	485r	1959	84,241	124,532,238	7.12	560
1955[2]	76,096	102,767,776	6.55	573r	1960	79,611	129,327,288	7.24	566
1956	80,746	106,772,153	6.64	601	1961	83,706	128,262,047	7.03	556
1957	82,088	133,492,277	8.04	638	1962	85,585	140,144,643	7.55	626

[1] Excludes forest fires and Federal Government property losses. [2] Newfoundland included from 1955.

The provincial property losses for 1959-62 given in Table **18** include both insured and uninsured losses.

18.—Fire Losses, by Province, 1959-62

Province or Territory	1959	1960	1961	1962		
	Property Loss[1]			Fires Reported	Property Loss[1]	Loss per Capita
	$	$	$	No.	$	$
Newfoundland	2,409,232	1,421,354	5,535,260	757	1,026,077	2.18
Prince Edward Island	839,912	740,780	806,429	566	901,550	8.51
Nova Scotia	4,571,624	3,661,464	3,093,709	2,535	3,863,201	5.18
New Brunswick	3,726,872	4,766,056	3,667,612	1,972	3,155,172	5.20
Quebec	40,989,820	40,602,510	41,841,330	34,263	53,197,135	9.91
Ontario	40,819,944	42,163,599	40,773,492	26,034	43,509,265	6.86
Manitoba	4,502,141	6,080,983	4,884,668	3,876	6,184,097	6.61
Saskatchewan	3,280,579	3,132,065	4,741,201	2,100	2,799,614	3.01
Alberta	7,102,221	7,630,695	8,674,795	5,723	10,756,397	7.85
British Columbia	14,859,552	18,290,383	13,494,934	7,612	14,346,870	8.65
Yukon and Northwest Territories	1,430,341	837,399	748,617	147	405,265	10.39
Canada	**124,532,238**	**129,327,288**	**128,262,047**	**85,585**	**140,144,643**	**7.55**

[1] Excludes forest fires and Federal Government property losses.

19.—Fire Losses, by Type of Property and Cause of Fire, 1960-62

Type of Property and Reported Cause of Fire	1960		1961		1962	
	Fires Reported	Property Loss[1, 2]	Fires Reported	Property Loss[1]	Fires Reported	Property Loss[1]
	No.	$	No.	$	No.	$
Type of Property						
Residential	59,079	29,674,618	62,096	33,108,236	62,353	39,414,601
Mercantile	6,210	37,059,794	6,828	42,119,107	7,077	44,406,083
Farm	5,383	10,577,827	6,766	13,176,606	6,413	14,331,437
Manufacturing	1,656	21,976,307	1,664	18,338,086	1,692	19,292,093
Institutional and assembly	1,076	6,564,462	1,232	7,204,244	1,148	8,494,594
Miscellaneous	6,207	22,052,926	5,120	14,315,768	6,902	14,205,835
Totals	**79,611**	**129,327,288**	**83,706**	**128,262,047**	**85,585**	**140,144,643**
Reported Cause						
Smokers' carelessness	31,037	6,559,352	32,659	6,693,799	31,637	7,448,721
Stoves, furnaces, boilers and smoke pipes	5,864	7,517,063	5,950	7,492,539	6,171	10,564,570
Electrical wiring and appliances	7,652	14,016,353	8,527	15,276,056	9,977	19,259,429
Matches	2,170	1,737,684	2,865	2,172,011	2,174	3,301,857
Defective and overheated chimneys and flues	2,734	2,739,957	2,833	2,958,347	2,562	2,929,994
Hot ashes, coals and open fires	1,322	1,025,169	2,022	1,882,717	1,449	1,353,921
Petroleum and its products	1,250	2,747,507	1,337	2,963,510	1,544	3,502,520
Lights, other than electric	1,558	1,982,009	1,430	1,203,066	1,739	2,403,166
Lightning	2,582	1,679,481	3,199	2,259,427	3,297	2,429,957
Sparks on roofs	412	572,361	509	540,627	314	392,756
Exposure fires	569	1,163,810	685	1,891,142	448	922,316
Spontaneous ignition	391	4,357,236	345	1,015,416	371	1,599,714
Incendiarism	481	2,056,656	558	3,168,047	720	3,106,214
Miscellaneous known causes (explosions, fireworks, friction, hot grease or metal, steam or hot water pipes, etc.)	10,076	12,705,978	7,788	9,852,449	9,731	9,829,122
Unknown	11,513	68,466,672	12,999	68,892,894	13,451	71,100,386

[1] Excludes forest fires and Federal Government property losses. [2] Addition not accurate; breakdown for Newfoundland not complete.

Subsection 3.—Casualty Insurance Transacted in Canada by Companies under Federal Registration

The various classes of casualty insurance are shown in Table **20**. These figures relate only to companies registered by the Federal Government.

20.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred in Canada, 1963

NOTE.—Excluding marine insurance for which a certificate of registration is not required. Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies.

Class of Business	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	$	$	$	$	$	$
Accident—						
Personal accident	4,471,569	3,306,207	9,348,610	17,126,386	16,923,572	10,302,399
Public liability	14,533,713	11,079,382	12,757,265	38,370,360	36,327,798	17,795,508
Employers' liability	2,660,890	2,608,487	1,490,884	6,760,261	6,677,499	3,247,803
Combined accident and sickness	89,186,180	1,779,001	97,367,986	188,333,167	186,968,631	138,360,875
Aircraft	451,374	2,818,948	2,269,963	5,540,285	5,652,528	4,095,867
Automobile	153,302,588	73,685,419	105,317,162	332,305,169	320,075,461	239,865,218

20.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred in Canada, 1963—concluded

Class of Business	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	$	$	$	$	$	$
Boiler—						
Boiler	3,474,413	843,920	1,483,721	5,802,054	5,599,563	662,617
Machinery	1,700,759	387,398	740,820	2,828,977	2,598,524	1,574,680
Credit	93,047	—	724,944	817,991	935,982	375,531
Earthquake	6,183	12,199	14,933	33,315	56,418	263
Explosion	4	5	114	123	567	5
Forgery	75,493	18,544	63,846	157,883	108,847	21,908
Guarantee—						
Fidelity	1,889,412	983,215	1,924,023	4,796,650	4,540,615	2,100,200
Surety	4,613,330	905,909	4,055,922	9,575,161	9,352,011	2,286,984
Hail	376,463	612,254	4,577,126	5,565,843	5,568,493	4,543,165
Inland transportation	1,348,590	1,692,638	3,519,226	6,560,454	6,445,505	3,210,991
Livestock	181,999	144,952	131,598	458,549	360,353	175,679
Personal property	15,036,309	13,981,159	20,145,165	49,162,633	46,938,035	29,636,653
Plate glass	1,174,692	878,748	773,320	2,826,760	2,869,276	1,549,489
Real property	438,311	848,880	824,549	2,111,740	1,874,307	773,626
Sickness	270,209	670,144	1,664,831	2,605,184	2,517,948	1,111,144
Sprinkler leakage	86	38	378	502	459	—
Theft	2,954,655	2,143,207	2,684,101	7,781,963	8,014,847	4,357,875
Title	—	—	61,318	61,318	55,928	—
Water damage	—	—	868	868	1,008	−300
Weather	—	20	14,580	14,600	14,602	8,361
Windstorm	92,184	79	17,415	109,678	126,311	55,181
Totals	**298,332,453**	**119,400,753**	**271,974,668**	**689,707,874**	**670,605,088**	**466,111,722**

Subsection 4.—Finances of Companies Transacting Fire and Casualty Insurance under Federal Registration

The financial statistics of Tables 21 to 23 relate to fire and casualty insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising out of Canada as well as in Canada.

21.—Total Assets for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Assets in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1961-63.

Assets	1961	1962	1963
	$	$	$
Canadian Companies[1] (In and Out of Canada)			
Real estate	16,150,187	17,734,064	17,726,647
Mortgage loans and agreements of sale	13,424,558	21,111,018	25,107,680
Bonds and stocks	445,238,446	469,383,069	491,862,111
Agents' balances and premiums outstanding	48,275,455	47,608,149	53,937,900
Cash	36,101,126	31,510,035	33,532,050
Interest, dividends and rents, due and accrued	4,577,934	5,001,493	5,352,097
Other assets	31,217,271	37,314,369	42,616,082
Totals, Assets of Canadian Companies	**594,984,977**	**629,662,197**	**670,134,567**

[1] Includes marine insurance.

21.—Total Assets for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Assets in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1961-63—concluded.

Assets	1961	1962	1963
	$	$	$
British Companies (In Canada)			
Real estate	2,774,290	4,138,742	3,988,247
Mortgage loans and agreements of sale	2,275,289	2,537,268	2,301,573
Bonds and stocks	268,301,969	278,740,925	281,790,990
Agents' balances and premiums outstanding	30,913,028	30,413,022	30,153,580
Cash	13,551,803	12,362,711	10,730,119
Interest, dividends and rents, due and accrued	2,191,833	2,563,701	2,579,229
Other assets in Canada	6,786,813	7,217,998	7,874,669
Totals, Assets of British Companies (in Canada)	**326,795,025**	**337,974,367**	**339,418,407**
Foreign Companies (In Canada)			
Real estate	4,237,769	4,338,956	4,436,436
Mortgage loans and agreements of sale	50,668	50,214	49,739
Bonds and stocks	403,748,469	410,947,863	432,295,284
Agents' balances and premiums outstanding	33,656,628	33,957,410	35,810,861
Cash	31,064,419	27,861,447	28,273,412
Interest, dividends and rents, due and accrued	4,479,204	4,686,658	4,934,524
Other assets in Canada	8,969,620	12,348,098	15,726,937
Totals, Assets of Foreign Companies (in Canada)	**486,206,777**	**494,190,646**	**521,527,193**

22.—Total Liabilities for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Liabilities in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1961-63.

Liabilities	1961	1962	1963
	$	$	$
Canadian Companies[1] (In and Out of Canada)			
Reserve for unsettled claims	128,672,289	145,750,446	168,480,924
Reserve of unearned premiums	149,512,395	157,530,968	167,319,787
Other policy reserves	10,771,213	11,115,519	12,566,941
Sundry items	81,810,556	78,899,846	88,122,003
Investment, contingent or general reserve funds	27,631,165	29,014,448	30,966,302
Capital stock paid	40,935,371	43,139,460	44,375,673
Amounts transferred from other funds	4,781,462	7,797,462	8,306,753
Surplus	150,870,526	156,414,048	149,966,184
Totals, Liabilities of Canadian Companies	**594,984,977**	**629,662,197**	**670,134,567**
British Companies (In Canada)			
Reserve for unsettled claims	70,329,870	80,887,140	96,629,173
Reserve of unearned premiums	107,501,174	107,229,340	105,629,894
Other policy reserves	1,827,788	1,886,752	1,981,244
Sundry items	15,217,840	14,862,342	17,236,124
Totals, Liabilities of British Companies (in Canada)	**194,876,672**	**204,865,574**	**221,486,435**
Excess of assets over liabilities in Canada	**131,918,353**	**133,108,793**	**117,931,972**
Foreign Companies (In Canada)			
Reserve for unsettled claims	102,605,955	110,437,647	134,248,709
Reserve of unearned premiums	149,161,348	154,243,652	159,658,616
Other policy reserves	14,817,158	16,163,517	17,916,317
Sundry items	29,628,220	29,675,353	31,115,934
Totals, Liabilities of Foreign Companies (in Canada)	**296,212,681**	**310,520,169**	**342,939,576**
Excess of assets over liabilities in Canada	**189,994,096**	**183,670,477**	**178,587,617**

[1] Includes marine insurance.

23.—Profit and Loss Account of Canadian Companies and Gain or Loss and Other Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1961-63.

Item	1961	1962	1963
	$	$	$
Profit and Loss Account—Canadian Companies (In and Out of Canada)			
Underwriting Gain	**14,105,882**	**−2,662,163**	**−23,206,012**
Add: Interest, dividends and rents	20,702,695	22,621,366	24,288,226
Received from shareholders[1]	3,088,744	6,095,089	3,407,545
Gain in market value of investments	3,384,290	−405,394	1,148,621
Gain on sale of investments	1,859,795	1,918,500	2,285,134
Gains from other sources	1,651,028	2,108,658	1,603,053
Deduct: Investments written down	253,468	442,384	191,860
Dividends to policyholders	3,343,001	3,980,564	3,378,811
Income taxes	9,064,074	4,340,854	810,819
Losses from other sources	8,094,145	6,299,762	5,133,764
Dividends to shareholders	3,641,432	3,779,659	3,866,645
Net Gain	**20,396,314**	**10,832,833**	**−3,855,332**
Gain or Loss and Other Income—British Companies (In Canada)			
Underwriting Gain	**5,637,944**	**−5,559,989**	**−24,530,316**
Deduct: Dividends to policyholders	15,767	—	13,192
Income taxes	911,676	639,831	−271,670
Net Gain or Loss	**4,710,501**	**−6,199,820**	**−24,271,838**
Other Revenue—			
Interest, dividends and rents	9,541,432	10,385,663	10,845,854
Sundry income	1,088	18,971	197
Gain or Loss and Other Income—Foreign Companies (In Canada)			
Underwriting Gain	**21,837,379**	**15,508,319**	**−12,447,968**
Deduct: Dividends to policyholders and others	6,151,328	5,747,684	5,259,485
Income taxes	5,016,802	3,257,199	157,338
Net Gain or Loss	**10,669,249**	**6,503,436**	**−17,864,791**
Other Revenue—			
Interest, dividends and rents	17,382,442	18,350,053	19,494,449
Sundry income	180,686	197,444	326,170

[1] Includes transfers to or from life branch.

Section 3.—Government Insurance

Federal Government Insurance

For more than fifty years the Federal Government has operated an annuity service, instituted to assist Canadians to make provision for old age; this service is described below. In addition, various insurance schemes have been adopted in recent years by the Federal Government or co-operatively by the federal and provincial governments. Information on unemployment insurance, health insurance, veterans insurance, export credits insurance, etc., will be found in the appropriate Chapters on Labour, Health and Welfare, Foreign Trade, etc.

Government Annuities.*—The Government Annuities Act (RSC 1952, c. 132) was passed in 1908 and is administered by the Minister of Labour.

A Canadian Government annuity is a fixed yearly income purchased from and paid by the Government of Canada. The annuity is payable in monthly instalments for life, or for life and guaranteed for a period of years. The minimum annuity is $10 and the maximum $1,200 a year or the actuarial equivalent if the annuity is to reduce by the amount of payments under the Old Age Security Act. Annuity contracts may be deferred or immediate. Deferred annuities are purchased by periodic or single premiums. Immediate annuity contracts provide immediate income. Annuities may be arranged to reduce by $75 a month at age 70 to fit in with payments under the Old Age Security Act.

The property and interest of the annuitant are neither transferable nor attachable. In the event of the death of the annuitant before a deferred annuity vests, all money paid is refunded with interest. Provision is made in the Act for group annuity contracts whereby employers may contract for the purchase of annuities on behalf of their employees, or associations on behalf of their members, the purchase money being derived partly from wages and partly from employer contributions or entirely from employer contributions. Group annuity plans now in effect cover a variety of industries and many municipal corporations throughout Canada. Annuities arising from individual contracts may be taxable in either of two ways: (1) if registered under Sect. 79B of the Income Tax Act for tax exemption on premiums, the annuity is fully taxable, or (2) if not registered the annuity is taxable on the interest portion only. Annuities arising from registered pension plans are fully taxable but the employee and the employer are entitled to tax exemption year by year on their annual contributions to the pension plan.

From Sept. 1, 1908, the date of the inception of the system, to Mar. 31, 1964, the total number of annuity contracts and certificates issued, excluding replacements, was 531,441. On the latter date, 90,607 annuities were being paid amounting to $50,922,505 annually and 298,338 deferred annuities were being purchased. The net total amount of purchase money received up to Mar. 31, 1964 was $1,379,353,536. At that date there were in force 1,365 pension plans underwritten by government annuities, providing 207,865 employees with portable pensions; approximately 26,000 retired employees were receiving pensions. The number of certificates issued during the year was 2,470 compared with 3,687 in 1962-63.

* Revised in the Government Annuities Branch, Department of Labour, Ottawa.

24.—Individual Annuity Contracts and Certificates Issued and Net Receipts, Years Ended Mar. 31, 1960-64, with Cumulative Totals for 1909-64

Year Ended Mar. 31—	Individual Contracts Issued	Group Certificates Issued	Total Contracts and Certificates Issued	Net Receipts
	No.	No.	No.	$'000
1909-59	187,453	287,949	475,402	1,165,795
1960	4,378	11,564	15,942	56,041
1961	4,353	10,007	14,360	48,523
1962	4,117	7,480	11,597	43,097
1963	4,296	3,687	7,983	37,003
1964	3,687	2,470	6,157	28,894
Totals, 1909-64	**208,284**	**323,157**	**531,441**	**1,379,353**

25.—Government Annuity Account Statements, Years Ended Mar. 31, 1960-64

Item	1960	1961	1962	1963	1964
	$	$	$	$	$
Assets					
Fund at beginning of fiscal year	1,105,825,076	1,156,867,225	1,199,122,929	1,235,303,906	1,264,436,143
Receipts during the year, less payments	51,042,149	42,255,704	36,180,977	29,132,237	19,825,784
Fund at end of fiscal year	1,156,867,225	1,199,122,929	1,225,303,906	1,264,436,143	1,284,261,927
Liabilities					
Value of outstanding contracts	1,156,867,225	1,199,122,929	1,235,303,906	1,264,436,143	1,284,261,927
Receipts					
Immediate annuities	3,991,755	2,813,068	2,465,933	1,468,984	1,054,824
Deferred annuities	52,533,797	46,063,783	41,007,852	36,063,164	28,358,312
Interest on fund	42,805,366	44,584,055	46,010,743	47,414,303	48,376,632
Amount transferred to maintain reserve	189,340	—	—	—	—
Totals, Receipts	**99,520,258**	**93,460,906**	**89,484,528**	**84,946,451**	**77,789,768**
Payments					
Payments under vested annuity contracts	43,286,202	44,985,028	46,927,513	48,854,763	50,556,551
Return of premiums with interest	4,114,357	4,610,426	5,189,647	5,538,438	5,626,064
Return of premiums without interest	1,075,438	939,012	872,639	961,182	875,581
Unclaimed annuities transferred to Consolidated Revenue Fund, net	2,112	36,311	21,179	42,531	27,345
Surplus transferred to Consolidated Revenue Fund	—	634,425	292,573	417,300	878,443
Totals, Payments	**48,478,109**	**51,205,202**	**53,303,551**	**55,814,214**	**57,963,984**

26.—Numbers and Values of Annuity Contracts, as at Mar. 31, 1963 and 1964

Classification	1963			1964		
	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force
	No.	$	$	No.	$	$
Vested ordinary	43,540	19,529,333	157,424,941	44,490	20,175,573	160,951,785
Vested guaranteed	33,926	19,497,254	210,743,955	34,770	19,948,381	213,827,284
Vested last survivor	3,637	1,933,717	23,521,426	3,574	1,901,790	22,864,648
Vested reducing at age 70	7,276	8,157,830	55,402,932	7,773	8,896,761	58,946,376
Deferred	292,358	[1]	817,342,889	298,338	[1]	827,671,831
Totals	**381,737**	**49,118,134**	**1,264,436,143**	**388,945**	**50,922,505**	**1,284,261,927**

[1] Undetermined.

Provincial Government Insurance

Saskatchewan.—The Saskatchewan Government Insurance Office, a Crown corporation established by the Saskatchewan Government Insurance Act, 1944, commenced business in May 1945. It deals in all types of insurance other than sickness and life. The aim of the legislation is to provide residents of the province with low-cost insurance designed for their particular needs. Rates are based on loss experience in Saskatchewan only and the surplus is invested, to the extent possible, within the province. Premium income for 1963 amounted to $9,767,855 and earned surplus to $334,738. The total amount made available to the Government of Saskatchewan since the beginning of government insurance operations in 1945 to Dec. 31, 1963, was $4,609,077. Assets at the latter date were $19,267,375, of which $12,700,000 were invested in bonds and debentures issued by Saskatchewan schools, municipalities, hospitals and the province. Independent insurance agents numbering 573 sell government insurance throughout the province.

The Automobile Accident Insurance Act, which became effective Apr. 1, 1946, is administered by the Saskatchewan Government Insurance Office. It establishes a compulsory automatic insurance plan designed to provide a reasonable minimum of compensation for losses arising from motor vehicle accidents regardless of fault. It also provides public liability insurance, with an inclusive limit of $35,000 for bodily injury and property damage, as well as comprehensive and collision coverage subject to a $200 deductible for private passenger cars. Rates vary from $4 a year for trucks to $49 for late-model private passenger cars, and also vary for other types of motor vehicles depending on size and usage. From the inception of the Act in 1946 to Dec. 31, 1963, more than $70,000,000 was paid in claims.

The Saskatchewan Government Insurance Office, under contract with the Saskatchewan Department of Natural Resources, offers insurance to farmers covering damage to unharvested crops by certain wildlife such as ducks, geese, sandhill cranes, deer, elk, bear and antelope.

Information regarding the operation of the Saskatchewan Government Insurance Office or the Automobile Accident Insurance Act may be obtained from the Office Librarian, Saskatchewan Government Insurance Office, Regina, Sask.

Alberta.—Provincial government insurance in Alberta, coming within the purview of the Alberta Insurance Act, relates (1) to the Alberta General Insurance Company, in which the entire business of the fire branch of the Alberta Government Insurance Office was vested by the Legislature on Mar. 31, 1948, and (2) to the Life Insurance Company of Alberta, which was constituted on the same date to take over the life branch of the Alberta Government Insurance Office. Each company is administered by a separate board of directors. The Lieutenant-Governor in Council appoints the members to the respective boards but the charter of the Life Insurance Company of Alberta provides for the election of two policyholder directors. While both companies are Crown corporations, they are not entitled to the usual immunities of the Crown, since they may sue and be sued in any court of competent jurisdiction.

A variety of agencies in Alberta offer forms of prepaid protection corresponding to insurance but the nature of the enabling legislation governing these plans emphasizes the fact that they do not constitute insurance. Because such exemptions are specifically provided by the insurance laws of the province, reference to these plans is necessary only to make it clear that they do not come within the scope of the Alberta Insurance Act. It should be noted that the Alberta Hail Insurance Act is administered by the Provincial Treasurer but none of the provisions of the Alberta Insurance Act apply to the Alberta Hail Insurance Board.

Further information on provincial insurance matters may be obtained from the Superintendent of Insurance, Department of the Provincial Secretary, Edmonton, Alta.

Section 4.—Pension Plans

Very few pension plans in Canada have been in existence for more than 25 years and most of the older plans were installed by governments and financial institutions, such as banks. Employers in industry began showing an interest in pension plans for their employees shortly before World War II and from that time on there was a rapid increase in the rate at which plans were introduced.

Up to 1948 the majority of employers made arrangements with either the Annuities Branch of the Department of Labour (see pp. 1077-1078) or an insurance company for the underwriting of their plans. Then began the use of the facilities of corporate trustees (trust companies) to handle pension moneys, and by 1953 the amount of funds under control of such trusteed plans had become a significant factor in the capital market and a growing form of savings. Trusteed pension funds are also managed by individual trustees appointed by the employer or through a Pension Fund Society, which is a body incorporated under federal or provincial pension fund societies Acts, companies Acts, etc.

Table 27 shows the distribution of pension business for the years 1957-63.

27.—Distribution of Pension Business between Trusteed Funds, Life Insurance Company Annuities and Government Annuities, 1957-63

Item and Year		Trusteed Pension Plans	Life Insurance Group Annuities	Federal Government Group Annuities
Plans—				
1957	No.	548	4,355	1,478
1958	"	841	4,985	1,540
1959	"	986	5,850	1,568
1960	"	1,140	6,564	1,556
1961	"	1,363	7,305	1,513
1962	"	1,547	8,276	1,437
1963	"	1,806	9,276	1,365
Plan Members—				
1957	No.	817,798	338,440	179,000
1958	"	944,936	392,853	192,000
1959	"	993,677	423,484	204,000
1960	"	1,009,127	469,339	185,000r
1961	"	1,084,842	501,060	174,000r
1962	"	1,134,993	536,886	161,090
1963	"	1,261,382	560,539	155,586
Contributions—				
1957	$'000,000	284	106	40
1958	"	345	126	41
1959	"	379	152	36
1960	"	393	146	30
1961	"	436	157	25
1962	"	472	172	20
1963	"	544	178	13
Assets (book value)—				
1957	$'000,000	2,298	756	495
1958	"	2,791	894	525
1959	"	3,200	1,062	560
1960	"	3,616	1,208	600
1961	"	4,074	1,397	610
1962	"	4,573	1,606	625
1963	"	5,180	1,818	623

Pension trust funds derive their income from employer and employee contributions, investment income and profit on the sale of securities. Expenditures arise from pension payments, pensions purchased from an underwriter on retirement or separation, cash withdrawals on death or separation, administrative costs and losses on the sale of securities. The funds are invested in federal, provincial, municipal and corporate bonds, stocks,

mortgages, real estate and lease-backs. In recent years corporate trustees have introduced the "pooled" or "classified" type of fund, which enables small plans to have their assets combined so that each fund participates in the diversity, security and yield previously available only to the much larger single funds. The trustees of a fund, whether corporate or individuals, may also purchase mutual funds.

Table 28 shows the various types of trusteed funds and the income, expenditures and assets of the funds in 1961-63.

28.—Trusteed Pension Plans, Income, Expenditures and Assets, 1961-63

Item		1961	1962	1963
Trusteed plans	No.	1,363	1,547	1,806
Funded Trusts—				
(a) Corporate trustees (trust company)	"	*1,110*	*1,252*	*1,437*
(b) Individual trustees	"	*211*	*230*	*249*
(c) Combinations of (a) and (b) and other	"	*6*	*27*	*32*
Pension fund societies	"	*36*	*38*	*38*
Pooled funds	"	599	735	912
Mutual funds	"	130	185	255
Contributory funds	"	1,004	1,144	1,340
Non-contributory funds	"	359	403	466
Non-retired employees covered	'000	1,085	1,135	1,261
Income—				
Total Contributions	$'000,000	436	472	544
Employer	"	*254*	*271*	*319*
Employee	"	*182*	*201*	*225*
Investment	"	180	206	237
Net profit on sale of securities	"	4	6	9
Other	"	4	3	6
Totals, Income	**$'000,000**	**624**	**687**	**796**
Expenditures—				
Pension payments out of funds	$'000,000	124	135	151
Cost of pensions purchased	"	4	6	4
Cash withdrawals	"	34	42	47
Administration costs	"	2	2	3
Net loss on sale of securities	"	12	6	3
Other expenditures	"	2	2	3
Totals, Expenditures	**$'000,000**	**178**	**193**	**211**
Assets (book value)—				
Investment in pooled funds	$'000,000	117	157	219
Investment in mutual funds	"	45	59	67
Bonds	$'000,000	3,041	3,292	3,620
Bonds of, or guaranteed by, Government of Canada	"	*602*	*609*	*581*
Bonds of, or guaranteed by, provincial governments	"	*1,310*	*1,482*	*1,675*
Bonds of Canadian municipal governments, school boards, etc.	"	*440*	*467*	*546*
Other Canadian bonds	"	*680*	*731*	*815*
Non-Canadian bonds	"	*9*	*3*	*3*
Stocks	$'000,000	393	500	616
Canadian stocks, common	"	*324*	*405*	*500*
Canadian stocks, preferred	"	*18*	*18*	*20*
Non-Canadian stocks, common	"	*51*	*77*	*96*
Non-Canadian stocks, preferred	"	[1]	[1]	[1]
Mortgages	$'000,000	341	417	484
Insured residential (NHA)	"	*229*	*278*	*325*
Other	"	*112*	*139*	*159*
Real estate and lease-backs	$'000,000	33	34	40
Accrued interest	"	37	42	46
Accounts receivable	"	21	24	27
Cash-currency, bank and other deposits	"	44	47	61
Other assets	"	2	1	[1]
Totals, Assets	**$'000,000**	**4,074**	**4,573**	**5,180**

[1] Less than $500,000.

CHAPTER XXVII.—DEFENCE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—THE ARMED SERVICES AND DEFENCE RESEARCH*

Section 1.—The Department of National Defence

The control and management of all matters relating to national defence, the Canadian Forces and the Defence Research Board are the responsibility of the Minister and Associate Minister of National Defence; the duties and functions relating to national survival have also been assigned to the Department of National Defence with the Canadian Army undertaking the major role.

Effective Aug. 1, 1964, the Headquarters of the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force were integrated to form a single Canadian Forces Headquarters (CFHQ) under a single Chief of Defence Staff. The role of CFHQ is to provide military advice to the Minister of National Defence and to control and administer the Canadian Forces.

CFHQ is organized in four functional Branches headed by the Chief of Operational Readiness, the Chief of Personnel, the Chief of Logistics Engineering and Development and the Comptroller General, who are responsible for advising and supporting the Chief of Defence Staff in matters relating to their assigned spheres of activity. The Royal Canadian Navy, Canadian Army and Royal Canadian Air Force retain their individual identities. The Defence Research Board conducts research relating to the defence of Canada and also undertakes the development of or improvements in materiel.

The civilian administration of the Department is organized under the Deputy Minister and is constituted on a functional basis. The Deputy Minister, assisted by an Associate Deputy Minister, maintains a continuing review and control over the financial aspects

* Prepared (November 1964) in the Office of the Deputy Minister, Department of National Defence, Ottawa.

of operational policy, logistics, and personnel and administration. Four Assistant Deputy Ministers each administers a division of the Deputy Minister's branch responsible for: administration and personnel; construction, engineering and properties; finance; and supply. Also responsible to the Deputy Minister are: the Judge Advocate General, the Departmental Secretary and the Director of Information Services.

The Defence Council meets at regular intervals to consider and advise on major policy matters. The Council consists of: the Minister of National Defence as Chairman; the Associate Minister of National Defence as Vice-Chairman; and the Parliamentary Assistant to the Minister of National Defence, the Deputy Minister of National Defence, the Chief of Defence Staff, the Chairman of the Defence Research Board, the Vice-Chief of Defence Staff and a Secretary as members.

Liaison in Other Countries.—The Chief of Defence Staff, who is the Canadian military representative to the North Atlantic Treaty Organization, is responsible for advice on all NATO military matters and acts as a military adviser to Canadian NATO delegations. For purposes of liaison and the furtherance of international co-operation in defence, Canada also maintains: (1) the Canadian Joint Staff London, representing the Canadian Armed Forces and the Defence Research Board in Britain, the Chairman of which is the principal military adviser to the Canadian High Commissioner in London; (2) the Canadian Joint Staff Washington, representing the Canadian Armed Forces and the Defence Research Board in the United States, the Chairman of which is the principal military adviser to the Canadian Ambassador in Washington, the Canadian National Liaison Representative to SACLANT Headquarters, and the Canadian member of the NATO Military Committee in Permanent Session; (3) the Canadian National Military Representative in Paris, who is the principal military adviser to the Canadian Permanent Representative to the North Atlantic Council and the Canadian National Military Representative to SHAPE; and (4) Service Attachés in various countries throughout the world. In addition, a number of defence matters of concern to both Canada and the United States are considered by the Permanent Joint Board on Defence, which provides advice on such matters to the respective governments.

Canada-United States Committee on Joint Defence.—This Committee is composed of: for Canada, the Secretary of State for External Affairs, the Minister of National Defence and the Minister of Finance; for the United States, the Secretary of State, the Secretary of Defense and the Secretary of the Treasury; together with such other Cabinet members as either government may designate from time to time. Its function is to consult periodically on any matters affecting the joint defence of Canada and the United States; to exchange information and views at the ministerial level on problems that may arise, with a view to strengthening further the close co-operation between the two governments on joint defence matters; and to report on such discussions in order that consideration may be given to measures deemed appropriate and necessary to improve defence co-operation. Meetings normally alternate between Canada and the United States with the host country providing the chairman.

Mutual Aid.—Canada's contributions to NATO are outlined on pp. 154-155.

Rates of Pay and Allowances.—The entire pay structure for comparable ranks in the different Services is on a uniform basis. Monthly rates of pay and allowances effective Oct. 1, 1962 are given in Table 1.

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1962

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Progressive Pay — Years in Rank					Group Pay for Tradesmen and Specialists[1]	Subsistence Allowance		Ration Allowance	Quarters Allowance	Marriage Allowance	Separated Family's Allowance (personnel not in married quarters and with children)	
				2	3	4	6	8		Personnel not in Receipt of Marriage Allowance	Personnel in Receipt of Marriage Allowance				In Receipt of Subsistence Allowance	Not in Receipt of Subsistence Allowance
			$	$	$	$	$	$	$	$	$	$	$	$	$	$
Ordinary Seaman (under 17 years)	Private (recruit under 17 years)	Aircraftman 2 (under 17 years)	60	—	—	—	—	—	—	65	—	30	24	—	—	—
Ordinary Seaman (entry)	Private (recruit)	Aircraftman 2	112	—	—	—	—	—	Ranges from 12–90 according to group	65	100	30	24	30	65	100
Ordinary Seaman (trained)	Private (trained)	Aircraftman 1	119	—	—	—	—	—		65	100	30	24	30	65	100
Able Seaman	Private (higher rate)	Leading Aircraftman	138	—	21	—	27	—		65	100	30	24	30	65	100
—	Lance-Corporal	—	189	—	—	—	—	—		65	100	30	24	30	65	100
Leading Seaman	Corporal	Corporal	195	4	—	4	4	—		65	100	30	24	30	65	100
Petty Officer 2	Sergeant	Sergeant	219	5	—	5	5	—		75	105	30	30	30	75	105
Petty Officer 1	Staff Sergeant	Flight Sergeant	251	6	—	6	6	—		85	105	30	35	30	85	105
Chief Petty Officer 2	Warrant Officer 2	Warrant Officer 2	289	7	—	7	7	—		85	105	30	35	30	85	105
Chief Petty Officer 1	Warrant Officer 1	Warrant Officer 1	324	10	—	10	10	—		95	110	30	40	30	95	110
ROTP Cadet	ROTP Cadet	ROTP Cadet	73	—	—	—	—	—	—	65	—	30	25	—	—	—

[1] Paid to other ranks only.

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1962—concluded

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Progressive Pay					Group Pay for Tradesmen and Specialists[1]	Subsistence Allowance		Ration Allowance	Quarters Allowance	Marriage Allowance	Separated Family's Allowance (personnel not in married quarters and with children)	
				Years in Rank						Personnel not in Receipt of Marriage Allowance	Personnel in Receipt of Marriage Allowance				In Receipt of Subsistence Allowance	Not in Receipt of Subsistence Allowance
				2	3	4	6	8								
			$	$	$	$	$	$	$	$	$	$	$	$	$	$
Acting Sub-Lieutenant	Second Lieutenant	Pilot Officer	235	—	—	—	—	—	—	75	110	30	25	40	75	110
Sub-Lieutenant	Lieutenant	Flying Officer	331	—	40	—	15	—	—	90	125	30	43	40	90	125
Commissioned Officer	Officer commissioned from S/Sgt or above	Officer commissioned from F/Sgt or above	408	15	—	15	15	15	—	75–95[1]	110–125[2]	30	43	40	75–95[2]	110–125[2]
Lieutenant	Captain	Flight Lieutenant	428	20	—	20	20	20	—	95	125	30	43	40	95	125
Lieutenant-Commander	Major	Squadron Leader	555	25	—	25	25	25	—	113	135	30	53	40	113	135
Commander	Lieutenant-Colonel	Wing Commander	709	25	—	25	25	25	—	126	150	30	58	40	126	150
Captain	Colonel	Group Captain	899	40	—	40	—	—	—	139	165	30	64	40	139	165
Commodore	Brigadier	Air Commodore	1,164	50	—	—	—	—	—	153	180	30	68	40	153	180
Rear-Admiral	Major-General	Air Vice-Marshal	1,349	—	—	—	—	—	—	165	195	30	70	40	165	195
Vice-Admiral	Lieutenant-General	Air Marshal	1,667	—	—	—	—	—	—	180	210	30	72	40	180	210

[1] Paid to other ranks only.

