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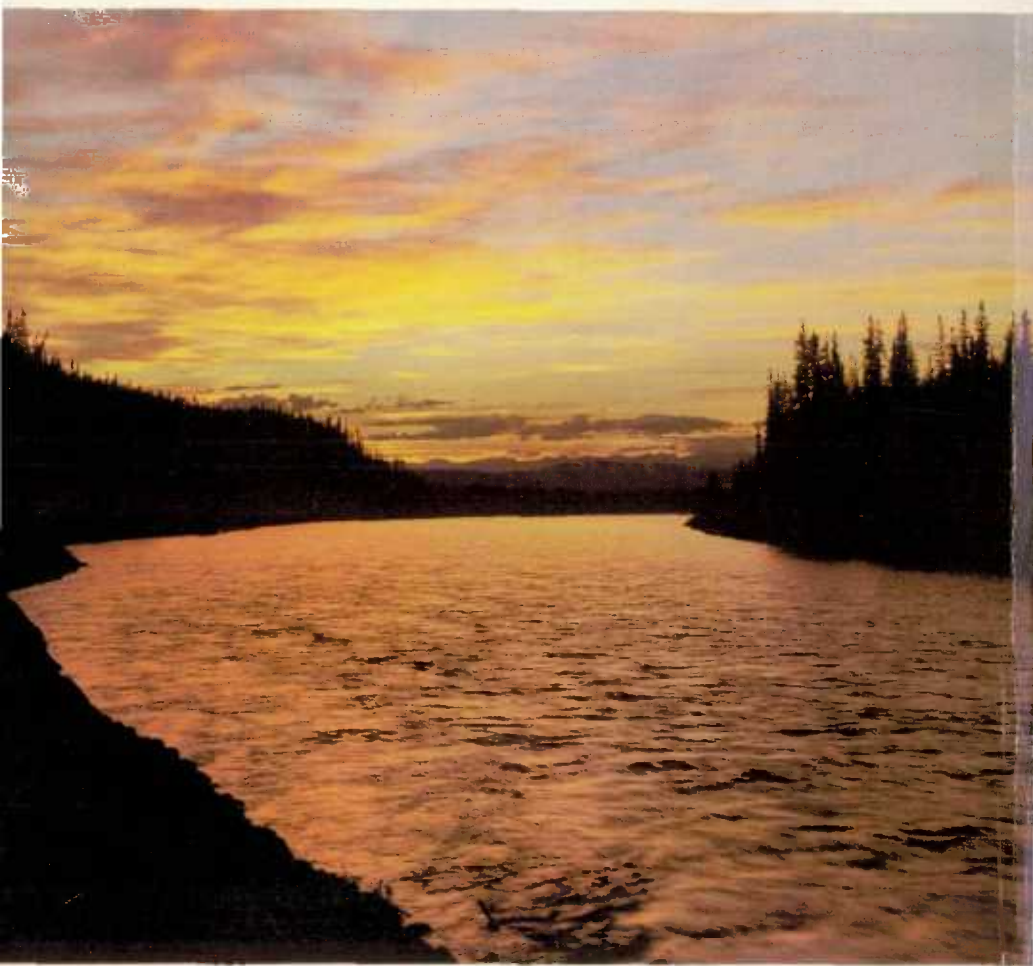
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The cover design was commissioned exclusively for *Canada 1962* from the West Baffin Eskimo Co-operative, a marketing co-operative wholly owned and controlled by the now world-famous group of Eskimo artists at Cape Dorset on Baffin Island, Northwest Territories.

The cover art depicts activities at an Eskimo summer camp. It is the work of Kiakshuk, a 72-year-old Eskimo who is one of the oldest people at Cape Dorset as well as one of the finest graphic artists. The technique used is that of the sealskin stencil. Eskimo stone cut prints are also made by transferring a design to a flattened, polished piece of soapstone, then cutting it out in low relief. The stone cut is inked and the design is transferred to paper which is pressed on the stone.



Sunset on the Klondike, the river that gave its name to that region of the Yukon Territory that was the site of the famous Klondike gold rush of 1896. In two years, the town of Dawson, where the Klondike and the Yukon Rivers meet, grew from a few houses to a community of 25,000 and, by the spring of 1899, avid gold-seekers, many of whom had endured terrible hardships, had staked claims on all creeks of importance. Between 1897 and 1904, more than \$100,000,000 worth of gold had been taken out. Today, Dawson's population stands at 846, but a colourful festival during the summer of 1962 is expected to attract visitors by the thousands.



CANADA · 1962

*the official handbook
of present conditions
and recent progress*

Prepared in the Information Services Division
Dominion Bureau of Statistics, Ottawa, Canada

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Foreword

THE illustrated Canada Handbook offers to the Canadian public and to the peoples of other lands a factual, annual survey of the Canadian economy set in a statistical background and illuminated with illustrations of the recent economic, social and cultural developments of the nation. In text and tables, in layouts and illustrations, *Canada 1962* seeks to portray the present conditions of the Canadian people, their economy and its resources, their institutions and their way of life.

Apart from its special features, *Canada 1962* draws on the same official sources of the Dominion Bureau of Statistics and the various departments of the Government of Canada that contribute to the larger reference volume, the *Canada Year Book*. The illustrations are selected from a wide range of governmental, commercial, press and private sources.

Canada 1962 is edited and produced by Mrs. Helen Marsh in the Information Services Division of the Dominion Bureau of Statistics under Dr. C. C. Lingard, Director of the Division.

Walter E. Suffitt.

Dominion Statistician

Dominion Bureau of Statistics,
Ottawa, Feb. 15, 1962.

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A few of the million tulips of more than 60 different varieties which draw crowds of admirers to the annual Tulip Festival in Ottawa. Each year a gift of thousands of new bulbs is presented to Canada by the bulb growers of Holland.

This road is part of 50 miles of landscaped parkways in and around Ottawa, built and maintained by the National Capital Commission.

Canada, The Country

Canada is a land of extremes: extremes of size, of climate, of scenery. With a land area of 3,560,238 square miles, it is second in size only to the U.S.S.R. with an area of 8,649,821 square miles. It has some of the longest rivers in the world, eight of them more than 1,000 miles long and one—the Mackenzie—2,635 miles in length. It has eight lakes more than 7,500 square miles in area, the largest being Lake Superior with an area of 31,820 square miles. It has a lake and river system that provides navigation for ocean vessels for 2,000 miles inland from the sea and it has saltwater ports on three great oceans to the east, the west and the north.

Canada's main physiographic features consist of a massive central upland of Precambrian rock surrounded by inner flanking lowlands and

outer marginal mountains. These are classified into eight regions: the Canadian Shield, the Hudson Bay Lowlands, the Interior Plains, the Cordilleran Region, the St. Lawrence Lowlands, the Appalachian Region, the Arctic Plains and the Innuitian Region.

The Canadian Shield, a vast and forbidding lake-stippled expanse of rock, bush and bog, is one of the richest ore-bearing formations in the world, containing as yet unknown reserves of iron, nickel, copper, lead, zinc, asbestos, salt, potash and many other metals and minerals. In the past decade mineral exploration has been intensified and mines, smelters, townsites and power plants have sprung up at many points deep in the north and many miles from the nearest town. Some of these, such as the uranium mine in the Beaverlodge area of Saskatchewan, are so remote that the only access to them is by air and water: the concentrates are shipped out by air. To reach others, it has been necessary to construct means of transportation; a good example is that of the iron mine at Lac Jeannine in Quebec, from which a 193-mile railroad had to be built to Port Cartier, where a half-mile-long harbour was blasted out of solid rock to enable 100,000-ton ore carriers to berth and load.

To assist in opening up the treasure locked in this formidable land, the Federal Government has initiated a program called "Roads to Resources" under which the federal and provincial governments are sharing the investment of \$145,000,000 in more than 4,000 miles of roads to otherwise inaccessible store-houses of natural wealth.

The Trans-Canada Highway winds its way past the foot of Mount Eisenhower in Banff National Park.





Bridges carry the highway across the meandering North Saskatchewan River near Borden, Saskatchewan.

Stretching across the country in an unbroken belt 600 to 1,300 miles wide is one of the world's finest and most extensive forests, of which about 56 p.c. is classified as productive. The industries it supports produce goods for home consumption and for export representing 14 p.c. of the net value of production of all the primary industries. The manufacture of pulp and paper has been Canada's leading industry for years and more than half of the world's newspaper pages are printed on Canadian newsprint.

There are fertile plains or valleys in every province, the largest being the prairies of the Interior Plains where mile upon mile of arable land have enabled Canada to become one of the great

grain-growing areas of the world. In the St. Lawrence Lowlands commercial agriculture is highly developed and, although it is Canada's smallest agricultural region, it accounts for almost half of Canada's cash farm income. The Appalachian Region is characterized by a range of low mountains extending from Newfoundland through the Maritimes to southeast Quebec, and the river terraces and valleys are ideal for mixed farming, potatoes and fruit, especially apples. In the Cordilleran Region four parallel mountain ranges are separated by lovely valleys famous for their orchards.

Both Atlantic and Pacific coastlines are rugged and tortuous, formed where the mountains slope into the sea. Extending several miles from shore a wide continental shelf runs under the Atlantic Ocean to provide the famous fishing grounds of which the Grand Banks of Newfoundland are the gathering place of fishermen from many countries every spring.