[2] Depending on rank on promotion.

The allowances shown in Table 1 are explained briefly as follows.

Subsistence Allowance.—This allowance is granted whenever rations and quarters are not provided. A married man living with his family uses his subsistence allowance for their maintenance as well as his own.

Ration Allowance.—A ration allowance is granted when quarters are available but rations are not provided. It is not payable concurrently with subsistence allowance.

Quarters Allowance.—A quarters allowance is granted when rations are provided but quarters are not available. It is not payable concurrently with subsistence allowance.

Marriage Allowance.—The amount of this allowance is $30 a month for men and $40 a month for officers, subject to a reduction of $10 a month where permanent married quarters are occupied or $2.50 a month where temporary married quarters are occupied. All ranks may draw this allowance upon marriage provided the initial training period has been completed and the age of 21 years has been attained by men and 23 years by officers.

Separated Family's Allowance.—An officer or man while separated from his dependants for any of various reasons (*i.e.*, movement of dependants prohibited, illness of dependants, lack of suitable accommodation), on being moved other than temporarily may be entitled to separated family's allowance at a rate and for a period depending on circumstances (*i.e.*, rank, reason for separation, whether or not he has children, whether or not his family is accommodated in married quarters, whether or not he is provided with quarters and rations). The rates listed are the maximum.

In addition to the above, *Foreign Allowances* of various kinds are granted to officers and men posted for duty outside Canada to compensate for additional living expenses or hardships incurred; these vary with rank, appointment and location. *Isolation Allowances* are granted to officers and men serving at specified isolated posts in Canada at rates depending upon location and circumstances. *Outfit Allowances* and *Clothing Credits* are as follows: Officers receive a single payment of $450 on appointment and Warrant Officers Class I, $270; men receive a free issue of clothing when they join and thereafter a monthly clothing credit or allowance of $7, Navy Petty Officer 1st class and above receive $8, and women $8. An *Aircrew Allowance* of $75 a month is paid to an officer or man undergoing flying training. For qualified aircrew this allowance may be increased to $150, depending on rank, if filling an appointment requiring active and continuous flying duties, and to $100, depending on rank, for maintaining proficiency. *Submarine Allowance* is granted an officer or man undergoing submarine training or filling an appointment in a submarine; the allowance for trained submarine personnel varies from $65 to $115 a month depending on rank. An officer or man actively engaged or undergoing training as a parachutist or on flying or submarine duty and not entitled to aircrew allowance or submarine allowance is paid a *Risk Allowance* at the rate of $30 a month. Medical, Dental and Legal Officers are granted extra allowances according to rank.

Subsection 1.—The Royal Canadian Navy

Role and Organization.—The role of the Royal Canadian Navy, in support of Canada's defence policy, is to maintain sea communications, to defend Canada against attack from the sea, to contribute to the collective defence of the NATO area against attack from the sea, and to contribute naval forces to the United Nations as may be required. It is substantially an anti-submarine (A/S) role.

The Royal Canadian Navy comes under the central authority of the Chief of the Defence Staff at Canadian Forces Headquarters in Ottawa. The Flag Officer Atlantic Coast, at Halifax, N.S., and the Flag Officer Pacific Coast, at Esquimalt, B.C., exercise operational and administrative command of ships and establishments within the Atlantic and Pacific Coast Commands. The Flag Officers also hold the additional appointments of Maritime Commander Atlantic and Maritime Commander Pacific, respectively. As such,

each is responsible for anti-submarine operations involving RCN and RCAF forces in his Command. The 20 Naval Divisions of the Royal Canadian Naval Reserve are under the over-all command of the Commanding Officer Naval Divisions, with headquarters at Hamilton, Ont. There are naval staffs in London, England, and Washington, D.C., U.S.A., to maintain liaison with the Royal Navy and the United States Navy. As a result of Canada's NATO commitments, officers of the Royal Canadian Navy serve on the staffs of: the Supreme Allied Commander, Atlantic, at Norfolk, Va., in the United States; the Commander-in-Chief, Eastern Atlantic Area, at Northwood in Britain; and the Commander-in-Chief, Western Atlantic Area, at Norfolk, Va. The Flag Officer Atlantic Coast holds the NATO appointment of Commander, Canadian Atlantic Sub-Area.

The strength of the RCN on Aug. 31, 1964, was 20,276 officers, men and women in the regular force and 2,875 in the reserve force.

Operations at Sea, 1963-64.—During 1963, ships of the RCN spent more than 5,700 days at sea and steamed over 1,000,000 nautical miles on exercises, training exercises, patrols and on passage; naval aviators flew over 5,370,000 nautical miles in 35,600 hours flying and made 3,836 day and night deck landings on board HMCS *Bonaventure*. HMCS *Provider*, a 22,000-ton replenishment ship, joined the fleet in September 1963 and, by Sept. 1, 1964, four new *Mackenzie* class destroyer escorts and one *Annapolis* class had also joined and one was under construction. Conversion of two *St. Laurent* class destroyer escorts was completed in 1963 and one in 1964; three others were under conversion, which includes the fitting of variable depth sonar and helicopter handling facilities. *Ojibwa*, the first of three submarines being built at Chatham, England, for the RCN, was launched in February 1964 and will commission in September 1965. The second was laid down in June 1964 and will be launched in January 1966. Five of nine CHSS-2 anti-submarine helicopters have been delivered to replace the HO4S-3's in HMCS *Bonaventure*.

Training.—The major training establishments of the RCN are HMCS *Cornwallis* near Digby, N.S.; HMCS *Shearwater* near Dartmouth, N.S.; HMCS *Stadacona* at Halifax, N.S.; HMCS *Hochelaga* at LaSalle, Que.; HMCS *Gloucester* near Ottawa, Ont.; and HMCS *Naden* at Esquimalt, B.C. Men and women entering the RCN receive their basic training at HMCS *Cornwallis;* the courses are normally 15 weeks in length. Cadets entered under the Regular Officer Training Plan (ROTP) or College Training Plan (CTP) receive most of their early training at the Canadian Services Colleges (see p. 1095) or a Canadian university; those entered on a short-service appointment train in HMCS *Venture* at Esquimalt, B.C. All cadets receive practical training with the Fleet at various times of the year. A University Naval Training Division program provides junior officers for the RCN and the RCN Reserve. The cadets are required to complete two winter-training periods and two summer-training periods and certified specified courses.

On Sept. 30, 1964, the RCN had approximately 828 men taking new-entry training, 1,745 men undergoing other training in the various trade areas, and 655 cadets and 217 officers on courses.

Royal Canadian Naval Reserve.—The recruiting and training of officers and men of the RCN Reserve is conducted mainly through 17 Naval Divisions across Canada under the over-all command of the Commanding Officer Naval Divisions, with Headquarters at Hamilton, Ont. Naval Divisions are established in the following centres:—

St. John's, Nfld., HMCS *Cabot*
Charlottetown, P.E.I., HMCS *Queen Charlotte* (to be closed Dec. 31, 1964)
Halifax, N.S., HMCS *Scotian*
Saint John, N.B., HMCS *Brunswicker*
Quebec, Que., HMCS *Montcalm*
Montreal, Que., HMCS *Donnacona*
Toronto, Ont., HMCS *York*
Ottawa, Ont., HMCS *Carleton*
Kingston, Ont., HMCS *Cataraqui*
Hamilton, Ont., HMCS *Star*
Windsor, Ont., HMCS *Hunter*
Port Arthur, Ont., HMCS *Griffon*
Winnipeg, Man., HMCS *Chippawa*
Saskatoon, Sask., HMCS *Unicorn*
Calgary, Alta., HMCS *Tecumseh*
Vancouver, B.C., HMCS *Discovery*
Victoria, B.C., HMCS *Malahat*

Naval Divisions, commanded by Reserve officers, provide both basic and specialized training for officers and men of the RCN Reserve. The Great Lakes Training Centre at Hamilton conducts new-entry reserve training afloat during the summer months.

Royal Canadian Sea Cadets.—Royal Canadian Sea Cadets, sponsored by the Navy League of Canada and supported by the RCN, consist of 167 authorized corps, supervised by 16 Naval Officers responsible to the Commanding Officer Naval Divisions. Instruction is carried out by RCSCC Officers. Two training establishments—*Cornwallis* on the East Coast and *Quadra* on the West Coast—accommodate officers and cadets for two-week training periods in the summer. In addition, selected cadets receive a seven-week training course at naval establishments. Sea experience is provided throughout the year in various types of ships of the RCN. In August 1964, the strength of the corps was 1,065 officers and 9,066 cadets.

Subsection 2.—The Canadian Army

Role and Organization.—The role of the Canadian Army in support of Canada's defence policy is to contribute to and support NATO forces overseas, to contribute to and support the North American regional defence, to contribute Army forces to the United Nations as may be required and to undertake survival operations in Canada when necessary. The Canadian Army comes under the central authority of the Chief of the Defence Staff at Canadian Forces Headquarters in Ottawa and is divided for command and control into Commands and Areas with Headquarters as follows:—

Command	*Headquarters*		*Area and Headquarters*
Eastern Command.....	Halifax, N.S.....	(1)	New Brunswick Area, Fredericton, N.B.
		(2)	Newfoundland Area, St. John's, Nfld.
		(3)	Nova Scotia-Prince Edward Island Area, Halifax, N.S.
Quebec Command.....	Montreal, Que.....	(4)	Eastern Quebec Area, Quebec, Que.
Central Command.....	Oakville, Ont.....	(5)	Eastern Ontario Area, Kingston, Ont.
		(6)	Central Ontario Area, Oakville, Ont.
		(7)	Western Ontario Area, London, Ont.
Western Command.....	Edmonton, Alta.....	(8)	British Columbia Area, Vancouver, B.C.
		(9)	Alberta Area, Edmonton, Alta.
		(10)	Saskatchewan Area, Regina, Sask.
		(11)	Manitoba Area, Winnipeg, Man.

The Canadian Army comprises the Canadian Army (Regular) and the Reserves. The Canadian Army (Regular) consists of a field force of four Infantry Brigade Groups, headquarters and administrative, training and logistic support units. One of the Infantry Brigade Groups is in Europe with the NATO Force and is under command of the Supreme Allied Commander in Europe. The Reserves include the Canadian Army (Militia), the Regular Reserve, the Supplementary Reserve, the Canadian Officers' Training Corps, the Cadet Services of Canada and the Reserve Militia. Additional to but not an integral part of the Canadian Army are the Services Colleges, officially authorized cadet corps, rifle associations and clubs.

The strength of the Canadian Army (Regular) at Aug. 31, 1964 was 48,014 officers and men and the strength of the Canadian Army (Militia) was 48,561, including personnel taking the special militia training courses.

Operations in 1963.—In fulfilment of military obligations under the North Atlantic Treaty, Canada has continued to provide ground forces for the defence of Western Europe. The 4th Canadian Infantry Brigade Group, the major units of which are the Fort Garry Horse, the 3rd Regiment Royal Canadian Horse Artillery, No. 1 Surface-to-Surface Missile

Battery, 1st Battalion, The Royal Canadian Regiment, the 1st Battalion, The Queen's Own Rifles of Canada, and the 2nd Battalion, The Black Watch (Royal Highland Regiment) of Canada, constituted the Canadian Army contribution to NATO at the end of the year. The headquarters of the Brigade Group is at Soest and married quarters are located in the vicinity of Soest, Werl, Hemer and Iserlohn.

The Canadian Army continued to provide forces in support of United Nations operations as follows. (1) A force of approximately 870 officers and men forms a part of the United Nations Emergency Force in the Middle East; its tasks are the patrolling of a sector of the Egypt–Israel International Frontier, the provision of engineer services, communications, stores, transport and workshop services, and postal facilities for the Force. (2) In the Congo, 57 Canadian Signal Unit, with a strength of approximately 310 officers and men, supports the United Nations Force by the provision of communications, staff officers and other headquarters personnel; the bulk of the Unit is stationed in Leopoldville, with signal detachments at subordinate headquarters throughout the country. (3) Canadian Army contributions to United Nations commissions include some 30 officers employed in Kashmir, Korea and Palestine.

A specially trained and equipped infantry battalion is maintained on standby in Canada to provide at short notice a force for service in support of the United Nations in any part of the world. In addition to its United Nations commitments, the Canadian Army, as a result of Canadian participation in the International Commissions for Supervision and Control in Viet Nam, Cambodia and Laos, continues to provide approximately 75 officers and men for truce supervisory duties in Indo-China. During 1962, a Canadian Armed Forces Training Team was established in Ghana to assist in the training of the Ghana Armed Forces. The Canadian Army provides 23 of the members of this Team, the Royal Canadian Navy three, and the Royal Canadian Air Force four. An officer of the Royal Canadian Engineers is employed on map-making duties in Nigeria. A number of officer cadets from Nigeria and from Trinidad and Tobago have received training in Canadian Army schools.

Survival Operations.—Since Sept. 1, 1959, the Army has been charged with certain civil defence responsibilities and is supported in this assignment by the Royal Canadian Navy and the Royal Canadian Air Force, the Defence Research Board providing assistance in research. (See also pp. 1099-1100.)

A National Survival Attack Warning System has been established to give warning of an impending attack. A Canadian Army Liaison Officer is stationed at North American Air Defence Command (NORAD) Headquarters and Canadian Army Sections are located in the appropriate NORAD Regional Headquarters in the United States and at Northern NORAD Regional Headquarters at North Bay. All of these have access to early warning information which enables them to keep a watch over air traffic over Canada and the northern United States. Warning centres near Ottawa and in each province are manned 24 hours a day. Dissemination of alerts to the general public will be by siren signals and radio broadcasts over emergency networks in the provinces.

A Nuclear Detonation and Fallout Reporting System is being installed which, in the event of a nuclear detonation, will provide information needed to determine the areas likely to be affected by fallout. Information from this system will be passed to the public via the National Survival Attack Warning System. Provision has been made for an exchange of nuclear detonation and fallout data with the United States.

The Army also has the responsibility for re-entry into areas damaged by nuclear detonations or contaminated by serious radioactive fallout, decontamination work in those areas, and the rescue and provision of first aid to those trapped or injured. Headquarters responsible for planning re-entry operations have been established for target areas. Military personnel available will be used to form unit cadres which will employ large numbers of civilian volunteers to form rescue forces. These units will provide basic first aid and rescue, decontamination, casualty sorting, and certain traffic control and other services.

Assistance and instruction will be given to those who remain in the damaged areas or in areas subjected to serious radioactive fallout. Planning is conducted in conjunction with all levels of civil government and agencies such as police, fire and health services. Pamphlets have been distributed outlining the operating procedures for damage and casualty estimation and procedures have been evolved by which government agencies may use information provided by the Army to determine the resources remaining after an attack.

Planning of emergency communications has been completed by the Army and construction of the various stations is in progress.

Training.—The training policy for the Canadian Army (Regular) is determined at Canadian Forces Headquarters. General Officers Commanding Commands implement the training policies within their Commands except for that conducted at army and corps schools under the supervision of Canadian Forces Headquarters. During 1963, the basic training of 2,538 recruits and the corps training of officers and men of the Canadian Army were carried out at regimental depots, units and corps schools, and 10,796 personnel attended courses at the schools of instruction; 380 officers completed promotion qualification examinations; one officer passed the entrance examinations for the Royal Military College of Science; 79 officers attended the Canadian Army Staff College and five commenced courses at Commonwealth Staff Colleges. Qualifying courses for junior NCO's were conducted under General Officers Commanding Commands and senior NCO courses were conducted at corps schools. Officers from the RCN and the RCAF as well as officers from Australia, Britain, Germany, India, Pakistan, Nigeria and the United States attended courses at Canadian Army Schools of instruction.

English and French language training, which is available to all ranks of the Canadian Army, was conducted by Commands and CFHQ. The R22eR Depot (Language Training Company) conducted six-month French language courses for English-speaking officers and NCO's and a number of French-speaking recruits and potential NCO's received English language training.

Trade and specialty training is given at corps schools and units. When required, the facilities of civilian schools are used to supplement training at Army establishments. Under an apprentice training program, selected young men are trained as soldier tradesmen and prepared for advancement to senior non-commissioned ranks. During 1963, an additional 497 apprentices were enrolled and 45 civilian teachers were employed to provide academic instruction for about 800 apprentice soldiers. Academic credits are obtained from the educational authorities of the province where the training is conducted.

The training of the Field Force Canada airborne/air transportable element continued during 1963. Airborne continuation training was carried out by each unit in conjunction with unit exercises. Units carried out exercises during the winter under cold weather conditions. Parachute and air supply courses were conducted at the Canadian Joint Air Training Centre at Rivers, Man., and courses in Arctic training at Fort Churchill, Man. Collective training for units in Canada was carried out during the summer months at Camp Gagetown, N.B., and Camp Wainwright, Alta. All-arms training comprised sub-unit and unit training and culminated in exercises at the Brigade Group level.

Under the Regular Officer Training Plan (ROTP), selected students are trained for commissions in the Canadian Army (Regular) at the Canadian Services Colleges (see p. 1095) and at Canadian universities and colleges that have university reserve contingents. Also, units of the Canadian Officers' Training Corps (COTC) form an integral part of the campus life at most Canadian universities. These contingents are maintained primarily to produce officers for the Reserve component of the Army and receive training similar to that given members of the ROTP.

Canadian Army (Militia).—The recently revised priority of roles of the Militia are: support of the Regular Army; provision of a training force; and assistance for internal security and the provision of specialists to assist in staffing national survival installations in times of national emergency. Militia training is intended to produce personnel and units

well trained in the basic military skills and techniques of their corps and in the basic skills for survival operations. In 1963 and 1964 funds were provided to permit at least 40 days training for all ranks and up to 50 days for key personnel. On the authority of the General Officer Commanding a Command, an individual of the Militia may, as a special case, earn up to 70 days pay. This includes seven days training for selected personnel by attachment to Regular Army Field Units in the summer or to Regular Army Static Units at any time of the year, and also attendance at summer camps. During the summer of 1963, 25,588 all ranks, including members of the Canadian Women's Army Corps and high school students, participated in military and survival training.

Royal Canadian Army Cadets.—The aim of the Army cadet organization is to provide cadets with a sound knowledge of military fundamentals based on the qualities of leadership, patriotism and good citizenship. Planning and the supervision of organization, administration and training are carried out by the Canadian Army (Regular); 129 officers and men are employed continuously on these duties.

Training and administration of Army cadets is the responsibility of officers of the Cadet Services of Canada, a sub-component of the Reserves, and civilian instructors. As at Sept. 30, 1964, 2,468 cadet instructors were engaged in these activities. Cadets take a progressive three-year course in basic military subjects at their cadet camps and selected cadets are given training at summer camps. In 1963, 6,984 cadets attended seven-week trades and specialist courses at camps in Aldershot, N.S., Farnham, Que., Borden, Ipperwash and Picton, Ont., and Vernon, B.C.; 1,449 attended two-week junior leader and special courses at camps in Aldershot, N.S., Picton, Ont., and Clear Lake and Rivers, Man.; 213 master and first class cadets attended the National Cadet Camp, Banff, Alta., for four weeks; and 50 cadets proceeded on an exchange of cadets between Barbados, Jamaica and Canada in the summer of 1964. A total of 350 cadet instructors attended qualifying courses of up to seven weeks and 475 were employed in training and administrative duties at summer camps. As at Sept. 30, 1964, there were 68,399 cadets enrolled in 497 corps.

Subsection 3.—The Royal Canadian Air Force

Role and Organization.—The role of the Royal Canadian Air Force in support of Canada's defence policy is to provide forces in being for the defence of the North American Continent and the NATO area and the support of the United Nations. The Royal Canadian Air Force comes under the central authority of the Chief of the Defence Staff at the Canadian Forces Headquarters in Ottawa. The major RCAF Formations and their Headquarters are as follows:—

Formations	*Headquarters*
Air Defence Command	St. Hubert, Que.
No. 1 Air Division	Metz, France
Air Transport Command	Trenton, Ont.
Air Materiel Command	Rockcliffe, Ont.
Maritime Air Command	Halifax, N.S.
Training Command	Winnipeg, Man.

The organization includes 20 flying squadrons of the RCAF Regular and six flying squadrons of the RCAF Auxiliary. The Auxiliary squadrons perform an emergency and rescue role. Three of the regular squadrons contribute to the air defence of the Canada–United States Regions; eight squadrons are assigned to No. 1 Air Division in Europe; four squadrons are required for RCAF transport operations at home and abroad; four maritime squadrons operate in conjunction with other forces for the defence of Canada's East and West Coasts; and one squadron carries out Army support training, aerial photography and reconnaissance functions in Canada.

The strength of the RCAF at Aug. 31, 1964 was 50,223 officers and men in the Regular Force and 977 in the Auxiliary Force.

Operations in 1963.—The RCAF contribution to the air defence of North America, consisting of three *CF101B* squadrons, two *Bomarc* squadrons and 29 radar sites, continued under the operational control of North American Air Defence Command (NORAD). No. 1 Air Division, Canada's NATO contribution in Europe, was equipped with eight squadrons of *CF104* aircraft. Six of these squadrons were employed in the strike/attack role and two were employed in the photo reconnaissance and attack roles.

Air Defence Command completed the build-up of the Pinetree Line radar system with the takeover of the U.S.-financed and -manned radar sites and the addition of five new mid-western radar sites. New and highly effective radar equipment was installed at many sites, enabling the RCAF to close down the operations of four Pinetree sites and a portion of the Mid-Canada Line. In addition, the Ground Observer Corps was disbanded. The Distant Early Warning Line (DEW) continued to operate as an integral part of NORAD.

The RCAF Maritime Air Command during 1963 contributed four land-based maritime squadrons to the Maritime Defence of North America; three of these, based on the East Coast, were completely equipped with *Argus* aircraft, the largest and most modern anti-submarine aircraft in the world. A continuous program of aircraft modernization and re-equipping with improved anti-submarine devices was conducted throughout the year. The East Coast squadrons and a *Neptune* aircraft squadron on the West Coast participated in a number of national, international and NATO anti-submarine exercises and maintained daily patrols and surveillance of ocean areas adjacent to the Canadian coastline.

Air Transport Command (ATC) continued to provide support to the Air Division and to the Army Brigade in Europe using the *Yukon* and *Hercules* (*C130B*) aircraft. Airlift support was also given to the United Nations Emergency Force Middle East and the United Nations Yemen Observer Mission using *Yukon* and *North Star* aircraft. In addition, flying units operating *Caribou* and *Otter* aircraft were maintained in Egypt and Yemen in support of UNEF and UNYOM. In Canada, ATC aircraft airlifted Department of National Defence personnel and cargo over air routes from coast to coast. *C119* aircraft were used for paratroop training of the Canadian Army, and 408 Squadron carried out routine reconnaissance flights in the Arctic and photographic missions for the Department of National Defence. Search and rescue services were provided in Canadian areas of responsibility. Of the 54 major air searches conducted, 46 were for civil aircraft and eight were for military aircraft. In addition, there were five major marine searches and 490 mercy flights.

Training.—In the year ending Mar. 31, 1965, the RCAF will give basic training to approximately 5,000 officers and men to meet retirements, releases and the introduction of new equipment. English language training on initial enlistment will be given to about 900 French-speaking personnel—at Centralia, Ont., for officers and at St. Jean, Que., for airmen. Course length is variable, up to a maximum of 21 weeks. Advanced trades training is given within the service, training on specialized equipment is obtained also from industrial firms, and some officers attend postgraduate courses at Canadian and United States universities. Initial pilot selection on piston-engined aircraft is given at Primary Flying School, Centralia, and basic and advanced pilot training on jet aircraft is given at Gimli, Man., or Moose Jaw, Sask. In the 1964-65 fiscal year, 170 pilots will receive basic flying training and 160 advanced flying training; also, 100 students will receive radio navigator training at Winnipeg, Man. During the year, under bilateral agreements, 35 Danish and 25 Norwegian students began training as pilots and, under Commonwealth agreement, special pilot training was given to 16 Nigerians. In addition, the RCAF provided pilot training for 30 Canadian Army officers and 25 RCN personnel.

Technical and indoctrination training for newly commissioned non-flying list officers is given at Central Officers School at Centralia. Basic and advanced trades training for airmen is given at the RCAF technical trades schools at Camp Borden or Clinton in Ontario. Staff training at the junior and senior level is given at Air Force College, Toronto;

the two formal courses are bridged by a correspondence, self-study course. Trade advancement training to help airmen improve their job proficiency and to qualify for higher trade groupings and pay is provided to Regular Force and Reserve personnel. Operational training on specific aircraft and equipment is given at field technical training units and operational training units situated throughout Canada. Semi-annual trade examinations are written under the direction of the Training Standards Establishments, Trenton, Ont.

RCAF Reserves.—The active sub-components of the RCAF Reserves are designated as the Auxiliary and the Primary Reserve. Six Auxiliary Flying Squadrons equipped with transport aircraft are maintained to perform air-search and limited transport operations. These squadrons would be used to support military and civilian requirements in the event of an emergency. The Primary Reserve is composed of Air Cadet Officers (ACO's) who staff the Royal Canadian Air Cadet squadrons throughout Canada, of Manning Support Officers (MSO's) who are employed for 15 to 30 days each year on career counselling duties at RCAF recruiting units, and of University Squadron Staff Officers whose main function is to train members of the University Reserve Training Plan (URTP) during the academic year.

Each summer, approximately 130 first-year URTP undergraduates attend an officers training course at Reserve Officers School, Centralia. Following this initial training, specialized training is provided in aeronautical engineering, armament, administration, accounts, construction engineering, mobile support equipment, recreation, supply or telecommunications. Second-year cadets continue with formal or contact training which they had begun the previous year. A small number of outstanding cadets are selected for a third summer of contact training at a field unit.

Royal Canadian Air Cadets.—Air cadet activities are sponsored and administered by the Air Cadet League of Canada, a voluntary civilian organization. The objectives of air cadet training are to encourage air cadets to develop the attributes of good citizenship, to stimulate in them an interest in aviation and space technology and to help them develop a high standard of physical fitness, mental alertness and discipline. The RCAF works in partnership with the League and provides training personnel, syllabi and equipment.

The authorized ceiling of cadet enrolment is 28,000; the strength at Oct. 1, 1964 was 27,600, attached to 367 squadrons across Canada. During the summer of 1963, camps were conducted at RCAF Stations at Greenwood, N.S., St. Jean, Que., Trenton, Ont., and Sea Island, B.C., attended by more than 7,000 cadets and 682 officers and instructors. A seven-week course for senior leaders was held for 240 cadets at Camp Borden. Under the International Exchange Visits Program for 1963, sponsored jointly by the RCAF and the Air Cadet League, 59 cadets were exchanged with Belgium, Britain, Denmark, France, Italy, Israel, the Netherlands, Norway, Sweden, Turkey, the United States and West Germany.

About 250 senior air cadets receive flying training annually at flying clubs through scholarships provided by the RCAF and additional scholarships are awarded by the Air Cadet League and other organizations, which in 1963 numbered 68.

Subsection 4.—The Defence Research Board

The Defence Research Board, established on Apr. 1, 1947, provides scientific assistance and advice to the Canadian Forces. It consists of a full-time Chairman and Vice-Chairman, two or more *ex officio* members and nine other appointed members. The *ex officio* members are the Deputy Minister of National Defence, the President of the National Research Council, and such other members as may be appointed by the Minister of National Defence as members representing the Canadian Forces. The other members, appointed by the Governor in Council for three-year terms, are selected from universities and industry because of their scientific and technical backgrounds.

The organization consists of headquarters staff, an operational research corps and eight research laboratories, and liaison offices at London, England, and Washington, U.S.A. Advisory committees composed of leading Canadian scientists provide invaluable assistance to the Board by their consideration of a variety of problems.

The Defence Research Board is a fully integrated and permanent part of the defences of the country. The Chairman is a member of the Defence Council. The Board's fundamental purpose is to correlate the special scientific requirements of the Armed Forces with the general research activities of the scientific community at large. Its efforts are concentrated upon defence problems of particular importance to Canada or for which Canada has unique resources or facilities. Existing research facilities such as those of the National Research Council are used whenever possible to meet the needs of the Armed Forces. The Board has built up new facilities only in those fields that have little or no civilian interest. Close collaboration is maintained with Canada's larger partners; specialization is made possible only through the willingness of Britain and the United States to exchange the results of their broader programs for the less numerous but nevertheless valuable benefits of Canadian research.

The Board operates eight specialized research and development laboratories which are concerned primarily with maritime warfare, guns, rockets and missiles as armaments, defence against missiles, research on the upper atmosphere using ground-based equipment as well as balloons, rockets and satellites, propulsion and propellants, telecommunications, geophysical studies of the Arctic, defence against atomic, chemical and biological weapons, studies of shock and blast, biosciences research and operational research. The Board also supports and organizes an extramural program of research in the universities and industry. Some 200 grants are awarded annually to Canadian university staff members for research on problems of defence interest and a special fund is used to place contracts with industry for research in selected fields.

Research on maritime warfare problems, particularly those relating to submarine detection and tracking, is carried out at the Naval Research Establishment, Dartmouth, N.S., and at the Pacific Naval Laboratory, Esquimalt, B.C. Research and development of weapons and defence against various weapons is undertaken in co-operation with the Armed Services at several establishments, the largest of which is the Canadian Armament Research and Development Establishment near Valcartier, Que. Its principal activities include studies of defence against missiles, studies of the properties and application of infrared and other detection devices, exploration of the upper atmosphere with balloons and rockets, and the development of rocket propellants.

The Defence Research Telecommunications Establishment in Ottawa is concerned mainly with problems of communications which involve exploration of the ionosphere with ground-based equipment, with rockets and with satellites, and the applications of the science of electronics to military problems. The Defence Research Northern Laboratory, Fort Churchill, Man., conducts a variety of experiments requiring an Arctic environment including studies of the aurora borealis, communications experiments and rocket firings. Research on the defensive aspects of chemical, biological and atomic weapons is carried out at two Defence Research Board establishments—the Defence Chemical, Biological and Radiation Laboratories at Ottawa, Ont., and the Suffield Experimental Station at Ralston, Alta.

The Defence Research Medical Laboratories near Toronto are concerned with biosciences research, chiefly with raising the operating efficiency of man working in the military environment, and includes such subjects as human physiology, experimental psychology and research on clothing.

Operational research is carried on by a headquarters group which conducts long-range scientific analysis of future defence problems. Trained operational research scientists are provided by the Board to the operational research teams in the three Armed Services.

Thus, the Board continues to support the fields of research that are of foremost interest to the Canadian Armed Services and the program is under continuing review to ensure that cognizance is taken of all changes in emphasis in defence requirements. Close liaison is maintained between the Defence Research Board and the Department of Defence Production to ensure that research and development activities are closely integrated with production.

Section 2.—Services Colleges and Staff Training Colleges

Canadian Services Colleges.—The three Canadian Services Colleges are the Royal Military College of Canada founded at Kingston, Ont., in 1876, Royal Roads which was established in 1941 near Victoria, B.C., as a school for naval officers, and Collège Militaire Royal de Saint-Jean established at St. Jean, Que., primarily to meet the needs of French-speaking cadets. The Royal Military College and Royal Roads were constituted as Canadian Services Colleges in 1948, and Collège Militaire Royal de Saint-Jean was opened in 1952. In 1959, the Legislature of the Province of Ontario granted the Royal Military College a charter empowering it to grant degrees.

The purpose of the instruction and training at the Services Colleges is to impart the knowledge, to teach the skills and to develop the qualities of character and leadership essential to officers of all three Armed Services. The courses of instruction provide a sound and balanced liberal scientific and military education leading to degrees in arts, science and engineering which are granted by the Royal Military College. The organization and training give cadets the opportunity to command and to exercise judgment.

For cadets entering the Royal Military College and Royal Roads, the course is of four years duration. As the third and fourth years of the course are given only at the Royal Military College, cadets entering Royal Roads must proceed to that College for the final two years of the arts, science or engineering courses. For cadets entering Collège Militaire Royal de Saint-Jean, which gives a preparatory year, the course is of five years duration. Cadets take the preparatory, first and second years at that institution and the final two years at the Royal Military College.

For admission to the Royal Military College of Canada and to Royal Roads, an applicant must have obtained senior matriculation or equivalent standing. The compulsory subjects are: English, mathematics (algebra, geometry and trigonometry), physics, chemistry and either a language or history; however, at least junior matriculation standing in French is desirable. For admission to Collège Militaire Royal de Saint-Jean, an applicant must have junior matriculation or equivalent. The compulsory subjects are: English (for English-speaking applicants), French (for French-speaking applicants), algebra, plane geometry, physics and chemistry. In the case of applicants from classical colleges at least sixth year standing (rhétorique) is required. If a candidate has obtained his Bachelor of Arts degree at a classical college or has completed first year science or philosophy II at Collège Mont Saint-Louis, he may apply for entry into first year at Collège Militaire Royal de Saint-Jean.

To be accepted, a candidate must be single, a Canadian citizen or British subject normally resident in Canada, and physically fit in accordance with the medical standards of the Service in which he enrols. The age limits for admission to the first year are between 16 and 21 years as of Jan. 1 of the year of entry; for admission to the preparatory year a cadet must have reached his 16th but not his 20th birthday on Jan. 1 of the year of entry. Personal interviews and medical examinations of candidates are carried out by Service Boards located at various centres across Canada.

Most cadets entering the Services Colleges enrol under the Regular Officer Training Plan. Applicants accepted for entry enrol according to their choice, as naval cadets in the Royal Canadian Navy, as officer cadets in the Canadian Army, or as flight cadets in the Royal Canadian Air Force. Costs of tuition, board, lodging, uniforms, books, instruments and other essential fees are borne by the Department of National Defence and cadets

are paid at the rate of $73 a month. On successfully completing their academic and military training, cadets are granted permanent commissions in the Regular Force but may, if they so wish, apply for release after three years of service following completion of academic training.

A limited number of high school students may be selected to enter the Services Colleges on payment of tuition fees, etc. Graduates are granted commissions and serve in the reserve components of the Forces. Young men who qualify for Dominion Cadetships also serve in a reserve capacity. These Cadetships are awarded by the Federal Government in recognition of a candidate's parent having been killed, died or been severely incapacitated in the service of one of Canada's Armed Forces. A maximum of 15 Dominion Cadetships may be awarded in any one year, five in each Service. Each is valued at $580, which covers first-year fees.

During the 1963-64 academic year, 1,119 cadets were in attendance at the Services Colleges, 520 of them at the Royal Military College, 220 at Royal Roads, and 379 at Collège Militaire Royal de Saint-Jean. Of the total, 262 were enrolled in the Navy, 418 in the Army, and 439 in the Air Force.

Staff Training Colleges.—The Canadian Army Staff College at Kingston, Ont., trains officers for staff appointments. The course is 21 months in length, with a student intake every second year. Although most of the student body is composed of Canadian Army officers, officers from the other two Services and from the armies of other Commonwealth and NATO countries also attend. The system of instruction is based upon the study of précis and references, demonstrations and lectures, and indoor and outdoor exercises. Aside from purely military subjects, the curriculum includes national survival, research and development, world affairs and lectures by prominent guest speakers.

The Royal Canadian Air Force College at Armour Heights in Toronto, Ont., is a permanent establishment consisting of a Staff College for senior officers, and a Staff School and an Extension School for junior officers. The former affords professional education for officers normally of Squadron Leader and Wing Commander ranks, preparing them to assume higher appointments. The directing staff selected from the Royal Canadian Air Force is augmented by an officer from each of the Royal Canadian Navy, the Canadian Army and the Royal Air Force. The student body, in addition to Royal Canadian Air Force officers, has ten representatives from the Royal Canadian Navy and one or two from each of the Canadian Army, Royal Air Force and United States Air Force. The College course is designed to assist the student to think logically and express his ideas with precision, both orally and in writing; to know his Service and understand the employment of air forces; to keep abreast of scientific and technical developments that may affect the employment of air forces; and to gain a perspective of national and international problems. Lecturers are drawn, when desirable, from industry, the Armed Forces, the diplomatic corps and universities. Instructional visits are made to commercial and military establishments in Canada and abroad. The Staff School and the Extension School are for officers of Flight Lieutenant rank. The 14-week Staff School course begins an officer's professional education. The role of the School is to provide junior officers with the professional skills and knowledge needed at Flight Lieutenant and Squadron Leader ranks, and to introduce them to further professional studies. The student comes to the course with one or more tours of specialist employment behind him. The staff and student body are composed of officers representing a cross-section of Air Force activity. The Extension School was established to administer the Graduate Assistance Program, a course of correspondence study specially designed to further the professional education of Staff School graduates. The program has been developed to enable these graduates to consolidate and expand the knowledge gained at the Staff School; to practise skills of logical thought and the accurate presentation of ideas; and in general to prepare Flight Lieutenants for the acceptance of greater responsibilities in their present or higher ranks.

The National Defence College at Kingston, Ont., is a senior defence college providing an 11-month course of study covering the economic, political and military aspects of the

defence of Canada. Senior officers and civil servants from the Armed Forces and government departments attend, as well as a few representatives from industry. Lecturers are chosen from among the leaders in various fields in Canada, the United States, Britain and other countries. In addition, educational tours and visits to certain parts of Canada, the United States, Europe and the Middle East give students more knowledge of conditions and influences in their own and other countries.

PART II.—DEFENCE PRODUCTION*

Under the provisions of the Defence Production Act (RSC 1952, c. 62, as amended), the Department of Defence Production has exclusive authority to procure the goods and services required by the Department of National Defence and the responsibility to ensure that the necessary productive capacity and materials are available to support the defence production program. The Department also serves as procurement agent for the Canadian Commercial Corporation, a Crown company primarily responsible for the purchase in Canada of defence goods required by other governments and of supplies to meet Canadian requirements under External Aid programs and other international agreements. The Department is responsible for planning and making other necessary arrangements for the immediate establishment of a War Supplies Agency should there be a nuclear attack. Military construction is the prime responsibility of Defence Construction (1951) Limited, a Crown company reporting to Parliament through the Minister of Defence Production.

Procurement and construction contracts issued by the Department of Defence Production and Defence Construction (1951) Limited had a net value of $681,968,000 in 1963 and $448,352,000 in the first half of 1964. (The net value of contracts is made up of the value of new contracts issued as well as amendments that increased or decreased existing contracts.) The net value of contracts in 1963 according to the various sources for which they were issued was as follows:—

Source	*Net Value*	*P.C. of Total Value*
	$	
Department of National Defence	522,277,444	76.58
Department of Defence Production (DDP Votes)	11,330,201	1.66
Foreign Governments—		
United States	96,867,595	14.20
Britain	1,372,174	0.20
Other	36,931,901	5.42
Canadian Sources other than DND and DDP—		
External Aid	11,646,125	1.71
Other	1,542,808	0.23
TOTALS	681,968,248	100.00

The $522,277,000 in contracts placed by the Department of National Defence in 1963 was 2.7 p.c. below the value in 1962. The largest decrease was in the aircraft program; net value of aircraft contracts amounted to $167,545,000 against $205,252,000 in 1962. There was also a decrease of $11,300,000 in the armament program, of $2,100,000 in the clothing and equipage contracts and of $6,200,000 in defence construction work. On the other hand, there was an increase of $25,100,000 in the value of electronics and communications contracts, of $13,400,000 in shipbuilding contracts, of $8,800,000 in tank-automotive contracts and of $8,100,000 in fuel and lubricant contracts.

Contracts placed outside Canada on behalf of the Department of National Defence in 1963 amounted to $56,180,000, which was 11 p.c. of the total net value of prime contracts issued. Contracts valued at $42,121,000 were placed in the United States, $8,107,000 in Britain and $5,952,000 in other countries. Expenditures on contracts placed were

* Prepared in the Information Division, Department of Defence Production, Ottawa.

$523,551,000, an amount 13.7 p.c. lower than in 1962. Expenditures against aircraft programs declined by $17,356,000 or 9.1 p.c., those for electronics and communication equipment by $9,973,000 or 8.8 p.c., and those for ships by $750,000 or 1.4 p.c.

Of the $448,352,000 in contracts issued during the first half of 1964, $362,476,000 or 81 p.c. was for the Department of National Defence and expenditures against prime contracts placed for that Department stood at $307,495,000. The Department of Defence Production placed $11,330,000 in contracts in 1963 and $20,407,000 in the first half of 1964 against certain appropriations to assist Canadian defence industries; the major area of assistance in 1963, which involved contracts totalling $8,800,000, was to sustain research and development capability in Canadian industry. Revolving Fund contracts amounted to $33,401,000 in 1963, primarily to make funds available in connection with the Canada–United States *F-104G* mutual aid program (MAP); Revolving Fund contracts amounted to $36,773,000 in the first half of 1964.

Contracts placed for all sources other than the Departments of National Defence and Defence Production totalled $148,361,000 in 1963, of which $96,868,000 was for the United States Government and $1,372,000 for the British Government.

1.—Canadian Government Defence Contracts and Expenditures, by Defence Program, 1963 and First Half of 1964

NOTE.—The contract values include all contracts placed by the Department of Defence Production and Defence Construction (1951) Limited on behalf of the Department of National Defence, and the expenditure values include all payments made by the Department of National Defence against such contracts. The net value includes the value of all new contracts issued together with the value of amendments that increased or decreased the commitments of existing contracts.

Program	Net Value of Total Contracts		Expenditures on Contracts	
	1963	1964 (First Half)	1963	1964 (First Half)
	$'000	$'000	$'000	$'000
Aircraft	167,545	141,601	173,544	111,289
Armament	14,119	13,410	24,139	12,581
Electronics and communication equipment	107,843	60,962	103,564	61,235
Ships	41,209	18,795	52,753	19,116
Tank-automotive	17,674	21,646	10,802	21,589
Fuels and lubricants	46,658	33,559	29,151	14,742
Clothing and equipage	10,754	5,435	12,056	6,094
Construction	33,229	18,369	32,510	14,872
Other	83,246	48,699	85,033	45,977
Totals	**522,277**	**362,476**	**523,551**	**307,495**

Defence Production and Development Sharing.—In 1963, $142,000,000 worth of United States defence production-sharing business was placed with Canadian industry, a decrease of 44.1 p.c. from 1962. The lower level in 1963 was largely accounted for by the fact that 1962 figures included $121,800,000 for *Caribou* and *F-104* MAP aircraft orders as compared to $25,200,000 for the same aircraft in 1963. The total United States defence production-sharing business in this country during the five years of the program was $747,900,000.

Assistance was given to Canadian industry for research and development projects (RDP) of interest to the United States services. Contracts amounting to $8,800,000 were issued in 1963 for this type of assistance, with expenditures totalling almost $13,700,000. These efforts resulted in significant increases in bid solicitation and submissions in the prime contract area. United States inquiries to Canadian industry increased from 8,290 in 1962 to 12,858 in 1963, and responses by Canadian companies from 2,384 to 2,853. Prime contracts placed by the United States Government with Canadian Commercial Corporation increased from 1,088 to 1,130, having a total value of $84,600,000. In the sub-contract

area, solicitations increased from 3,108 to 3,385 and responses from 2,624 to 2,904. Sub-contracts received by Canadian firms increased from 1,769 to 2,075, valued at $57,300,000. Other prime contracts received directly from the United States Government by Canadian industry and other institutions totalled 100,000.

Co-operation in NATO and RDP and Exports Overseas.—Canadian industry was encouraged to participate in supplying the defence needs of European and other countries in such areas as aircraft, navigation aids and engine spares. During 1963, Canadian firms reported the receipt of $53,216,000 in prime contracts and sub-contracts from NATO and other countries (excluding the United States) of which prime contracts accounted for $40,610,000. Sub-contracts placed in Canada by overseas countries amounted to $12,606,000. The major purchases in this group were for *F-104G* simulators, torpedoes, *Wortac* spares, *Caribou* aircraft, vehicle spares, gyros, platforms, computers and aircraft engine spares.

PART III.—CIVIL EMERGENCY PLANNING (CIVIL DEFENCE)*

The present arrangements for civil emergency planning in Canada took form in 1958 following an analysis by the Canadian Government of the kind of military and civilian arrangements necessary to prepare the nation for the possibility of nuclear war. This review led to a major rearrangement of federal civil defence functions, together with an offer from the Federal Government to assume certain responsibilities previously borne by provinces and municipalities. The reorganization, which became effective on Sept. 1, 1959, was based on the principles that: (1) civil defence was properly a function or activity of government rather than a separate organization as such, and (2) this function should be divided into clearly defined tasks assigned to the appropriate levels of government, and at each governmental level made the responsibility of those departments or agencies best able to undertake and discharge them. In July of 1963, the Emergency Measures Organization, which is the federal co-ordinating agency for all civil emergency planning, was placed under the control and supervision of the Minister of Defence Production and designated as a department for administrative purposes. At the same time, responsibility for the Canadian Civil Defence College at Arnprior, Ont., was transferred from the Minister of National Health and Welfare to the Minister of Defence Production to be exercised through EMO.

At the federal level, the present distribution of responsibilities resulting from these changes is as follows:—

(1) The Emergency Measures Organization is the co-ordinating agency for all civil emergency planning and for all federal/provincial planning. Its responsibilities include planning for continuity of government, all tasks not specifically assigned to another department of government, general liaison with the provinces, NATO and foreign countries on matters relating to civil emergency planning, and operation and administration of the Canadian Civil Defence College.

(2) The Department of National Defence, more particularly the Army, has a primary role in survival operations and has been delegated the responsibility for a substantial number of functions that are technical in character, e.g., warning and fallout reporting.

(3) The Department of National Health and Welfare has the duty of advising and assisting provincial authorities with respect to the provision of emergency health and welfare services.

(4) The Royal Canadian Mounted Police is responsible for providing advice and assistance to provinces concerning the preservation of law and order, and the control of road traffic under emergency conditions.

(5) Other federal departments and agencies have duties that relate chiefly to carrying on essential functions or to maintaining the country's economic life under conditions of nuclear attack, e.g., the Department of Defence Production, the Department of Agriculture, the Department of Finance, the Bank of Canada, the Department of Transport, the Canadian Broadcasting Corporation, and the Department of Labour in consultation with the National Employment Service of the Unemployment Insurance Commission.

* Prepared (November 1964) by the Director of the Emergency Measures Organization, Ottawa.

Certain emergency functions of government are a projection of normal provincial peacetime responsibility. In these fields, provinces and municipalities have more experience and knowledge of local conditions and problems than have the Federal Government and its agencies. The following represents responsibilities of this kind, and are the concern of provincial authorities with such federal assistance as may be necessary:—

(1) Preservation of law and order and the prevention of panic by the use of provincial and municipal police and special constables, with whatever support is necessary and feasible from the RCMP and the Armed Services at provincial request.
(2) Control of road traffic, except in areas damaged or covered by heavy fallout, including special measures to assist in the emergency movement of people from areas likely to be attacked or affected by heavy fallout.
(3) Reception services, including arrangements for providing accommodation, emergency feeding and other emergency supplies and welfare services for people who have lost or left their homes or who require assistance because of the breakdown of normal facilities.
(4) Organization and control of medical services, hospitals and public health measures.
(5) Maintenance, clearance and repair of highways.
(6) Organization of municipal and other services for the maintenance and repair of water and sewerage systems.
(7) Organization of municipal and other fire-fighting services, and control over and direction of these services in wartime, except in damaged or heavy fallout areas, where fire-fighting services would be under the direction of the Army as part of the re-entry operation.

The federal civil emergency planning organization consists of a Cabinet Committee on Emergency Plans to give policy guidance in all areas of civil emergency planning, the federal Emergency Measures Organization, and departmental planning staffs. The Emergency Measures Organization has a headquarters staff in Ottawa and regional offices in each provincial capital which are responsible for co-ordinating the planning of federal departments and agencies in the provinces and maintaining liaison with both the appropriate provincial and military authorities. The organization has an officer in Paris attached to the Canadian Delegation to maintain liaison with other NATO countries and to keep abreast of developments in these countries. Liaison with the United States is carried out by headquarters staff in Ottawa.

In order to assist provinces and municipalities in the development of emergency plans, the Emergency Measures Organization administers a program of grants under which the Federal Government may pay up to 75 p.c. of the cost of approved civil defence projects.

To provide the public with information on survival measures, shelter designs and related matters, EMO and other federal agencies have published a variety of leaflets and pamphlets. Those most widely distributed are *Survival in Likely Target Areas, Simpler Shelters, 11 Steps to Survival, Your Basement Fallout Shelter,* and *Fallout on the Farm,* which cover a variety of subjects ranging from construction of shelters to the effects of radioactive fallout on agriculture. Copies of these publications are made available to the public through the provincial civil defence organization in each provincial capital.

The Emergency Supply Planning Branch of the Department of Defence Production has the responsibility to plan for a War Supplies Agency which, in time of war, would control the distribution and use of essential supplies, their prices and their rationing, as required.

In order to ensure the continuity of civilian governmental authority in an emergency, emergency facilities are available for the Federal Government in the Ottawa area, and in six regions. In this context, regional boundaries correspond with provincial boundaries. To ensure continuity of communications, an Emergency National Telecommunications Organization has been established within the Department of Transport. Under its authority, the CBC has developed plans for emergency broadcasting, at any time, to all areas of Canada.

CHAPTER XXVIII.—OFFICIAL SOURCES OF INFORMATION AND MISCELLANEOUS DATA

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PART I.—OFFICIAL SOURCES OF INFORMATION

Section 1.—Books About Canada

This basic list of books about Canada, contributed by the National Library (November 1964), includes a selection of over 450 titles of publications grouped alphabetically by author and arranged under the subject classifications of Biography, Country and People, Economics, External Relations, Government and Politics, History, Literature and the Arts, and General Reference Works. The selection represents many aspects of Canadian life, emphasizes the latest editions of books published within the past ten years, and includes titles issued in either or both English and French, accompanied by the publisher's address. For additional titles, the reader should consult one or more of the bibliographical collections listed below under the heading "General Reference Works", particularly the monthly or annual editions of *Canadiana* published by the National Library.

Biography

Barnard, Julienne. *Mémoires Chapais.* Montréal, Fides, 1961. 2 v.

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WATTERS, R. E., *ed. British Columbia*. 2d ed. Toronto, McClelland and Stewart, 1961. 576p. (An anthology)

WEAVER, Robert, *ed. Ten for Wednesday Night; a collection of short stories presented for broadcast by CBC Wednesday Night*. Toronto, McClelland and Stewart, 1961. 192 p.

General Reference Works

ANGER, W. H., and ANGER, H. D. *A digest of Canadian law*. 18th ed. by F. R. HUME. Toronto, Canada Law Book Co., 1961. 538 p.

The Atlantic year book. 1964. Fredericton, N.B. Published for the Atlantic Advocate by Brunswick Press, 1964. 432 p.

CANADA. Dominion Bureau of Statistics. *Canada 1964; official handbook of present conditions and recent progress*. Ottawa, Queen's Printer, 1964. 311 p.

CANADA. Bureau fédéral de la statistique. *Canada 1964; revue officielle de la situation actuelle et des progrès récents*. Ottawa, Imprimeur de la Reine, 1964. 311 p.

CANADA. Dominion Bureau of Statistics. *Canada year book 1963-64*. Ottawa, Queen's Printer, 1964. 1212 p.

CANADA. Bureau fédéral de la statistique. *Annuaire du Canada 1963-1964*. Ottawa, Imprimeur de la Reine, 1964. 1274 p.

CANADA. Dominion Bureau of Statistics. *Daily bulletin*. Ottawa, Queen's Printer.

CANADA. Bureau fédéral de la statistique. *Le bulletin quotidien*. Ottawa, Imprimeur de la Reine.

CANADA. Dominion Bureau of Statistics. *Canadian statistical review.* Ottawa, Queen's Printer. Weekly, with weekly and bilingual annual supplements.

CANADA. Bureau fédéral de la statistique. *Revue statistique du Canada.* Ottawa, Imprimeur de la Reine. Mensuel avec suppléments hebdomadaires.

CANADA. Dominion Bureau of Statistics. *Publications of the Dominion Bureau of Statistics, 1964. Bureau fédéral de la statistique, publications.* Ottawa, Queen's Printer, 1965. 325 p.

CANADA. Dominion Bureau of Statistics. *National accounts, income and expenditure.* Ottawa, Queen's Printer. Quarterly and annual.

CANADA. Department of Mines and Technical Surveys. *Atlas of Canada.* Ottawa, Queen's Printer, 1957. 7 p., 110 double-sheet maps.

CANADA. Ministère des mines et des relevés techniques. *Atlas du Canada.* Ottawa, Imprimeur de la Reine, 1958. 450 cartes, 110 feuilles.

CANADA. National Film Board. *Canadian picture index.* Ottawa, Queen's Printer, 1963. 1 v. Looseleaf in binder.

CANADA. Office national du film. *Répertoire des photos du Canada.* Ottawa, Imprimeur de la Reine, 1963. 1 v. Feuilles volantes dans un relieur de toile.

CANADA. National Library. *Canadiana; publications of Canadian interest noted by the National Library.* Ottawa, Queen's Printer. Monthly.

CANADA. Bibliothèque nationale. *Canadiana; publications se rapportant au Canada notées par la Bibliothèque nationale.* Ottawa, Imprimeur de la Reine. Mensuel.

CANADA. National Library. *Canadiana, 1962.* Ottawa, Queen's Printer, 1963. 2 v. Annual. Cumulates and supersedes the monthly issues of Canadiana, 1962.

CANADA. Bibliothèque Nationale. *Canadiana, 1962.* Ottawa, Imprimeur de la Reine, 1963. 2 v. Annuel. Refonte remplaçant les livraisons mensuelles de Canadiana, 1962.

Canada careers directory for university students. Choisissez votre carrière, pour diplômés universitaires, 1964. Montréal, Cornmarket Press. Annual. Annuel.

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Canadian almanac and directory. 117th, 1964. Toronto, Copp Clark. Annual.

Canadian annual review, 1963. Toronto, University of Toronto Press, 1964. 568 p.

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The Canadian dictionary; French-English, English-French. Concise ed. Toronto, McClelland and Stewart, 1962. 861 p.

Dictionnaire canadien; français-anglais, anglais-français. Éd. abrégée. Toronto, McClelland and Stewart, 1962. 861 p.

Canadian hospital directory. v. 12, 1964. Toronto, Canadian Hospital Association. Annual.

Canadian medical directory. 10th ed. 1964. Toronto, Seccombe House. Annual.

Canadian periodical index. Index de périodiques canadiens. Ottawa. Canadian Library Association. Association canadienne des bibliothèques. Monthly. Mensuel.

Encyclopedia Canadiana. Rev. ed. Ottawa, The Canadiana Company, 1962. 10 v.

Library directory. Répertoire des bibliothèques canadiennes. Part II of January issue of *Canadian Library.* Canadian Library Association. Association canadienne des bibliothèques. Ottawa. Annual. Annuel.

PEEL, Bruce, *comp. A bibliography of the Prairie Provinces to 1953.* Toronto, University of Toronto Press, 1956. 680 p.
Supplement. Toronto, University of Toronto Press, 1963. 130 p.

Slavica Canadiana. 1962. Winnipeg, Ukrainian Free Academy of Sciences, 1963. 48 p. (Slavistica, 48). Annual.

TANGHE, Raymond. *Bibliography of Canadian bibliographies.* Toronto, University of Toronto Press, 1960. 206 p.
Supplement, 1960 and 1961. Toronto, Bibliographical Society of Canada, 1962. 24 p.
Supplement, 1962 and 1963, compiled by Madeleine PELLERIN. Toronto, Bibliographical Society of Canada, 1964. 27 p.

TANGHE, Raymond. *Bibliographie des bibliographies canadiennes.* Toronto, University of Toronto Press, 1960. 206 p.
Supplément, 1960 et 1961. Toronto, Société bibliographique du Canada, 1962. 24 p.
Supplément, 1962 et 1963, préparé par Madeleine PELLERIN. Toronto, Société bibliographique du Canada, 1964. 27 p.

WATTERS, R. E., *comp. A check list of Canadian literature, and background material, 1628–1950.* Toronto, University of Toronto Press, 1960. 789 p.

Section 2.—Federal Government Information Services

The chief source of statistical information on all phases of the economy of Canada is the Dominion Bureau of Statistics where the ten-year and five-year censuses of Canada are planned and statistical information of all kinds—federal and provincial—is centralized. Certain areas of effort, such as trade and commerce, customs and excise, currency and banking, navigation, transportation, radio, population and national defence are constitutionally federal affairs and on such subjects the respective departments at Ottawa are the proper sources of information with which to communicate. Other fields of effort such as the administration of lands and natural resources, education, roads and highways, and health and hospitals are the responsibility of the provinces and data may be obtained concerning the individual provincial efforts in these fields from the respective provincial government departments. However, certain federal departments are also concerned with specific aspects of these subjects and, as in the case of the Dominion Bureau of Statistics, in the co-ordination and presentation of the material for Canada as a whole. The Government of Canada, while not administering the resources within the provincial boundaries, co-operates closely with the provinces and is in a position to furnish material for Canada, especially production data on a national basis, marketing data on international, national and provincial bases, research work and experimental station data on a national basis, and also on a provincial basis from Federal Government stations located within particular provinces. In agriculture, for instance, data on the breeding of livestock and the improvement of strains, on agricultural marketing and on crop yields are cases in point; in forestry, questions on forest research, forest fire protection and reforestation offer good examples.

Certain Federal Government bodies and national agencies, because of the nature of their work and the appeal it has to broad sections of the population, are organized primarily as information or publicity agencies. Among these are: the Information Division, Department of External Affairs, which deals with questions about external affairs originating in Canada and with general requests originating abroad for information on Canada and Canadian affairs; the Trade Publicity Branch, Department of Trade and Commerce; the Information Services Division, Department of National Health and Welfare; the Canadian Broadcasting Corporation; and the National Film Board. The Departments of Agriculture, Fisheries, Forestry, Northern Affairs and National Resources, and Mines and Technical Surveys, and such agencies as the National Gallery of Canada, the National Museum of Canada, the National Library, and the National Research Council, while not thus classed, are interested in the dissemination of information to a greater extent than most of the remaining government departments, although several of the latter have publicity branches.

Thus, inquiries for information of a statistical nature should be forwarded to the Information and Public Relations Division, Dominion Bureau of Statistics, Ottawa. Inquiries to federal sources for information not of a statistical nature should be sent as a general rule to the individual departments and agencies of government which are listed, with their functions, at pp. 104-123 of this publication. Inquiries relating to provincial efforts may be directed to the provincial government department concerned. Inquiries about the Yukon and Northwest Territories should be addressed to the Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

Section 3.—Sale of Official Publications

Under the provisions of the Public Printing and Stationery Act, the Queen's Printer, Ottawa, has charge of the sale of all official publications of Parliament and the Government of Canada that are issued to the public, as well as of the free distribution of all public docu-

ments and papers to persons and institutions (libraries) entitled by statutory provisions to receive them. The regulations relating to the distribution and sale of government publications made in accordance with the provisions of Sect. 7 of the Public Printing and Stationery Act and Sect. 7(e) of the Financial Administration Act were brought up to date and approved by Treasury Board on Mar. 31, 1955.

In compliance with these regulations, the Queen's Printer issues the *Daily Checklist of Government Publications* which records for the information of the public service, libraries, etc., all Federal Government publications immediately upon release. Those authorized by law or regulation to receive free copies of government publications receive the *Daily Checklist* without charge; others desiring the service may purchase an annual subscription to be forwarded daily or in weekly batches as requested.

The Queen's Printer also issues the *Monthly Catalogue of Canadian Government Publications*, a comprehensive listing of all official publications, public documents and papers not of a confidential nature published at government expense, an *Annual Catalogue* (in January) listing all publications issued during the previous year, as well as sectional catalogues and selected titles bulletins advertising new government publications.

The Queen's Printer is the national sales agent in Canada for publications issued by the United Nations; the United Nations Educational, Scientific and Cultural Organization; the World Health Organization; the Food and Agriculture Organization; the Organization for Economic Co-operation and Development; the International Atomic Energy Agency; the International Civil Aviation Organization; the Council of Europe; the Commonwealth Economic Committee; the Organization of American States (Pan American Union); the General Agreement on Tariffs and Trade; the New Zealand Government; the International Labour Organization; the World Meteorological Organization; and the International Telecommunication Union.

Canadian Government and international organizations publications may be obtained from Queen's Printer bookstores located in Ottawa, Toronto, Montreal, Winnipeg and Vancouver (see imprint on p. ii), or by mail from the Queen's Printer, Ottawa.

Dominion Bureau of Statistics Publications.—The Dominion Bureau of Statistics acts as the agent of the Queen's Printer with respect to the sale of DBS publications. Reports of the Bureau cover all aspects of the national economy; the *Canada Year Book* and Official Handbook *Canada* constitute authoritative compendiums of information on the institutions and economic and social development of Canada.

DBS publications are listed with their prices in the Queen's Printer's Catalogue of *Canadian Government Publications*. The DBS *Daily Bulletin* and *Weekly Bulletin*, prepared by the Information and Public Relations Division, are designed to serve persons wishing to keep closely informed on the full range of published information issued by the Bureau; the annual subscription price of each is $1. Subscription orders for DBS publications or orders for single copies should be addressed to the Publications Distribution Unit, Dominion Bureau of Statistics, Ottawa, and should contain the necessary remittance in the form of a cheque or money order made payable to the Receiver General of Canada.

Provincial Government Publications.—Most provincial government publications may by obtained from the Queen's Printer of the province concerned. Inquiries should be addressed to the provincial capital cities:—

Newfoundland	St. John's	Ontario	Toronto
Prince Edward Island	Charlottetown	Manitoba	Winnipeg
Nova Scotia	Halifax	Saskatchewan	Regina
New Brunswick	Fredericton	Alberta	Edmonton
Quebec	Quebec	British Columbia	Victoria

DIRECTORY OF SOURCES OF OFFICIAL INFORMATION

NOTE.—In the "Federal Data" column, the major source of information on each subject is given first; other sources follow in alphabetical order, with the exception of the National Film Board and the Dominion Bureau of Statistics which appear at the end of each listing with which they are concerned, except where they are the major source.

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Agriculture Information Division Dept. of Defence Production Information Division Dept. of Fisheries Information and Consumer Service Dept. of Forestry Information and Technical Services Dept. of Industry Information Division Dept. of Mines and Technical Surveys Editorial and Information Division Dept. of National Health and Welfare Information Services Dept. of National Revenue Taxation Division, Information Service Dept. of Northern Affairs and National Resources Information Services Division Dept. of Trade and Commerce Trade Publicity Branch Queen's Printer (*Canada Gazette, Statutes of Canada*, etc.) National Film Board (films, filmstrips, photographs on all subjects) Dominion Bureau of Statistics		For broad general information in regard to particular provinces, application should be made to: **Nfld.**, Dept. of Provincial Affairs; **P.E.I.**, Tourist and Information Bureau; **N.S.**, Dept. of Provincial Secretary; **N.B.**, Dept. of Provincial Secretary, Travel Bureau; **Que.**, Dept. of Industry and Commerce, Bureau of Statistics, or Dept. of Tourism, Game and Fish; **Ont.**, Dept. of Economics and Development, or Dept. of Tourism and Information; **Man.**, Dept. of Industry and Commerce or Dept. of Provincial Secretary; **Sask.**, Dept. of Industry and Information or Executive Council; **Alta.**, Dept. of Industry and Development; **B.C.**, Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics.
Dept. of Agriculture Information Division Central Mortgage and Housing Corporation (mortgage loans for new farm houses) Dept. of Finance (farm improvement loans) Dept. of Forestry Director of ARDA (information on Agricultural Rehabilitation and Development Act Administration) Dept. of Industry Machinery Branch Dept. of Labour (farm workers) Dept. of Trade and Commerce Agriculture and Fisheries Branch Dept. of Veterans Affairs (veterans) Farm Credit Corporation (mortgage loans) National Research Council Prairie Regional Laboratory, Saskatoon, Sask. (utilization of crops and crop products) National Film Board Dominion Bureau of Statistics	AGRICULTURE General and Farming	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I., N.S., N.B., Sask., Alta.**:—Depts. of Agriculture **Que.**:—Dept. of Agriculture and Colonization, Information and Research Branch Dept. of Industry and Commerce, Bureau of Statistics **Ont.**:—Dept. of Agriculture, Farm Economics and Statistics Branch and Information Branch **Man.**:—Dept. of Agriculture and Conservation **B.C.**:—Dept. of Agriculture
Dept. of Northern Affairs and National Resources Information Services Division Dept. of Citizenship and Immigration Information Division (Indians) Dept. of Mines and Technical Surveys Polar Continental Shelf Project Dominion Observatories Geological Survey of Canada Surveys and Mapping Branch Geographical Branch Marine Sciences Branch	ARCTIC	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Defence Director, Information Service Defence Research Board Dept. of National Health and Welfare Dept. of Public Works Building Construction Branch Dept. of Transport (airports, weather stations, navigation, supply) Information Services Fisheries Research Board of Canada National Research Council Division of Building Research (permafrost, buildings in the North, snow and ice) National Film Board	ARCTIC—*concl.*	
National Gallery of Canada (collections, exhibitions of works of art) Canada Council Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimo arts—visual only) *Queen's Printer (National Gallery exhibition catalogues, reproductions of paintings, etc.)*	ARTS—PERFORMING AND VISUAL	**Nfld.**:—Dept. of Education **N.B.**:—Dept. of Provincial Secretary, Travel Bureau **Que.**:—Dept. of Cultural Affairs **Ont.**:—Province of Ontario Council for the Arts **Man.**:—Manitoba Arts Council **Sask.**:—Saskatchewan Arts Board (Education) **Alta.**:—Dept. of Provincial Secretary, Cultural Development Branch **B.C.**:—Dept. of Education, Community Programmes Branch
Dept. of Mines and Technical Surveys Dominion Observatory, Ottawa, Ont. Dominion Astrophysical Observatory, Victoria, B.C. Dominion Radio Astrophysical Observatory, Penticton, B.C. National Research Council Radio and Electrical Engineering Division (radio astronomy)	ASTRONOMY	**N.B.**:—University of New Brunswick **Que.**:—Dept. of Cultural Affairs Quebec Society of Astronomy **Man.**:—University of Manitoba **Sask.**:—University of Saskatchewan **Alta.**:—University of Alberta **B.C.**:—University of Victoria
Atomic Energy of Canada Limited (research studies, sale of radioisotopes) Atomic Energy Control Board (policy, regulations) Dept. of Mines and Technical Surveys Geological Survey of Canada Mines Branch Eldorado Mining and Refining Limited Queen's Printer (agent for International Atomic Energy Agency publications)	ATOMIC ENERGY	**N.S.**:—Dept. of Trade and Industry **Ont.**:—Dept. of Energy and Resources Management The Hydro-Electric Power Commission of Ontario **Man.**:—Dept. of Industry and Commerce, Manitoba Development Authority University of Manitoba, Physics Dept. **Sask.**:—University of Saskatchewan **Alta.**:—Alberta Research Council **B.C.**:—University of British Columbia
Dept. of Transport Civil Aviation Branch (control; licensing; airports and air navigation facilities) Information Services Air Canada Dept. of Defence Production Aircraft Branch Dept. of Industry Aircraft Branch Dept. of Mines and Technical Surveys Legal Surveys and Aeronautical Charts Division Dept. of National Defence Director, Information Service	AVIATION	**Que.**:—Quebec Government Air Services **Ont.**:—Dept. of Lands and Forests, Forest Protection Branch **Man.**:—Manitoba Government Air Services

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Health and Welfare Civil Aviation Medicine Division Dept. of Trade and Commerce Industrial Materials Branch National Research Council National Aeronautical Establishment Queen's Printer (agent for International Civil Aviation Organization publications) National Film Board Dominion Bureau of Statistics	AVIATION—*concl.*	Sask.:—Saskair (formerly Sask. Government Airways) Dept. of Industry and Information, Transportation Branch
Bank of Canada Industrial Development Bank Central Mortgage and Housing Corporation Dept. of Finance (for banking; also small business loans) Dept. of Insurance (for trust and loan business; also administers the Small Loans Act) Post Office Department, Savings Bank Dominion Bureau of Statistics	BANKING Trust and Loan Companies	Nfld.:—Dept. of Finance Dept. of Provincial Affairs P.E.I., N.S.:—Dept. of Provincial Secretary N.B.:—Dept. of Finance Dept. of Provincial Secretary Que.:—Dept. of Finance, Insurance Branch Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Province of Ontario Savings Office Dept. of Insurance Man.:—Dept. of Provincial Secretary Manitoba Development Fund Manitoba Agricultural Credit Corporation Sask.:—Provincial Secretary, Registrar of Securities Dept. of Co-operation and Co-operative Development, Credit Union Services Saskatchewan Economic Development Corporation Alta.:—Treasury Dept., Superintendent of Treasury Branches B.C.:—Dept. of Finance, Inspector of Trust Companies
Dept. of Justice Superintendent of Bankruptcy Dominion Bureau of Statistics	BANKRUPTCY	Nfld., P.E.I., N.B., Alta., B.C.:—Depts. of Attorney General Man., Sask.:—Depts. of Provincial Secretary
National Library (information *re* Canadian publications and books in Canadian libraries; national bibliographies of other countries) National Gallery of Canada (information on art books and periodicals) National Research Council National Science Library (information *re* identification and location of scientific serials and research reports) Queen's Printer (Official Classification of Canadian Government Publications) Dominion Bureau of Statistics Information and Public Relations Division (for statistical publications)	BIBLIOGRAPHY	Nfld.:—Dept. of Education Public Libraries Board Dept. of Provincial Affairs, Archives P.E.I.:—Dept. of Education Superintendent of Libraries and Director of Adult Education Legislative Librarian N.S., N.B.:—Depts. of Education, Provincial Librarian Que.:—Office of Provincial Secretary Provincial Archives Provincial Library Dept. of Cultural Affairs Ont.:—Dept. of Education, Provincial Library Service Legislative Library Man.:—Dept. of Education, Provincial Librarian Sask.:—Provincial Library Legislative Library Alta.:—Dept. of Provincial Secretary Library Board Provincial Library and Archives B.C.:—Dept. of Provincial Secretary Provincial Library and Archives Public Library Commission

Sources for Federal Data	Subject	Sources for Provincial Data
	BIRTHS *See "Vital Statistics"*	
Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources (Yukon and N.W.T.)	**BLINDNESS ALLOWANCES**	Sources same as for "Old Age Assistance"
	BROADCASTING *See "Radio" and "Television"*	
Central Mortgage and Housing Corporation (NHA financing, house designs, apartment building standards) Canadian Government Specifications Board Canadian Standards Association Dept. of Defence Production Defence Construction (1951) Ltd. Dept. of Finance (Farm Improvement Loans Act; Small Businesses Loans Act) Dept. of Industry Wood Products Branch Dept. of Labour Special Services Branch (Municipal winter works and winter house building) Dept. of National Health and Welfare Hospital Design Division Dept. of Northern Affairs and National Resources Northern Administration Branch Dept. of Public Works Building Construction Branch Chief Architect and Information Services Dept. of Transport Air Services Construction Branch (airport terminal buildings, etc.) Information Services Dept. of Veterans Affairs (Soldier Settlement and Veterans' Land Act) Farm Credit Corporation National Research Council Division of Building Research (construction materials, building codes and practice, soil and snow mechanics, housing standards) Dominion Bureau of Statistics	**BUILDING CONSTRUCTION**	Nfld., N.B.:—Depts. of Public Works P.E.I.:—Dept. of Industry and Natural Resources N.S.:—Dept. of Trade and Industry Que.:—Farm Credit Bureau, Family Housing Division Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Labour, Factory Inspection Branch Dept. of Economics and Development, Housing Branch Dept. of Public Works Dept. of Municipal Affairs, Community Planning Branch Man.:—Dept. of Industry and Commerce Sask.:—Dept. of Labour Alta.:—Dept. of Industry and Development, Alberta Bureau of Statistics Dept. of Labour B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics Dept. of Municipal Affairs, Planning Division
Dept. of Transport Information Services (secondary canals) National Research Council Division of Mechanical Engineering St. Lawrence Seaway Authority (St. Lawrence–Great Lakes canals) Dominion Bureau of Statistics	**CANALS**	
Dept. of Trade and Commerce Industrial Materials Branch Dept. of Industry Chemicals Branch Dominion Bureau of Statistics	**CHEMICALS**	Que.:—Dept. of Natural Resources Ont.:—Ontario Research Foundation B.C.:—British Columbia Research Council