Canada has thousands of rivers and lakes. The swift-flowing rivers abound in fish and are a source of hydro-electric power; many of the lakes have been developed for recreational sites. The greatest lake and river system—the St. Lawrence River and the Great Lakes—provides water transportation for ocean vessels almost into the centre of the continent.

Approximate Land and Freshwater Areas of the Provinces and Territories

Province or Territory	Land	Freshwater	Total
	sq. miles	sq. miles	sq. miles
Newfoundland (incl. Labrador).....	143,045	13,140	156,185
Prince Edward Island.....	2,184	—	2,184
Nova Scotia.....	20,402	1,023	21,425
New Brunswick.....	27,835	519	28,354
Quebec.....	523,860	71,000	594,860
Ontario.....	344,092	68,490	412,582
Manitoba.....	211,775	39,225	251,000
Saskatchewan.....	220,182	31,518	251,700
Alberta.....	248,800	6,485	255,285
British Columbia.....	359,279	6,976	366,255
Yukon Territory.....	205,346	1,730	207,076
Northwest Territories.....	1,253,438	51,465	1,304,903
Canada.....	3,560,238	291,571	3,851,809

The total area classified by tenure is as follows:—

	<i>Sq. miles</i>		<i>Sq. miles</i>
Privately owned or in process of alienation from the Crown...	395,239	Provincial lands other than Provincial Parks and provincial forest reserves.....	1,638,560
Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,520,886	Provincial Parks.....	58,940
National Parks.....	29,276	Provincial forest reserves..	199,556
Indian reserves.....	9,246	TOTAL AREA.....	3,851,809
Federal forest experiment stations.....	106		

The day after this photograph of downtown Montreal was taken, it was obsolete. Skyscraper construction along Dorchester Street is taking place so rapidly that the city's skyline changes daily.



The high figure for federal land is accounted for by the fact that it includes the total area of the Yukon and Northwest Territories. All unalienated lands within the provinces are administered by the provincial governments.

Geographically, Canada is divided into ten provinces and two territories. Each province has its own provincial capital and its parliament buildings. The capitals vary from peaceful little Charlottetown, Prince Edward Island (population 17,956) to the sprawling metropolis of Toronto, Ontario (population 1,595,809). Other capital cities are St. John's, Newfoundland; Halifax, Nova Scotia; Fredericton, New Brunswick; Quebec, Quebec; Winnipeg, Manitoba; Regina, Saskatchewan; Edmonton, Alberta; Victoria, British Columbia.



Autumn, a time of mature beauty. In Eastern Canada the maples, oaks and elms light up the landscape with myriad hues of yellow, gold, bronze and brilliant scarlet.

The Climate

Canada has many climates, which vary from place to place and from season to season. Throughout most of Canada the seasons bring sharp contrasts, and extreme variability of weather may even occur in a matter of hours. There is nothing static or monotonous about Canadian weather and the pattern of work and play fluctuates throughout the year in deference to the dictates of the thermometer.

Located in the northern half of the hemisphere, the lands of Canada annually lose more heat to space than they receive from the sun. At the same time low latitude tropical countries are receiving more heat than they lose. To compensate for this, and to maintain a heat balance over all the earth, a general atmospheric air circulation regularly transfers heat poleward. The constant struggle taking place over North America between cold air attempting to surge down from the north and warm air trying to flow up from the south produces high and low pressure areas and the boundary line between the contrasting air masses, known as a weather front, usually is

characterized by large areas of cloud, precipitation and generally poor weather.

This general circulation pattern is greatly influenced by the physical geography of Canada. The mountains of the Western Cordillera limit the humid air from the Pacific to a narrow band along the coast of British Columbia. As the air is forced aloft over the successive mountain ranges, it is compelled to give up its moisture, becoming relatively dry and warm by the time it flows over the prairies. Were it not for the Cordillera, a humid, moderate type of climate would extend for hundreds of miles into western Canada. On the other hand, the mountains physically block the occasional westward-moving outbreaks of cold Arctic air which would otherwise reach the coast from the north and east.

East of the Cordillera and extending from the Arctic Ocean across Canada and the United States to the Gulf of Mexico lies a broad, relatively flat corridor. Consisting of Arctic barrens and boreal forests in the north and agricultural lands in the south, this corridor presents no obstacle of importance to the movement of large air masses from either north or south. Warm moist air from the Gulf of Mexico is able to flow northward providing the ample precipitation of southeastern Canada while massive cold air outbreaks from northwestern Canada are able to plunge southward and eastward without encountering any physical barrier. It is this north-south corridor open to rapid air flow from either direction that makes interior Canada so vulnerable to sudden and drastic weather changes.

On the other hand, the large water surfaces of central and eastern Canada produce a considerable modification in the climate. Winters are milder with more snow in southwestern Ontario, while in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. To a lesser degree the smaller lakes in interior Canada modify the climate but only of the adjacent shores.



Winter, too, has its moments of beauty.

Temperature and Precipitation Data for Certain Localities in Canada (Long-term average)

Station	Temperature (deg. Fahrenheit)					Precipitation Av. Annual (inches)	Bright Sunshine (hrs. per annum)	Freezing Temper- ature (days)
	Av. Annual	Av. January	Av. July	Extreme High Recorded	Extreme Low Recorded			
Gander, Nfld.....	38.9	18.6	61.6	96	-15	39.50	1,413	190
St. John's, Nfld....	41.0	24.0	60.0	93	-21	53.09	1,464	179
Charlottetown, P.E.I.....	42.5	18.8	66.6	98	-27	43.13	1,857	154
Halifax, N.S.....	44.6	24.4	65.0	99	-21	54.26	1,876	134
Sydney, N.S.....	42.8	22.7	65.0	98	-25	50.61	1,745	162
Saint John, N.B....	42.0	19.8	61.8	93	-22	47.39	1,902	148
Sept Îles, Que....	33.0	3.2	59.2	90	-46	41.94	..	210
Montreal, Que....	43.7	15.4	70.4	97	-29	41.80	1,811	143
Port Arthur - Fort William, Ont....	36.8	7.6	63.4	104	-42	31.62	1,797	208
Toronto, Ont.....	47.0	24.5	70.8	105	-26	30.93	2,047	123
Churchill, Man....	18.7	-17.3	54.7	96	-57	15.01	1,646	255
Winnipeg, Man....	36.6	0.6	68.4	108	-54	19.72	2,126	194
Regina, Sask.....	36.1	2.3	66.6	110	-56	15.09	2,264	214
Edmonton, Alta....	36.8	7.7	62.9	99	-57	17.63	2,173	196
Fort Nelson, B.C..	30.2	-7.3	61.7	98	-61	16.37	..	216
Victoria, B.C.....	50.2	39.2	60.0	95	-2	26.19	2,093	20
Whitehorse, Y.T....	31.1	5.2	56.2	91	-62	10.67	..	219
Aklavik, N.W.T....	15.8	-18.2	56.4	93	-62	9.77	..	261
Proßisher Bay, N.W.T.....	15.8	-15.8	45.7	76	-49	13.53	..	273

The figures for precipitation are the sum of the actual rainfall and one-tenth the depth of snowfall. Contrary to popular misconception, the precipitation in the north is much less than in the southern areas of Canada. For instance, Yellowknife, N.W.T. has an average rainfall of 5.0 inches and an average snowfall of 34.5 inches, while the averages for Sept Îles, Quebec, are 25.4 inches of rain and 165.5 inches of snow.

Spring, and New Westminster, British Columbia, celebrates May Day.





Children and adults alike love to wander through Aunt Sally's Farm in Winnipeg's Assiniboine Park.

Travelling-Places

Nearly 30,000,000 residents of other countries visit Canada each year. Some come to visit relatives, others on business, but the vast majority of them come to enjoy a holiday.

Canada is truly a traveller's paradise, with its diversity of scenery, its picturesque regional characteristics, its variations in climate and its wealth of special attractions in every season of the year.

There are, of course, the great cities with their theatres, their ballets, their art galleries, their museums and their historic sites. The largest and most cosmopolitan metropolitan area is that of Montreal, with a population of 2,059,341, and the second largest is Toronto, with a population of 1,595,809. Vancouver, with 777,197 people, Winnipeg, with 467,422, Ottawa, with 418,399, and Quebec, with 351,448, come next.

In January and February, when most of the land is blanketed with snow, *bonspiels*—local, regional and international—are the order of the day. Winter sports are highlighted by ski meets, skating championships and hockey playoffs. Many regions hold winter carnivals, the most elaborate being the ones held in Quebec and in Montreal. These go on for weeks and are featured by carnival parades, night ski-ing festivals, ice canoe races, dogsled derbies, masquerades and costume balls, street dancing in an ice palace and a generally pervasive spirit of revelry.



On June 6, 1961, the 70th anniversary of the death of Sir John A. Macdonald, Canada's first Prime Minister, was marked by the naming of his old grey stone Victorian home, Earncliffe, as a national historic site. Since 1930 it has been owned by the British Government and used as the residence and office of British high commissioners.