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Citizenship and Immigration Citizenship Branch (publications) Information Division National Film Board	CITIZENSHIP *See also* "Population"	**Ont.**:—Dept. of Provincial Secretary and Citizenship
Emergency Measures Organization Dept. of Defence Production Emergency Supply Planning Branch Dept. of National Health and Welfare Emergency Health Services Emergency Welfare Services	CIVIL DEFENCE	**Nfld.**:—Dept. of Provincial Affairs **P.E.I., N.S.**:—Depts. of Provincial Secretary **N.B.**:—Dept. of Municipal Affairs **Que.**:—Dept. of Family and Social Welfare **Ont.**:—Dept. of Attorney General, Emergency Measures Organization **Man.**:—Dept. of Provincial Secretary, Civil Defence Branch **Sask.**:—Emergency Measures Organization Executive Council **Alta.**:—Emergency Measures Organization **B.C.**:—Dept. of Provincial Secretary, Provincial Co-ordinator
Dept. of Transport Meteorological Branch, Toronto National Research Council Division of Building Research, (Climatological Atlas of Canada, National Building Code) Queen's Printer (agent for World Meteorological Organization publications)	CLIMATE	**Que.**:—Dept. of Natural Resources, Meteorological Bureau **Ont.**:—Dept. of Agriculture, Farm Economics and Statistics Branch **B.C.**:—Dept. of Agriculture Dept. of Lands, Forests, and Water Resources, Hydrology Division
Dept. of Mines and Technical Surveys Geological Survey of Canada Mines Branch Mineral Resources Division Dept. of Trade and Commerce Industrial Materials Branch Dominion Coal Board Dominion Bureau of Statistics	COAL	**N.S.**:—Dept. of Mines **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Natural Resources **Ont.**:—Dept. of Mines Dept. of Energy and Resources Management **Man.**:—Dept. of Mines and Natural Resources, Mines Branch **Sask.**:—Dept. of Mineral Resources **Alta.**:—Dept. of Mines and Minerals Alberta Research Council **B.C.**:—Dept. of Mines and Petroleum Resources
Dept. of Justice Director of Investigation and Research Restrictive Trade Practices Commission	COMBINES	
Dept. of Transport Telecommunications and Electronics Branch (radio aids, aeronautical and marine navigation) Information Services Meteorological Branch Board of Transport Commissioners (regulation of certain telegraph and telephone companies) Canadian Broadcasting Corporation Canadian Overseas Telecommunication Corporation Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Queen's Printer (agent for International Telecommunication Union publications) Dominion Bureau of Statistics	COMMUNICATIONS *See also* "Postal Service"	**Nfld.**:—Dept. of Economic Development Board of Public Utilities Commissioners **P.E.I.**:—Tourist and Information Bureau **N.S.**:—Board of Commissioners of Public Utilities **N.B.**:—Dept. of Provincial Secretary, Travel Bureau **Que.**:—Dept. of Transportation and Communications **Ont.**:—Ontario Telephone Service Commission Ontario Provincial Police, Radio Communications Branch **Man.**:—Manitoba Telephone System **Sask.**:—Saskatchewan Government Telephones **Alta.**:—Alberta Government Telephones **B.C.**:—Dept. of Commercial Transport

Sources for Federal Data	Subject	Sources for Provincial Data
Central Mortgage and Housing Corporation Dept. of National Health and Welfare (social welfare and recreation) Dept. of Northern Affairs and National Resources Northern Administration Branch National Capital Commission Information Division (general information on the Plan for the National Capital of Canada) National Film Board	COMMUNITY PLANNING	**Nfld.**:—Dept. of Municipal Affairs and Supply **P.E.I., N.S., N.B.**:—Depts. of Municipal Affairs **Que.**:—Dept. of Municipal Affairs Industrial Development Bureau Economic Advisory Council **Ont.**:—Dept. of Municipal Affairs, Community Planning Branch Dept. of Education, Community Programmes Branch **Man.**:—Dept. of Municipal Affairs, Planning Branch **Sask.**:—Dept. of Municipal Affairs, Community Planning Branch Executive Council, Economic Advisory and Planning Board Centre for Community Studies, University of Saskatchewan **Alta.**:—Dept. of Municipal Affairs, Town and Rural Planning Branch **B.C.**:—Dept. of Municipal Affairs, Regional Planning Division Lower Mainland Regional Planning Board
Dept. of Northern Affairs and National Resources National Parks Branch, Canadian Wildlife Service Northern Administration Branch Dept. of Agriculture Agricultural Rehabilitation and Development Division Information Division Economics Division Dept. of Fisheries Information and Consumer Service Dept. of Forestry Information and Technical Services National Capital Commission National Film Board	CONSERVATION	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I.**:—Dept. of Industry and Natural Resources **N.S., Alta.**:—Depts. of Lands and Forests **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Lands and Forests Dept. of Tourism, Game and Fish Dept. of Natural Resources **Ont.**:—Dept. of Lands and Forests, Conservation Branch Ontario Agricultural College, Guelph **Man.**:—Dept. of Mines and Natural Resources **Sask.**:—Dept. of Natural Resources Dept. of Agriculture, Conservation and Development Branch **B.C.**:—Dept. of Lands, Forests and Water Resources Dept. of Recreation and Conservation
Privy Council Office Dept. of Justice Dept. of Secretary of State Library of Parliament Public Archives Queen's Printer (Statutes of Canada, Hansard, etc.)	CONSTITUTION	**All Provinces except B.C.**:—Depts. of Attorney General **B.C.**:—Provincial Secretary
Dominion Bureau of Statistics	CONSUMER PRICE INDEX *See also* "Cost of Living"	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Agriculture Economics Division Central Mortgage and Housing Corporation (mortgage-lending activities) Dept. of Fisheries Economics Service Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimo co-operatives) Dept. of Secretary of State Companies and Corporations Branch	CO-OPERATIVES (including Credit Unions)	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I., N.S.**:—Depts. of Provincial Secretary **N.B.**:—Dept. of Agriculture **Que.**:—Dept. of Agriculture Dept. of Industry and Commerce, Bureau of Statistics **Ont.**:—Dept. of Agriculture, Co-operatives Branch **Man.**:—Dept. of Agriculture and Conservation, Co-operative Services Branch **Sask.**:—Dept. of Co-operation and Co-operative Development **Alta.**:—Dept. of Industry and Development, Co-operative Activities Branch **B.C.**:—Attorney-General's Dept., Registrar of Companies
Dominion Bureau of Statistics (wholesale and retail prices and consumer price index)	COST OF LIVING	**Nfld.**:—Dept. of Municipal Affairs and Supply **Man.**:—Dept. of Industry and Commerce, Business Research Branch **Sask.**:—Dept. of Labour **Alta.**:—Dept. of Industry and Development, Alberta Bureau of Statistics **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Canada Council Dept. of Citizenship and Immigration Information Division (Indians and immigrants) Dept. of Industry National Design Branch Dept. of Northern Affairs and National Resources National Parks Branch Northern Administration Branch Dept. of Veterans Affairs (veterans only) National Gallery of Canada (reference library, films) Public Archives National Film Board	CREATIVE ARTS AND HANDICRAFTS	**Nfld.**:—Dept. of Education **P.E.I.**:—Dept. of Provincial Secretary, Tourist and Information Branch Dept. of Education, Physical Fitness Division **N.S.**:—Dept. of Trade and Industry, Handicrafts Division Nova Scotia College of Art **N.B.**:—Dept. of Finance and Industry **Que.**:—Dept. of Cultural Affairs Dept. of Agriculture (rural handicrafts) **Ont.**:—Dept. of Education, Community Programmes Branch Dept. of Agriculture, Home Economics Service **Man.**:—Dept. of Agriculture and Conservation, Extension Service **Sask.**:—Dept. of Education, Continuing Education Branch Saskatchewan Arts Board **Alta.**:—Dept. of Provincial Secretary (cultural activities) **B.C.**:—Provincial Museum (Indian handicrafts) Dept. of Education, Community Programmes Branch
Dept. of Justice Criminal Law Section Office of the Commissioner of Penitentiaries National Parole Board Dept. of National Health and Welfare Research and Statistics Division National Film Board Dominion Bureau of Statistics	CRIME AND DELINQUENCY	**All Provinces**:—Depts. of Attorney General *Additional:*—**Nfld., N.S., Alta**:—Depts. of Public Welfare **P.E.I.**:—Dept. of Welfare and Labour **Que.**:—Dept. of Family and Social Welfare Dept. of Youth Dept. of Industry and Commerce, Bureau of Statistics **Ont.**:—Dept. of Reform Institutions **Sask.**:—Dept. of Social Welfare and Rehabilitation **B.C.**:—Dept. of Social Welfare

Sources for Federal Data	Subject	Sources for Provincial Data
See pp. 117-123 of this volume for a list of Crown corporations giving the functions of each and the Cabinet Minister through whom each reports to Parliament.	CROWN CORPORATIONS	For information with regard to individual Crown corporations apply as follows:— **Nfld.**:—Dept. of Attorney General Dept. of Public Works **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Trade and Industry **N.B.**:—Dept. of Finance and Industry, Treasury Board **Ont.**:—Dept. of Provincial Secretary **Man.**:—Treasury Dept. Dept. of Public Utilities **Sask.**:—Government Finance Office **Alta.**:—Dept. of Industry and Development **B.C.**:—Attorney-General's Dept.
Bank of Canada Dept. of Finance Royal Canadian Mint Public Archives	CURRENCY	
Dept. of Agriculture Production and Marketing Branch Dairy Products Division Health of Animals Branch Research Branch Animal Research Institute Dairy Technology Research Institute Dept. of Industry Food Products Branch Dept. of Trade and Commerce Agriculture and Fisheries Branch National Film Board Dominion Bureau of Statistics	DAIRYING	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I., N.S.**:—Depts. of Agriculture **N.B., Ont., Alta., B.C.**:—Depts. of Agriculture, Dairy Branches (*also* Milk Industry Board of Ont. and Milk Control Board for B.C.) **Que.**:—Dept. of Agriculture and Colonization, Dairy Products Branch Dept. of Industry and Commerce, Bureau of Statistics **Man.**:—Dept. of Agriculture and Conservation, Dairy Branch **Sask.**:—Dept. of Agriculture, Animal Industry Branch Milk Control Board
	DEATHS See "Vital Statistics"	
Dept. of National Defence Director, Information Service Defence Research Board Dept. of Defence Production Canadian Commerical Corporation Defence Construction (1951) Limited Canadian Arsenals Limited Dept. of External Affairs (NATO)	DEFENCE *See also* "Civil Defence"	
Dept. of Defence Production Information Division	DEFENCE PRODUCTION	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) Dept. of Veterans Affairs (war disabled veterans)	DISABLED PERSONS ALLOWANCES	**Nfld.**:—Dept. of Public Welfare, The Old Age Assistance Board **P.E.I.**:—Dept. of Welfare and Labour, Director of Disabled Persons Allowances **N.S.**:—Old Age Assistance Board **N.B.**:—Dept. of Youth and Welfare, Director of Disabled Persons Allowances **Que.**:—Dept. of Family and Social Welfare, Social Allowances Commission **Ont.**:—Dept. of Public Welfare, Welfare Allowances Branch **Man.**:—The Old Age Assistance and Blind Persons' Allowances Board **Sask.**:—Dept. of Social Welfare and Rehabilitation, Director of Public Assistance **Alta.**:—Dept. of Public Welfare, Pensions Board **B.C.**:—The Disabled Persons Allowances Board
Bank of Canada Central Mortgage and Housing Corporation Dept. of Agriculture Economics Division Dept. of Citizenship and Immigration Canadian Citizenship Branch Dept. of Defence Production Economics and Statistics Branch Dept. of Finance Financial Affairs Division Dept. of Fisheries Economics Service Dept. of Forestry Economics Division Dept. of Industry Program Advisory Group Dept. of Labour Economics and Research Branch Dept. of Mines and Technical Surveys Mineral Resources Division Dept. of National Health and Welfare Research and Statistics Division Dept. of Northern Affairs and National Resources Administration Services Northern Administration Branch Northern Co-ordination and Research Dept. of Public Works Economics Studies Branch Dept. of Trade and Commerce Economics Branch Dept. of Transport Economic Policy and Research Branch Fisheries Research Board Public Archives (early data) Queen's Printer (agent for UNESCO publications) Dominion Bureau of Statistics	ECONOMIC AND SOCIAL RESEARCH	**Nfld.**:—Dept. of Economic Development **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Trade and Industry Nova Scotia Research Foundation **N.B.**:—Dept. of Finance and Industry **Que.**:—Dept. of Industry and Commerce, Economic Research Bureau, Bureau of Statistics, Industrial Commission Branch **Ont.**:—Dept. of Economics and Development Dept. of Agriculture, Farm Economics and Statistics Branch Dept. of Municipal Affairs, Community Planning Branch Alcoholism and Drug Addiction Research Foundation of Ontario **Man.**:—Dept. of Industry and Commerce, Business Research Branch Manitoba Development Authority Treasury Dept., Economic Research Division Dept. of Agriculture and Conservation, Economic Division **Sask.**:—Executive Council Economic Advisory and Planning Board Dept. of Industry and Information Dept. of Co-operation and Co-operative Development, Research and Statistical Division Centre for Community Studies, University of Saskatchewan **Alta.**:—Dept. of Industry and Development **B.C.**:—Dept. of Industrial Development, Trade and Commerce, Bureau of Economics and Statistics
Dominion Bureau of Statistics Canada Council Canadian Broadcasting Corporation (educational broadcasts) Dept. of Citizenship and Immigration Citizenship Branch (immigrants) Information Division (Indians) Dept. of Finance (university grants; student loans) Dept. of Fisheries Information and Consumer Service	EDUCATION *See also* "Motion Pictures" *and* "Photographic Material"	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Forestry Information and Technical Services Dept. of Labour Technical and Vocational Training Branch Dept. of National Defence Director of Education (service dependants' schools) Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Veterans Affairs (veterans and children of war dead) National Gallery of Canada (lectures, tours, films) National Research Council Division of Administration and Awards (science and engineering students registered in Canadian graduate schools) Queen's Printer (agent for UNESCO publications)	EDUCATION—*concluded*	**All Provinces:**—Depts. of Education (technical, visual, audio and all other phases of education) *Additional:*—**Alta.:**—Dept. of Labour, Apprenticeship Board **B.C.:**—Dept. of Labour, Director of Apprenticeship
Chief Electoral Office Library of Parliament	ELECTIONS	**Nfld.:**—Dept. of Provincial Affairs **P.E.I., N.S., N.B., Ont.:**—Depts. of Provincial Secretary **Que.:**—Chief Returning Officer **Man., B.C.:**—Chief Electoral Officers **Sask., Alta.:**—Clerks of the Executive Councils
Dept. of Northern Affairs and National Resources Water Resources Branch Dept. of Industry Area Development Agency National Energy Board National Research Council Radio and Electrical Engineering Division Northern Canada Power Commission National Film Board Dominion Bureau of Statistics	ELECTRIC POWER	**Nfld.:**—Newfoundland and Labrador Power Commission **P.E.I.:**—Public Utility Commission **N.S., Alta.:**—Power Commissions **N.B.:**—New Brunswick Electric Power Commission **Que.:**—Hydro-Electric Commission Dept. of Natural Resources Dept. of Agriculture and Colonization, Rural Electrification Bureau **Ont.:**—Dept. of Energy and Resources Management The Hydro-Electric Power Commission of Ontario **Man.:**—Manitoba Hydro Dept. of Public Utilities **Sask.:**—Saskatchewan Power Corporation **B.C.:**—Dept. of Lands, Forests and Water Resources British Columbia Hydro and Power Authority British Columbia Energy Board Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Labour Economics and Research Branch Civil Service Commission (opportunities for and conditions of employment in the Federal Civil Service)	EMPLOYMENT	**All Provinces:**—Depts. of Agriculture (farm labour) *Additional:*—**Nfld., N.S., N.B., Sask.:**—Depts. of Labour **Que.:**—Dept. of Labour, Provincial Employment Bureau **Ont.:**—Dept. of Economics and Development Dept. of Labour Civil Service Commission

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Citizenship and Immigration Information Division (immigrants) National Employment Service Dominion Bureau of Statistics	**EMPLOYMENT** *—concluded*	**Man.:**—Dept. of Labour Dept. of Industry and Commerce, Business Research Branch **Alta.:**—Dept. of Labour Dept. of Industry and Development **B.C.:**—Dept. of Labour Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Northern Affairs and National Resources Northern Administration Branch (education, welfare, handicrafts, livelihood) Northern Co-ordination and Research Dept. of National Health and Welfare (health and hospital services)	**ESKIMOS**	**Nfld.:**—Dept. of Public Welfare, Division of Northern Labrador Affairs **Que.:**—Dept. of Natural Resources, New Quebec Branch
Dept. of Trade and Commerce Canadian Government Exhibition Commission Trade Fairs and Missions Branch Trade Publicity Branch Central Mortgage and Housing Corporation (housing exhibits) Dept. of Agriculture Livestock Division Dept. of Fisheries Information and Consumer Service Dept. of Industry Information Division Dept. of Mines and Technical Surveys Editorial and Information Division Mineral Resources Division Dept. of National Health and Welfare Information Division Dept. of Northern Affairs and National Resources Editorial and Information Division Dept. of Secretary of State National Museum of Canada National Capital Commission National Capital Plan (exhibits and information) National Gallery of Canada (works of art) National Film Board	**EXHIBITIONS**	**Nfld.:**—Dept. of Provincial Affairs **P.E.I., N.S., N.B.:**—Depts. of Agriculture **Que.:**—Dept. of Agriculture and Colonization Dept. of Industry and Commerce Office of Provincial Secretary Dept. of Cultural Affairs **Ont.:**—Most Ontario Departments organize exhibitions **Man.:**—Dept. of Agriculture and Conservation, Extension Service Dept. of Industry and Commerce **Sask.:**—Dept. of Agriculture Dept. of Industry and Information **Alta.:**—Dept. of Provincial Secretary Dept. of Agriculture **B.C.:**—Dept. of Agriculture Dept. of Industrial Development, Trade, and Commerce
Dept. of External Affairs Dept. of Labour International Labour Affairs Branch (ILO; OECD) Queen's Printer (agent for international organizations publications)	**EXTERNAL AFFAIRS** *See also* "Trade"	
Dept. of National Health and Welfare Dept. of Citizenship and Immigration (assistance to families entering Canada not yet eligible for family allowances)	**FAMILY ALLOWANCES**	
Dept. of Agriculture Production and Marketing Branch Plant Products Division Plant Protection Division Research Branch Genetics and Plant Breeding Research Institute Plant Research Institute	**FIELD CROPS**	**Nfld.:**—Dept. of Mines, Agriculture, and Resources **P.E.I., N.S., N.B.:**—Depts. of Agriculture **Que.:**—Dept. of Agriculture and Colonization Dept. of Industry and Commerce, Bureau of Statistics

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Trade and Commerce Agriculture and Fisheries Branch National Research Council Prairie Regional Laboratory, Saskatoon, Sask. (utilization of crops and crop products) Queen's Printer (agent for FAO publications) National Film Board Dominion Bureau of Statistics	FIELD CROPS *—concluded*	**Ont., Alta., B.C.:**—Depts. of Agriculture, Field Crops Branch **Man.:**—Dept. of Agriculture and Conservation, Soils and Crops Branch **Sask.:**—Dept. of Agriculture, Plant Industry Branch
Dept. of Finance Bank of Canada Dominion Bureau of Statistics	FINANCE *See also* "Taxation"	**Nfld., B.C.:**—Depts. of Finance **P.E.I., Man., Sask., Alta.:**—Depts. of Provincial Treasurer **N.S.:**—Dept. of Finance and Economics **N.B.:**—Dept. of Finance and Industry **Que.:**—Dept. of Finance Dept. of Industry and Commerce, Bureau of Statistics **Ont.:**—Treasury Dept. Dept. of Economics and Development, Financial Research Branch
Dept. of Forestry Forest Research Branch Forest Products Research Branch (forest products fire retardents) Board of Transport Commissioners (forest-fire protection along railway lines) Dept. of Northern Affairs and National Resources National Parks Branch Northern Administration Branch Dept. of Public Works Fire Prevention Branch (fire loss statistics) National Research Council Fire Research Section	FIRE PREVENTION	**All Provinces:**—Provincial Fire Marshals (for urban and rural fire losses) **Nfld.:**—Dept. of Mines, Agriculture, and Resources **P.E.I.:**—Dept. of Public Works **N.S.:**—Dept. of Labour **N.B.:**—Dept. of Lands and Mines Dept. of Attorney General **Que.:**—Dept. of Lands and Forests, Forest Protection Service Dept. of Municipal Affairs, Fire Commissioner **Ont.:**—Dept. of Lands and Forests, Forest Protection Branch Dept. of Public Works, Fire Prevention Officer Dept. of Attorney General, *Office of the Fire Marshal* **Man.:**—Dept. of Mines and Natural Resources Dept. of Labour, *Fire Commissioner* **Sask.:**—Dept. of Natural Resources Dept. of Labour, *Fire Commissioner* **Alta.:**—Dept. of Lands and Forests Dept. of Provincial Secretary **B.C.:**—Dept. of Lands, Forests and Water Resources
Dept. of Fisheries Information and Consumer *Service* Canadian Broadcasting Corporation Farm and Fisheries Department Dept. of Finance Fisheries Improvement Loans Act Dept. of Industry Food Products Branch Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimo fishing co-operatives) Dept. of Trade and Commerce Agriculture and Fisheries Branch Dept. of Veterans Affairs (veterans settled as commercial fishermen) Fisheries Research Board Queen's Printer (agent for FAO publications) Unemployment Insurance Commission (insurance for fishermen) National Film Board Dominion Bureau of Statistics	FISHERIES	**Nfld., P.E.I., N.S., N.B.:**—Depts. of Fisheries **Que.:**—Dept. of Tourism, Game and Fish Dept. of Industry and Commerce, Bureau of Statistics **Ont.:**—Dept. of Lands and Forests, Fish and Wildlife Branch **Man.:**—Dept. of Mines and Natural Resources, Fisheries Branch **Sask.:**—Dept. of Natural Resources, Fisheries Branch **Alta.:**—Dept. of Lands and Forests, Fish and Game Branch **B.C.:**—Dept. of Recreation and Conservation Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Health and Welfare, Food and Drug Laboratory (for standards and methods of control of quality or potency and safety of food and drugs) Dept. of Agriculture (for inquiries on standards for meat, canned food, fruit, honey, maple products, vegetables, dairy products, poultry, etc.) Dept. of Fisheries (standards for fish products) Dept. of Industry Food Products Branch Dept. of Trade and Commerce Industrial Materials Branch	**FOOD AND DRUGS** *See also* "Nutrition"	**All Provinces:**—Depts. of Health (sanitary inspection of food supplies)
	FOREIGN AFFAIRS *See* "External Affairs"	
Dept. of Finance Bank of Canada	**FOREIGN EXCHANGE**	
Dept. of Forestry Information and Technical Services Division Dept. of Industry Wood Products Branch Dept. of Trade and Commerce Industrial Materials Branch National Film Board (films, filmstrips, photographs, in relation to departmental conservation and development programs) Dominion Bureau of Statistics	**FOREST RESOURCES AND INDUSTRIES**	**Nfld.:**—Dept. of Mines, Agriculture, and Resources **P.E.I.:**—Dept. of Industry and Natural Resources **N.S., Que., Ont., Alta.:**—Depts. of Lands and Forests **N.B.:**—Dept. of Lands and Mines **Man.:**—Dept. of Mines and Natural Resources, Forestry Branch **Sask.:**—Dept. of Natural Resources, Forestry Branch Dept. of Industry and Information Saskatchewan Timber Board **B.C.:**—Dept. of Lands, Forests and Water Resources Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
	FUEL *See* "Coal", "Oil and Natural Gas" and "Electric Power"	
Dept. of Agriculture Production and Marketing Branch Livestock Division (grading) Research Branch (production) Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dominion Bureau of Statistics	**FUR FARMING** *See also* "Trapping"	**Nfld.:**—Dept. of Mines, Agriculture, and Resources Dept. of Economic Development **P.E.I., N.B., Alta., B.C.:**—Depts. of Agriculture **N.S., Ont.:**—Depts. of Lands and Forests **Que.:**—Dept. of Agriculture and Colonization Dept. of Industry and Commerce, Bureau of Statistics **Man.:**—Dept. of Mines and Natural Resources, Game Branch **Sask.:**—Dept. of Natural Resources Saskatchewan Fur Marketing Service

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Mines and Technical Surveys Geographical Branch Canadian Permanent Committee on Geographical Names Dept. of Agriculture Soils Research Institute Fisheries Research Board (oceanography) Public Archives (early maps) National Film Board	GEOGRAPHY	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I.**:—Travel Bureau **N.S.**:—Dept. of Mines **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Lands and Forests Dept. of Industry and Commerce, Economic Research Bureau, Drafting Division Dept. of Natural Resources Northern Studies Centre, Laval University **Ont.**:—Dept. of Lands and Forests, Lands and Surveys Branch Dept. of Mines Ontario Agricultural College Dept. of Economics and Development, Special Research and Surveys Branch Dept. of Municipal Affairs, Community Planning Branch **Man.**:—Dept. of Mines and Natural Resources **Sask.**:—Dept. of Natural Resources Dept. of Industry and Information **Alta.**:—Dept. of Lands and Forests University of Alberta **B.C.**:—Dept. of Lands, Forests and Water Resources
Dept. of Mines and Technical Surveys Geological Survey of Canada	GEOLOGY	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Mines **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Natural Resources Geological Surveys Branch Dept. of Agriculture **Ont.**:—Dept. of Mines, Geological Branch **Man.**:—Dept. of Mines and Natural Resources, Mines Branch **Sask.**:—Dept. of Mineral Resources **Alta.**:—Dept. of Mines and Minerals University of Alberta **B.C.**—Dept. of Mines and Petroleum Resources
Dept. of the Secretary of State (federal-provincial channel of communication) Chief Electoral Office (Electoral Act and voters lists) Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) Queen's Printer (distribution and sale of statutory orders and regulations) Library of Parliament Privy Council Office (appointments, orders in council, statutory orders and regulations) Public Archives (early official records)	GOVERNMENT *For* Senate of Canada and House of Commons *see* "Parliament"	**Nfld.**:—Dept. of Provincial Affairs **P.E.I., N.S., N.B., Ont., Man., Sask., Alta., B.C.**:—Depts. of Provincial Secretary **Que.**:—Office of Provincial Secretary
Dept. of National Health and Welfare Queen's Printer (WHO) National Film Board Dominion Bureau of Statistics	HEALTH *For* Health of Veterans *see* "Veterans Affairs"	**Nfld., P.E.I., N.B., Que., Ont., Man.**:—Depts. of Health **N.S., Alta.**:—Depts. of Public Health **Sask.**:—Dept. of Public Health Saskatchewan Medical Care Commission **B.C.**:—Dept. of Health Services and Hospital Insurance

Sources for Federal Data	Subject	Sources for Provincial Data
Public Archives Dept. of National Defence Naval Historian Directorate of History (Army) Air Historian Dept. of Northern Affairs and National Resources National Parks Branch (historic sites and monuments) Archivist for the Northwest Territories Council Dept. of Secretary of State National Museum of Canada Canadian War Museum National Aviation Museum Dept. of Veterans Affairs (war memorials and war cemeteries) Library of Parliament National Capital Commission (Information and Historical Division) National Gallery of Canada (historical paintings; war collections) National Film Board Dominion Bureau of Statistics	HISTORY	**Nfld.:**—Legislative Library Memorial University Gosling Memorial Library Dept. of Provincial Affairs, Public Archives and Museum **P.E.I.:**—Travel Bureau, Legislative Librarian **N.S.:**—Public Archives **N.B.:**—Dept. of Education Legislative Library **Que.:**—Office of Provincial Secretary, Provincial Archives Provincial Library Dept. of Cultural Affairs **Ont.:**—Legislative Library Dept. of Tourism and Information, Historical Branch Dept. of Public Records and Archives **Man.:**—Provincial Library and Archives **Sask.:**—Legislative Library, Archives Division **Alta.:**—Archives, Provincial Library Dept. of Provincial Secretary **B.C.:**—Dept. of Provincial Secretary, Provincial Librarian and Archivist Dept. of Recreation and Conservation, Historic Parks
Dept. of Agriculture Production and Marketing Branch (grading and inspection) Fruit and Vegetable Division Plant Products Division Plant Protection Division Research Branch Genetics and Plant Breeding Research Institute Plant Research Institute Queen's Printer (agent for FAO publications)	HORTICULTURE	**Nfld.:**—Dept. of Mines, Agriculture, and Resources **P.E.I., Ont.:**—Depts. of Agriculture **N.S., N.B., Alta., B.C.:**—Depts. of Agriculture, Horticultural Branches **Que.:**—Dept. of Agriculture and Colonization, Horticultural Branch **Man.:**—Dept. of Agriculture and Conservation **Sask.:**—Dept. of Agriculture, Plant Industry Branch
Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.)	HOSPITAL INSURANCE	**Nfld., N.B., Que.:**—Depts. of Health **P.E.I.:**—Hospital Services Commission **N.S.:**—Hospital Insurance Commission **Ont.:**—Ontario Hospital Services Commission **Man.:**—Manitoba Hospital Commission **Sask., Alta.:**—Depts. of Public Health **B.C.:**—Dept. of Health Services and Hospital Insurance
Dept. of National Health and Welfare Dept. of Citizenship and Immigration Information Division (Indians) Dept. of National Defence Office of the Surgeon General (Armed Forces hospitals) Dept. of Veterans Affairs (veterans hospitals) Queen's Printer (agent for WHO publications) Dominion Bureau of Statistics	HOSPITALS	**Nfld., N.B., Que.:**—Depts. of Health **P.E.I., Ont.:**—Hospital Services Commission **N.S.:**—Hospital Insurance Commission **Man.:**—Manitoba Hospital Commission **Sask., Alta.:**—Depts. of Public Health **B.C.:**—Dept. of Health Services and Hospital Insurance
	HOUSE OF COMMONS See "Parliament"	

Sources for Federal Data	Subject	Sources for Provincial Data
Central Mortgage and Housing Corporation (National Housing Act financing; insurance of long-term loans for houses and rental housing projects; direct loans; federal-provincial housing projects; loans and subsidies for public housing projects; loans for low-rental housing developments; urban renewal assistance; loans for university residences for students and their families) Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimo housing) Dept. of Veterans Affairs (home construction assistance for veterans) National Research Council Division of Building Research (construction materials, building codes and practice, soil and snow mechanics, housing standards) Dominion Bureau of Statistics	HOUSING	Nfld., P.E.I.:—Dept. of Municipal Affairs N.S.:—Nova Scotia Housing Commission Que.:—Dept. of Agriculture and Colonization, Quebec Farm Credit Bureau Ont.:—Dept. of Economics and Development, Housing Branch Man.:—Dept. of Industry and Commerce Manitoba Housing Commission Sask.:—Dept. of Social Welfare, Housing Branch B.C.:—Dept. of Finance, Housing Commissioner
Dept. of Citizenship and Immigration Information Division Dept. of National Health and Welfare Quarantine, Immigration Medical and Sick Mariners Division Dominion Bureau of Statistics	IMMIGRATION	P.E.I.:—Dept. of Industry and Natural Resources Ont.:—Dept. of Economics and Development, Economics Branch and Immigration Division Man.:—Dept. of Agriculture and Conservation Sask.:—Dept. of Social Welfare Alta.:—Dept. of Industry and Development B.C.:—British Columbia House, London, England and San Francisco, California
	INCOME TAX See "Taxation"	
Dept. of Citizenship and Immigration Indian Affairs Branch Dept. of National Health and Welfare (health and hospital services) Dept. of Northern Affairs and National Resources Northern Administration Branch	INDIANS	Nfld.:—Dept. of Public Welfare (Indians in Labrador) Que.:—Dept. of Tourism, Game and Fish Ont.:—Dept. of Public Welfare Man.:—Dept. of Welfare, Community Development Branch Sask.:—Provincial Committee on Minority Groups Executive Council Alta.:—Dept. of Industry and Development, Community Development Branch B.C.:—Dept. of Labour, Provincial Advisory Committee on Indian Affairs
Dept. of Industry National Design Branch Dept. of Secretary of State Patent and Copyright Office	INDUSTRIAL DESIGN	Man.:—Dept. of Industry and Commerce, Manitoba Design Institute
	INDUSTRIAL DEVELOPMENT See "Manufacturing"	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Insurance (Canadian, British and foreign companies, Federal Civil Service insurance) Central Mortgage and Housing Corporation (insures loans made under National Housing Act) Dept. of Agriculture Production and Marketing Branch (crop insurance) Dept. of Labour Annuities Branch Dept. of Trade and Commerce Export Credits Insurance Corporation Dept. of Veterans Affairs Veterans Welfare Services Dominion Bureau of Statistics (summary statistics of all types of insurance)	INSURANCE—LIFE, FIRE, ETC. *For* Unemployment Insurance *see* "Labour" *and for* Hospital Insurance "Hospital Insurance"	**Nfld.**:—Dept. of Provincial Affairs **P.E.I., N.S., N.B., B.C.**:—Superintendents of Insurance **Que.**:—Finance Dept., Insurance Branch **Ont.**:—Dept. of Insurance **Man.**:—Superintendent of Insurance Manitoba Crop Insurance Agency **Sask.**:—Superintendent of Insurance, Government Insurance Office **Alta.**:—Dept. of Provincial Secretary, Supervisor of Insurance
Dept. of Mines and Technical Surveys Mines Branch Mineral Resources Division Dept. of Industry Materials Branch Dept. of Trade and Commerce Economics Branch Industrial Materials Branch Dominion Bureau of Statistics	IRON AND STEEL	**Nfld.**:—Dept. of Mines, Agriculture and Resources **N.S.**:—Dept. of Mines Research Foundation **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Industry and Commerce, Bureau of Statistics Dept. of Natural Resources **Ont.**:—Dept. of Economics and Development, Trade and Industry Branch and Special Research and Surveys Branch **Man.**:—Dept. of Mines and Natural Resources Dept. of Industry and Commerce **Sask.**:—Dept. of Mineral Resources **Alta.**:—Dept. of Mines and Minerals Dept. of Industry and Development Research Council of Alberta **B.C.**:—Dept. of Mines and Petroleum Resources Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Justice Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) Dominion Bureau of Statistics	JUSTICE	**All Provinces:**—Depts. of Attorney General
Dept. of Labour Canada Labour Relations Board Civilian Rehabilitation Branch Economics and Research Branch Industrial Relations Branch (conciliation of labour disputes, promotion of labour-management co-operation, fair employment practices, female employees equal pay, and annual vacations with pay) Information and Labour Gazette Branch International Labour Affairs Branch Labour Standards Branch Legislation Branch Manpower Consultative Service Special Services Branch Technical and Vocational Training Branch Women's Bureau	LABOUR *See also* "Workmen's Compensation"	**Nfld., P.E.I., N.S., N.B., Man., Sask., Alta.**:—Depts. of Labour **Que.**:—Dept. of Labour Bureau of Statistics Economic Research Bureau