In March, the regional drama festivals begin, to culminate during May in the awarding of the year's Bessborough Trophy to the winning amateur production of all Canada. The Annual Winter Sports Carnival is held at St. Anthony, Newfoundland; the National Sportsmen's Show in Toronto; the Western Canadian Fiddlers Championships in Alberta; the Manitoba Winter Fair in Winnipeg and, in the stock country of the prairies, the spring bull and calf sales draw many visitors.

In April, spring is heralded in by the Montreal Botanical Gardens Easter Flower Show, and householders seek new ideas at the National Home Show in Toronto. In May, travellers load their cameras with colour film and, depending on what part of Canada they are in, flock to the Apple Blossom Festival in Nova Scotia, the Tulip Festival in Ottawa or the Victoria Spring Garden Festival. Devotees of square-dancing make their way to Kamloops, British Columbia, for the Annual Square Dance Jamboree.

June marks the opening of the Stratford Shakespearean Festival which runs until September, and of the summer theatre season. In the West, local stampedes and rodeos are held and competitors test their skill at calf-roping, broncho-riding and chuck-wagon-racing in preparation for the greatest show of them all, the world-famous Calgary Stampede, held in July. The 24th of June is a day for province-wide celebration in two provinces, for it is Discovery Day in Newfoundland and St. Jean Baptiste Day in Quebec. In Revelstoke, British Columbia, where the last spike was hammered in the transcontinental railway in 1885, Golden Spike Days mingle nostalgia with the excitement of a parade and sports events.

The lasting influence of their Scottish forebears is particularly evident among the Maritimers. In Nova Scotia during July are held the Gathering of the Clans and Fishermen's Reunion at Pugwash, the Highland Games at Antigonish and the Cape Breton Gathering at Sydney River, while a Highland Gathering is also held at Rothesay, New Brunswick. Even Edmonton, Alberta, has its annual Highland Games. Another annual gathering, but of a different ethnic group, is the Banff Indian Days held amid the grandeur of the Rockies. In July, 1961, Yarmouth, Nova Scotia, celebrated its 200th birthday with a "Bicentorama". The most succulent July celebration is the Lobster Carnival at Summerside, Prince Edward Island. In Ottawa, July marks the beginning of the colourful ceremony of the Changing of the Guard on Parliament Hill which is performed each morning until mid-September. In July, the Vancouver International Festival opens.



The start of the dog-race at the three-day Trappers' Festival held in February every year at The Pas, Manitoba.

In August, the oldest organized sports event in North America takes place—the St. John's Annual Regatta in Newfoundland. Prince Edward Island and New Brunswick hold Old Home Weeks. Nova Scotia is host to the North American Canoe Championships at Dartmouth, the Gaelic Mod at St. Ann's and the Nova Scotia Festival of the Arts and Crafts at Tatamagouche. The Montreal Festivals of the Arts, the Montreal International Film Festival and the International Festival of Popular Music in Quebec open. In Ontario, the Glengarry Highland Games are held at Maxville and, at Brantford, the Annual Six Nations Indian Pageant. The International Film Festival opens at Stratford and in Toronto the world's largest annual fair—The Canadian National Exhibition—opens its gates to 3,000,000 visitors. In British Columbia, there is an International Regatta at Kelowna and Penticton holds its Peach Festival and Square Dance Jamboree. In the Yukon, Dawson City celebrates Discovery Day.

In September, fall fairs are the order of the day. On the West Coast, the Pacific National Exhibition opens and on the other side of the continent the Nova Scotia Fisheries Exhibition and Fishermen's Reunion is held at Lunenburg. Football fans from coast to coast set aside Saturday afternoon to watch, in person if possible, or over television, the series of games that

Upper Canada Village, a tourist park in which buildings of the period 1784 to 1867 have been assembled and furnished, on historic Crysler's Farm on the St. Lawrence Seaway. In addition to various types of houses, there is a church, an inn, a hotel, a general store and farm buildings, and, in operation, a navigation lock of 1804, a sawmill, a blacksmith shop, a bakery, craft shops and a woollen mill.





The smelts are running and Parry Sound, Ontario, once again holds its outdoor smelt fry.

culminates in the tremendous celebrations of the Grey Cup Game. During the fall, horse shows are held in many centres, the largest and best known being the Royal Winter Fair in Toronto.

The autumn of the year is the season for enthusiasts in the art of colour photography, particularly in the East, where the maples provide an unforgettable spectacle in red and gold and bronze. When the first snow falls, hundreds of resorts prepare for the changeover from guests equipped with golf clubs and tennis racquets to those with skis and skates.

Many travellers come not to be entertained, but to entertain themselves as family groups and a familiar sight on almost any road is the family car laden with camping equipment or drawing a trailer. Some of the most spectacularly beautiful scenic tracts have been designated as National Parks by the Federal Government. They are equipped with the facilities and services that make them ideal playgrounds in every season of the year for people of every taste. Swimmers have their choice of hot mineral springs in the mountain parks, clear freshwater lakes in the prairie and eastern parks, and salt water in the provinces bordering the Atlantic. Dressing-room facilities are provided, as well as life guards at the main beaches. Some parks have heated outdoor pools.

There are 750 miles of good motor roads in the National Parks and 2,500 miles of well-kept hiking trails. Most of the parks have excellent golf courses, tennis courts, bowling greens, children's playgrounds and other facilities and many of them preserve forts, battlefields and other historic sites. In three of the National Parks in British Columbia and Alberta, winter sports have been developed on a large scale. Colourful winter carnivals and many championship ski-meets are held.

National park names and areas are as follows:—

<i>Park</i>	<i>Area</i>	<i>Park</i>	<i>Area</i>
	sq. miles		acres
SCENIC, RECREATIONAL AND ANIMAL		HISTORIC—continued	
Wood Buffalo, Alta. and N.W.T.	17,300.0	Fort Amherst, P.E.I.	222.0
Jasper, Alta.	4,200.0	Fort Lennox, Que.	210.0
Banff, Alta.	2,564.0	Fort Beauséjour, N.B.	81.3
Prince Albert, Sask.	1,496.0	Fort Prince of Wales, Man.	50.0
Riding Mountain, Man.	1,148.0	Fort St. Joseph, Ont.	47.0
Kootenay, B.C.	543.0	Halifax Citadel, N.S.	36.9
Glacier, B.C.	521.0	Fort Battleford, Sask.	36.7
Yoho, B.C.	507.0	Fort Anne, N.S.	31.0
Cape Breton Highlands, N.S.	367.2	Port Royal, N.S.	20.5
Waterton Lakes, Alta.	203.0	Grand Pré, N.S.	14.0
Terra Nova, Nfld.	156.0	Cartier-Brébeuf, Que.	14.0
Mount Revelstoke, B.C.	100.0	Alexander Graham Bell Museum, Baddeck, N.S.	14.0
Fundy, N.B.	79.5	Lower Fort Garry, Man.	13.0
Elk Island, Alta.	75.0	Woodside, Ont.	12.0
Prince Edward Island, P.E.I.	7.0	Fort Langley, B.C.	9.0
Point Pelee, Ont.	6.0	Fort Wellington, Ont.	8.5
Georgian Bay Islands, Ont.	5.4	Fort Malden, Ont.	8.0
St. Lawrence Islands, Ont. (acres)	172.0	Fort Chambly, Que.	2.5
HISTORIC		Fort Moncton, N.B.	2.1
Fortress of Louisbourg, N.S.	339.5	Batoche Rectory, Sask.	1.3
Signal Hill, Nfld.	243.4	St. Lin, Que.	1.0

Provincial parks, too, offer a wide choice of vacation pleasures. For the motorist, there are hundreds of roadside parks, equipped with tables and benches, cooking facilities and good water. These are usually chosen for their beautiful view or some special attraction, such as a bathing beach.

The Canadian Government Travel Bureau, Ottawa, issues leaflets, booklets and maps on almost every aspect of travelling in Canada, including angling and hunting regulations, calendars of events, information on package tours, border crossing, admission of aircraft, camp grounds and trailer parks, summer courses, canoe trips, maps and even a booklet on the distribution of ragweed in Canada for the benefit of sufferers from hay fever. These and many other sources of tourist information are available on request.

As the shadows lengthen, campers relax at Mont Tremblant Provincial Park in Quebec.





Planning for the 1961 Census began in 1957. Detailed briefing sessions were held for DBS personnel, regional supervisors and locally-hired staff. At left is the console of DBS' new \$2,300,000 computer system. Below, clerks are processing census data on population, migration, family size and income, housing, agriculture and merchandising. The Dominion Bureau of Statistics is the official central source of Canadian statistics and replies to thousands of inquiries every year.



Canada, The Community

On June 1, 1961, about 27,000 Canadians set forth to call at each of Canada's 4,500,000 households and at every merchandising and service establishment. Employed on a temporary basis by the Dominion Bureau of Statistics these were enumerators carrying out the tenth decennial Census of Canada, as required by law to ensure proportionate representation of the population of each province in the House of Commons. It is more than a century since the hard-fought and hard-won struggle for democratic government was waged, and its endurance is protected by counting the entire population every ten years and adjusting the number of Members of Parliament from each province, where fluctuations in population make it necessary.

Population counts are not new; there are records of census-taking in Babylonia about 3800 B.C.; in China about 3000 B.C.; in Egypt about 2200 B.C.; and in the 15th century B.C. Moses numbered the Children of Israel. Canada's first census took place in 1666, when 3,215 residents of New France were registered. Early censuses were used to muster fighting men for foreign wars or to levy taxes. Today in Canada the use of the Census for any such purpose is expressly forbidden by law; no information concerning individuals may be made available to any person or agency, governmental or private.

Many are the uses, besides that of adjusting parliamentary representation, to which census information is put. A number of federal payments to the provinces are related to population, including the original payments granted under the British North America Act, the federal-provincial tax agreements of recent years, and the federal share of hospital insurance.

A country's prime asset is its people. Who are they, where do they live, how old are they, what is their work, what language do they speak, how much education have they? The answers to these questions form the background against which the economic and social pattern of Canadian life is planned and shaped. Not only do they delineate per capita grants; they point out future needs for schools, hospitals, roads, such services as community water and sewage disposal plants, even areas to be set aside for cemeteries.

Census results are used extensively by business men. Boards of trade and chambers of commerce use the figures to study and promote community projects, and to further business and industrial development. Statistics supply the business man with information on the size of domestic markets. They help him decide on the advisability of expansion and possibilities of store and plant location. They help determine quotas for salesmen, and indicate where necessary occupational skills are available. They supply the business and financial community with a variety of information useful in appraising business developments and investment opportunities. Newspaper and other periodical publishers, along with radio and television stations, can better serve their communities when figures on the density and characteristics of the population are available.

There is, in fact, scarcely a branch of business activity—manufacturing, selling or financing—that does not have specific uses for census figures.

The first result of the 1961 population count showed that the Canadian people had increased by well over 4,000,000 since 1951—almost double the population growth of any other ten-year period—of which about one quarter

was due to excess of immigration over emigration. The rate of population increase in the 1950's—nearly 30 p.c.—if sustained, could almost double the population of Canada in a generation, continuing the rate of growth in the last two 30-year periods.

Greatest increases among the provinces were recorded in Alberta and British Columbia, which grew at the phenomenal rate of 4 p.c. per year during the 1950's. Alberta's spectacular growth was due mainly to its high rate of natural increase, a rate which was second only to Newfoundland's. In British Columbia, however, an important factor was the drift of population to the Pacific province from other provinces. Ontario, too, showed a net gain due to interprovincial population movement, but somewhat smaller than that of British Columbia. All other provinces showed net losses in interprovincial migration.

Ontario and Quebec showed increases around 35 p.c. and just under 30 p.c. respectively. While substantial numbers of births, at rates of 26.2 for Ontario and 27.0 for Quebec, contributed materially to population growth in these provinces, a significant factor was the large inflow of immigrants. Of the 1,543,000 immigrants entering Canada during the decade, 817,000 were destined to Ontario and 325,000 to Quebec.

With the exception of Newfoundland, where population growth during the 1950's, responding to the continued high birth rate, reached almost 30 p.c., the Atlantic Provinces showed rather modest growth rates. The drift of population from these provinces to other parts of Canada continued, with a net loss of one in twenty of their 1951 population.

In Saskatchewan, although its population rose by 10 p.c., the net number of people leaving the province is estimated at the equivalent of one of every ten people in Saskatchewan in 1951.

The greatest rate of growth in Canada, however, was registered in the Yukon and Northwest Territories, where an increase of around 50 p.c. was recorded, although the actual number of people representing this increase in a population of only 25,000 in 1951 was, of course, rather small.

Population by Provinces, 1901, 1931, 1951 and 1961, and Percentage Change 1951-61

Province or Territory	Population				Increase 1951 - 1961	
	1901	1931	1951	1961 ¹	No.	P.C.
Canada	5,371,315	10,376,786	14,009,000	18,168,000	4,159,000	29.4
Newfoundland..	2	2	361,000	469,000	108,000	29.9
Prince Edward Island.....	103,259	88,038	98,000	105,000	7,000	7.1
Nova Scotia.....	459,574	512,846	643,000	732,000	89,000	13.8
New Brunswick.....	331,120	408,219	516,000	612,000	96,000	18.6
Quebec.....	1,648,898	2,874,662	4,056,000	5,217,000	1,161,000	28.6
Ontario.....	2,182,947	3,431,683	4,598,000	6,208,000	1,610,000	35.0
Manitoba.....	255,211	700,139	776,000	912,000	136,000	17.5
Saskatchewan.....	91,279	921,785	832,000	918,000	86,000	10.3
Alberta.....	73,022	731,605	939,000	1,322,000	383,000	40.8
British Columbia	178,657	694,263	1,165,000	1,636,000	471,000	40.4
Yukon and N.W.T.....	47,348	13,546	25,000	37,000	12,000	48.0

¹ Estimated. ² Populations of Newfoundland (not part of Canada until 1949) were: 1901, 220,984; 1931, 281,500 (estimated).



Canadians live in many kinds of communities, varying from villages like Ste. Anne de la Pocatière in rural Quebec (pop. 4,253) to towns like Kapuskasing in Northern Ontario (pop. 6,697) and cities like the Metropolitan Corporation of Greater Winnipeg (pop. 467,422).



Elements in Population Growth, Canada and Provinces, 1951-1961

Province or Territory	Natural Increase		
	Births	Deaths	Natural Increase
Canada	4,464,890	1,318,263	3,146,627
Newfoundland.....	140,894	28,998	111,896
Prince Edward Island.....	26,874	9,377	17,497
Nova Scotia.....	187,487	59,258	128,229
New Brunswick.....	165,464	45,888	119,576
Quebec.....	1,345,062	349,112	995,950
Ontario.....	1,427,097	471,343	955,754
Manitoba.....	219,902	70,340	149,562
Saskatchewan.....	238,815	66,606	172,209
Alberta.....	344,843	81,517	263,326
British Columbia.....	355,593	131,973	223,620
Yukon and N.W.T.....	12,859	3,851	9,008

Province or Territory	Migration				
	Immigration	Estimated Emigration	Net Immigration	Net Inter-provincial Migration	Total Net Migration
Canada	1,542,853	530,480	1,012,373		1,012,373
Newfoundland.....	4,200	1,819	2,381	-6,277	-3,896
Prince Edward Island.....	1,451	3,104	-1,653	-8,844	-10,497
Nova Scotia.....	19,148	17,258	1,890	-41,119	-39,229
New Brunswick.....	9,718	8,832	886	-24,462	-23,576
Quebec.....	325,329	126,157	199,172	-34,122	165,050
Ontario.....	817,292	273,433	543,859	110,387	654,246
Manitoba.....	66,344	30,523	35,821	-49,383	-13,562
Saskatchewan.....	30,715	14,924	15,791	-102,000	-86,209
Alberta.....	112,520	16,369	96,151	23,523	119,674
British Columbia.....	155,052	41,072	113,980	133,400	247,380
Yukon and N.W.T.....	1,084	-3,011	4,095	-1,103	2,992

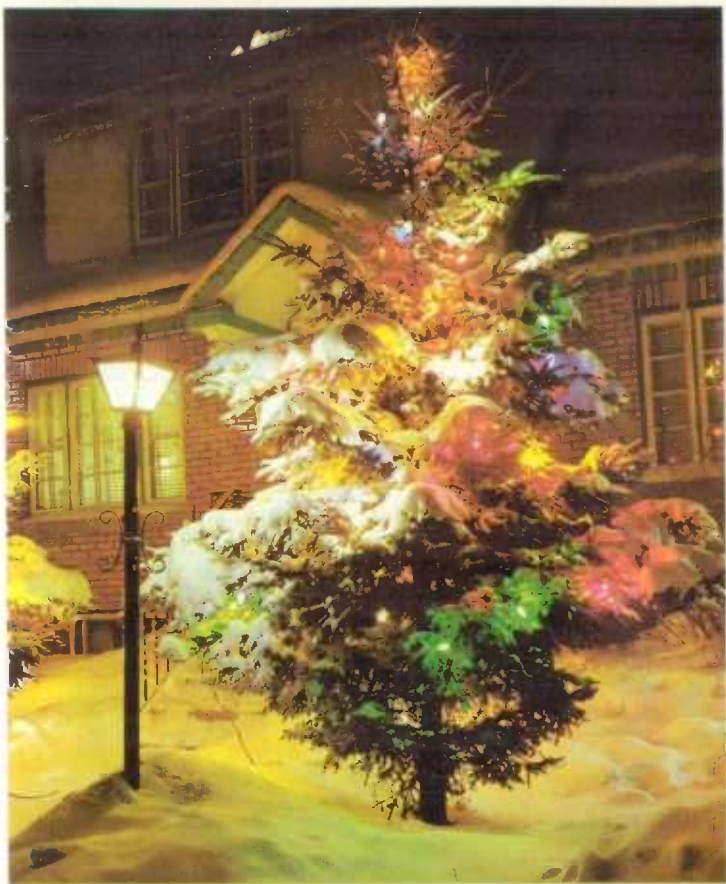
The Canadian Family

Most people think of a family as a group of blood relatives of all generations. When it comes to counting families, however, the unit must be given a more precise definition. Under the definition of the family by which the Canadian census counts heads, it is a resident rather than a biological unit. It consists of two or more persons, either husband and wife, with or without unmarried children under 25 living at home, or of one parent with one or more children. A household consisting of a married couple living with the parents of one of them would comprise, according to this definition, two families. Thus the size of the average Canadian family, which is about four persons, reflects the limitations of the definition, as the number of children per family is actually increasing.