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Citizenship and Immigration Information Division (Indians and immigrants) Dept. of National Health and Welfare (occupational health) Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) National Employment Service National Research Council Division of Administration and Awards (recruitment and salary levels of scientific and technical personnel) Queen's Printer (agent for International Labour Office publications) Unemployment Insurance Commission Dominion Bureau of Statistics	**LABOUR** —concluded	**Ont.:**—Dept. of Labour Dept. of Economics and Development, Economics Branch **B.C.:**—Dept. of Labour Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Mines and Technical Surveys Surveys and Mapping Branch Dept. of Agriculture Agricultural Rehabilitation and Development Division Dept. of Citizenship and Immigration Information Division (land settlement) Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Transport Real Estate Branch Dept. of Veterans Affairs Veterans Land Administration Public Archives (early data *re* settlement)	**LANDS AND LAND SETTLEMENT**	**Nfld.:**—Dept. of Mines, Agriculture and Resources **P.E.I.:**—Commissioner of Public Lands **N.S.:**—Dept. of Agriculture, Land Settlement Board **N.B.:**—Dept. of Lands and Mines **Que.:**—Dept. of Lands and Forests Dept. of Agriculture and Colonization **Ont., Alta.:**—Depts. of Lands and Forests **Man.:**—Dept. of Mines and Natural Resources, Lands Branch **Sask.:**—Dept. of Agriculture, Lands Branch Attorney General, Land Titles **B.C.:**—Dept. of Agriculture, Land Clearing Dept. of Lands, Forests, and Water Resources
Royal Canadian Mounted Police *(Enforces Federal Statutes in all parts of Canada; in the provinces, exclusive of Quebec and Ontario, it carries out, under contract, enforcement of the Criminal Code and Provincial Statutes and polices a number of municipalities; is the only law-enforcement body in the Yukon and N.W.T.)*	**LAW ENFORCEMENT**	**All Provinces:**—Depts. of Attorney General
Clerk of the Senate of Canada Clerk of the House of Commons Dept. of Justice Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) Queen's Printer (distribution and sale of the Statutes of Canada and texts of federal legislation) Library of Parliament Privy Council Office For Acts administered by individual Federal Depts., see pp. 123-128 of this volume.	**LEGISLATION** *For* Statutory Orders and Regulations *see* "Government"	**All Provinces** except Man. and **B.C.:**—Depts. of Attorney General *Additional:*—**Ont.:**—Queen's Printer (distribution and sale of the Statutes of Ontario and various Acts) **Man.:**—Legislative Council **B.C.:**—Dept. of Provincial Secretary
	LIBRARIES *See* "Bibliography"	

Sources for Federal Data	Subject	Sources for Provincial Data
Chief Electoral Office (for local referendum under Canada Temperance Act) Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Secretary of State Protocol Branch Dominion Bureau of Statistics	LIQUOR CONTROL	**Nfld.**:—Board of Liquor Control **P.E.I., Man.**:—Liquor Control Commission **N.S.**:—Liquor Commission **N.B., Ont., Alta., B.C.**:—Liquor Control Boards **Que.**:—Liquor Board **Sask.**:—Liquor Board, Liquor Licensing Commission
Dept. of Agriculture Production and Marketing Branch Livestock Division Health of Animals Branch Contagious Diseases Control Meat Inspection, Animal Pathology Laboratory Research Branch Animal Research Institute Canadian Broadcasting Corporation Farm and Fisheries Department Queen's Printer (agent for FAO publications) National Film Board Dominion Bureau of Statistics	LIVESTOCK	**Nfld.**:—Dept. of Mines, Agriculture, and Resources **P.E.I., N.B., Ont., Alta., B.C.**:—Depts. of Agriculture, Livestock Branches **N.S.**:—Dept. of Agriculture, Animal Husbandry Branch **Que.**:—Dept. of Agriculture and Colonization, Animal Products Branch Dept. of Industry and Commerce, Bureau of Statistics **Man.**:—Dept. of Agriculture and Conservation, Livestock Branch **Sask.**:—Dept. of Agriculture, Animal Industry Branch
Dept. of Industry Information Division Industrial Promotion Branch National Design Branch Bank of Canada Industrial Development Bank Dept. of Defence Production (for defence items) Dept. of Finance (Small Businesses Loans Act) Dept. of Secretary of State Companies and Corporations Branch National Research Council Canadian Patents and Development Limited (utilization of new scientific processes) Technical Information Service (answering queries from industry on problems of technology and productivity) National Film Board Dominion Bureau of Statistics	MANUFACTURING *See also* "Crown Corporations"	**Nfld.**:—Dept. of Economic Development **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Trade and Industry **N.B.**—Dept. of Finance and Industry **Que.**:—Dept. of Industry and Commerce, Bureau of Statistics **Ont.**:—Dept. of Economics and Development, Trade and Industry Branch and Special Research and Surveys Branch **Man.**:—Dept. of Industry and Commerce **Sask.**:—Economic Advisory and Planning Board Dept. of Industry and Information **Alta.**:—Dept. of Industry and Development Alberta Bureau of Statistics **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Mines and Technical Surveys Surveys and Mapping Branch Marine Sciences Branch Geological Survey Geographical Branch Dominion Observatories Dept. of Agriculture (soil survey and economic survey maps) Dept. of Fisheries Information and Educational Service (fisheries maps) Dept. of Forestry Information and Technical Services (forestry maps) Dept. of Transport (meteorological maps) National Capital Commission (tourist and planning maps) National Research Council Division of Building Research Climatological Atlas of Canada Public Archives (maps relating to history and cartography) Dominion Bureau of Statistics (economic and census maps)	MAPS AND CHARTS	**Nfld.**:—Dept. of Mines, Agriculture and Resources **P.E.I.**:—Dept. of Public Works and Highways **N.S.**:—Dept. of Mines Research Foundation **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Lands and Forests Dept. of Natural Resources Dept. of Industry and Commerce, Economic Cartography Dept. of Agriculture **Ont.**:—Dept. of Mines Dept. of Lands and Forests Dept. of Highways Dept. of Tourism and Information **Man.**:—Dept. of Mines and Natural Resources, Surveys Branch **Sask.**:—Dept. of Natural Resources Dept. of Industry and Information **Alta.**:—Dept. of Lands and Forests Alberta Travel Bureau **B.C.**:—Dept. of Lands, Forests, and Water Resources

Sources for Federal Data	Subject	Sources for Provincial Data
	MARRIAGES See "Vital Statistics"	
Dept. of Industry Information Division Dept. of Agriculture Administration Branch Economics Division Dept. of Trade and Commerce Trade Services Branch Commodities Branch Dominion Bureau of Statistics	MERCHANDISING	**Man.**:—Dept. of Industry and Commerce **Sask.**:—Dept. of Industry and Information **Alta.**:—Dept. of Industry and Development **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Mines and Technical Surveys Geological Survey of Canada Mines Branch Mineral Resources Division Dept. of Industry Materials Branch Dept. of Trade and Commerce Economics Branch Industrial Materials Branch Dominion Bureau of Statistics (for production data)	METALS *See also* "Iron and Steel"	**Nfld.**:—Dept. of Mines, Agriculture and Resources **N.S., Ont.**:—Depts. of Mines **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Natural Resources **Man.**:—Dept. of Mines and Natural Resources, Mines Branch **Sask.**:—Dept. of Mineral Resources **Alta.**:—Dept. of Mines and Minerals **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics Dept. of Mines and Petroleum Resources
Dept. of Mines and Technical Surveys Geological Survey of Canada Mines Branch Mineral Resources Division Dept. of Industry Materials Branch Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Trade and Commerce Industrial Materials Branch Dominion Bureau of Statistics (for production data)	MINING AND MINERALS	**Nfld.**:—Dept. of Mines, Agriculture and Resources **N.S., Ont.**:—Depts. of Mines **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Natural Resources **Man.**:—Dept. of Mines and Natural Resources, Mines Branch **Sask.**:—Dept. of Mineral Resources **Alta.**:—Dept. of Mines and Minerals **B.C.**:—Dept. of Mines and Petroleum Resources
National Film Board (*Produces documentary films, newsreels and short subjects for theatrical, non-theatrical and television distribution; film-strips and photographs for informational, educational and archival purposes; other visual materials devoted to the interpretation of the Canadian scene to audiences both in Canada and abroad; and maintains a large film preview library for the benefit of government departments and other official bodies.*) Canadian Broadcasting Corporation (*Produces 16 mm. films for broadcasting over its own networks and stations. Some of these are available for export sales.*) Dept. of Forestry Information and Technical Services Division (maintains lending library of forestry training and resource films) National Gallery of Canada (library of films on art)	MOTION PICTURES	**Nfld., P.E.I., N.B.**:—Purchase films but do not produce them **N.S., Que., Alta., B.C.**:—Produce educational or informational films **Ont.**:—Dept. of Tourism and Information, Theatres Branch and Photography Branch (*Films are available to the public from several other departments.*) **Man.**:—Dept. of Industry and Commerce **Sask.**:—Dept. of Industry and Information Dept. of Education, Visual Education Branch **Alta.**:—Dept. of Industry and Development, Photographic Branch **B.C.**:—Dept. of Recreation and Conservation (*All provinces have Motion Picture Censorship Boards. Details available from: Depts. of Education and Travel, Provincial Censorship Boards and National Film Board Regional Offices.*)

Sources for Federal Data	Subject	Sources for Provincial Data
Dominion Bureau of Statistics Public Finance and Transportation Division Dept. of Finance (municipal grants) Dept. of Northern Affairs and National Resources (Yukon and N.W.T.) Municipal Development and Loan Board	MUNICIPAL AFFAIRS	**Nfld.**:—Dept. of Municipal Affairs and Supply **P.E.I., N.S., N.B., Que., Ont., Man., Sask., Alta., B.C.**:—Depts. of Municipal Affairs
National Gallery of Canada (works of art) Dept. of Secretary of State National Museum of Canada Canadian War Museum National Aviation Museum Laurier House, Ottawa (historical) National Historic Parks Museums Public Archives (historical) Queen's Printer (agent for UNESCO publications)	MUSEUMS	**Nfld.**:—Dept. of Provincial Affairs **N.S.**:—Nova Scotia Museum of Fine Arts, Public Archives of Nova Scotia, Provincial Museum of Nova Scotia, Halifax **N.B.**:—New Brunswick Museum, Saint John **Que.**:—The Archives, Musée de la Province de Québec, Quebec Commercial and Industrial Museum of Montreal Dept. of Cultural Affairs **Ont.**:—Royal Ontario Museum, Art and Archaeology, Life Sciences and Earth Sciences Divisions Dept. of Public Records and Archives **Man.**:—Manitoba Museum, Winnipeg **Sask.**:—Provincial Museum, Regina Western Development Museum, Saskatoon **Alta.**:—Provincial Archives, Edmonton **B.C.**:—Provincial Museum of Natural History and Anthropology, Provincial Archives (including Helmcken House), Victoria Also provincial universities of Sask., Alta. and B.C.
Comptroller of the Treasury Dominion Bureau of Statistics	NATIONAL ACCOUNTS	
Dept. of Transport Marine Services (aids to marine navigation; secondary canals) Telecommunications Branch (radio aids to navigation) Information Services Canadian Maritime Commission Dept. of Mines and Technical Surveys Hydrographic Service Legal Surveys and Aeronautical Charts Division Dept. of Public Works (construction and maintenance of harbour and river works, incl. graving docks and marine engineering generally) Harbours and Rivers Engineering Branch Information Services National Harbours Board National Research Council Radio and Electrical Engineering Division (applications of radar to navigation) Division of Mechanical Engineering (model-testing basin and hydraulic models) St. Lawrence Seaway Authority (St. Lawrence-Great Lakes canals)	NAVIGATION	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Health and Welfare Nutrition Division Dept. of Agriculture Consumer Service Dept. of Fisheries Information and Consumer Service Dept. of Industry Food Products Branch Queen's Printer (agent for FAO and WHO publications)	NUTRITION	**Nfld., P.E.I., N.B., Que.:**—Depts. of Health **N.S.:**—Dept. of Public Health **Ont.:**—Dept. of Health Dept. of Agriculture, Home Economics Service **Man.:**—Dept. of Health, Health Education Branch **Sask.:**—Dept. of Public Health, Nutrition Division **Alta.:**—Dept. of Agriculture, Nutritionist Dept. of Public Health **B.C.:**—Dept. of Health Services and Hospital Insurance
Dept. of Mines and Technical Surveys Marine Sciences Branch Dept. of Fisheries Fisheries Research Board	OCEANOGRAPHY	**Que.:**—Dept. of Tourism, Game and Fish Marine Biological Station of Grande Rivière Fisheries Training School **B.C.:**—Institute of Oceanography, University of British Columbia
Dept. of Mines and Technical Surveys Geological Survey of Canada Mineral Resources Division Mines Branch Dept. of Citizenship and Immigration Indian Affairs Branch (Indian reserves) Dept. of Industry Chemicals Branch Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Trade and Commerce Industrial Materials Branch National Energy Board Dominion Bureau of Statistics	OIL AND NATURAL GAS	**Nfld.:**—Dept. of Mines, Agriculture and Resources **P.E.I.:**—Dept. of Industry and Natural Resources **N.S.:**—Dept. of Mines **N.B.:**—Dept. of Lands and Mines **Ont.:**—Dept. of Energy and Resources Management **Man.:**—Dept. of Mines and Natural Resources, Mines Branch **Sask.:**—Dept. of Mineral Resources Saskatchewan Power Corporation **Alta.:**—Dept. of Mines and Minerals, Oil and Gas Conservation Board, Calgary Alberta Bureau of Statistics **B.C.:**—Dept. of Mines and Petroleum Resources
Dept. of National Health and Welfare Dept. of Labour Civilian Rehabilitation Branch (employment of older workers) Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Dept. of Veterans Affairs (veterans only)	OLD AGE ASSISTANCE *See also* "Veterans Affairs"	**Nfld., N.S., B.C.:**—Old Age Assistance Boards **P.E.I.:**—Dept. of Welfare and Labour **N.B.:**—Dept. of Youth and Welfare, Old Age and Blind Assistance Board **Que.:**—Dept. of Family and Social Welfare, Social Allowances Commission **Ont.:**—Dept. of Public Welfare, Welfare Allowances Branch **Man.:**—The Old Age Assistance and Blind Persons' Allowances Board **Sask.:**—Dept. of Social Welfare and Rehabilitation, Director of Public Assistance **Alta.:**—Dept. of Public Welfare, Pensions Board
Dept. of National Health and Welfare	OLD AGE SECURITY	

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Northern Affairs and National Resources National Parks Branch National Capital Commission National Film Board	PARKS	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of Tourist Development N.S., Alta.:—Depts. of Lands and Forests N.B.:—Dept. of Lands and Mines Que.:—Dept. of Tourism, Game and Fish Ont.:—Dept. of Lands and Forests, Conservation Branch and Parks Branch Man.:—Dept. of Mines and Natural Resources, Forestry Branch Sask.:—Dept. of Natural Resources B.C.:—Dept. of Recreation and Conservation
The Senate The House of Commons Library of Parliament Privy Council Office	PARLIAMENT	Nfld.:—Dept. of Provincial Affairs P.E.I., N.B., Sask., Alta., B.C.:—Legislative Assemblies N.S.:—House of Assembly Que.:—Legislative Council Legislative Assembly Ont.:—Legislative Assembly Clerk of the Legislative Assembly Man.:—Legislative Council
Dept. of Secretary of State Patent and Copyright Office Trade Marks Office Canadian Patents and Development Limited (licences available on patents from Government laboratories, etc.) National Library (handles all copyright books)	PATENTS, COPYRIGHTS AND TRADE MARKS	
National Film Board Canadian Broadcasting Corporation Information Services (radio and TV program photos) Central Mortgage and Housing Corporation Dept. of Citizenship and Immigration Information Division (Indians and immigrants) Dept. of Mines and Technical Surveys Editorial and Information Division Mineral Resources Division National Air Photographic Library Dept. of Northern Affairs and National Resources Information Services Division Dept. of Trade and Commerce Canadian Government Travel Bureau Public Archives (historical)	PHOTOGRAPHIC MATERIAL *See also* "Motion Pictures" *and* "Tourist Trade"	Sask.:—Dept. of Industry and Information, Saskatchewan Government Photo Services B.C.:—Dept. of Recreation and Conservation, Photographic Branch *(Photographs are available from many provincial government departments in all provinces.)*
Dominion Bureau of Statistics (for all census and estimated population statistics) Dept. of Citizenship and Immigration Information Division (Indians and immigrants)	POPULATION	Nfld.:—Dept. of Health P.E.I.:—Travel Bureau N.S.:—Dept. of Public Health, Vital Statistics Branch N.B.:—Dept. of Health, Vital Statistics Branch Que.:—Dept. of Health, Vital Statistics Branch Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Economics and Development, Economics Branch

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimos) Public Archives (early census and settlement records)	POPULATION —*concluded*	Man.:—Dept. of Industry and Commerce Dept. of Municipal Affairs Sask.:—Dept. of Public Health, Vital Statistics Branch Legislative Library Alta.:—Dept. of Industry and Development, Provincial Statistician B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Post Office Department Public Relations (general postal information) Accounting Branch (money orders, savings bank, philatelic services, etc.) Postal Rates and Classification Branch (postage rates, etc.)	POSTAL SERVICE	
Dept. of Agriculture Production and Marketing Branch Poultry Division Health of Animals Branch Contagious Diseases Control, Meat Inspection, Animal Pathology Laboratory Research Branch Animal Research Institute Canadian Broadcasting Corporation Farm and Fisheries Department Dept. of Industry Food Products Branch Queen's Printer (agent for FAO publications) Dominion Bureau of Statistics	POULTRY	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I., N.S.:—Depts. of Agriculture N.B., Alta., B.C.:—Depts. of Agriculture, Poultry Branches Que.:—Dept. of Agriculture and Colonization, Animal Production Service Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Ontario Agricultural College (Guelph), Poultry Division Man.:—Dept. of Agriculture and Conservation, Extension Service Sask.:—Dept. of Agriculture, Animal Industry Branch
Dept. of Secretary of State Protocol Branch	PRECEDENCE AND CEREMONIAL	Nfld.:—Dept. of Provincial Affairs P.E.I., N.S., B.C.:—Depts. of Provincial Secretary Que.:—Executive Council, Chief of Protocol Man., Alta.:— Depts. of Provincial Secretary, Clerk of the Executive Council
Dominion Bureau of Statistics Dept. of Agriculture Production and Marketing Branch Agricultural Stabilization Board Markets Information Fisheries Prices Support Board Queen's Printer (agent for GATT publications)	PRICES	Ont.:—Dept. of Economics and Development, Special Research and Surveys Branch Man.:—Dept. of Industry and Commerce Sask.:—Economic Advisory and Planning Board B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Secretary of State Administration and Registration Branch Public Archives (early records)	PUBLIC DOCUMENTS (Commissions of Appointment, Proclamations, Land Grants, etc.)	Nfld.:—Dept. of Provincial Affairs Dept. of Mines, Agriculture and Resources P.E.I., N.S., N.B., Que., Ont., Man., Sask., B.C.:—Depts. of Provincial Secretary

Sources for Federal Data	Subject	Sources for Provincial Data
Dominion Bureau of Statistics	**PUBLIC UTILITIES** *See also* "Electric Power"	**Nfld., Alta.:**—Boards of Public Utilities Commissioners **P.E.I., B.C.:**—Public Utilities Commissions **N.S., N.B.:**—Boards of Commissioners of Public Utilities **Que.:**—Public Service Board Quebec Hydro-Electric Commission **Ont.:**—Dept. of Energy and Resources Management The Hydro-Electric Power Commission of Ontario Ontario Telephone Service Commission Ontario Water Resources Commission Ontario Municipal Board **Man.:**—Dept. of Public Utilities **Sask.:**—Government Finance Office Saskatchewan Government Telephones Saskatchewan Power Corporation
Dept. of Public Works Information Services Dept. of Labour Labour Standards Branch (fair wages) Dept. of Transport Marine and Air Services St. Lawrence Seaway Authority	**PUBLIC WORKS**	**All Provinces:**—Depts. of Public Works *Additional:*—**Ont.:**—The Hydro-Electric Power Commission of Ontario Ontario Water Resources Commission
Canadian Broadcasting Corporation Board of Broadcast Governors (regulations for operation of radio and TV stations and networks both public and private) Canadian Overseas Telecommunication Corporation Dept. of Transport Telecommunications Branch (all matters affecting licences and facilities) National Research Council Radio and Electrical Engineering Division (radio science and its application to industry)	**RADIO**	**Ont.:**—Ontario Provincial Police, Radio Communications Branch Ryerson Institute of Technology, Toronto, Radio Station CJRT—FM **Sask.:**—Dept. of Natural Resources, Communications Division **Alta.:**—Radio CKUA, Edmonton, operated by Alberta Government Telephones **B.C.:**—Dept. of Lands, Forests, and Water Resources, Radio Section
	RAILWAYS *See* "Transportation"	
Dept. of Northern Affairs and National Resources National Parks Branch Northern Administration Branch (Yukon and N.W.T.) Dept. of National Health and Welfare National Gallery of Canada National Film Board	**RECREATION** See also "Health"	**Nfld.:**—Dept. of Provincial Affairs Dept. of Mines, Agriculture and Resources **P.E.I., N.S., Que., Ont.:**—Depts. of Education **N.B.:**—Dept. of Youth and Welfare Dept. of Provincial Secretary, Travel Bureau **Man.:**—Dept. of Industry and Commerce, Travel and Publicity Branch **Sask.:**—Dept. of Industry and Information, Travel Bureau Dept. of Education **Alta.:**—Dept. of Provincial Secretary, Recreation and Cultural Development Branch **B.C.:**—Dept. of Recreation and Conservation

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Veterans Affairs (veterans) Dept. of Citizenship and Immigration Information Division (Indians) Dept. of Justice National Parole Board Dept. of Labour Civilian Rehabilitation Branch Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources Northern Administration Branch (Eskimos) National Film Board	REHABILITATION (of persons)	**Nfld.**:—Dept. of Health, Provincial Co-ordinator of Rehabilitation **P.E.I.**:—Dept. of Welfare and Labour **N.S.**:—Dept. of Public Health, Provincial Rehabilitation Co-ordinator **N.B.**:—Dept. of Health, Director and Co-ordinator of Rehabilitation **Que.**:—Dept. of Family and Social Welfare Dept. of Youth, Physically Handicapped Division Dept. of Labour **Ont.**:—Dept. of Public Welfare, Provincial Co-ordinator of Vocational Rehabilitation Dept. of Health, Rehabilitation Division and Alcoholism and Drug Addiction Research Foundation of Ontario Dept. of Reform Institutions **Man.**:—Dept. of Health, Provincial Co-ordinator of Rehabilitation Services **Sask.**:—Dept. of Social Welfare and Rehabilitation, Provincial Co-ordinator of Rehabilitation **Alta.**:—Dept. of Public Welfare Provincial Co-ordinator of Rehabilitation Workmen's Compensation Board, Rehabilitation Clinic **B.C.**:—Dept. of Health Services and Hospital Insurance, Rehabilitation Co-ordinator
Canada Council (humanities and social sciences)	RESEARCH *See also* "Economic and Social Research", "Scientific Research" *and* "Atomic Energy"	
Dept. of Industry Area Development Agency Dept. of Fisheries Conservation and Development Service Dept. of Forestry Director of ARDA (Agricultural Rehabilitation and Development Act Administration) Dept. of Northern Affairs and National Resources Northern Administration Branch (minerals, oil, gas in Yukon and N.W.T.) Water Resources Branch (for Yukon and N.W.T. and federal interests in the provinces) Fisheries Research Board Northern Canada Power Commission Queen's Printer (agency for OECD publications)	RESOURCE DEVELOPMENT	**Nfld.**: — Dept. of Economic Development Dept. of Mines, Agriculture and Resources **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Trade and Industry **N.B.**:—Dept. of Finance and Industry **Que.**:—Depts. of Lands and Forests, Labour, Roads, Family and Social Welfare, Youth, Natural Resources, and Industry and Commerce **Ont.**:—Dept. of Economics and Development, Special Research and Surveys Branch Dept. of Energy and Resources Management Dept. of Lands and Forests Ontario – St. Lawrence Development Commission Dept. of Municipal Affairs, Community Planning Branch Ontario Northland Transportation Commission, North Bay **Man.**:—Dept. of Mines and Natural Resources Dept. of Industry and Commerce Manitoba Development Authority

Sources for Federal Data	Subject	Sources for Provincial Data
	RESOURCE DEVELOPMENT —*concluded*	Sask.:—Dept. of Industry and Information, Industrial Development Office Alta.:—Dept. of Industry and Development B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
National Research Council Laboratory Divisions (applied biology, building research, pure and applied chemistry, mechanical engineering, aeronautical research, pure and applied physics, radio and electrical engineering) Regional Laboratories at Saskatoon, Sask., and Halifax, N.S. Scientific Secretariat, Privy Council Office, Ottawa Canadian Patents and Development Limited (licences available on patents derived from government research, etc.) Atomic Energy of Canada Limited, Chalk River, Ont. Dept. of Agriculture Research Branch (basic and applied research on all aspects of agriculture) Dept. of Forestry Forest Research Branch Forest Products Research Branch Forest Entomology and Pathology Branch Dept. of Mines and Technical Surveys Geological Survey of Canada Mines Branch Dominion Observatories Geographical Branch Marine Sciences Branch Defence Research Board Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources National Parks Branch (wildlife) Northern Co-ordination and Research Dept. of Transport (aviation, radio, meteorology, navigation) Dept. of Veterans Affairs (medical research) Fisheries Research Board Medical Research Council (fellowships, associateships and grants-in-aid) National Gallery of Canada (conservation research laboratory) Queen's Printer (agency for International Atomic Energy Agency publications)	SCIENTIFIC RESEARCH *See also* "Atomic Energy"	Nfld.:—Dept. of Economic Development P.E.I.:—Dept. of Industry and Natural Resources N.S.:—Nova Scotia Research Foundation N.B.:—Dept. of Finance and Industry Que.:—Dept. of Agriculture and Colonization Dept. of Natural Resources Dept. of Roads Ont.:—Ontario Research Foundation Dept. of Agriculture Dept. of Lands and Forests Alcoholism and Drug Addiction Research Foundation of Ontario The Hydro-Electric Power Commission of Ontario Man.:—Various Depts., such as Health and Mines and Natural Resources Manitoba Research Council Sask.: — Saskatchewan Research Council Alta.:—Alberta Research Council B.C.:—Dept. of Industrial Development, Trade, and Commerce, B.C. Research Council
	SENATE See "Parliament"	
	SMALL LOANS AND MONEY-LENDERS See "Banking"	

Sources for Federal Data	Subject	Sources for Provincial Data
	SOCIAL SECURITY *See* "Family Allowances" "Blindness Allowances" "Old Age Assistance" "Old Age Security" "Disabled Persons Allowances" "Workmen's Compensation" "Labour" "Unemployment" "Veterans Affairs" "Economic and Social Research"	
	SOCIAL WELFARE *See* "Welfare"	
Dept. of Trade and Commerce Standards Branch (for inquiries on electricity and gas inspection, weights and measures, precious metals marking, commodity standards and national trade mark matters) Canadian Government Specifications Board (specifications for purchasing) Canadian Standards Association Central Mortgage and Housing Corporation (apartment building standards; NHA financed) Dept. of Labour Labour Standards Branch (fair wages, hours of work) Dept. of National Defence Dept. of Transport (standards in radio frequencies, standards in steamship inspection) National Research Council Applied Physics Division (fundamental physical and electrical standards) Division of Building Research, Specifications Section	**STANDARDS AND SPECIFICATIONS** *See also* "Food and Drugs"	
Dominion Bureau of Statistics Central Mortgage and Housing Corporation Dept. of Labour Economics and Research Branch Dept. of National Health and Welfare Research and Statistics Division	**STATISTICS**	**Nfld.**:—Dept. of Provincial Affairs Dept. of Economic Development **N.B.**:—Dept. of Education **Que.**:—Dept. of Industry and Commerce, Bureau of Statistics **Ont.**:—Dept. of Economics and Development, Special Research and Surveys Branch **Sask.**:—Economic Advisory and Planning Board **Alta.**:—Dept. of Industry and Development, Bureau of Statistics Dept. of Public Health, Vital Statistics **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Revenue Taxation Division (income tax and estate tax statistics and information) Customs and Excise Division (customs duty, excise duty, excise tax and sales tax) Dept. of Finance (taxation policy, tariff policy, Budget papers and statistics)	TAXATION	**Nfld., Que.:**—Depts. of Finance **P.E.I.:**—Provincial Treasurer **N.S.:**—Dept. of Finance and Economics **N.B.:**—Dept. of Provincial Secretary Dept. of Finance and Industry **Ont.:**—Treasury Dept. **Man., Sask.:**—Provincial Treasury Depts. **Alta.:**—Provincial Treasurer's Dept. Dept. of Provincial Secretary Dept. of Municipal Affairs **B.C.:**—Dept. of Finance, Surveyor of Taxes
	TELEGRAPHS AND TELEPHONES *See* "Communications"	
Board of Broadcast Governors Canadian Broadcasting Corporation Dept. of Transport Telecommunications Branch National Research Council National Film Board	TELEVISION *See also* "Radio"	
Dept. of Mines and Technical Surveys Topographical Survey Division National Research Council Applied Physics Division (photogrammetric research)	TOPOGRAPHY	**Nfld.:**—Dept. of Mines, Agriculture and Resources **N.S.:**—Dept. of Mines Nova Scotia Research Foundation **N.B.:**—Dept. of Lands and Mines **Que.:**—Dept. of Lands and Forests Dept. of Industry and Commerce, Drafting Division Dept. of Natural Resources **Ont.:**—Dept. of Lands and Forests, Lands and Surveys Branch **Man.:**—Dept. of Mines and Natural Resources, Surveys Branch **Sask.:**—Dept. of Natural Resources **Alta., B.C.:**—Depts. of Lands and Forests
Dept. of Trade and Commerce Canadian Government Travel Bureau Canadian Government Exhibition Commission (displays) Dept. of Northern Affairs and National Resources Northwest Territories Tourist Office, Whitehorse National Parks Branch National Gallery of Canada National Film Board Dominion Bureau of Statistics	TOURIST TRADE	**Nfld.:**—Dept. of Economic Development, Tourist Development Division **P.E.I.:**—Dept. of Provincial Secretary, Tourist and Information Branch **N.S.:**—Dept. of Trade and Industry, Travel Bureau **N.B.:**—Dept. of Provincial Secretary, Travel Bureau **Que.:**—Dept. of Tourism, Game and Fish **Ont.:**—Dept. of Tourism and Information **Man.:**—Dept. of Industry and Commerce **Sask.:**—Dept. of Industry and Information, Travel Bureau **Alta.:**—Dept. of Industry and Development, Alberta Travel Bureau **B.C.:**—Dept. of Recreation and Conservation, Travel Branch

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Trade and Commerce Agriculture and Fisheries Branch Canadian Government Exhibition Commission Export Credits Insurance Corporation Industrial Materials Branch Manufacturing Industries and Engineering Branch Office of Trade Relations and Trade Policy Standards Branch (weights and measures) Trade Commissioner Service Trade Fairs and Missions Branch Trade Publicity Branch Trade Services Branch Dept. of Finance Economic Affairs Division (tariff policy) Dept. of Forestry Economics Division Dept. of Industry Information Division Dept. of Secretary of State Companies and Corporations Branch Queen's Printer (agent for OECD and GATT publications) National Film Board Dominion Bureau of Statistics	TRADE	For incorporation of companies under provincial law, address Provincial Secretaries except **B.C.**, where Attorney General's Department is the authority. **Nfld.**:—Dept. of Economic Development **P.E.I.**:—Dept. of Industry and Natural Resources **N.S.**:—Dept. of Trade and Industry **N.B.**:—Dept. of Finance and Industry **Que., Man.**:—Depts. of Industry and Commerce **Ont.**:—Dept. of Economics and Development, Trade and Industry Branch and Special Research and Surveys Branch **Sask.**:—Dept. of Industry and Information, Trade and Business Information Services **Alta.**:—Dept. of Industry and Development **B.C.**:—Dept. of Industrial Development, Trade, and Commerce
Dept. of the Secretary of State Bureau for Translations National Research Council National Science Library (information *re* location of completed scientific translations in Canada, other countries of the Commonwealth and the United States)	TRANSLATIONS	**Que.**:—Legislative Assembly Bureau for Translations and all departments of the provincial administration.
Dept. of Transport Information Services Air Canada Air Transport Board (regulation of commercial air services) Board of Transport Commissioners (regulations *re* railways; highway crossings; rates of railways, express companies and certain inland water carriers; rates *re* communications, international bridges and tunnels; licences to certain inland carriers) Canadian Maritime Commission Canadian National Railways Dept. of Forestry (access roads) Dept. of Northern Affairs and National Resources (Roads to Resources and Territorial Development Roads) National Parks Branch (highways in National Parks) Dept. of Public Works (Trans-Canada Highway, roads and bridges in the North and in National Parks and international and interprovincial bridges) Information Services Dept. of Trade and Commerce Trade Services Branch National Harbours Board Northern Transportation Company Limited (Crown) St. Lawrence Seaway Authority National Film Board Dominion Bureau of Statistics	TRANS-PORTATION	**Nfld., N.S.**:—Depts. of Highways **P.E.I.**:—Dept. of Industry and Natural Resources **N.B.**:—Dept. of Public Works, Highways Branch **Que.**:—Dept. of Transportation and Communications Dept. of Roads **Ont.**:—Dept. of Transport Dept. of Highways Dept. of Economics and Development, Special Research and Surveys Branch Ontario Northland Transportation Commission, North Bay **Man.**:—Dept. of Public Works, Highways Branch Manitoba Transportation Commission Dept. of Public Utilities Dept. of Industry and Commerce **Sask.**:—Dept. of Highways and Transportation Saskatchewan Transportation Company Dept. of Industry and Information, Transportation Branch **Alta.**:—Dept. of Highways Highway Traffic Board Alberta Freight Bureau **B.C.**:—Dept. of Commercial Transport Dept. of Highways Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics Pacific Great Eastern Railway, Vancouver British Columbia Hydro and Power Authority

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) National Parks Branch Dept. of Citizenship and Immigration Information Division (Indians) Dominion Bureau of Statistics	TRAPPING *See also* "Fur Farming"	**Nfld.**:—Dept. of Mines, Agriculture and Resources **P.E.I.**:—Dept. of Industry and Natural Resources **N.S., Ont., Alta.**:—Depts. of Lands and Forests **N.B.**:—Dept. of Lands and Mines **Que.**:—Dept. of Tourism, Game and Fish **Man.**:—Dept. of Mines and Natural Resources, Game Branch **Sask.**:—Dept. of Natural Resources, Fur Marketing Service **B.C.**:—Dept. of Recreation and Conservation
Dept. of Labour Economics and Research Branch Unemployment Insurance Commission Dominion Bureau of Statistics	UNEMPLOYMENT	**Nfld., N.S., Que., Man., Sask., Alta.**:—Depts. of Labour **N.B.**:—Office of the Economic Advisor **Ont.**:—Dept. of Economics and Development, Economics Branch Dept. of Public Welfare **B.C.**:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics Dept. of Labour
Unemployment Insurance Commission Dept. of Labour (winter works program, vocational training) Dept. of National Health and Welfare Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.)	UNEMPLOYMENT ASSISTANCE	**Nfld., N.S., Alta.**:—Depts. of Public Welfare **P.E.I.**:—Dept. of Welfare and Labour **N.B.**:—Dept. of Youth and Welfare **Que.**:—Dept. of Family and Social Welfare **Ont.**:—Dept. of Public Welfare, Director of General Welfare Assistance **Man.**:—Dept. of Welfare **Sask.**:—Dept. of Social Welfare and Rehabilitation **B.C.**:—Dept. of Social Welfare
Central Mortgage and Housing Corporation	URBAN REDEVELOPMENT	**N.S., B.C.**:—Depts. of Municipal Affairs **Ont.**:—Dept. of Economics and Development, Housing Branch **Man.**:—Dept. of Municipal Affairs, Municipal Affairs Branch Manitoba Housing Commission
Dept. of Veterans Affairs (general information, rehabilitation, welfare, allowances, training, treatment, land settlement, education of children of war dead, insurance, records of service, war graves and medals) Canadian Pension Commission (the Pension Act and Civilian War Pensions and Allowances Act, Parts I to X) Dept. of Citizenship and Immigration Indian Affairs Branch (Indian veterans) Dept. of Finance (veterans business and professional loans) Dept. of Labour (reinstatement, vocational training) War Veterans Allowance Board (the War Veterans Allowance Act and Civilian War Pensions and Allowances Act, Part XI)	VETERANS AFFAIRS	**P.E.I.**:—Provincial Secretary **N.S.**:—Dept. of Public Welfare **N.B.**:—Dept. of Youth and Welfare **Que.**:—Dept. of Family and Social Welfare **Ont.**:—Dept. of Public Welfare, Soldiers Aid Commission **Sask.**:—Dept. of Social Welfare, Rehabilitation Division **B.C**:—Dept. of Provincial Secretary

Sources for Federal Data	Subject	Sources for Provincial Data
Dominion Bureau of Statistics Dept. of Citizenship and Immigration Information Division (Indians and immigrants) Dept. of Northern Affairs and National Resources Northern Administration Branch (Yukon and N.W.T.) Public Archives (early census records)	VITAL STATISTICS	**Nfld., N.B., Que.:**—Depts. of Health **P.E.I.:**—Dept. of Health, Director of Vital Statistics **N.S.:**—Dept. of Public Health, Registrar General **Ont.:**—Dept. of Provincial Secretary and Citizenship, Office of the Registrar-General **Man.:**—Dept. of Welfare, Vital Statistics Division **Sask.:**—Dept. of Public Health, Vital Statistics Branch **Alta.:**—Dept. of Public Health, Director of Vital Statistics **B.C.:**—Dept. of Health Services and Hospital Insurance, Vital Statistics Division
Dept. of Labour Labour Standards Branch Economics and Research Branch Legislation Branch National Research Council Division of Administration and Awards (recruitment and salary levels of scientific and technical personnel) Dominion Bureau of Statistics	WAGES AND WORKING CONDITIONS	**All Provinces:**—Depts. of Labour *Additional:*—**Ont.:**—Dept. of Economics and Development, Economics Branch **Man.:**—Dept. of Industry and Commerce, Business Research Branch **Alta.:**—Dept. of Industry and Development **B.C.**—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Northern Affairs and National Resources Water Resources Branch (Yukon and N.W.T. and federal interests in provinces) Dept. of Agriculture Prairie Farm Rehabilitation Administration Dept. of Fisheries Conservation and Development Service Dept. of Mines and Technical Surveys Mines Branch (industrial waters) Geological Survey of Canada (ground-water studies) National Film Board	WATER RESOURCES	**Nfld.:**—Dept. of Mines, Agriculture and Resources **N.S.:**—Nova Scotia Water Authority **N.B.:**—Dept. of Lands and Mines **Que.:**—Dept. of Natural Resources **Ont.:**—*Ontario* Water Resources Commission Dept. of Lands and Forests **Man.:**—Dept. of Agriculture and Conservation, Water Control Branch **Sask.:**—Saskatchewan Water Resources Commission Dept. of Agriculture **Alta.:**—Dept. of Agriculture **B.C.:**—Dept. of Lands, Forests and Water Resources
Dept. of National Health and Welfare Dept. of Citizenship and Immigration Indian Affairs Branch Dept. of Northern Affairs and National Resources Northern Administration Branch (for Eskimos) National Advisory Committee on the Rehabilitation of Disabled Persons Northwest Territories Council, Ottawa Unemployment Insurance Commission Yukon Territorial Council, Whitehorse National Film Board Dominion Bureau of Statistics	WELFARE *For* Welfare of Veterans *see* "Veterans Affairs"	**Nfld., N.S., Ont., Alta.:**—Depts. of Public Welfare **P.E.I.:**—Dept. of Welfare and Labour **N.B.:**—Dept. of Youth and Welfare **Que.:**—Dept. of Family and Social Welfare *Dept. of Youth* **Man.:**—Dept. of Welfare **Sask.:**—Dept. of Social Welfare and Rehabilitation **B.C.:**—Dept. of Social Welfare
Dept. of Northern Affairs and National Resources Canadian Wildlife Service Commissioner of Yukon Territory, Whitehorse	WILDLIFE	**Nfld.:**—Dept. of Mines, Agriculture and Resources **P.E.I.:**—Dept. of Industry and Natural Resources **N.S., Ont., Alta.:**—Depts. of Lands and Forests **N.B.:**—Dept. of Lands and Mines

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Fisheries Information and Consumer Service National Film Board	WILDLIFE —*concluded*	Que.:—Dept. of Tourism, Game and Fish Man.:—Dept. of Mines and Natural Resources Sask.:—Dept. of Natural Resources, Wildlife Branch B.C.:—Dept. of Recreation and Conservation
Dept. of Labour Accident Prevention and Compensation Branch Merchant Seamen Compensation Board Dept. of Northern Affairs and National Resources (Yukon and N.W.T.)	WORKMEN'S COMPENSATION	Provincial Workmen's Compensation Boards at:— Nfld.:—St. John's P.E.I.:—Charlottetown N.S.:—Halifax; N.B.:—Saint John Ont.:—Toronto; Man.:—Winnipeg Sask.:—Regina; Alta.:—Edmonton B.C.:—Vancouver Que.:—Workmen's Compensation Commission, Quebec City

PART II.—SPECIAL MATERIAL PUBLISHED IN FORMER EDITIONS OF THE CANADA YEAR BOOK

It is not possible to include in any single edition of the Year Book all articles and descriptive text of previous editions. Therefore the following list has been compiled as an index to such miscellaneous material and special articles as are not repeated in the present edition. This list links up the Year Book with its predecessors in respect of matters that have not been subject to wide change. Those Sections of Chapters, such as "Population", which are automatically revived when later census material is made available and to which adequate references are made in the text, are not listed unless they are in the nature of special contributions. The latest published article on each subject is shown, except when an earlier article includes material not repeated in the later one. When an article covers more than one subject it is listed under each appropriate heading.

The articles marked with an asterisk (*) are available in reprint form from the Information and Public Relations Division, Dominion Bureau of Statistics.

Subject and Article	Contributor	Edition	Page
Agriculture—			
Historical Background of Canadian Agriculture	G. S. H. Barton	1939	187–190
The War and Canadian Agriculture	—	1945	188–191
The Major Soil Zones and Regions of Canada	P. C. Stobbe	1951	352–356
*Postwar Agriculture	—	1957–58	392–396
The Board of Grain Commissioners	W. J. MacLeod	1960	957–958
The Canadian Wheat Board and its Role in Grain Marketing	C. B. Davidson	1960	958–960
The National Agricultural Program	S. C. Barry	1961	399–402
Recent Changes in Canadian Agriculture	—	1962	377–380
Changes in Canadian Agriculture as Reflected by the Census of 1961	—	1963–64	409–415
Art, Literature and the Press—			
A Bibliography of Canadian History	Gustave Lanctot	1939	36–40
*The Democratic Functioning of the Press	W. A. Buchanan	1945	744–748
Report of the Royal Commission on National Development in the Arts, Letters and Sciences	—	1952–53	342–345
*A History of Canadian Journalism, 1752–(circa) 1900	W. H. Kesterton	1957–58	920–934

Subject and Article	Contributor	Edition	Page
Art, Literature and the Press—concluded			
*A History of Canadian Journalism (circa) 1900–1958 (Reprint includes both articles)	W. H. KESTERTON	1959	883–902
Banking and Finance—			
The Bank of Canada and its Relation to the Financial System	—	1937	881–885
Historical Sketch of Currency and Banking	—	1938	900–906
The Royal Canadian Mint	H. E. EWART	1940	888–892
The Wartime Functions of a Central Bank	—	1942	803–806
Wartime Control under the Foreign Exchange Control Board	R. H. TARR	1941 1942	833–835 830–833
Post-War Financial Policy	—	1954	1061–1064
The Canada Conversion Loan	E. C. GOULD	1959	1130–1131
Commercial Banking in Canada	J. DOUGLAS GIBSON	1961	1115–1120
Citizenship—			
Early Naturalization Procedure and Events Leading up to the Canadian Citizenship Act	—	1951	153–155
Climate and Meteorology—			
Factors which Control Canadian Weather	SIR FREDERICK STUPART	1925	36–40
Temperature and Precipitation of Northern Canada	A. J. CONNOR	1930	41–56
Droughts in Western Canada	A. J. CONNOR	1933	47–59
Meteorology Related to the Science of Aviation	J. PATTERSON	1943–44	24–29
*The Climate of Canada (textual material appears in the 1959 Year Book and the tabular data in the 1960 edition but the reprint includes both textual and tabular data)	C. C. BOUGHNER and M. K. THOMAS	1959 1960	23–51 31–77
Communications—			
*The Democratic Functioning of the Press	W. A. BUCHANAN	1945	744–748
*History and Development of the Canadian Broadcasting Corporation	AUGUSTIN FRIGON	1947	737–740
*A History of Canadian Journalism, 1752-(circa) 1900	W. H. KESTERTON	1957–58	920–934
*A History of Canadian Journalism (circa) 1900–1958 (Reprint includes both articles)	W. H. KESTERTON	1959	883–902
Constitution and Government—			
Provincial and Local Government in—			
Maritime Provinces	THOMAS FLINT	1922–23	102–105
Quebec	G. E. MARQUIS	1922–23	105–107
Ontario	S. A. CUDMORE	1922–23	107–109
Prairie Provinces	E. H. OLIVER	1922–23	110–113
British Columbia	JOHN HOSIE	1922–23	113–115
Canada and the League of Nations	N. A. ROBERTSON	1931	115–122
The Government of Canada's Arctic Territory	R. A. GIBSON	1938	92–93
The Evolution of the Constitution of Canada down to Confederation	S. A. CUDMORE and E. H. COLEMAN	1942	34–40
The British North America Act, 1867	—	1942	40–59
Canada's Growth in External Status	F. H. Soward	1945	74–79
Canada's Part in the Relief and Rehabilitation of the Occupied Territories	—	1945	79–85

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Constitution and Government—concluded			
The Constitutional Development of Newfoundland prior to Union with Canada, 1949	—	1950	85–92
Federal-Provincial Relations	—	1951	102–105
The Terms of Union of Newfoundland with Canada, 1949	—	1951	56–57
Financial Administration of the Government of Canada	—	1956	101–107
*The Privy Council Office and Cabinet Secretariat in Relation to the Development of Cabinet Government	W. E. D. Halliday	1956	62–70
*Amendment of the Canadian Constitution	J. R. Mallory	1961	51–57
Construction—			
The Effects of Government Wartime Expenditures on the Construction Industry	H. Carl Goldenberg	1941	366–368
*The Construction Industry in Canada	Wm. J. H. Purcell	1961	684–689
Crime and Delinquency—			
A Historical Sketch of Criminal Law and Procedure	R. E. Watts	1932	897–899
The Influence of the Royal Canadian Mounted Police in the Building of Canada	S. T. Wood	1950	317–331
The Philosophy of the Royal Canadian Mounted Police	—	1957–58	332–334
Education—			
Canada and UNESCO	J. E. Robbins	1947	313–315
Royal Commission on National Development in the Arts, Letters and Sciences	—	1951	315–316
Report of the Royal Commission on National Development in the Arts, Letters and Sciences	—	1952–53	342–345
Recent Developments in Public Technical and Vocational Education in Canada	Phillip Cohen	1963–64	737–743
Fauna and Flora—			
Faunas of Canada	P. A. Taverner	1922–23	32–36
Faunas of Canada	R. M. Anderson	1937	29–52
Flora of Canada	John Adams	1938	30–59
Migratory Bird Protection in Canada	—	1951	38–43
*The Barren-Ground Caribou	—	1954	33–36
Migratory Bird Legislation	—	1955	41–45
The Musk-ox	—	1957–58	28–30
Provincial Government Wildlife Conservation Measures	—	1963–64	46–52
Fisheries—			
The Effects of the War on Canadian Fisheries	D. B. Finn	1943–44	277–279
*Scientific Management of Game Fish in Canada's National Parks	—	1956	35–39
Groundfish Species in the Canadian Fisheries	T. H. Turner	1957–58	591–595
The Fisheries Research Board	J. L. Kask	1959	584–588
Canada's Commercial Fishery Resources and Their Conservation	—	1960	625–630
*The Fisheries Research Board of Canada	—	1963–64	612–614
Forestry—			
Physiography, Geology and Climate as Affecting the Forests	—	1934–35	311–313
Noxious Forest Insects and Their Control	J. J. de Gryse	1947	389–400

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Forestry—concluded			
Canada's Forest Economy	—	1951	425–437
*The Pulp and Paper Industry in Canada	—	1952–53	467–475
Administration of Crown Forests in Canada	—	1954	458–465
*The Federal-Provincial Forest Agreements	H. W. Beall	1956	459–466
The Pulp and Paper Research Institute of Canada	Rielle Thomson	1957–58	489–491
Fur Trade—			
The Development of Marshlands in Relation to Fur Production and the Rehabilitation of Fur-Bearers	D. J. Allan	1943–44	267–269
The Fur Industry	W. M. Ritchie	1961	618–622
Provincial Government Wildlife Conservation Measures	—	1963–64	46–52
Geology—			
Geology in Relation to Agriculture	Wyatt Malcolm	1921	68–72
Geology and Economic Minerals	George Hanson	1942	3–14
The Geological Survey of Canada	J. M. Harrison	1960	13–19
Geology of Canada	A. H. Lang	1961	1–14
Health and Welfare—			
Development of Public Health, Welfare and Social Security in Canada	G. F. Davidson	1952–53	224–229
*Mental Health and Tuberculosis	B. R. Blishen and C. A. Roberts	1956	248–257
Poliomyelitis Vaccine	—	1956	258–260
Hospital Services and Hospital Insurance in Canada	—	1960	281–290
*Federal Food and Drug Legislation in Canada	C. A. Morrell	1961	242–248
Social Welfare Expenditures in Canada	J. W. Willard	1962	217–222
History—			
*Canadian Chronology, 1497–1960	—	1951–60	...
Insurance—			
Fire and Casualty Insurance	G. D. Finlayson	1942	842–846
Insurance in Canada during the Depression and War Periods	G. D. Finlayson	1947	1064–1074
Life Insurance	Richard Humphreys	1963–64	1071–1077
Labour—			
*History of the Labour Movement in Canada	Eugene Forsey	1957–58	795–802
Recent Developments in Public Technical and Vocational Education in Canada	Phillip Cohen	1963–64	737–743
Manufactures—			
Changes in Canadian Manufacturing Production from Peace to War, 1939–44	—	1945	364–381
Steel in Canada	E. Westbrook and F. M. Pelletier	1959	618–625
Canadian Metallurgical Development	John Convey	1961	513–522
Manufacturing Production during the Period 1945–59	A. Cohen	1962	600–609
The Petrochemical Industry in Canada	G. E. McCormack	1962	609–615
*Secondary Manufacturing in Canada	W. L. Posthumus	1963–64	637–643
Mining—			
Mining—A Historical Sketch	—	1939	309–310
Geology and Economic Minerals	George Hanson	1942	3–14
Government Control of Non-ferrous Metals and Fuels in Wartime	—	1942	279–282

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Mining—concluded			
The Coal Deposits and Coal Resources of Canada	B. R. MacKay	1946	337–347
Post-War Expansion in Canada's Mineral Industry	G. H. Murray and Mrs. M. J. Giroux	1952–53	476–495
Canadian Crude Petroleum Situation	G. S. Hume	1952–53	524–527
		1954	540–544
History of Pipeline Construction in Canada	G. S. Hume	1954	861–869
Canadian Metallurgical Development	John Convey	1961	513–522
Physiography and Related Sciences—			
Physical Geography of the Canadian Eastern Arctic	R. A. Gibson	1945	12–19
The Relation of Hydrography to Navigation and the War Record of the Hydrographic and Map Service	F. C. G. Smith	1946	14–18
Hydrographical Features	F. C. G. Smith	1947	3–12
Physical Geography of the Canadian Western Arctic	R. A. Gibson	1948–49	9–18
The Contribution to Science made by the Dominion Astrophysical Observatory	J. A. Pearce	1948–49	63–71
The Northland—Canada's Challenge	—	1955	22–32
The International Geophysical Year	D. C. Rose	1959	54–57
The Geological Survey of Canada	J. M. Harrison	1960	13–19
Geology of Canada	A. H. Lang	1961	1–14
The Drainage Basins of Canada	—	1961	16–18
Economic Regions of Canada	N. L. Nicholson	1962	17–23
*Main Physical and Economic Features of the Provinces and Territories	—	1963–64	4–20
Geophysics	G. S. Garland	1963–64	57–60
Population—			
Occupational Trends in Canada, 1891–1931	A. H. LeNeveu	1939	774–778
The Indians of Canada	—	1951	1125–1132
*Developments in Canadian Immigration	—	1957–58	154–176
Integration of Postwar Immigrants	—	1959	176–178
*Native Peoples of Canada	—	1960	201–210
Power Resources—			
The St. Lawrence Power Project	—	1955	549–553
Research—			
Astronomy in Canada	C. S. Beals, J. F. Heard, A. E. Covington	1956	49–55
*The International Geophysical Year	D. C. Rose	1957–58	35–38
The Fisheries Research Board	J. L. Kask	1959	584–588
Geophysics	G. S. Garland	1963–64	57–60
*The Fisheries Research Board of Canada	—	1963–64	612–614
*Research in the Atomic Energy Field	W. B. Lewis	1963–64	368–373
Trade, Domestic—			
Wartime Controls Affecting Distribution and Trade, 1945–46	—	1946	574–578
The Board of Grain Commissioners	W. J. MacLeod	1960	957–958
The Canadian Wheat Board and its Role in Grain Marketing	C. B. Davidson	1960	958–960
Trade, Foreign—			
Canadian Merchandise Exports and Imports in 1962–63	G. S. Watts	1963–64	907–911

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Transportation—			
The Development of Aviation in Canada	J. A. WILSON	1938	710–712
Pre-War Civil Aviation and the Defence Program	J. A. WILSON	1941	608–612
Wartime Control of Transportation	—	1943–44	567–575
The Wartime Role of the Steam Railways of Canada	C. P. EDWARDS	1945	648–651
International Civil Aviation Organization and Canada's Participation Therein	C. S. BOOTH	1952–53	820–827
Canals of the St. Lawrence Waterway	—	1954	830–833
*History of the Canadian National Railways	—	1955	840–851
The St. Lawrence Seaway	—	1955	885–888
Traffic on the Great Lakes St. Lawrence Seaway	—	1956	821–829
The St. Lawrence Seaway in Operation	S. JUDEK	1960	851–860
Revolution in Canadian Transportation	A. W. CURRIE	1962	753–758

PART III.—REGISTER OF OFFICIAL APPOINTMENTS*

The following list includes official appointments for the period Nov. 16, 1963 to Dec. 15, 1964, continuing the list published in the 1963-64 Year Book at pp. 1164-1171. Appointments to the Governor General's staff, judicial appointments other than those to the Exchequer Court of Canada, and appointments of limited or local importance are not included.

Queen's Privy Council for Canada.—1964. *Feb. 3,* Hon. George James McIlraith, Ottawa, Ont.: to be President. John Joseph Connolly, Ottawa, Ont.; Maurice Sauvé, Outremont, Que.; and Yvon Dupuis, St. Jean, Que.: to be members. *June 25,* George Stanley White, Madoc, Ont.; Major James William Coldwell, Ottawa, Ont.; and Henry Duncan Graham Crerar, Rockcliffe Park, Ont.: to be members. *June 29,* Edgar John Benson, Kingston, Ont.: to be a member.

Cabinet Appointments.—1964. *Feb. 3,* Hon. John Whitney Pickersgill: to be Minister of Transport. Hon. Maurice Lamontagne: to be Secretary of State of Canada. Hon. Guy Favreau: to be Minister of Justice and Attorney General. Hon. John Robert Nicholson: to be Postmaster General. Hon. René Tremblay: to be Minister of Citizenship and Immigration. Hon. John Joseph Connolly: to be a member of the Administration. Hon. Maurice Sauvé: to be Minister of Forestry. Hon. Yvon Dupuis: to be a member of the Administration. *June 29,* Hon. Edgar John Benson: to be Minister of National Revenue.

Senate Appointments.—1964. *Feb. 14,* Daniel A. Lang, Toronto, Ont.: to be a Senator for the Province of Ontario. Nelson Rattenbury, Saint John, N.B.: to be a Senator for the Province of New Brunswick. Eric Cook, St. John's, Nfld.: to be a Senator for the Province of Newfoundland. Hon. Azellus Denis, Montreal, Que.: to be a Senator for the Province of Quebec. *Nov. 9,* John Black Aird, Toronto, Ont.: to be a Senator for the Province of Ontario.

* Extracts from the *Canada Gazette*, with some additions. All academic and honorary degrees and military honours omitted.

Exchequer Court of Canada.—1964. *Apr. 23*, Wilbur Roy Jackett, Montreal, Que.: to be President from May 4, 1964. Hon. Hugh F. Gibson, Kingston, Ont.: to be a Puisne Judge from May 4, 1964. *June 30*, A. A. M. Walsh: to be a Puisne Judge from July 1, 1964.

Parliamentary Secretaries.—1964. *Feb. 17*, Guy Rouleau: to the Prime Minister. *Feb. 20*, Hubert Badanai: to the Minister of Citizenship and Immigration. Bruce S. Beer: to the Minister of Agriculture and the Minister of Forestry, jointly. Alexis Caron: to the Postmaster General. Stanley Haidasz: to the Secretary of State for External Affairs. G. Roy McWilliam: to the Minister of Public Works. John C. Munro: to the Minister of National Health and Welfare. John B. Stewart: to the Secretary of State of Canada. *June 29*, Lawrence T. Pennell: to the Minister of Finance.

Deputy Ministers.—1964. *May 7*, Marcel Cadieux, Ottawa, Ont.: to be Under Secretary of State for External Affairs, *vice* Norman A. Robertson, resigned. Granville George Ernest Steele, Ottawa, Ont.: to be Under Secretary of State from May 15, 1964, *vice* Jean Miquelon, resigned. Jean Miquelon: to continue as Deputy Registrar General of Canada from May 15, 1964. *July 3*, Jack Hamilton Warren, Ottawa, Ont.: to be Deputy Minister of Trade and Commerce from Sept. 1, 1964, *vice* James Alan Roberts, resigned. Sol Simon Reisman, Ottawa, Ont.: to be Deputy Minister of Industry, *vice* D. A. Golden, resigned. *Sept. 28*, Richard Humphrys: to be Superintendent of Insurance, *vice* K. R. MacGregor, resigned.

Diplomatic Appointments.—1964. The following diplomatic appointments were announced during the year. Hon. Milton F. Gregg: to be Commissioner for Canada to British Guiana. Donald Wallace Munroe: to be Commissioner for Canada on the International Commission for Supervision and Control in Laos. Lionel Chevrier: to be High Commissioner of Canada to Britain. Léon Mayrand: to be Canadian Ambassador to Cuba and concurrently Canadian Ambassador to Haiti. Ralph Edgar Collins: to be Canadian Ambassador to South Africa. George Kinnear Grande: to be High Commissioner for Canada to Ceylon. Jules Léger: to be Canadian Ambassador to France. Gordon Gale Crean: to be Canadian Ambassador to Italy. Herbert Frederick Brooks-Hill Feaver: to be Canadian Ambassador to Mexico and Guatemala. Ronald Macalister Macdonnell: to be Canadian Ambassador to Indonesia. Norman Frederick Henderson Berlis, High Commissioner for Canada to Tanganyika and Uganda: to be concurrently High Commissioner for Canada to Kenya. James Blair Seaborn: to be Canadian Commissioner on the International Supervisory Commission for Viet Nam. Jean-Louis Delisle: to be Canadian Ambassador to Turkey. Jean Bruchési: to be Canadian Ambassador to Argentina and concurrently Canadian Ambassador to Paraguay and Uruguay. John Ryerson Maybee: to be Canadian Ambassador to Lebanon. Benjamin Rogers: to be Canadian Ambassador to Spain and concurrently Canadian Ambassador to Morocco. John Peter Sigvaldason: to be Canadian Ambassador to Norway and concurrently Canadian Ambassador to Iceland. Malcolm Norman Bow: to be Canadian Ambassador to Czechoslovakia. Harry Havilland Carter: to be Canadian Ambassador to Finland. René Garneau: to be Canadian Ambassador to Switzerland and concurrently to Tunisia. Ormond Wilson Dier: to be Canadian Ambassador to Colombia and concurrently to Ecuador. Ross Campbell: to be Canadian Ambassador to Yugoslavia. J. H. Cleveland: to be High Commissioner for Canada to Nigeria. Hon. Roland Michener: to be High Commissioner for Canada to India. Bruce Irving Rankin: to be Canadian Ambassador to Venezuela and concurrently to the Dominican Republic. William George Marcel Olivier: to be Canadian Ambassador to Costa Rica and concurrently to Panama, Nicaragua, Honduras and El Salvador.

National Defence Appointments.—1964. *Aug. 1*, Frank R. Miller: to be Chief of Defence Staff in the rank of Air Chief Marshal. Lieutenant-General G. Walsh: to be Vice-Chief of Defence Staff. Air Vice-Marshal W. W. Bean: to be Assistant Chief of Defence Staff. Lieutenant-General J. V. Allard: to be Chief of Operational Readiness. Vice-

Admiral K. L. Dyer: to be Chief of Personnel. Air Marshal C. L. Annis: to be Chief of Logistics and Engineering. Lieutenant-General R. W. Moncel: to be Comptroller General.

Government Appointments to Miscellaneous Boards, Commissions, etc.

Agricultural Stabilization Board.—1964. *Feb. 28*, S. C. Hudson, Director General, Economics Division, Department of Agriculture, Ottawa, Ont.: to be a member, *vice* A. H. Turner.

Army Benevolent Fund Board.—1964. *July 9*, J.-G. Gauvreau: to be again a member and Chairman for a term of four years. I. S. Johnston: to be again a member for a term of four years from Dec. 14, 1964.

Atlantic Development Board.—1963. *Dec. 17*, Frank H. Sobey, Stellarton, N.S.; Melvin J. McQuaid, Souris, P.E.I.; Fred Ayre, St. John's, Nfld.; and Armand Cormier, Moncton, N.B.: to be again members for a term of three years from Jan. 24, 1964.

Atomic Energy Control Board.—1964. *Apr. 14*, Henri Gaudefroy: to be a member for a term ending Mar. 31, 1967.

Board of Broadcast Governors.—1963. *Dec. 6*, Joseph F. Brown, Vancouver, B.C.; Jean-Paul Lefebvre, Montreal, Que.; Mrs. A. (Lorraine) Sweatman, Winnipeg, Man.; T. J. Watson, Fredericton, N.B.; Fred G. Holmes, Riverside, Ont.; and William Joseph Woodfine, Antigonish, N.S.: to be part-time members for a period of five years from Dec. 6, 1963.

Canada Council.—1964. *May 14*, Jean Martineau, Montreal, Que.: to be Chairman; and J. F. Leddy, Saskatoon, Sask.: to be Vice-Chairman, *vice* Gérard Filion, resigned, each for five years from May 18, 1964. *May 28*, Douglas V. LePan, Kingston, Ont.; Miss Kathleen M. Richardson, Winnipeg, Man.; and Mrs. Annette Lasalle-Leduc, Montreal, Que.: to be members for a term of three years from May 28, 1964. *Nov. 12*, Napoléon Leblanc, Quebec, Que.: to be a member for a period of three years.

Canada Labour Relations Board.—1964. *Jan. 30*, A. H. Brown, Ottawa, Ont., Vice-Chairman: to be Chairman and member, *vice* C. Rhodes Smith, resigned.

Canadian Commercial Corporation.—1964. *Mar. 26*, Ralph MacDonald Trites, Director, International Programs Branch, Department of Defence Production: to be a Director.

Canadian Corporation for the 1967 World Exhibition.—1964. *Feb. 13*, Guy Roberge, Outremont, Que.: to be a Director. *Apr. 14*, Harry Leslie Brown: to be Commissioner General from Dec. 1, 1963. *May 12*, Jean Drapeau, Mayor of the City of Montreal, Que.: to be confirmed a Director. Robert A. Kramer, Regina, Sask.; and O. M. Solandt, Toronto, Ont.: to be Directors.

Canadian Maritime Commission.—1964. *July 23*, Alexander Watson, Ottawa, Ont.: to be again a member and to be Chairman from Aug. 1, 1964.

Canadian National Railways.—1964. *Oct. 8*, François Nobert, Trois-Rivières, Que.; Clifford Curtis, Kingston, Ont.; William Gilbert Weir, Winnipeg, Man.; and Norman P. Dryden, Moncton, N.B.: to be Directors for a term ending Sept. 30, 1967. Bernard Tailleur, Montreal, Que.; and David Anderson, Toronto, Ont.: to be Directors for a term ending Sept. 30, 1966. Walter C. Koerner, Vancouver, B.C.: to be again a Director for a term ending Sept. 30, 1966. Jean-Louis Lévesque, Montreal, Que.; and Robert A. Brown, Calgary, Alta.: to be again Directors for a term ending Sept. 30, 1965. *Oct. 29*, Harris Huston, Rossburn, Man.: to be a Director for a term ending Sept. 30, 1967, *vice* William Gilbert Weir.

Canadian Overseas Telecommunication Corporation.—1964. *Jan. 9*, Reginald McLaren Brophy, Toronto, Ont.; and Roland G. Lefrançois, Montreal, Que.: to be Directors for three years from Dec. 27, 1963. *Mar. 16*, Harold Husband, Victoria, B.C.: to be a Director for three years from Mar. 15, 1964, *vice* Gerald E. Martin.

Canadian Pension Commission.—1963. *May 30*, Joseph-René Painchaud,* Ottawa, Ont.: to be a Commissioner for ten years from June 17, 1963. **1964.** *May 21*, Norman Loris Pickersgill, Ottawa, Ont.: to be an *ad hoc* member for one year from July 1, 1964. *Aug. 6*, James Anderson Forrester: to be an *ad hoc* member for one year from Oct. 1, 1964. *Aug. 13*, John Murray Forman: to be a member for a period of ten years from Feb. 1, 1965. *Dec. 3*, William Andrew Gilmour, Penticton, B.C.: to be an *ad hoc* member for a period of one year, effective Jan. 1, 1965.

Canadian Wheat Board.†—1964. *June 11*, Garson Nathaniel Vogel, Winnipeg, Man.: to be a Commissioner from Sept. 1, 1964.

Central Mortgage and Housing Corporation.—1964. *June 30*, Herbert W. Hignett, Ottawa, Ont.: to be President; and Jean P. Lupien, Montreal, Que.: to be Vice-President, each for a term of seven years from July 1, 1964.

Columbia River Permanent Engineering Board.—1964. *Oct. 29*, Gordon M. MacNabb, Senior Hydraulic Engineer, Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa, Ont.; and Arthur F. Paget, Deputy Minister of Water Resources in the Department of Lands, Forests and Water Resources, Government of the Province of British Columbia, Victoria, B.C.: to be members, Mr. MacNabb to be Chairman of the Canadian Section.

Copyright Appeal Board.—1964. *July 9*, Hon. Arthur L. Thurlow, a Puisne Judge of the Exchequer Court of Canada: to be Chairman, *vice* Hon. Joseph Thorarian Thorson, resigned.

Defence Research Board.—1964. *Mar. 5*, Louis-Philippe Bonneau, Quebec, Que.: to be a member for a further term of three years from Apr. 1, 1964. *July 23*, George Sidney Field, Defence Scientific Service Officer: to be Vice-Chairman from Sept. 1, 1964.

Dominion Council of Health.—1964. *May 27*, Joseph Morris, Ottawa, Ont.: to be a member for a term of three years.

Economic Council of Canada.—1963. *Dec. 23*, W. J. Bennett, Vice-President and Director, Iron Ore Co. of Canada, Montreal, Que. (4 years); Roger Charbonneau, Director, École des Hautes Études Commerciales, Montreal, Que. (2 years); Philip A. Chester, Director, Continental Oil Co., Winnipeg, Man. (2 years); François E. Cleyn, President, Cleyn and Tinker Ltd., Huntingdon, Que. (2 years); Joseph-A. Courteau, General Manager, Coopérative Fédérée de Québec, Montreal, Que. (3 years); H. George De Young, President, Rio Algom Mines Ltd., and Atlas Steels Co. Ltd., Welland, Ont. (4 years); Yves Dubé, Director, Department of Economics, Faculty of Social Sciences, Laval University, Quebec, Que. (4 years); J. B. Estey, President, Fisheries Council of Canada, Loggieville, N.B. (3 years); Robert M. Fowler, President, Canadian Pulp and Paper Association, Montreal, Que. (4 years); A. R. Gibbons, Secretary, The National Legislative Committee, International Railway Brotherhood, Ottawa, Ont. (3 years); Fernand Girouard, Vice-President, Volcano Ltée., Montreal, Que. (3 years); A. P. Gleave, President, National Farmers' Union, Saskatoon, Sask. (2 years); Claude Jodoin, President, Canadian Labour Congress, Ottawa, Ont. (4 years); David L. Kirk, Secretary-Treasurer, Canadian Federation of Agriculture, Ottawa, Ont. (4 years); Walter C. Koerner, Chairman, Rayonnier Canada Ltd., Vancouver,

*Omitted from 1963-64 Year Book.

†Joseph-René Painchaud, Ottawa, Ont., was erroneously indicated in the 1963-64 Year Book as appointed to the Canadian Wheat Board.

B.C. (2 years); W. Ladyman, International Vice-President, International Brotherhood of Electrical Workers, Toronto, Ont. (2 years); Stanley A. Little, National President, Canadian Union of Public Employees, Ottawa, Ont. (2 years); Ian M. MacKeigan, Chairman, Atlantic Development Board, Halifax, N.S. (4 years); Maxwell W. Mackenzie, Chairman of Board, Chemcell (1963) Ltd., Montreal, Que. (4 years); William Mahoney, National Director for Canada, United Steelworkers of America, Toronto, Ont. (4 years); Hugh A. Martin, President, Marwell Construction Ltd., Vancouver, B.C. (3 years); Marcel Pépin, Secretary-General, Confédération des Syndicats Nationaux, Montreal, Que. (3 years); Mrs. A. F. W. Plumptre, National President, Consumers' Association of Canada, Ottawa, Ont. (2 years); William O. Twaits, President, Imperial Oil Ltd., Toronto, Ont. (3 years); Francis G. Winspear, Senior Partner, Winspear, Hamilton, Anderson and Co., Winspear, Higgins, Stevenson and Doane, C.A.s, Edmonton, Alta. (2 years): each to be a member for the term set following his name.

Farm Credit Corporation.—1963. *Dec. 9,* George Owen: to be a member for a term ending Dec. 8, 1966. William Harvey Ozard, District Superintendent, Veterans Land Administration, Province of British Columbia: to be a member and Vice-Chairman for a term of three years. Stanislas-J. Chagnon, Associate Deputy Minister of Agriculture: to be a member for a term from Dec. 9, 1963 to Apr. 5, 1964, *vice* Lucien Lalonde, Deputy Minister of Public Works. **1964.** *Feb. 13,* Edward Nelson, Edmonton, Alta.; A. P. Gleave, Saskatoon, Sask.; G. R. McLaughlin, Beaverton, Ont.; A. Lamoureux, St. Denis sur Richelieu, Que.; and Smith MacFarlane, Harrington, P.E.I.: to be members. C. E. S. Walls, Victoria, B.C.; G. W. Greer, Ottawa, Ont.; J. Patterson, Winnipeg, Man.; C. E. Dahms, Huntingdon, Que.; and J. M. Johnson, New Glasgow, N.S.: to be again members. *Apr. 6,* A. Sinclair Abell, Alexander T. Davidson and Stanislas-J. Chagnon: to be members for a term of one year from Apr. 5, 1964. *Oct. 15,* Ernest A. Oestreicher, Director, Resources and Development, Department of Finance: to be a member, to hold office to Apr. 5, 1965, *vice* A. Sinclair Abell.