Of the estimated 4,138,000 families, comprising 16,081,000 people, in the ten provinces of Canada in 1960, 3,779,600 families, comprising 15,028,000 people, were composed of both a husband and a wife living together, with or without children. The size of these families varied from an average of 3.6 in British Columbia to one of 4.4 in Quebec and in the Atlantic Provinces.

A small proportion of Canadians—9.7 p.c.—are not, statistically speaking, members of families, though many of them live with relatives, and, with them, make up a household, which is defined as a person or persons, related

Christmas is the great family festival in Canada when all who can, go "home". Nearly 5,000,000 spruce, fir, balsam and pine trees are marketed each year in Canada and are set up indoors, where they are decorated with tinsel and lights. Those fortunate enough to have suitable trees outdoors will often decorate them and elaborate displays are put up in public places.



or not, living together in an independent residential unit, be it house, flat or apartment.

There are 4,404,000 households in the ten provinces of Canada. More than two-thirds of the heads of these households own their own homes; the remainder live in rented premises. Canadians prefer to live in houses; only two in five households live in an apartment or a flat.

If one could look into all these homes it would be easy to assess the standard of living of Canadian households, for there are radios in 96 p.c. of them, refrigerators in 92 p.c., washing machines in 86 p.c., telephones in 85 p.c., television sets in 84 p.c., sewing machines in 70 p.c., vacuum cleaners in 69 p.c., and clothes dryers in 15 p.c. Outside the house, 69 p.c. of households have a passenger car,—in fact, 8 p.c. have two or more. The popularity of the home freezer is attested to by the fact that one in eight households owns one.

Inside all these households, there are people of all ages. Canadians under 20—7,351,300 of them—greatly outnumber those between 20 and 40, who total 4,920,300. There are 3,637,700 people between 40 and 60, and 1,904,700 over 60. Just over half—50.7 p.c.—are males.

In 1959, Canadians spent \$16,284,000,000 in retail trade—an average of \$905 for every man, woman and child. Of every dollar they spent, 20.6

cents went for food, 16 cents for motor vehicles, (of which 9.4 cents went toward the purchase of a new car), 8.9 cents on clothing and shoes, 2.6 cents on hardware and 4.9 cents on furniture and household appliances.

During 1960, the average housewife bought a 24-oz. loaf of bread for 23 cents, a pound of coffee for 73 cents, of tea for \$1.19, of flour for 9 cents, of butter for 70 cents and of lard for 20 cents. She paid 54 cents a dozen for eggs, 6 cents a pound for potatoes, 24 cents a quart for milk and 52 cents a dozen for oranges. Bacon was 81 cents a pound, cheese 73 cents, bologna 43 cents, sirloin steak 98 cents and stewing beef 65 cents. The flow of European immigration since the Second World War has brought an unexpected boon to the country as a whole in that it has stimulated the import to Canada and the manufacture in Canada of many interesting foods formerly unknown or classed as infrequent luxuries.

Births, Marriages and Deaths. The record of vital events such as births, marriages and deaths becomes a storehouse of indispensable information providing a composite life history of a country or community. In Canada the expansion of the economy over the past few decades has increased the general standard of living and altered trends in the key movements of birth, marriage and death rates.

In spite of the building of huge apartment blocks as redevelopment projects, 72 p.c. of Canadian households still live in houses. To heat them, 57 p.c. of householders burn oil; 19 p.c. gas; 12 p.c. coal or coke; and 12 p.c. burn wood.



In recent years no less than four-fifths of Canada's population growth has been the result of the gain of births over deaths and the balance the excess of immigration over emigration. For example, during 1960, 478,551 infants were born alive while 139,693 deaths occurred during the year, leaving a net natural increase of 338,858 persons, or the equivalent of more than 19 persons for every 1,000 in the population.

The actual number of births in Canada has increased from about 250,000 per year in the 1920's to close to 500,000 at the present time; the birth rate (per 1,000 total population) has fluctuated widely during the past 40 years. During the 1920's and 1930's the rate dropped gradually from a high of 29.3 in 1921 to a low of 20 to 21 during the four years preceding World War II. During the war years the rate stood at 23 to 24 and since 1946 has ranged between 29 and a low of 26.9 in 1960. In all provinces in 1960 the birth rate was lower or unchanged from the previous year with the exception of Newfoundland which reported a fractional increase.

Canada's marriage rate at 7.3 per 1,000 population in 1960 was the lowest rate since 1935. During the 1920's Canada's marriage rate varied between 6.9 and 7.9 per 1,000 population but sank to a low of 5.9 in 1932 after which there was a gradual rise. The early war years brought a concentration of marriages which it is claimed were 'borrowed' both from the past and the future, in that they included marriages postponed during the depressed 1930's and subsequently made possible by wartime prosperity and other cases where the date may have been advanced because of impending departure overseas. There was a sharp drop during the later years of the war and this in turn was reversed in 1946-47. There has been a gradual decline since then and in the past two years the number of marriages has been reduced from 132,474 in 1959 to 130,338 in 1960.

In 1960 a record low death rate of 7.8 was achieved compared with 8.0 in 1959 and a previous record of 7.9 in 1958. Since the inception of national vital statistics in 1921 the Canadian rate has been gradually reduced from 11.6. In 1960 provincial rates varied from a low of 6.6 in Newfoundland to highs of 9.3 in Prince Edward Island and 9.2 in British Columbia. For Canada as a whole the infant death rate and the maternal death rate dropped between 1959 and 1960.

During the 20th century, as far as health is concerned, Canada has been in the forefront of industrial nations. Shortly before 1900, health research entered the so-called bacteriological era when the primary concerns were the identification and classification of communicable diseases, their modes of transmission and control methods. Within a lifetime, the communicable diseases have been virtually eliminated as leading causes of death in Canada.



In Ontario, birth certificates are issued on wallet-sized cards sealed in protective plastic. Birth certificates are issued from the capital city of the province in which the birth occurred.



Traffic safety education is stressed in an effort to decrease the number of traffic accidents which totalled 247,829 and took 3,283 lives in 1960.



School safety patrols teach pedestrian safety rules; bicycle, automobile and truck "rodeos", in which young children, teenagers and truck drivers compete for regional and national championships by means of written examinations, physical aptitude tests, obstacle driving tests and in-traffic driving, have focussed attention on the importance of driving skill and observance of the rules of the road.



The major causes of death today are degenerative conditions or diseases associated with advancing age, cancer, and accidents, with the result that a smaller number of such leading causes account for an increasing proportion of all deaths.

Certain diseases, however, still take a heavy toll at different stages of life. Congenital conditions and immaturity are the major causes of death in infancy, accidents in youth, and circulatory disorders and cancer among middle-aged and old persons. Accidents rank as the leading cause of death for both males and females in the age group 5-19 years and for males in the age group 20-44 years. Although tuberculosis is far from being a major cause of death for the population as a whole at the present time, it is however the fifth leading cause of death for males in the age group 20-44. Cancer is the leading cause of death for females between 20-44 while in all groups except pre-school children it is the second or third major cause of death. In the age groups above 44 years cardiovascular disease is always the leading cause of death.

Declining mortality has, of course, had many effects on the population and family life. It has meant not only increased chances of survival for people of all ages, a longer life expectancy and hence an increased population at all ages, but it has also affected such interacting factors as the age at which persons marry, the duration of their marriage and the eventual number of their children, the age at which children become independent and self-supporting and even the period of orphanhood and widowhood. For example, couples are marrying at younger ages than formerly and reductions in death rates indicate that there is much less chance today than formerly that a man entering marriage will die during the period of his greatest family responsibility, that is, before the marriage of his youngest child. Again, the present greater likelihood of survival to middle and old age has increased the average length of married life and markedly reduced the chances of orphanhood for children. On the other hand, because mortality has declined more for women than men, there has been an increase in the chances that a wife will outlive her husband and that her period of widowhood will be lengthened.

Births, Marriages and Deaths, 1926-61

(Newfoundland included from 1949)

Year	Births		Marriages		Deaths		Natural Increase	
	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹
Av. 1926-30....	236,712	24.1	71,924	7.3	109,164	11.1	127,548	13.0
Av. 1931-35....	228,591	21.5	68,660	6.5	103,800	9.8	124,791	11.7
Av. 1936-40....	229,064	20.5	96,931	8.7	109,764	9.8	119,300	10.7
Av. 1941-45....	277,320	23.5	114,091	9.7	115,572	9.8	161,748	13.7
Av. 1946-50....	355,748	27.4	126,898	9.8	120,438	9.3	235,310	18.1
Av. 1951-55....	416,334	28.0	128,915	8.7	126,666	8.5	289,668	19.5
1956.....	450,739	28.0	132,713	8.3	141,961	8.2	318,778	19.8
1957.....	469,093	28.3	133,186	8.0	136,579	8.2	332,514	20.1
1958.....	470,118	27.6	131,525	7.7	135,201	7.9	334,917	19.7
1959.....	479,275	27.5	132,474	7.6	139,913	8.0	339,362	19.5
1960.....	478,551	26.9	130,338	7.3	139,693	7.8	338,858	19.1
1961 ²	474,000	26.1	127,000	7.0	140,500	7.7	333,500	18.4

¹ Per thousand population.

² Estimated.



Life expectancy increases for Canadians every year, but is consistently higher for women than for men. A five-year-old girl can expect to live another 70 years; a 60-year-old woman, nearly 20. A boy of five can expect to live $65\frac{1}{2}$ years; a man of 60, $16\frac{1}{2}$.

Life Expectancy. No more impressive symbol of improved living conditions exists than the record of average life expectancy. Prehistoric man lived an average of less than 20 years, with very few reaching 40, according to fragmentary evidence from fossils. Canada's official life table shows that by 1956 life expectancy at birth had reached 67.6 years for males and 72.9 years for females. For males this compares with 60 years in 1931, 63 years in 1941 and 66.3 years in 1951, while the figures for females were 62.1 in 1931, 66.3 in 1941 and 70.8 in 1951. Females have consistently had a higher life expectancy than males; the difference has increased from 2.1 years in 1931 to 3.3 in 1941, 4.5 in 1951, and 5.3 years in 1956.

The increases in life expectancy have been predominantly at the younger ages, particularly in infancy, and diminishing in old age. For example, since 1931, 3.2 years have been added to the life expectancy of a five-year-old male, 2.1 years to a 20-year-old, over 8 months to a 40-year-old, and just over 2 months to a 60-year-old as compared with 7.6 years for a newborn male. During this period life expectancy for a five-year-old female gained 7.2 years, 6.0 years for a 20-year-old, 3.7 years for a 40-year-old, and 2.1 years for a 60-year-old as compared with 10.8 years for a newborn female.

There are interesting regional variations in life expectancy. In 1956 the Prairie Provinces had the highest expectation of life at birth for both males and females. A boy born in the Prairie Provinces could, on the average, expect to live over a year longer than one born in British Columbia, about a year and a half more than one born in the Atlantic Provinces or Ontario and over three years more than one born in Quebec, whereas for a girl life expectancy at birth ranged from 71 to over 74 years.

Average Life Expectancy at Selected Ages, 1956

(Years)

	Canada	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
MALES						
At birth.....	67.6	67.9	66.1	67.8	69.3	68.1
1 year.....	69.0	69.7	68.1	68.8	70.5	69.2
20 years.....	51.2	52.0	50.4	50.8	52.6	51.3
40 years.....	32.7	33.6	31.9	32.2	34.1	33.1
60 years.....	16.5	17.3	16.0	16.1	17.4	16.9
FEMALES						
At birth.....	72.9	72.9	71.0	73.6	74.2	73.9
1 year.....	74.0	74.2	72.6	74.3	75.1	74.7
20 years.....	55.8	56.0	54.4	56.0	56.9	56.5
40 years.....	36.7	37.0	35.4	36.7	37.7	37.5
60 years.....	19.3	19.7	18.3	19.4	20.1	20.0

The reduction in mortality from infectious diseases, particularly among children and adolescents, is largely responsible for the improvement in life expectancy; 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 last two decades. Further declines in mortality must come about as a result of improvement in mortality associated with childhood and early infancy, further control of infectious diseases, prevention of accidents, and advances in combatting diseases associated with middle and old age, such as heart, circulatory and kidney conditions and cancer.

This little Ontario lad has a life expectancy $1\frac{1}{2}$ years shorter than if he had been born in Alberta, $1\frac{1}{2}$ years longer than if he had been born in Quebec.



The Native Canadians

Almost all the Canadians of today or their ancestors immigrated to Canada during the last three and a half centuries. Only a very small proportion—about one in a hundred—are descended from the original inhabitants of this area of the world and to this day their origins are not exactly known. They are the Indians and Eskimos, peoples whose language and culture are quite separate and who, for the most part, live in separate latitudes. The treeline is generally the southern boundary for the Eskimo and the northern limit for the Indian. In only four centres—Aklavik and Inuvik near the mouth of the Mackenzie River, Churchill on the west side of Hudson Bay, and Great Whale River on the east side of Hudson Bay—do they share the same community. Of recent years the Federal Government has achieved much progress in raising their standards of health, living and education and each year the process of integration—particularly at the school-age level—takes another step forward.

Indians

In southern Ontario, a small group of Indians are helping to build Canada's first nuclear power plant; in the same province there are Indians who for many years to come will continue to follow the nomadic life of their ancestors. The Indians of Canada number 185,000 and the 562 bands are at many different stages of development.

No longer a dying race—indeed, they are now increasing more rapidly than any other ethnic group—Indians are slowly finding a place in a larger Canadian society. Every year more young Indians are seeking employment and a life of their own away from the reserves. Today, approximately 26 p.c. of the Indian population now live off the reserves. This movement



A model home, especially designed for Indian use, was built by teenagers as a school project on the Peguis Reserve, 100 miles north of Winnipeg, at a cost of \$3,000 for materials. The girls painted the house inside and out, laid tile floors and made dropes, cushions and bed-lins. Here an instructor guides two boys as they work on furniture to be installed in the model house.

To encourage the trend toward self-government on the reserve, the Federal Government sponsors courses and conferences on leadership. At this meeting of Indian chiefs and councillors, the two main topics for discussion were how to conduct a meeting and a band council election. Most of the delegates came from isolated reserves accessible only by plane, and earn their living fishing, pulp cutting, guiding and trapping.



stems largely from intensified education and economic development programs.

Education is the linchpin around which the future of the Indian race will be formulated. At the end of 1961 there were 45,000 Indian children in school—double the number of a decade ago. Of these, one in every four Indians is now attending a non-Indian school. This program of integration is a most significant development in education. Of growing importance are the "joint school" agreements between the Indian Affairs Branch and local school boards, under which Indian children from nearby reserves are admitted into local town schools. Usually, in order to accommodate them, the local school board must build additional classrooms. In such instances, the Federal Government pays part of the construction costs as well as a tuition grant for each Indian pupil. Many of the students going to integrated schools are attending high school classes. Last year, 2,000 Indian teenagers were taking grades 9 to 12 in non-Indian schools, while 84 young Indians were taking grade 13 and university courses.

These young people are being schooled so that they can compete on equal terms with non-Indian students in the world of work. To help them find employment, the Indian Affairs Branch in 1957 launched a job placement program. There are now 14 placement officers located in Vancouver, Prince George, Edmonton, Calgary, Whitehorse, Fort Smith, N.W.T., Saskatoon, The Pas, Winnipeg, North Bay, London, Toronto, Quebec City and Amherst, N.S. These men guide students from the classroom into employment, using the channels of the National Employment Service, see that they have comfortable boarding houses and usually keep in touch with them through social groups. The young Indian must not only adjust to big city life but must also try to cross the bridge between Indian and non-Indian ways of thinking. Many of these young people, after leaving school, are given on-the-job training, or they are placed in technical institutes to help train them for living in a technological society.

For the older Indians and for those who prefer to live on the reserves, there are many economic development programs. Most important to the Indian economy are trapping and fishing. The main cash crop of the Indian is still fur and the federal and provincial governments co-operate in extensive fur management schemes. Although the price of raw furs has declined substantially over the past ten years, it now appears to be stabilized but at a level much too low in relation to prices that Indian trappers must pay for food, equipment and other services to provide more than a bare subsistence

living during the trapping season. There is, however, an important aspect of trapping which is often over-looked. This is the value of food provided by game and fur animals to those Indians who still hunt and trap. It is estimated that the meat value of all game taken by Indians is approximately \$20,000,000 a year. This is in addition to the value of furs which amounted last year to roughly \$6,750,000.

Commercial fishing, which is comparatively new, is rapidly coming into first place as a source of income in the northern areas. Young Indians are being trained in management for the day when they will take over the management of their own fisheries. There are, for example, goldeye fisheries at Lake Claire in the Athabaska territory, winter fisheries at Hay River, trap net experimental fisheries on Lake Winnipeg, general summer fisheries at 34 locations in the Kenora, Port Arthur, Nakina and Sioux Lookout areas, sturgeon and char fisheries in James Bay, sturgeon fisheries in the Abitibi agency and a salmon fishery in the Bersimis agency, and also the vast Pacific Coast fisheries in which Indians have been working for many years. It is estimated that Indians earned \$5,000,000 from fishing commercially.

In addition, for their own use, they catch 20,000,000 pounds of fish annually.

There are other crops which help to support Indians living on reserves. One is the wild rice harvest which netted \$275,000 last year to Indians in Peterborough and in the Kenora-Southern Manitoba region. Slightly more than this was earned from picking blueberries and other income is also derived, for example, from digging seneca and ginseng roots, frog picking, gathering fiddleheads and cutting Christmas trees.

On the reserves many Indians are farmers, some are loggers, some are guides. Wherever reserves are near the larger centres of population, Indians find work in factories, businesses and offices.



Three of the top print makers of the West Baffin Eskimo Co-operative at Cape Dorset: Iyola, Luktak and Eejay vudluk. From this studio came the seal skin stencil on the cover of this volume.

Eskimos

The 11,500 Eskimos who live in the Northwest Territories, northern Quebec, and Labrador are no longer a scattering of nomads sealed off by isolation from the rest of Canada in this age of air transportation and electronics.