Fisheries Prices Support Board.—1964. *May 1,* Kenneth F. Harding, Prince Rupert, B.C., a member: to be Vice-Chairman, *vice* W. Stanley Lee, deceased.

Fisheries Research Board of Canada.—1964. *Feb. 13,* Frederick Ronald Hayes, Halifax, N.S.: to be Chairman from Aug. 1, 1964.

Great Lakes Fishery Commission.—1963. *Nov. 14,* Arthur Owen Blackhurst, Port Dover, Ont.: to be again a Commissioner for Canada for a further period ending Dec. 1, 1965. **1964.** *Nov. 19,* John Richardson Dymond, Toronto, Ont.: to be a Commissioner for Canada for a further period of one year.

Historic Sites and Monuments Board of Canada.—1963. *Dec. 12,* Jean-Jacques Lefebvre, Archivist, Montreal, Que.: to be a member for a period of five years. **1964.** *Apr. 23,* Marcel Trudel, Quebec, Que.: to be again a member for a term ending Mar. 31, 1969. *July 3,* Allan R. Turner, Regina, Sask.: to be a member for a period ending June 30, 1967.

International North Pacific Fisheries Commission.—1964. *June 25,* Donovan Francis Miller, Vancouver, B.C.: to be a member for a period of two years from Aug. 21, 1964.

International Pacific Halibut Commission.—1963. *Dec. 21,* Richard Nelson, Vancouver, B.C.: to be a member for a term ending Oct. 31, 1964; and Martin K. Erikson, Prince Rupert, B.C.: to be a member for a term ending Oct. 31, 1965. **1964.** *Nov. 19,* Francis W. Millerd, Vancouver, B.C.: to be a member for a term ending Oct. 31, 1966.

International Whaling Commission.—1964. *May 14,* Robert Reed Logie, an employee of the Department of Fisheries at Halifax, N.S.: to be alternate to the Canadian member.

Medical Council of Canada.—1964. *Nov. 6*, Robert M. Dysart, Moncton, N.B.; and Richard S. Duggan, St. David's, Ont.: to be members for a term of four years from Nov. 7, 1964. *Dec. 15*, Arthur Maxwell House, St. John's, Nfld.: to be a member for a term of four years, *vice* J. J. Josephson, resigned.

Municipal Development and Loan Board.—1964. *Feb. 6*, J. E. G. Hardy, Assistant Secretary to the Cabinet: to be a member. *June 18*, A. S. Abell, Director of Federal-Provincial Relations Division, Department of Finance: to be a member and Chairman from Aug. 1, 1964, *vice* K. W. Taylor. *Nov. 12*, I. R. Maclennan, Executive Director of Urban Development, Central Mortgage and Housing Corporation: to be a member.

National Advisory Council on Fitness and Amateur Sport.—1964. *Mar. 5*, Earl Nicholson, Charlottetown, P.E.I.; Miss Mary Barker, Ingonish, N.S.; Morris M. Bruker, Montreal, Que.; Robert LeBel, Fort Chambly, Que.; John W. Davies, Montreal, Que.; Paul Hauch, London, Ont.; J. L. Edwards, Kingston, Ont.; Paul H. Traynor, Hamilton, Ont.; Max Avren, Winnipeg, Man.; W. A. R. Orban, Saskatoon, Sask.; M. L. Van Vliet, Edmonton, Alta.; Mrs. May Brown, Vancouver, B.C.; and David Bauer, Vancouver, B.C.: to be members for a term ending Dec. 31, 1965. Marcel de la Sablonnière, Montreal, Que.; and James Worrall, Toronto, Ont.: to be again members for a term ending Dec. 31, 1965. *Aug. 20*, John E. Merriman, Saskatoon, Sask.: to be a member, *vice* J. H. Ebbs, resigned.

National Capital Commission.—1964. *Feb. 13*, Mrs. Margaret Norrie, Truro, N.S.; and Lucien Sarra-Bournet, Hull, Que.: to be members for a term ending Feb. 6, 1968. *Apr. 16*, D'Arcy Audet, Hull, Que.: to be a member for a term ending Feb. 6, 1968. *Apr. 23*, Howard Kennedy, Rockcliffe Park, Ont.: to be a member for a term ending Feb. 6, 1968, *vice* A. E. "Lon" Campbell, resigned. *Sept. 3*, Auguste Martineau, Ottawa, Ont.: to be a member for the period ending Feb. 5, 1968, *vice* R. D. Chenier, Rockcliffe Park, Ont.. resigned.

National Film Board.—1964. *Feb. 3*, John C. Parkin, Toronto, Ont.: to be a member for the remainder of the term of Charles S. Band, resigned, i.e., to Oct. 18, 1966.

National Library Advisory Council.—1964. *Jan. 10*, Paul-Émile Filion, Sudbury, Ont.; Morley M. Bell, Summerside, P.E.I.; and Mrs. Evelyn Wood, Brandon, Man.: to be members for a term of four years ending Dec. 31, 1967.

National Research Council.—1964. *Jan. 1*, Kenneth F. Tupper: to be Vice-President (Scientific). *Mar. 19*, H. E. Duckworth, Hamilton, Ont.; R. F. Farquharson, Toronto, Ont.; William H. Gauvin, Pointe Claire, Que.; H. E. Gunning, Edmonton, Alta.; Claude Jodoin, Ottawa, Ont.; D. J. LeRoy, Toronto, Ont.; H. Rocke Robertson, Montreal, Que.; and H. H. Saunderson, Winnipeg, Man.: to be members for a term of three years from Apr. 1, 1964.

National Technical and Vocational Training Advisory Council.—1964. *Mar. 19*, G. Fred McNally, Edmonton, Alta.: to be again a member for a period beginning Feb. 24, 1964 and ending Mar. 31, 1965, and to be Chairman.

Representation Commissioner.—1963. *Dec. 23*, Nelson Castonguay, Chief Electoral Officer: to be Representation Commissioner.

Roosevelt Campobello International Park Commission.—1964. *Aug. 13*, D. Leo Dolan, Ottawa, Ont.; Murray Johnston, Welshpool, Campobello Island, N.B.; and Robert A. Tweedie, Fredericton, N.B. (nominated by the Government of New Brunswick): to be members.

Tax Appeal Board.—1963. *Dec. 21*, Wilfrid Orlando Davis, Ottawa, Ont.: to be a member for a period of ten years from Jan. 1, 1964. **1964.** *Jan. 23*, Cecil L. Snyder, Ottawa, Ont.: to be again Chairman for a period of five years from Feb. 1, 1964.

Treasury Board.—1964. *May 15*, George F. Davidson: to be Secretary.

Unemployment Insurance Commission.—1964. *June 22*, Thomas Brigham Ward, Ottawa, Ont.: to be a Commissioner for a period of five years.

War Veterans Allowance Board.—1964. *Aug. 6*, Charles Henry Rennie, formerly of Victoria, B.C.: to be again a temporary member for a further period of one year from Oct. 2, 1964.

PART IV.—FEDERAL LEGISLATION, 1963-64

Legislation passed in the first and second sessions of the Twenty-Sixth Parliament is outlined below. Naturally in summarizing material of this kind it is not always possible to convey the full implication of the legislation. The reader who is interested in any specific Act is therefore referred to the *Statutes of Canada* in the given volume and chapter.

Legislation of the First Session of the Twenty-Sixth Parliament, May 16 to Dec. 21, 1963

Subject, Chapter and Date of Assent	Synopsis
12 ELIZ. II	
Finance—	
1 June 5	*Appropriation Act No. 1, 1963* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
2 July 22	*Special Appropriation Act, 1963* approves certain expenditures authorized for the public service and the application of certain amounts in the accounts for the financial year ended Mar. 31, 1963.
9 Aug. 2	*Appropriation Act No. 2, 1963* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
15 Oct. 8	*Appropriation Act No. 3, 1963* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
17 Oct. 18	*The Maritime Transportation Unions Trustees Act* provides for the placing of the Maritime Transportation Unions of Canada under the management and control of trustees.
20 Dec. 5	*Appropriation Act No. 4, 1963* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
27 Dec. 12	*An Act to amend the Quebec Savings Banks Act* makes certain amendments respecting qualifications of directors.
34 Dec. 21	*An Act to amend the Currency, Mint and Exchange Fund Act* authorizes the Minister of Finance to purchase, out of the Exchange Fund Account, securities of the International Monetary Fund in order that Canada may participate in arrangements to enable the Fund to supplement its resources by borrowings from member countries.
38 Dec. 21	*An Act to repeal the Newfoundland Savings Bank Act, 1939;* on Mar. 31, 1962, the Bank of Montreal acquired all the active deposit accounts and the real and personal property of the Newfoundland Savings Bank.
42 Dec. 21	*Appropriation Act No. 5, 1963* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964 (Main Supply Bill).
Government—	
3 July 22	*The Department of Industry Act* establishes a new Department of Industry presided over by a Minister whose duties, powers and functions shall extend to and include all matters relating to the manufacturing industries in Canada over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada.

Legislation of the First Session of the Twenty-Sixth Parliament, May 16 to Dec. 21, 1963—continued

Subject, Chapter and Date of Assent	Synopsis
Government—concl.	
5 July 31	*An Act to amend the Atlantic Development Board Act* increases the Board membership from five to eleven, directs the Board to conduct certain of its functions in consultation with the Economic Council of Canada and establishes an Atlantic Development Fund to finance programs or projects undertaken.
11 Aug. 2	*The Economic Council of Canada Act* provides for the establishment of an Economic Council of Canada to advise and recommend how Canada can achieve the highest possible levels of employment and efficient production in order that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards.
13 Aug. 2	*The Municipal Development and Loan Act* provides for the establishment of a Municipal Development and Loan Board which has the function of promoting increased employment in Canada by financial assistance by way of loans to municipalities to enable municipalities to augment or accelerate municipal capital works programs.
14 Aug. 2	*An Act to amend the Senate and House of Commons Act and the Members of Parliament Retiring Allowances Act* increases the sessional allowances of members of the Senate and House of Commons from $8,000 to $12,000, provides for the payment of an additional allowance of $4,000 to Party Leaders, the Chief Government Whip and the Chief Opposition Whip, and makes other changes in respect of expense and retirement allowances.
40 Dec. 21	*The Representation Commissioner Act* establishes the office of Representation Commissioner and effects certain consequential amendments to the Canada Elections Act.
41 Dec. 21	*An Act to amend the Canada Grain Act, the Financial Administration Act, the Income Tax Act, the International Boundary Waters Treaty Act, the National Energy Board Act, the Railway Act, the Salaries Act and the Tariff Board Act with respect to the salaries of certain public officials.*
Revenue—	
7 July 31	*An Act to amend the Customs Tariff* implements the Budget resolution relating to the Customs Tariff.
12 Aug. 2	*An Act to amend the Excise Tax Act* implements the Budget resolution relating to the Excise Tax Act.
18 Nov. 7	*An Act respecting an Order of His Excellency the Governor in Council entitled the Surcharge on Imports Order, and to restore certain rates of Customs duties and tariff benefits expressed to be withdrawn thereby.*
21 Dec. 5	*An Act to amend the Income Tax Act* makes a number of refinements in the Act and effects other changes of a technical nature.
35 Dec. 12	*An Act to amend the Customs Tariff* makes several changes to tariff items.
Transportation—	
23 Dec. 12	*An Act respecting the appointment of Auditors for National Railways.*
28 Dec. 12	*An Act to amend the Railway Act* relates to speed limits in thickly peopled and other areas.
29 Dec. 12	*An Act to amend the St. Lawrence Seaway Authority Act* increases the borrowing power of the Authority to permit the acquisition of funds for the twinning project of the Welland Canal Locks and the discharge of outstanding liabilities in connection with the Victoria Bridge diversion.
31 Dec. 21	*The Canadian National Railways Financing and Guarantee Act, 1962-1963* provides money to meet certain capital expenditures of the CN system for the period Jan. 1, 1962 to June 30, 1964, and authorizes the guarantee of certain securities to be issued by the Canadian National Railway Company.
33 Dec. 21	*An Act to amend the Carriage by Air Act* enables effect to be given, in so far as Canada is concerned, to the provisions of the Protocol to the Warsaw Convention, signed Sept. 28, 1955, upon its ratification on behalf of Canada and its coming into force. The Protocol provides for an increase in the limit of liability for loss of life or injury to a passenger and removes certain unsatisfactory requirements with respect to carriage documents.

Legislation of the First Session of the Twenty-Sixth Parliament, May 16 to Dec. 21, 1963—concluded

Subject, Chapter and Date of Assent	Synopsis
Transportation—concluded	
37 Dec. 21	*An Act to amend the National Harbours Board Act* changes, in the English version of the Act, the words "Three Rivers" wherever they appear to "Trois-Rivières".
39 Dec. 21	*An Act to approve an Agreement between the Government of Canada and the Government of the Province of Ontario respecting Public Harbours;* the Agreement defines which harbours in Ontario shall be considered to be the property of Canada and what the limits of these harbours shall be.
Welfare—	
16 Oct. 16	*An Act to amend the Old Age Security Act* increases the pension paid under the Act from $65 a month to $75 a month, effective Oct. 1, 1963, and increases the rate of the Old Age Security tax.
26 Dec. 12	*An Act to amend the Old Age Assistance Act, the Disabled Persons Act and the Blind Persons Act* increases to $75 a month the maximum amount of assistance payable under these Acts and increases the permissible income limits.
Miscellaneous—	
4 June 5	*An Act to amend the Export and Import Permits Act* extends the duration of the Act for a further period of three years to July 31, 1966.
6 July 31	*An Act to authorize the Construction and Maintenance of a Bridge and Tunnel across the St. Lawrence River at the Boucherville Islands, in the Province of Quebec.*
8 July 31	*An Act to amend the Judges Act and the Criminal Code* increases the salaries of the Chief Justice of Canada, the puisne judges of the Supreme Court of Canada, the President of the Exchequer Court, the puisne judges of the Exchequer Court, the Chief Justice and other judges of the Supreme Court of Ontario, the Chief Justices and other judges of the superior courts of the provinces, the judges of the Territorial Courts of the Yukon Territory and the Northwest Territories and the judges of the county and district courts of the provinces. Provision is also made for the salaries for fourteen additional judges.
10 Aug. 2	*The Dissolution and Annulment of Marriages Act* authorizes the Senate of Canada to dissolve or annul marriages.
19 Dec. 5	*An Act to amend the Admiralty Act* authorizes the payment of salaries to Surrogate Judges and Registrars in lieu of the previous arrangement whereby the holders of these offices were paid from the fees paid in respect of proceedings taken before them.
22 Dec. 5	*An Act to amend the Technical and Vocational Training Assistance Act* increases the maximum federal contribution to provincial costs incurred in providing training allowances for unemployed persons to 90 p.c.; increases the federal contribution to a province for a training-in-industry program to 75 p.c.; and extends the period during which federal contributions to training-facility expenditures may be made.
24 Dec. 12	*An Act to amend the Canadian Overseas Telecommunication Corporation Act* extends the co-ordination of Canada's external telecommunication services to include that with nations outside the Commonwealth, provides for the addition to two directors and makes other administrative changes.
25 Dec. 12	*An Act to amend the Emergency Gold Mining Assistance Act* restricts the application of the Act, in the case of lode gold mines that do not start production until after June 1965, to those mines that provide direct support to existing gold mining communities, and extends the application of the Act to 1967.
30 Dec. 12	*An Act to amend the Small Businesses Loans Act* extends until Dec. 31, 1966 the time during which guaranteed business improvement loans may be made, and makes other administrative changes.
32 Dec. 21	*The Canadian Corporation for the 1967 World Exhibition Act* amends the Canadian World Exhibition Corporation Act by changing the name of the Corporation, increasing the number of directors from 12 to 14, and making other administrative revisions.
36 Dec. 21	*The Centennial of Canadian Confederation Act* amends the National Centennial Act by changing the short title and other names previously designated, by increasing the number of directors from eight to 12 and making other administrative revisions.

Legislation of the Second Session of the Twenty-Sixth Parliament, Feb. 18 to Dec. 18, 1964

Subject, Chapter and Date of Assent	Synopsis
13 ELIZ. II	
Agriculture—	
12 June 18	*An Act to amend the Farm Credit Act* increases the capital of the Farm Credit Corporation permitting it to borrow up to $600,000,000 rather than $400,000,000 from the Consolidated Revenue Fund; the amendment also increases the limits on borrowing for a single farming enterprise under Parts II and III of the Act, permits an advance in the interest rates on the increased portion, and permits repayment to be amortized over the entire term of the loan rather than requiring greater repayments to be made during the first ten years.
28 Oct. 15	*An Act to amend the Crop Insurance Act* authorizes the establishment of a crop reinsurance plan whereby those provinces operating a crop insurance plan may, if they so desire, reinsure part of their risks under such plan.
29 Oct. 15	*The Farm Machinery Syndicates Credit Act* provides for the extension of credit to farm machinery syndicates.
Finance—	
1 Mar. 30	*Appropriation Act No. 1, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
3 Apr. 3	*Appropriation Act No. 3, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
4 Apr. 6	*Appropriation Act No. 2, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
5 Apr. 13	*Appropriation Act No. 4, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
9 May 28	*Appropriation Act No. 5, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
10 June 18	*An Act to amend the Bank Act and the Quebec Savings Banks Act* extends by one year authority to carry on business for the banks to which these Acts apply.
17 June 30	*Appropriation Act No. 6, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
20 July 16	*Appropriation Act No. 7, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
25 Aug. 7	*Appropriation Act No. 8, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
26 Aug. 13	*The Federal-Provincial Fiscal Revision Act, 1964* revises certain fiscal arrangements with the provinces and adjusts fiscal arrangements and taxation provisions consequential upon the provision of youth allowances to parents resident in certain provinces.
30 Nov. 5	*Appropriation Act No. 9, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
34 Dec. 2	*Appropriation Act No. 10, 1964* grants certain sums of money for the public service for the financial year ending Mar. 31, 1965 (Main Supply Bill).
Government—	
31 Nov. 20	*The Electoral Boundaries Readjustment Act* provides for the establishment of Electoral Boundaries Commissions to report upon the readjustment of the representation of the provinces in the House of Commons and provides for the readjustment of such representation in accordance therewith.
Justice—	
14 June 18	*An Act to amend the Judges Act and the Exchequer Court Act* authorizes the appointment of, and the provision of salary for, an additional judge of the Exchequer Court of Canada to perform the duties referred to in the Dissolution and Annulment of Marriages Act (SC 1963, c. 10).
National Defence—	
21 July 16	*An Act to amend the National Defence Act* replaces the Chairman of the Chiefs of Staff Committee and the Chiefs of the Naval Staff, General Staff and Air Staff with an authority to be charged with all the functions, powers and duties of the persons being replaced, to be known as the Chief of the Defence Staff; consequential amendments are made to the portions of the Act concerned.

Legislation of the Second Session of the Twenty-Sixth Parliament, Feb. 18 to Dec. 18, 1964—concluded

Subject, Chapter and Date of Assent	Synopsis
Revenue—	
7 May 21	*An Act to amend the Customs Tariff* implements the Budget resolutions relating to the Customs Tariff.
8 May 21	*An Act to amend the Estate Tax Act* provides that the estate tax will be reduced by 75 p.c. in provinces that levy their own succession duty; raises the limit of funds available to beneficiaries from any one bank to $2,500; and adjusts certain settlements and dispositions in the Province of Quebec.
11 June 18	*The Crown Corporations (Provincial Taxes and Fees) Act* authorizes the payment of certain provincial taxes and fees by Crown corporations.
13 June 18	*An Act to amend the Income Tax Act* contains a number of technical and other revisions including the allowance of a deduction in 1964 to parents of children aged 16 and 17 years and the modification of the definition of a child qualified for family allowance.
Transportation—	
2 Mar. 30	*An Act respecting the Trans-Canada Air Lines Act* changes the name of Trans-Canada Air Lines and Lignés aeriennes Trans-Canada to "Air Canada".
6 May 21	*The Blue Water Bridge Authority Act* authorizes the establishment of a Blue Water Bridge Authority to operate and maintain the Canadian portion of the international bridge connecting Canada and the United States across the St. Clair River.
16 May 19	*The Ste-Foy-St-Nicolas Bridge Act* authorizes the construction and maintenance of a bridge across the St. Lawrence River between the City of Ste-Foy and the municipality of St-Nicolas in the Province of Quebec.
32 May 7	*The Harbour Commissions Act* provides for the establishment of new harbour commissions, defining the limits of the harbour and the authorities having power to appoint the members of a commission; existing harbour commissions may be brought under the standard Act as circumstances warrant.
33 July 22	*An Act to repeal certain Acts of the Province of Newfoundland respecting Harbours and Pilotage.*
Welfare—	
23 July 16	*The Youth Allowances Act* provides for the payment to a parent of a dependent youth aged 16 or 17 years of a monthly allowance of $10.
Miscellaneous—	
15 June 18	*An Act to amend the National Housing Act, 1954*, among other revisions, provides further assistance to provinces and municipalities carrying out urban renewal programs; authorizes loans to provincially or municipally owned agencies for acquiring lands for and constructing public housing projects; increases from $2,000,000,000 to $2,500,000,000 the amount provided for direct loaning by Central Mortgage and Housing Corporation; and increases from $100,000,000 to $150,000,000 the amount of loans for the construction of university housing projects.
18 June 30	*An Act to amend the Export Credits Insurance Act* exempts the Export Credits Insurance Corporation from the obligation of paying income tax; authorizes the insurance against loss of equipment employed in rendering technical services outside Canada; authorizes the Corporation to take on additional insurable business of Canadian exporters; raises the allowable amount of liability of the Corporation under contracts of insurance from $400,000,000 to $600,000,000; and adjusts other financial arrangements.
19 June 30	*The Roosevelt Campobello International Park Commission Act* embodies the necessary Canadian federal legislation required for the joint administration, by international commission, of the Roosevelt Campobello International Park in New Brunswick.
22 July 16	*The Territorial Sea and Fishing Zones Act* establishes, on proclamation, the fishing zones of Canada at 12 miles from the coastline and authorizes the application of the straight base line system to the Canadian coastline.
24 July 28	*The Canada Student Loans Act* facilitates the making of loans to students by guaranteeing bank loans for this purpose of not more than $1,000 to a student in one academic year, and a total of $5,000 to that student over a five-year period.

PART V.—CANADIAN CHRONOLOGY

Events in the general chronology from 1497 to 1866 are given in the 1951 Year Book, pp. 46-49; from 1867 to 1953 in the 1954 Year Book, pp. 1259-1264; and annually from that year on in successive editions. A reprint entitled *Canadian Chronology, 1497-1960* is also available from the Dominion Bureau of Statistics. The following listing covers the period Nov. 1, 1963 to Dec. 31, 1964. References regarding changes in federal and provincial legislatures or ministries are not included but may be found in Chapter II on Constitution and Government or in the Appendix.

1963

November: *Nov. 1*, SIU documents seized by RCMP. *Nov. 5-7*, SIU leader Harold C. Banks and others charged with conspiring to cause bodily harm by assault to Captain H. F. Walsh of Welland, Ont., in 1957. *Nov. 6*, Death of John Wilson McConnell, former President of the Montreal Star. TCA jet airliner with 90 passengers and a crew of seven crashed on take-off from London Airport in fog; no lives lost. *Nov. 7*, Sir Alec Douglas-Home elected Member of British Parliament for Kinross and West Perthshire in a by-election. *Nov. 11-16*, Canada Week Trade Fair in Philadelphia, U.S.A., sponsored by the Dept. of Trade and Commerce; featured, in addition to Canadian products displays, were champion Canadian skaters and an RCN flotilla. *Nov. 13*, Mr. Justice Arthur I. Smith, Montreal, appointed one-man Royal Commission to investigate land transactions carried out by the Protestant School Board of Greater Montreal. Unveiling of portrait of Rt. Hon. R. B. Bennett, Canadian Prime Minister 1930-35, to be hung near the Commons Chamber in Ottawa. Opening of the Royal Agricultural Winter Fair in Toronto; world championship wheat title won by George Luco of Lethbridge, Alta.; title for barley by J. E. French of Mitchell, Ont.; for flax by John E. Cotton of Kenville, Man.; for oats by Jeffrey Abbott of South Edmonton, Alta.; and for potatoes by Mrs. A. R. Chorney of East Selkirk, Man.; Sandra Peart of Guelph, Ont., won Queen's Guineas, top prize for 4-H Club members, for her Shorthorn steer. Canada's foreign aid for 1964-65 increased over 1963-64 aid by more than 50 p.c. to $190,000,000. *Nov. 15*, Canada and India agreed to co-operate in construction of a nuclear power station of CANDU type at Rana Pratrap Sagar, India. Accidental death of Senator Duncan K. MacTavish of Ottawa. Death of Senator Calvert Coates Pratt of St. John's, Nfld. Death of Francis C. C. Lynch, former head of the National Museum. *Nov. 18*, Governor General and Mme Vanier received honorary counsellorships—the highest title the Canadian Red Cross Society can bestow—in recognition of their service to the Red Cross during and after the Second World War. The last segregated Negro school in Nova Scotia ceased operation with the opening of a consolidated school in Three Mile Plains, ending a situation in existence since 1836. A National Fitness Council grant of $25,000 given to Canada's 1964 Olympic hockey team, the first such grant to a Canadian hockey team travelling abroad. Announcement of discovery in northern Alberta of a vast reserve of asphaltic crude oil similar to but separate from the Athabasca tar sands. *Nov. 19*, Death of Mayor Donald Summerville of Toronto. *Nov. 22*, Death of U.S. President John Fitzgerald Kennedy in Dallas, Texas, from an assassin's bullet; burial was in Arlington National Cemetery Nov. 25. Vice-President Lyndon Baines Johnson sworn in as 36th President of the United States. *Nov. 23*, R. P. Lippert of Kitchener and W. D. Milne of Montreal, arrested Oct. 24, tried in Cuba on charge of smuggling explosives and endangering security of Cuban State; Milne acquitted and Lippert sentenced to 30 years. *Nov. 25-29*, Federal-Provincial Conference held in Ottawa; federal revenue concessions offered to the provinces and increases in joint old age assistance, blind and disability allowances agreed upon. *Nov. 28*, "Russ" Jackson, Ottawa Rough Rider quarterback, named winner of the two top awards in the CFL—outstanding player in the country and outstanding Canadian player in the country. *Nov. 29*, TCA jet airliner with 111 passengers and crew of seven, en route to Toronto from Montreal, crashed and burned near Ste. Thérèse de Blainville, Que. *Nov. 30*, Hamilton Tiger-Cats won Canadian football title, defeating British Columbia Lions in Grey Cup match by score of 21-10.

December: New refinery near Dartmouth, N.S., received its first shipment of crude oil from Venezuela. First export shipment of cars from the new Volvo (Canada) Ltd. plant at Dartmouth, N.S., went to Boston. *Dec. 2*, The trans-Pacific cable linking Britain, Canada, Australia and New Zealand inaugurated by H.M. Queen Elizabeth. Plans announced by Industry Minister Drury for construction of a heavy-water nuclear power plant at Glace Bay, N.S. *Dec. 5*, Defence Minister Hellyer announced drastic economies in Canada's military establishment. *Dec. 6*, Dr. James Merritt Harrison, Director, Geological Survey of Canada, the first Canadian to be awarded the Kemp Gold Medal by Columbia University, New York, for outstanding contributions to the science of geology. *Dec. 9*, Announcement of move by Studebaker Corporation from South Bend, Indiana, to Hamilton, Ont. Federal-Provincial Trade Ministers' Conference opened in Ottawa. *Dec. 10*, Canada's first permanent scientific research laboratory north of the Arctic Circle completed at Inuvik, N.W.T. Fifteenth anniversary of Universal Declaration of Human Rights; message sent by Prime Minister Pearson to the Secretary General of the UN. Zanzibar became an independent nation within the Commonwealth after 73 years as a British protectorate. *Dec. 12*, Kenya became an independent nation within the Commonwealth after 68 years as a British protectorate. *Dec. 13*, Four-year prison sentence imposed on Mario Bachand, member of the FLQ who took part in the May 17, 1963, dynamite operation in Montreal. *Dec. 14*, Canadian selection of prints shown at the First American Biennial Exhibition of Engravings at Santiago, Chile, won Grand Award of Honor over 16 countries. *Dec. 16*, Kenya and Zanzibar admitted to membership in the UN, bringing total membership to 113. *Dec. 16-18*, NATO Ministerial Council meeting in Paris; Canada represented by External Affairs Minister Martin and Defence Minister Hellyer. *Dec. 20*, Irene Rebrin, Vancouver, ordered deported in 1959 as a security risk, granted permission to remain in Canada as a landed immigrant. *Dec. 21*, First of four appearances in the *Canada Gazette* of intention to petition Parliament for a charter to operate a Bank of Western Canada (Banque Canadienne de l'Ouest), with head office in Winnipeg. *Dec. 22*, Four persons, parishioners of Christ the King Roman Catholic Church in Ottawa, fatally shot in robbery attempt. *Dec. 23*, Federal Government approved in principle establishment in

Ottawa of a National Centre for the Performing Arts and of an annual National Festival, first performance to be in 1967. *Dec. 26*, Marlene Stewart Streit, golfer, selected Canada's outstanding woman athlete of 1963 in Canadian Press poll. *Dec. 30*, Death of Dr. Florence Dunlop, Ottawa, widely known educator. *Dec. 31*, Southern Rhodesia, Northern Rhodesia and Nyasaland, comprising the Central African Federation, reverted to independent status. U.S. President Johnson vetoed Bill requiring lumber imports to be marked with country of origin, a Bill to which Canada was opposed. Nuclear warheads for Bomarc missiles arrived at RCAF base near North Bay.

1964

January: *Jan. 1*, Roy Thomson, Toronto-born publisher, elevated to the British peerage. Governor General Vanier promoted from Major General to full General in recognition of a long and distinguished military and diplomatic career. New Electoral Act in effect in Quebec; minimum age for voting in provincial elections reduced to 18 years. *Jan. 4-6*, Pope Paul VI on pilgrimage to the Holy Land. *Jan 7*, Hearings of Quebec and Newfoundland divorce petitions, formerly presented as private Bills and requiring approval of both Houses of Parliament, begun by newly appointed Senate Divorce Commissioner, Senator A. A. M. Walsh. Britain granted internal self-government to the Bahamas, one of its oldest colonies. *Jan. 8*, Announcement of federal grants of $2,500,000 to each of eight provinces for construction of cultural centres similar to those being built in Charlottetown and Quebec City. Hon. Roger Brossard of Montreal Superior Court appointed one-man Royal Commission by the Quebec Government to investigate circumstances surrounding the trial and execution of Wilbert Coffin in 1956; the Federal Government announced its co-operation in the inquiry Jan. 30. *Jan. 10*, Panama severed diplomatic relations with the United States following uprising resulting from long-standing bitterness over sovereignty of the Canal Zone. *Jan. 13*, Canadian and U.S. negotiators reached agreement on Columbia River hydro and flood-control project. *Jan. 15*, Prime Minister Pearson arrived in France for the first official visit of a Canadian Prime Minister to that country. Death of Senator Gordon Peter Campbell of Toronto. *Jan. 17*, Official opening of Winnipeg International Airport terminal building. *Jan. 18*, In Canadian figure-skating championship competitions, Petra Burka of Toronto won the women's senior singles title; Dr. Charles Snelling of Welland, Ont., won the men's singles title; and Debbi Wilkes and Guy Revell of Unionville, Ont., retained the senior pairs title. *Jan. 20-24*, The first federal-provincial ministerial conference held at Ottawa to discuss Canadian fisheries. *Jan. 21*, At 17-nation disarmament conference in Geneva, U.S. President Johnson proposed that the number and characteristics of strategic vehicles to carry nuclear weapons be limited through negotiation. Prime Minister Pearson in Washington for formal talks on trade with President Johnson. *Jan. 22*, Exchange of Notes signed by Canada and the U.S. to implement the Columbia River Treaty signed Jan. 17, 1961. Canada and the U.S. to establish a jointly financed commission, with representation from New Brunswick, to develop and administer the estate of former U.S. President Franklin D. Roosevelt on Campobello Island as an International Park. *Jan. 24*, Report of Quebec Royal Commission to inquire into the sale and production of school textbooks revealed widespread conflict of interest, anarchy of prices and restraint-of-trade practices. Canada Hall, part of residential complex at the University of West Indies, Trinidad, to which the Canadian Government contributed under the Commonwealth Caribbean Assistance Program, officially opened. *Jan. 25*, John Keiller Mackay, former Lieutenant-Governor of Ontario, appointed Chancellor of the University of Windsor. *Jan. 28*, Canadian application for 1968 Winter Olympic Games to be held at Banff, Alta., defeated by application of Grenoble, France. *Jan. 29*, Official opening of Winter Olympic Games at Innsbruck, Austria; gold medal for four-man bobsled competition won by Canadian team headed by Vic Emery of Montreal; bronze medal for pairs figure skating won by Debbi Wilkes and Guy Revell of Unionville, Ont.; and bronze medal for ladies' singles figure skating won by Petra Burka of Toronto. *Jan. 30*, Canada accorded diplomatic recognition to (the People's Republic of) Mongolia. Les Fusiliers Mount Royal Armoury, Montreal, robbed of weapons and ammunition by a group identifying itself as the Comité révolutionnaire du Québec.

February: *Feb. 1*, Arnold D. P. Heeney, Canadian Chairman of the International Joint Commission, awarded the Vanier Medal in tribute to 26 years of outstanding federal public service. Railway workers and companies signed new three-year contract awarding wage increases to 9,600 engineers, conductors, yardmen, etc. *Feb. 3-5*, Annual convention of the Progressive-Conservative Party held in Ottawa; Mr. Diefenbaker retained leadership. *Feb. 9-11*, Prime Minister Douglas-Home of Britain and Foreign Secretary R. A. Butler in Ottawa for talks with Prime Minister Pearson. *Feb. 10*, Mrs. Roy MacGregor Watt, Ottawa, Chairman of the annual Canadian Playwriting Competition, honoured in the White House, Washington, for her encouragement of playwriting. *Feb. 10-14*, The first Canadian toy fair held in England was an outstanding success. *Feb. 11*, Expulsion of 18 members of the Canadian Jesuit Mission in Haiti announced by External Affairs Minister Martin; Canada rejected allegations by Haitian Government that Jesuits' activities were of a subversive nature. *Feb. 13*, Federal approval of Master Plan for 1967 World Exhibition at Montreal. First C. D. Howe Memorial Fellowships (Foundation set up Sept. 26, 1963) awarded to Dr. Jacques Brazeau, Montreal; Dr. R. M. Chisholm, Kingston; Dr. G. R. Cook, Toronto; and Dr. D. C. Savage, Montreal. Canada invited by Tanganyika to undertake a resources survey in that country. *Feb. 14*, Death of Senator James Gray Turgeon of Vancouver. New oceanographic research vessel *Hudson* commissioned in Halifax. *Feb. 17*, Britain and Cyprus appealed to UN Security Council for aid in suppressing feud between Greek and Turkish Cypriots. *Feb. 18*, Second Session of 26th Parliament opened. Confederation Square site of Centre for the Performing Arts in Ottawa approved, subject to land availability; G. Hamilton Southam named co-ordinator. *Feb. 20*, A third Quebec armoury—in Shawinigan—raided and equipment stolen; inquiry commission appointed by Defence Minister Hellyer. *Feb. 21*, Quebec Premier Lesage and members of the Quebec Legislature visited Toronto; Mr. Lesage addressed the Ontario Legislature. *Feb. 22*, Trap laid by Canadian police led to arrest of the Mexican Ambassador to Bolivia and others in New York and seizure in Montreal of millions of dollars' worth of smuggled heroin. The Boy Scouts World Bureau opened an amateur radio station at its Ottawa headquarters, linking it with 83 member stations around the world. *Feb. 23*, Canada announced recognition of the new Government of Zanzibar. *Feb. 24*, Basic research grant awarded by the Alfred P. Sloan Foundation of New York to Dr. Charlotte Froese of Vancouver, the first woman scientist to be so honoured. Dr. Yves O. Fortier, Director of the Economic Geology Division of the Geological Survey of Canada, awarded the Royal Canadian Geographical Society's Massey Medal in recognition of his work in focusing attention on the Arctic and its economic possibilities. *Feb. 28*, Heather Quipp of Kingsmere,

Que., won the Canadian girls' junior slalom championship in competition at Camp Fortune, Que.; Georges Marier of Quebec City won the boys' championship. Toronto International Airport terminal building officially opened by Prime Minister Pearson. *Feb. 27-28*, Hon. Harold Wilson, Leader of the Opposition in Britain, visited Ottawa and Montreal. *Feb. 29*, The *Ojibwa*, first of three submarines being built for the RCN, launched at Chatham Dockyard, London, England. A son born to H.R.H. Princess Alexandra and Hon. Angus Ogilvy; christened James Robert Bruce, May 11. First of four appearances in the *Canada Gazette* of intention to petition Parliament for a charter to operate the Laurentide Bank.