The Eskimos have emerged from remoteness at a period when peoples, who for centuries have existed at mere survival levels, are reaching for the tools they see in the hands of the more fortunate,—tools of literacy, vocational education, new knowledge to help them extract a better living from land and water and make the old uncertain harvests richer and more stable.

Translated into Eskimo experience, modern progress means that the one-man kayak, once the only hunting water-craft, is now lashed to the deck of a co-operatively-operated power boat big enough to carry a dozen Eskimos to the seal-hunting or fishing grounds. It means that over half the Eskimo children of school age are among the more than 5,000 students of all races in the Northwest Territories,—Eskimo, Indian, and others—who go to school together. Learning in Eskimo communities nowadays takes many forms. It can be classroom instruction, vocational training, or the type of out-door learning that teaches hard-working, intelligent men how to make a better living from the resources of their land.

One of the most pressing needs in Arctic communities is more Eskimo housing. To alleviate an acute shortage of warm, dry dwellings the Department of Northern Affairs and National Resources has introduced a new program of loans and grants to enable more Eskimo families to own their homes. Though many still choose to live on the land at varying distances from settlement, more and more are becoming wage-earners in need of permanent homes. Some of the new housing being provided is a relief measure to aid those people, usually with physical handicaps, who cannot afford to

These Eskimos being taught the operation of blow-out preventor controls on an oil-drilling rig were among the crew that went to the Queen Elizabeth Islands in 1961 to take part in the first oil-drilling operation in Arctic Canada.



contribute towards their own shelter, but most homes are being purchased by the Eskimos on terms adjusted to what they can afford. Eskimos are, of course, eligible for all forms of social assistance, including Family Allowances and old age benefits.

The growth of the Eskimo co-operatives is one of the most heartening forms of economic development to be introduced into hard-pressed Arctic communities. There are now five fishermen's co-operatives, four shipping out Arctic char, the other shipping salmon caught in the most northern range of the Atlantic salmon in Canada. A new fishing co-operative at Cambridge Bay, some 1,200 miles north of Edmonton, produced in 1961 the first Arctic char to reach western Canada. The West Baffin Eskimo Co-operative at Cape Dorset, to which the Eskimo graphic artists belong, operates a sport fishing and hunting camp for adventurous sportsmen who may choose whether to stay in tents or in full-size plastic igloos.

The Cape Dorset graphic art is probably the best-known Eskimo enterprise. In two years, and from the sale of only two collections, this small and talented group of men and women has enriched the community by \$82,000. Quite as impressive from Canada's standpoint is the recognition that the work of Eskimo artists has received from distinguished critics in Canada and abroad. During the summer of 1961 two Arctic art tours to Cape Dorset were arranged by the government to give Canadian art-lovers an opportunity to meet artists they have been hearing so much about. Soapstone carvings continue to be the choice of an ever-growing number of collectors and exhibitions of Eskimo art have proved to be among the most popular exhibits that Canada has ever sent abroad.

Elsewhere in the Arctic, development is taking different forms. At the Northern Affairs Eskimo Rehabilitation Centre at Frobisher Bay in the eastern Arctic, where Eskimos make up about half the population of some 1,800 people, stone carving, wood-working, and classes in home-making and management-training are carried on. Here the deputy director is a young Eskimo; so too, is the manager of arts and crafts.

Excellent vocational education facilities available at Yellowknife and Inuvik mean that most Eskimos can train for various types of wage employment without going outside the north. A few groups, however, still go south for training in specialized skills, such as the operation and maintenance of diesel electric power plants.

Immigration

Since the end of World War II more than 2,000,000 immigrants have been admitted to Canada. Of these, the greatest proportions were from the United Kingdom, Italy and Germany.

In 1961, Canada received 71,689 immigrants, the lowest figure since 1947. The decline in immigration was attributed to the buoyant economies of those European countries from which Canada draws the greatest proportion of her immigrants, and to the reports of unemployment in this country. In relation to total movement, however, the professional and managerial classes of immigrants formed a greater proportion in 1961 than they did in any similar post-war period. Also, a higher proportion of them settled in the Atlantic area, in Quebec and British Columbia.



Of Canada's 106,928 immigrant arrivals in 1959, 8,873 were born in the United States. During the same year 34,599 people emigrated from Canada to the United States, of whom 23,082 were born in Canada. In 1960 Americans and Canadians each made more than 23,000,000 border crossings by car.

Immigrants are either "sponsored", as close relatives or prospective employees, or "unsponsored", as capital, self-establishment cases, open placement cases, or cases of exceptional merit. Their civil examination and counselling take place, in most instances, when medical and X-ray examinations are conducted. The immigrant then has an opportunity to discuss with the visa officer opportunities in his line of work in Canada, and to obtain information about living and working conditions in this country. If the immigrant has not sufficient funds, he may apply for assisted passage in the form of an interest-free loan to help pay for transportation.

As one of its contributions to World Refugee Year, Canada has admitted a total of 6,912 persons, including 325 tubercular refugees and 501 members of their families. The majority have been rapidly integrated into Canadian life. Refugees came from many parts of Europe but the majority were Polish, Ukrainian and Yugoslavian.

Canada has gained much from immigration. In the past 12 years, for example, more than 9,000 businesses have been established and more than 6,000 farms purchased by post-war newcomers. The value of these businesses and farms reported to Immigration Branch officials amounts to more than \$162,000,000 and they provide employment for more than 42,000 persons. Indeed, there may be many other such new enterprises, for no immigrant is obliged to report his business or farm purchase to the Department. Dutch farmers, who have brought to Canada their experience, skill and many new techniques, have predominated in the purchase of farms.

Canadian Immigration Offices abroad are located in the following centres: Vienna, Brussels, Copenhagen, Helsinki, Paris, Cologne-Mulheim, Berlin, Hamburg, Stuttgart, Munich, Athens, Dublin, Rome, The Hague, Oslo, Lisbon, Stockholm, Berne, London, Liverpool, Glasgow, Belfast, Leeds, Bristol, Hong Kong, New Delhi, Tel Aviv, New York, Chicago, Denver and San Francisco.



On the eve of Citizenship Day, 1961, 40 new citizens from 15 countries were granted Canadian citizenship in a special ceremony in the Manitoba Legislative Building. During 1956-58, 142,189 citizenship certificates were granted. This figure represents 27 p.c. of all immigrant arrivals between 1951 and 1953. In 1959, 71,280 certificates were granted and in 1960, 62,378. Most applicants for citizenship were of European origin.

Citizenship

Prior to January 1, 1947, there was no such status as Canadian citizenship although the Immigration Act of the day referred to certain classes of persons as "Canadian Citizens" for the purposes of that Act, and the Canadian Nationals Act entitled certain persons to be known as "Canadian Nationals". Canadians did, however, possess a wider status. In common with nationals of other parts of the British Commonwealth and Empire, they were entitled to style themselves "British subjects".

The Canadian Citizenship Act altered this picture. This Act established a Canadian national status and specified what classes of persons were entitled to claim this status as of January 1, 1947, the date of its enactment. It also provided for the acquisition of Canadian citizenship by British subjects and aliens.

Residents of Canada may now be classed as Canadian citizens, British subjects or Commonwealth citizens, or aliens.

Canadian citizens are either "natural-born" or "other than natural-born". Natural-born citizens are (1) those who became entitled to this status on January 1, 1947, whether by birth or by derivation; (2) those who have been born on or since that date and who have either (a) been born in Canada or on a Canadian ship, or (b) whose derivative status has been recognized in accordance with the provisions of the Canadian Citizenship Act. "Other than natural-born" citizens are persons who, while having no claim to natural-born status, had citizenship conferred upon them on January 1, 1947, on account of prior naturalization, by domicile, residence or marriage. Also included in this category are persons to whom citizenship has been granted upon application since January 1, 1947.

An adult alien who wishes to become a Canadian citizen must file an

application for citizenship with the citizenship court in the district in which he resides. He may make this application four years and nine months after he has acquired "landed" status. After a statutory three-month posting period, he is called before the court for examination by a judge in order to determine whether he possesses the qualifications required by the Act. These include age, legal admission to Canada as a "landed immigrant", the acquisition of "Canadian domicile", good character, an adequate knowledge of English or French, some understanding of the responsibilities and privileges of Canadian citizenship and the intention to dwell in Canada permanently. The decision of the judge is forwarded to the Department of Citizenship and Immigration where a certificate may be granted at the discretion of the Minister. Certificates are presented in formal ceremonies after the applicants have taken the oath of allegiance and renounced their former nationality.

British subjects or Commonwealth citizens may file applications directly with the Minister and certificates are mailed to the applicants. Qualifications remain the same as for alien applicants.

Canadian citizens may apply for proof of citizenship and may also obtain miniature certificates. Applications should be addressed to the Registrar of Canadian Citizenship, Department of Citizenship and Immigration, Ottawa, and must be accompanied by a fee of \$1.00 for a large certificate or \$2.00 for the miniature.



In many places in Canada, Canadians of Scottish origin hold festivals at which traditional piping, dancing and feats of skill are performed in competition.



Irish, Ukrainian, Japanese and Greek members of the folk festival known as Manitoba Mosaic visit the Indian village at Kildonan Park, Winnipeg.



The foyer of Toronto's seven-storey, \$5,000,000 Education Centre, opened in November, 1961.