March: Four streets in Woendsdrecht, The Netherlands, named after Canadian regiments—the Fort Garry Horse, the Toronto Scottish, the Queen's Own Cameron Highlanders and the Royal Hamilton Light Artillery—in appreciation of the liberation of that city by the Canadian Army during World War II. Construction begun on schools and warehouses on several West Indies Islands as part of Canada–West Indies Aid Program. *Mar. 2*, Death of Angus MacInnes, a founder of the CCF Party and MP for Vancouver for 27 years. *Mar. 3*, Change of name of Trans-Canada Air Lines to "Air Canada" approved by Parliament. *Mar. 4*, Death of Harry Jones, MP for Saskatoon, Sask. *Mar. 6*, Death of King Paul of Greece. *Mar. 7*, First of four appearances in the *Canada Gazette* of intention to petition Parliament for a charter to operate a Bank of British Columbia. *Mar. 8*, 114-year-old Ontario law providing for separate schools for Negroes, inoperative for 60 years, abolished under amendment to the Separate Schools Act. *Mar. 9*, Danish Government posthumous award for bravery received by parents of Canadian pilot James Antony Roe, killed in 1961 while landing a blazing aircraft in Greenland. *Mar. 10*, A son born to H.M. Queen Elizabeth and the Duke of Edinburgh; christened Edward Antony Richard Louis, May 2. *Mar. 11*, Lloyd Brooks, National Parks Branch, Department of Northern Affairs and National Resources, left Ottawa to act as adviser to Turkish Government on establishment of a national park, the first assignment sponsored by the International Commission on National Parks. *Mar. 12*, Harold C. Banks committed for trial on the second of three conspiracy charges laid against him by the Department of Justice. *Mar. 13*, Federal Government approved a Canadian contribution to an international force in Cyprus; an advance party left the same day, the force becoming operational Mar. 27. Professional Institute of the Public Service of Canada gold medal awards presented to Dr. Joseph W. Willard for health and welfare work and to scientists of the Defence Research Board. *Mar. 14*, Death of Hon. John R. Garland, Minister of National Revenue. *Mar. 17*, The Canada Pension Plan Bill introduced in the House of Commons. *Mar. 18*, Harold C. Banks dismissed as President of the SIU by the Maritime Board of Trustees. *Mar. 19*, RQMS Walter R. Léja awarded the George Medal for heroic conduct while dismantling bombs in Westmount, May 17, 1963. *Mar. 20*, Winners of Governor General's Literary Awards for 1963 announced: Hugh Garner (fiction in English); J. M. S. Careless (non-fiction in English); Gatien Lapointe (poetry in French); Gustave Lanctot (non-fiction in French). Violent criticism of the Ontario Government's alleged "police state" legislation culminated in the resignation of Attorney General Frederick M. Cass. *Mar. 25*, Death of Senator Charles B. Howard of Sherbrooke, Que. *Mar. 26*, Immediate plans to integrate the Army, Navy and Air Force into a single Service announced by Defence Minister Hellyer. *Mar. 30*, Severe earthquake in Anchorage area of Alaska caused more than 100 deaths and an estimated $350,000,000 damage; resultant tidal waves caused damage to communities on Vancouver Island. *Mar. 31*, Federal-Provincial Conference opened at Quebec City; the proposed Canada Pension Plan, tax equalization and shared-cost programs were the major items of discussion. Canada Council medals presented to Sir Ernest MacMillan, musician; Frederick Varley, artist; Esdras Minville, economist; and, posthumously, the late Chief Mungo Martin, Indian carver. First recipients of the Council's Molson prizes were Dr. Donald Creighton, historian; and Alain Grandbois, writer and poet.

April: Former Trade and Commerce Minister Hees became President of the Montreal and Canadian Stock Exchanges. The Alaska Highway, maintained by the Canadian Army since 1946, transferred to civilian control. Sharp reductions in transatlantic air fares announced by the International Air Transport Association. Numbered social insurance cards to be issued to Canadians to assist the government in maintaining records; the prime users of the numbers will be the Department of National Revenue, the Unemployment Insurance Commission and, eventually, the Canada Pension Plan administration. *Apr. 2*, Det.-Sgt. Leo Plouffe, bomb disposal expert of the Montreal Police Department, awarded the Quebec Lieutenant-Governor's Bronze Medal for bravery. Federal-Provincial Conference decision announced to conduct a ministerial-level review of the nature and extent of taxes in relation to rising pressures for more expenditures. Premier Lesage announced that Quebec would establish its own Pension Plan. *Apr. 3*, House of Commons request that the Senate waive the rules in order to pass a $130,800,000 Appropriations Bill to meet unemployment insurance commitments blocked by Senator Grattan O'Leary in protest against alleged betrayal of the rules and rights of the Senate. Peaceful settlement of the inter-union disagreement on the Great Lakes that threatened a boycott of Canadian vessels in U.S. ports reached by Canadian maritime union trustees and the SIU, assuring continuing affiliation of the Canadian union with its parent organization, the SIU of North America. *Apr. 4*, Long-term lease signed with the City of Ottawa for the Confederation Square site of the National Centre for the Performing Arts; advisory committees appointed and money allocated for the purchase of paintings and sculpture. *Apr. 5*, Death in New York of General Douglas MacArthur, distinguished U.S. Commander in the Pacific during World War II. *Apr. 6-25*, Canada's Stratford Festival performances in Chichester, England, celebrating the 400th anniversary of William Shakespeare's birth, were given top ratings by British critics. *Apr. 15*, Death of Dr. Alice Wilson, 83, internationally known Canadian geologist and first woman Fellow of the Royal Society of Canada. *Apr. 17*, Confirmation of a major copper-zinc-silver discovery by Texas Gulf Sulphur Co., 10 miles from Timmins, sparking the biggest stock-gambling spree in the country's history. *Apr. 18*, Dr. Helen S. Hogg of Toronto, astronomer, became the first woman President of the 115-year-old Royal Canadian Institute. *Apr. 20*, Major tax-sharing concessions to the provinces related to the compromise on national pension plan announced by Prime Minister Pearson. *Apr. 20-24*, Dr. Eric Williams, Prime Minister of Trinidad and Tobago, visited Ottawa. *Apr. 22*, General election in Saskatchewan resulted in defeat of the CCF Party after 20 years; Hon. W. R. Thatcher, Premier. *Apr. 24*, Report of the Royal Commission on Banking and Finance released. Two Social Credit MP's—Gerard Girouard (Labelle) and Gerard Ouellet (Rimouski) defected to the PC Party. *Apr. 25*, Justice Minister Favreau named official Quebec Deputy for the Liberal Party. The Toronto Maple Leafs won the Stanley Cup, symbol of hockey supremacy, for the third consecutive year. *Apr. 28*, Vasily Vasilievich Tarasov, Ottawa correspondent for the Russian newspaper Izvestia, expelled from Canada

as a spy. A daughter born to the Duke and Duchess of Kent, named Helen Marina Lucy and to be known as Lady Helen Windsor. *Apr. 29*, Wage regulations establishing a province-wide minimum of $1 an hour, effective June 29, announced by the Ontario Government. *Apr. 30*, The Canada–U.S. joint Cabinet committee on trade and economic affairs began meetings in Ottawa.

May: *May 1*, Reginald Binette, 18, sentenced to life imprisonment for the shooting death of scoutmaster Paul Mercier in the rectory of Christ the King Church, Ottawa, Dec. 22, 1963. *May 2*, The first Canadian-bred horse to win the Kentucky Derby, Northern Dancer owned by E. P. Taylor of Toronto, set record of 2 minutes. *May 4*, Commencement of the "Kennedy Round" of GATT trade negotiations in Geneva; Canada represented by Trade and Commerce Minister Sharp. *May 5*, Harold C. Banks, convicted of conspiracy to do bodily harm to Capt. H. F. Walsh, sentenced to five years in penitentiary. Quebec's separatist ALQ believed crushed by Montreal's anti-terrorist squad with the arrest of alleged leader, Robert Hudon. *May 8-15*, Commonwealth Prime Ministers met in London. *May 11*, CP-CN telecommunications microwave network extending from Montreal to Vancouver and linking up with other facilities in Canada and the Commonwealth communications system officially opened by Transport Minister Pickersgill. A daughter born to H.R.H. Princess Margaret and the Earl of Snowdon; christened Sarah Frances Elizabeth. *May 12-14*, NATO ministerial meeting at The Hague generally accepted Canada's proposal for a NATO mediation role between Greece and Turkey over Cyprus. *May 13*, Education Bill 60—passed by the Quebec Legislature and assented to Mar. 19— proclaimed in effect, setting up a Department of Education with a Minister of Education, a Deputy Minister and two Associate Deputy Ministers (SQ 1964, c. 15). *May 14*, Establishment of the first Department of University Affairs in Ontario came into effect; Education Minister Davis assumed the portfolio. *May 24*, Death of Stewart Bates, President of the Central Mortgage and Housing Corporation and former Deputy Minister of Fisheries. *May 26*, UN Secretary-General U Thant addressed a joint sitting of the House of Commons and the Senate. *May 27*, Death of Prime Minister Jawaharial Nehru of India. *May 28*, Establishment of Ontario Department of Municipal Affairs commission to study local government in Metropolitan Ottawa and all municipalities within the geographic limits of Carleton County. *May 29*, Death of Sherwood Rideout, MP for Moncton, N.B. *May 31*, First resident correspondent for the Canadian Press in the U.S.S.R., John Best, arrived in Moscow.

June: *June 1-3*, The President of Ireland, His Excellency Eamon De Valera, on state visit to Ottawa. *June 5*, Columbia River Treaty approved by the House of Commons. *June 7*, Canadian Conference on the Family, initiated by Governor General Vanier and Mme Vanier, opened in Ottawa, attended by social workers, religious leaders and government heads; the Vanier Institute on the Family was established to continue study of the subject. James A. Roberts, Deputy Minister of Trade and Commerce, appointed Deputy Secretary-General of NATO, effective Sept. 1. *June 8*, Chancellor Ludwig Erhard of West Germany arrived in Canada for discussions with Prime Minister Pearson and other officials. Dr. Leo Marion, Vice-President (Scientific), National Research Council, elected President of the Royal Society of Canada. *June 9*, Death in London of Canadian-born publisher, Lord Beaverbrook. *June 11*, Three-year trade agreement signed between Canada and Hungarian People's Republic, the first such agreement between the two countries in the postwar period. *June 15*, House of Commons began lengthy debate on new flag. *June 19*, Lucien Rivard arrested in Montreal on charge of smuggling heroin into the United States. Alvin Hamilton, MP for Qu'Appelle, Sask., "named" in the House of Commons and barred for the remainder of the day because of refusal to withdraw an accusation regarding controversial TV documentary film. *June 30*, UN forces left the Congo.

July: George V. Haythorne, Deputy Minister of Labour, elected Chairman of ILO Governing Body for one year. *July 3*, Four members of ALQ each received eight-year sentence for theft of weapons from two Quebec armouries. *July 6*, State of Malawi, formerly the British protectorate of Nyasaland, became an independent nation within the Commonwealth. *July 8*, Conference of Commonwealth Prime Ministers representing 18 countries opened in London, England; issues discussed included racial problems and extension of Commonwealth co-operation in the fields of administrative training, education, medicine, communications, etc. *July 11*, Dock project at Kingston, St. Vincent, constructed with Canadian assistance under the Canada–West Indies Aid Program, officially opened. *July 14*, Soviet proposal for international peace-keeping machinery tabled in the House of Commons. *July 15*, H. Carl Goldenberg, Q.C., Toronto, appointed a permanent umpire of jurisdictional disputes for the CLC that cannot be solved by mediation within the labour movement. *July 16*, Bill extending Canada's fishing limits to 12 miles given Royal Assent. *July 21*, Extension of term of office of General Vanier as Governor General announced by Prime Minister Pearson. *July 22*, Creation of annual Commonwealth Prizes for individual merit, similar in prestige to the Nobel Prizes, announced by the newly formed Commonwealth Prizes Institute, London, England, to be awarded for outstanding contributions to the Commonwealth in the fields of education, medicine, science, the arts, literature, social welfare, sports or other area of human activity. *July 24*, Reporter for the New China News Agency arrived, the first from Communist China to take up residence in Canada. *July 27-29*, Visit of Tunku Abdul Rahman, Prime Minister of Malaysia, to Ottawa. *July 28*, The Senate Banking Committee approved the granting of charters to the Bank of Western Canada and the Laurentide Bank. Federal Act providing for interest-free loans to university students received Royal Assent. *July 29*, Yves Gabias, MLA for Trois Rivières, barred from Quebec Legislature for three years for bringing unsubstantiated charges of corruption against Attorney General René Hamel. Architectural design for new National Centre for the Performing Arts, Confederation Square, Ottawa, made public. Canadian aid to Malaysia under Colombo Plan increased by $4,500,000, part of it to provide equipment for vocational training schools. *July 30*, Million-dollar fire at Beacon Arms Hotel, Ottawa; 3 dead and 17 injured. *July 31*, U.S. space vehicle *Ranger 7*, after three-day flight, sent first picture of moon's surface.

August: Health Minister LaMarsh set up new council of consumers to advise the Government on all matters relating to the interests of the Canadian consumer. Monument to peace built within the International Peace Garden on the Manitoba–North Dakota border dedicated. *Aug. 3*, First camp to be held in Canada under the sponsorship of Children's International Summer Village, which has branches in a number of countries; 28 11-year-old children from India, Japan, Mexico, Sweden, Norway, France and the U.S. attended. Prime Minister Bjarni Benediktsson of Iceland attended 75th annual celebration of *Islendengadagurinn*, National Icelandic Day in Canada. *Aug. 3-4*,

Provincial Premiers met at Jasper, Alta., to discuss mutual problems. *Aug. 8-22*, Forestry officials from 15 FAO countries toured Canada to study forest fire control problems. *Aug. 11*, Mr. Justice Arthur Kelly appointed a one-man Royal Commission to investigate stock-market activities related to Windfall Oils and Mines Ltd. and other stocks with claims in the Timmins area. *Aug. 17*, Harold C. Banks failed to appear in court. *Aug. 19–Sept. 11*, Visit of Soviet Agriculture Minister I. P. Volovchenko and party to Canada. *Aug. 20*, The Roosevelt Campobello International Park on Campobello Island, N.B., officially opened by Mrs. L. B. Pearson and Mrs. Lyndon B. Johnson. Announcement of plans to construct a 1,000,000 kw. nuclear power station at Fairport, 20 miles east of Toronto. *Aug. 21*, Eight persons killed in collision of a heavy truck with an express passenger train at Leonard, Ont. *Aug. 21–Sept. 4*, Third Commonwealth Education Conference held in Ottawa. *Aug. 24*, A carton of beef blood thrown from the gallery to the floor of the House of Commons by David Cowlishaw, Vancouver, protesting that Calvin MacDonald had not been recognized by the RCMP for undercover work. *Aug. 29*, The Great Slave Lake Railway construction crossed the 60th parallel into the N.W.T. 18 months ahead of schedule. *Aug. 31–Sept. 2*, Federal-Provincial Conference held in Charlottetown; the Confederation Conference of 1864 was re-enacted in commemoration.

September: *Sept. 2*, Report of the Royal Commission into the Protestant School Board of Greater Montreal land transactions cleared the Board but charged federal MP Edmund T. Asselin and his partner, Frank Spenard, with breach of trust and obtaining unlawful profit for themselves. *Sept. 4-5*, Canada–Japan Ministerial Committee held in Tokyo. *Sept. 6*, The Riot Act read in Grand Bend, Ont., as mobs of young holiday-makers created disturbances and all places of business and all entrances to the village were closed; more than 120 persons charged. *Sept. 9*, The Province of British Columbia lent $100,000,000 to the Province of Quebec, effective Sept. 16, the first time one province lent money to another; the transaction was made possible by the pre-payment to B.C. of about $274,000,000 for the downstream benefits accruing to the U.S. from the Columbia River development. The Federal Government revealed plans for construction of a $21,000,000 Canadian Pavilion at Expo '67. *Sept. 10*, The House of Commons consented to appoint a special 15-member committee to consider and report upon the flag question. *Sept. 11*, The Canadian Imperial Bank of Commerce ordered by the Ontario Supreme Court to pay $960,000 and about $415,000 interest to Brilund Mines Ltd., defrauded by three men from New York. *Sept. 14-18*, Tenth annual assembly of NATO held in Ottawa. *Sept. 15*, Appeal of Harold C. Banks against his conviction and sentence dismissed. Boris Brott, 20-year-old Montreal conductor, enthusiastically reviewed for his London début. *Sept. 16*, Prime Minister Pearson and U.S. President Johnson, in a ceremony at Blaine, Wash., on the Canada–U.S. border, formally signed the Columbia River Treaty; the Treaty was ratified at Ottawa and simultaneously at New York the sale of Canada's share of the extra power generated on the U.S. section was concluded. *Sept. 18*, H.R.H. the Princess Royal arrived in Newfoundland for a nine-day visit; during her stay she attended ceremonies of the Royal Newfoundland Regiment of which she is Colonel-in-Chief and accepted an honorary degree at Memorial University. *Sept. 20*, Lady Patricia Ramsay, who as Princess Patricia of Connaught gave her name to the Princess Patricia's Canadian Light Infantry Regiment in 1914, attended ceremonies in Edmonton commemorating the 50th anniversary of the Regiment. *Sept. 21*, The Island of Malta attained independence within the Commonwealth after 164 years of British rule, the 19th member of the Commonwealth and the 16th British colony to achieve independence since World War II. Miss Margaret Meagher, Canadian Ambassador to Austria, elected chairman of the Board of Governors of the International Atomic Energy Agency, the first woman to hold the post. *Sept. 23*, A month of events celebrating the 50th anniversary of the Royal 22nd Regiment began, ceremonies taking place in Ottawa, Montreal, Quebec and St. Jean. *Sept. 25*, Life of the armed force on Cyprus extended by the UN Security Council. *Sept. 27*, Official inquiry into assassination of former U.S. President Kennedy made public. *Sept. 30-Oct. 2*, Official visit to Ottawa of Manlio Brosio, newly appointed Secretary General of NATO.

October: The most detailed mapping of Canada ever made, on a scale of four miles to the inch, completed after 19 years of work by the Department of Mines and Technical Surveys and the Army Survey Establishment. *Oct. 5-13*, H.M. Queen Elizabeth and H.R.H. the Duke of Edinburgh took part in a series of engagements celebrating the 100th anniversary of the first meeting of the Fathers of Confederation. In Charlottetown, P.E.I., the Queen officially opened the Fathers of Confederation Memorial Centre; in Quebec, under rigid security precautions, she officially opened the Royal 22nd Regiment Memorial Building and addressed the Quebec Legislative Council; a warm reception in Ottawa concluded the visit. *Oct. 6*, One of the Rocky Mountains named Mount Louis St. Laurent in honour of the former Prime Minister. *Oct. 7*, The Eastern Ontario Institute of Technology, Ottawa, officially opened by Labour Minister MacEachen. *Oct. 8*, Eighteenth Olympiad commenced in Tokyo; gold medal for coxless pair rowing won by George Hungerford, Vancouver, and Roger Jackson, Toronto; silver medals by William Crothers, Toronto, in 800-metre race, and Douglas Rogers, Toronto, in heavyweight judo; bronze medal by Harry Jerome, Vancouver, in 100-metre race; in point standing, Canada came 21st among 94 participants. Chief Justice G. S. Challies of the Quebec Superior Court named commissioner to inquire into the fatal crash of the TCA aircraft at Ste. Thérèse, Que., Nov. 29, 1963. *Oct. 12*, Prime Minister Pearson announced plans to build the Queen Elizabeth II Observatory at the top of Mt. Kobau, near Osoyoos, B.C., to commemorate the Queen's 1964 visit to Canada. The Quebec Government announced a grant of $25,000 to the Quebec Association for Retarded Children as a gift to Queen Elizabeth II. Three Russian cosmonauts achieved the first successful multi-man space flight. *Oct. 14*, Rev. Martin Luther King, U.S. Negro leader, awarded Nobel Peace Prize. The Federal-Provincial Constitutional Conference began in Ottawa; unanimous agreement reached on an amending formula to bring the Constitution of Canada under exclusive Canadian control, and on the undertaking of a study of federal, provincial and municipal financing. *Oct. 15*, General election in Britain; the Labour Party won by a small majority and Mr. Harold Wilson became Prime Minister. Dr. Gerhard Herzberg, Director, Pure Physics Division, National Research Council, awarded the 1964 Frederic Ives Medal by the Optical Society of America in recognition of his "extraordinary contributions to research, teaching and scientific administration". Nikita Khrushchov deposed as Premier of the U.S.S.R.; Leonid I. Brezhnev named Communist Party Secretary and Alexei N. Kosygin, Premier. *Oct. 16*, China exploded its first atomic device. *Oct. 17*, Trent University, Peterborough, Ont., officially opened by His Excellency the Governor General. *Oct. 19*, Brock University, St. Catharines, Ont., officially opened by His Excellency the Governor General. *Oct. 19-22*, First Federal-Provincial Conference on

Mental Retardation held in Ottawa. *Oct. 20,* Charges of police brutality during demonstrations during the Royal Visit to Quebec termed exaggerated in report of Acting Attorney General Wagner. *Oct. 23,* The Republic of Zambia (formerly Northern Rhodesia) came into being, attaining independence within the Commonwealth. Southern Rhodesia changed its name to Rhodesia but did not become independent. Announcement of plans for construction of a new National Museum to be built in Ottawa. Quebec Superior Court Justice Adrien Meunier sentenced to penitentiary for two years on three perjury counts; the conviction of a judge in Quebec is believed to be without precedent. *Oct. 26,* Special measures undertaken in Britain, involving temporary 15-p.c. import charge on commodities other than foodstuffs, basic raw material and unmanufactured tobacco, which will affect Canadian exports. *Oct. 29,* Final report of the Special Committee on the Canadian Flag presented to the House of Commons. Death of noted Arctic explorer, Henry Asbjorn Larsen, retired RCMP superintendent who was captain of the St. Roch, the first vessel ever to navigate the Northwest Passage from west to east. The United Republic of Tanganyika and Zanzibar renamed the United Republic of Tanzania. Dr. D. B. Finn, Rome, Italy, appointed a commissioner to inquire into the export marketing problems of the salt fish industry in the Atlantic Provinces.

November: *Nov. 2,* Announcement of Canada's 1965 contribution of $7,325,000 to the UN Special Fund and the UN EPTA, the fifth highest contribution to these funds. *Nov. 2-6,* Conference to review past experience of the UN peace-keeping operations and to exchange views on practical and technical problems attended by representatives of 23 nations, held in Ottawa. *Nov. 3,* Defence Minister Hellyer announced disbandment of nearly 60 major units in a militia reorganization. Lyndon Baines Johnson elected President of the United States in a "landslide victory". *Nov. 3-21,* Meeting of the Commonwealth Parliamentary Association in Kingston, Jamaica; Canadian delegation headed by Jean T. Richard, MP for Ottawa East. *Nov. 5,* External Affairs Minister Martin explained in the House of Commons the sending of SC Leader Robert N. Thompson to Africa to assist in attempts to negotiate the release of 800 white people, including 26 Canadians, held hostage in Stanleyville by Congolese rebels. Appointment of Mr. Justice S. Freedman of Manitoba Court of Appeal as Commission to inquire into the industrial situation resulting from the recent running of trains through CNR terminals at Nakina, Ont., and Wainwright, Alta. *Nov. 10,* Death of Senator Aristide Blais of Alberta. *Nov. 13,* Canada ratified ILO Convention against discrimination in employment for reasons of colour, race, sex, religion, political opinion, national extraction or place of birth; all provinces had registered support of this Convention, ratified by 45 other countries since its adoption in 1958. Irving Cutt, Lunenburg, Ont., awarded world cheddar cheese championship at Green Bay, Wis., U.S.A. *Nov. 13-21,* Royal Agricultural Winter Fair held in Toronto; world championship wheat title won by Lawrence W. Gibson, Carbon, Alta.; title for barley won by M. Johnson and son, Colchester, England; for flax by Harold E. Hansen, Ensign, Alta.; for oats by William Whitelock, Sr., Kelwood, Man.; and for potatoes by Mrs. Allen Ryan, Charlton Station, Ont.; Linda Hasson of Ariss, Ont., won Queen's Guineas, top prize for 4-H Club members, for her Aberdeen Angus steer. *Nov. 17,* The U.S. formally carried out a plan to withhold its pledges for UN technical assistance pending settlement of crisis over peace-keeping assessments (Russia, France and other countries overdue). *Nov. 18,* First shipment of lead-zinc ore from Pine Point, N.W.T., mines left for smelters in Trail and Kimberley, B.C., over the recently completed Great Slave Lake Railway. *Nov. 20,* One of the highest unnamed mountain peaks in Canada—on the Yukon-Alaska boundary—named Mount Kennedy in memory of the late President of the United States. The Redistribution Bill, allowing changes in Canada's electoral boundaries, received Royal Assent. Report of Quebec Royal Commission on education released; recommended radical transformation of the classical college system. *Nov. 23,* MP Erik Nielsen charged in the House of Commons that Raymond Denis, former executive assistant to Citizenship Minister Tremblay, had offered Pierre Lamontagne, Montreal lawyer acting as Counsel for the U.S. Justice Department, $20,000 not to oppose bail for Lucien Rivard, facing extradition to the U.S. on charges of smuggling narcotics; Guy Rouleau, Parliamentary Secretary to the Prime Minister, implicated and resigned pending investigation Nov. 24; Guy Lord, formerly special assistant in Justice Minister Favreau's office, also involved. Immediate increase in the Canadian bank rate from 4 p.c. to 4½ p.c. announced by the Bank of Canada. Ottawa City Council, meeting in special session, approved a judicial inquiry into charges of waste and inefficiency in the city administration. *Nov. 24,* Belgian paratroops landing in Stanleyville, Congo, rescued some white hostages but 30, including Rev. Hector McMillan of Avonmore, Ont., were killed. *Nov. 25,* Chief Justice Frédéric Dorion of Montreal appointed one-man Commission to inquire into allegations about improper inducements and pressures on Counsel acting for the extradition of Lucien Rivard. Missionary Muriel Harman, Victoria, B.C., killed in massacre at Stanleyville, Congo. Banks of 11 countries provided credit facilities to Britain to support the pound sterling; Canada's contribution was $200,000,000. Leonard J. McLaughlin elected president of the SIU of Canada, succeeding Harold C. Banks. *Nov. 26-27,* Federal-Provincial Conference on ARDA held in Montreal renegotiated the direction of the $175,000,000 program from April 1965 to April 1970. *Nov. 28,* The Grey Cup, symbol of Canadian football supremacy, won by British Columbia Lions over Hamilton Tiger Cats by a score of 34-24. *Nov. 30,* Sir Winston Churchill honoured on his 90th birthday.

December: What is believed to be the richest iron ore deposit in the world found on Baffin Island. Through the Inter-American Development Bank, Canada agreed to make available up to $10,000,000 to finance economic, technical and educational assistance projects in Latin America. Death sentence of "Santa Claus" bandit Georges Marcotte, convicted in the killing of two Montreal policemen, commuted to life imprisonment in a reversal of an earlier decision by the Federal Cabinet. $1,000,000 donated by Col. R. S. McLaughlin, Chairman of General Motors of Canada, to Royal Ontario Museum for construction of a planetarium. Nova Scotia Government announced plans for buying 93,000 acres of private land to be turned over to the Federal Government for development of a park to be known as Kejimkujik National Park. *Dec. 1,* Announcement by Secretary of State for External Affairs Martin of awarding of $25,000 grant to International Cooperation Year (Canada); a non-governmental organization under chairmanship of Dr. J. R. Kidd set up to organize and co-ordinate activities of all non-governmental organizations in Canada during 1965, the ICY year. Opening of the International Conference of Women at UNESCO in Paris to discuss projects for International Cooperation Year; Mrs. Helen Tucker, Toronto, chairman. *Dec. 1-10,* Prime Minister Harold Wilson of Great Britain visited Ottawa. *Dec. 2,* Pope Paul arrived by air in Bombay to attend the 38th International Eucharistic Congress. *Dec. 3,* Author Jacques Hébert, whose book "I Accuse the Assassins of Coffin" gave rise to

the Royal Commission to investigate the conviction and execution of Wilbert Coffin, and the publishers and distributors sued for libel by three plaintiffs—former Secretary of State Dorion, Quebec Deputy Attorney General Cantin, and Quebec Provincial Police Chief Inspector Matte. *Dec. 7*, Dr. Charlotte Whitton defeated after five terms as Mayor of Ottawa. *Dec. 8-10*, Conference of U.S., Canadian and West European experts on the manpower implications of automation held in Washington, D.C. *Dec. 10*, The 16th anniversary of the Universal Declaration of Human Rights; Prime Minister Pearson sent a message to the UN Secretary-General. *Dec. 11*, Cuban exiles fired bazooka shell that exploded only 100 ft. short of the UN building in New York. *Dec. 12*, Kenya became a republic within the Commonwealth, a year from the date it won independence from British colonial rule and became a Dominion. *Dec. 14*, Closure imposed in the House of Commons to end the protracted flag debate; concluding one of the longest and most bitter debates in modern Canadian parliamentary history. *Dec. 15*, The House voted 163 to 78 to give Canada a new flag with a single red maple leaf on a white background flanked by vertical red bars; the Senate endorsed the flag by a vote of 38-23 on Dec. 17. Death of Senator R. B. Horner in Saskatoon, Sask. Chief Justice Dorion opened the inquiry into bribery and coercion charges involving aides of federal Cabinet Ministers. Saskatchewan adopted a flag for its Diamond Jubilee celebrations, scheduled to begin officially in Regina, Jan. 31, 1965, featuring a red and green field with a stem of wheat at the left and the Saskatchewan Coat-of-Arms at the upper right. Settlement of a 16-day company-wide strike of 23,000 production workers effected between General Motors of Canada and the United Automobile Workers of America. *Dec. 17*, The House of Commons voted to continue to fly the Union Jack as a symbol of Canada's membership in the Commonwealth of Nations and of her allegiance to the Crown; decision approved by the Senate Dec. 18. *Dec. 18*, House of Commons adjourned the longest parliamentary session in Canadian history—214 days—until Feb. 16, 1965. Total eclipse of the moon clearly observed from Ottawa. In Canadian Press year-end poll, Petra Burka of Toronto was named Canada's outstanding female athlete of 1964 and William Crothers of Toronto outstanding male athlete. *Dec. 19*, The 20th ship of a postwar program for construction of destroyer escorts for the RCN commissioned HMCS *Annapolis* at Halifax. *Dec. 21*, A five-year $1,500,000,000 equipment procurement plan for the Armed Services, to include about 200 new ground-support aircraft, four helicopter-equipped destroyers and new 155-millimetre howitzers, announced by Defence Minister Hellyer. *Dec. 23*, Seven Christian Churches of Canada—Roman Catholic, United Church of Canada, Anglican, Presbyterian, Baptist, Greek Orthodox and Lutheran—signed an undertaking to share a pavilion at Expo '67, the $3,500,000 building to be financed by industry and business. *Dec. 24*, New contracts between unions and management ended strike at Montreal newspaper *La Presse*, in effect since June 3; first publication expected to be Jan. 4, 1965. *Dec. 29*, Attorney General Wagner of Quebec announced intention to petition before a Court of Queen's Bench justice asking that Jacques Hébert, author of "I Accuse the Assassins of Coffin" be required to show cause why he should not be held in contempt.

APPENDIX

Certain information given in Chapter II on Constitution and Government (closed off Apr. 30, 1964) is brought up to the date of going to press (Dec. 31, 1964) in this Appendix.

Page 63, Table 4

Hon. Edgar John Benson was appointed Minister of National Revenue on June 29, 1964.

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Lawrence T. Pennell was appointed Parliamentary Secretary to the Minister of Finance on June 29, 1964, *vice* Edgar John Benson.

Guy Rouleau resigned as Parliamentary Secretary to the Prime Minister on Nov. 24, 1964.

Pages 64-65, Table 8

Privy Council appointments from Apr. 30 to Dec. 15, 1964 are given in the Register of Official Appointments, p. 1154.

Page 65, Table 6

Second Session of the 26th Parliament adjourned Dec. 18, 1964.

Pages 67-68, Table 8

Senate appointments from Apr. 30 to Dec. 15, 1964 are given in the Register of Official Appointments, p. 1154. Deaths of Senators, creating vacancies, are noted in the Chronology. At Dec. 31, 1964 there were five vacancies.

Pages 70-75, Tables 10 and 11

By-elections held between Apr. 30 and Dec. 31, 1964 were as follows:—

Electoral District and Province	*Date of By-election*	*Voters on List*	*Candidates*	*Votes Polled*	*Name of New Member*	*P.O. Address*
		No.	No.	No.		
Nipissing, Ont.....	June 22, 1964	35,597	3	26,297	Carl Legault	Sturgeon Falls
Saskatoon, Sask.....	June 22, 1964	57,434	3	40,299	Eloise Jones	Saskatoon
Waterloo South, Ont....	Nov. 9, 1964	36,055	3	28,216	Max Saltsman	Galt
Westmorland, N.B.....	Nov. 9, 1964	48,862	3	37,298	Margaret Rideout	Moncton

Pages 80-91

There were no provincial elections held between Apr. 30 and Dec. 31, 1964; any provincial cabinet changes that may have taken place during that period are not noted here.

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Federal Royal Commissions established from Apr. 30 to Dec. 31, 1964 were as follows:—

Nature of Commission	*Chief Commissioner*	*Date Established*
To inquire into problems relating to the future of the aircraft overhaul base maintained by TCA at Winnipeg International Airport.	D. A. Thompson	June 11, 1964
To inquire into circumstances surrounding the crash of a Douglas DC8 aircraft at Ste. Thérèse, Que.	Hon. George Swan Challies	Oct. 8, 1964
To inquire into export marketing problems of the salt fish industry in the Atlantic Provinces.	D. B. Finn	Oct. 29, 1964
To inquire into allegations about improper inducements and pressures on counsel acting for the extradition of Lucien Rivard.	Hon. Frédéric Dorion	Nov. 25, 1964

Pages 104-123

There were no changes made in the organization of government departments and agencies during the period Apr. 30 to Dec. 31, 1964.

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NOTE.—This Index does not include references to Special Articles published in previous editions of the Year Book. These are listed at pp. 1149-1154.

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