Education

Many changes have taken place this century in Canadian education. One of the most significant of these changes has to do with the gradual acceptance of the philosophy of education as a life-long process. Although it may be trite to remark that education goes on from the cradle to the grave, the truth of this statement is becoming more evident year by year. The role of continuing education will grow in the years to come. There will be more part-time, special, refresher and summer courses, and correspondence courses in vocational, academic, cultural and other areas. Between these and casual lectures, concerts and demonstrations, there will be a wide range of activities using a variety of media. Magazines, newspapers, radio, television and documentary films will increase their coverage and provide more informal education.

Nevertheless, most people still associate the word "education" with formal classroom instruction in schools and colleges. In this chapter Canadian education is discussed under four headings: elementary and secondary schools; universities and colleges; vocational education; and adult education. The methods of financing education are dealt with briefly under each heading.

Elementary and Secondary Schools

Under the terms of Confederation each Canadian province is responsible for the establishment and administration of its own educational system. The Federal Government's responsibility is for the education of some 185,000 native Indians, 10,000 to 12,000 Eskimos, other children in territories outside the provinces, inmates of penitentiaries, and families of members of the armed forces on military stations in Canada and abroad. It follows that there is no uniform system of elementary and secondary education.

Nevertheless, there is a basic pattern to the several provincial systems of elementary and secondary education. Each province has established a Department of Education (Department of Youth in Quebec) and appointed a Minister who is a member of the Cabinet. Apart from Quebec, each provincial department is presided over by a deputy minister, who is a professional educator and civil servant. He advises the Minister on policy, gives a measure of permanency to the department's education policy, and is responsible for the enforcement of the public school act(s). Officials of the department include school inspectors or superintendents, directors or supervisors for the main branches of the work, technical personnel and clerks. Schools functioning under these departments are generally non-denominational, but in some provinces there is provision for the establishment of denominational schools for religious minorities. This is especially so in Newfoundland where the larger religious denominations operate their own schools under provincial regulation. In Quebec a dual system operates from the department down—one branch dealing with Roman Catholic, the other with Protestant schools. The former comprises schools with instruction in French and English.

Each provincial department provides for the establishment and operation of schools by local education authorities which operate under the school act. These local school boards or boards of education are responsible for establishing and maintaining schools, employing qualified teachers, providing pupil transportation as required, and budgeting for the money required to operate the schools, which is raised through local taxation. Education costs are always a major item in municipal expenditures and in 1959 ranged between 40 p.c. and 60 p.c. of total municipal expenditures. Provincial departments assist local school boards with direct grants, and in 1959 provincial budgets set aside, on the average, 26.4 p.c. of their total budget for school purposes.

About 4,000,000 students attend public elementary and secondary schools in the ten provinces, but another 175,000 are enrolled in more than 1,300 private schools. Most of these are in Quebec and the majority are operated by religious denominations. Some private schools operate as day schools, others as boarding schools, although most of the latter enrol day pupils as well as boarders. Annual fees at private schools may range anywhere from \$50 to \$2,000. While private schools are in a position to offer a more varied curriculum than public schools, in general they provide the basic core of subjects necessary for entrance to most universities.

UNESCO's East-West project has captured the imagination of educators. Pupils are obtaining a better appreciation of Eastern culture through books, pictures and films.



In addition to those students attending regular classes in public or private elementary and secondary schools, an estimated 46,000 students are enrolled by correspondence in regular school courses. Provincial departments of education prepare and administer such courses for the benefit of children living in isolated areas, the physically handicapped, or those who, for other reasons, cannot attend regular classes. Children attending school may also take advantage of correspondence courses in subjects not offered by their school or where time-table difficulties exist. There are indications that enrolment of young children in correspondence courses is decreasing due mainly to an improvement in school transportation facilities, while enrolment in secondary-level correspondence courses by adolescents and adults is on the upswing.

Formal schooling in urban centres generally commences with a pre-school or kindergarten year for five-year-olds, the primary aim of which is to develop the child's social instincts through organized play and other activities. Compulsory attendance begins at age 6 or 7 at which time the child enters elementary school, where he is taught the basic skills and receives an introduction to cultural subjects. This is followed by secondary or high school, commencing usually at age 13 or 14 and extending for four or five years. At this point the horizons are widened, and, for the first time, the student is compelled to choose between courses or make a selection of subjects. Some schools offer only the academic course, a few are purely vocational schools, many are composite schools with separate departments for academic and vocational subjects, while others permit the student to take a composite course made up of subjects selected from the academic, commercial and industrial fields.

Higher Education

University officials are anxiously preparing for an unprecedented influx of students during the next few years as "the population bulge", which originated in the high birth rates of the immediate post-war years, reaches the college-age level. Indeed, the expansion of enrolment has already begun. Between 1958-59 and 1960-61 full-time enrolment in universities and colleges increased from 94,400 to 114,000, or by more than 20 p.c., while the country's population increased by less than 5 p.c. during the same two-year period.

Canada had some 354 institutions of higher learning at the beginning of the academic year 1960-61, not counting affiliated schools which prepared students for university entrance. Some 59 of these were actively granting degrees in one or more fields. Others were added in 1961. Expansion in higher education has taken the form of: (i) growth and expansion of existing institutions, whether through enlarging present plants or developing new campuses; (ii) raising the status of existing colleges; and (iii) the founding of new institutions.

In the Maritime Provinces, although no new colleges have been founded since 1955, indications are that new institutions will appear shortly. In Quebec there has been an increase both in the number of classical colleges and the number of universities. In Ontario much has been happening both in the development of new institutions and in the status of some of those established for many years. In the western provinces there has been considerable discussion concerning changes in provincial law so that charters may be granted to other than the provincial universities; and legislation has been passed in both

British Columbia and Alberta under which junior colleges have been or may be established.

Beyond the demands of good instructing, counselling and evaluation, most professors undertake research and conduct investigations in fields which are being expanded and deepened to become so complicated that former vistas appear restricted, primitive and simple. Indicative of this expansion in basic research on a large scale is the variety of new equipment which includes electronic computers, mass spectrometers, electron microscopes, nuclear reactors, cyclotrons, etc. In the matter of research, as in many other respects, the university is coming closer to the community. Through night classes, refresher courses, correspondence education, special lectures, etc., the university is reaching the public. Contributions of university professors through such mass media as radio and television, whether in conducting classes or through special programs, is on the increase; and their participation in public affairs as consultants is bringing the university and the industrial economy closer together.

The increasing volume and scope of higher education in Canada poses many financial problems. University operating costs amounted to some \$144,000,000 in 1959-60 or about \$8 per capita. They have been increasing at the rate of 15 p.c. per year. Construction and other capital costs are expected to amount to \$500,000,000 between 1959 and 1965. To meet these heavy costs universities draw their revenue from several sources, the major one being provincial government grants. Student fees amount to less than 30 p.c. of current operating costs, let alone money for capital expenditure; yet for the individual student several hundred dollars per year in fees is no mean outlay. The Federal Government has been playing an increasing part in the financial support of higher education, operating through agencies such as the

A French-Canadian family shares its home and family life with an English-Canadian student for two weeks as part of a program of student exchange visits between Quebec and Ontario. Later, the Quebec girl will spend two weeks with her Ontario friend.



Canada Council, the National Research Council, the Defence Research Board, and the Department of National Health and Welfare. Federal assistance is provided through a system of annual operating grants, grants for specific building or capital equipment projects, scholarships and other awards, and contributions to university-sponsored research projects. Nevertheless, most institutions of higher learning depend in part on additional sources of revenue, which are normally obtained from endowments, gifts, and the proceeds from occasional fund-raising campaigns.

Vocational Education

In the opinion of persons concerned with the training of skilled manpower, even the unprecedented number of students enrolling in Canadian vocational, trade, and technical schools during the last few years falls far short of meeting the social and economic needs of the nation. Technological changes including automation, the demand for increased productivity, and the development of secondary industries, together with the pronounced decrease in immigration of skilled manpower, have more than offset the increased enrolment registered during recent years.

The federal and provincial governments, keenly aware of the necessity of developing the skills of the Canadian working population, agree that radical

One of three military colleges operated by the Department of National Defence, the Collège Militaire Royal de St. Jean in Quebec is the only bilingual one. These tri-service colleges prepare cadets for careers as officers in army, navy or air force.



An aerial view of the Royal Military College, Kingston, Ontario, where officer cadets from the Collège Militaire and from Royal Roads, B.C. complete the last two years of their education towards a bachelor's degree.

Federal assistance to provinces for technical, trade or occupational training, training teachers, supervisors and administrators, and construction or expansion of vocational training centres jumped from \$8,500,000 in 1960-61 to an estimated \$75,000,000 in 1961-62.



steps are now in order. In December 1960, a new Technical and Vocational Training Assistance Act was passed by Parliament, replacing the Act of 1942 and containing some fundamental changes in the basic policy of federal financial assistance. Under it, the Federal Government contributes 50 p.c. of the cost of technical, trade or occupational training provided by the provincial governments for all persons who have left the regular school system, without the limit of a quota based on population or any other factor. Furthermore, the Federal Government contributes 50 p.c. of the cost of training technicians and shares in the expenditure for financial assistance to students in the technological training programs. The costs of training vocational teachers, supervisors, and administrators are also shared between the provinces and the Federal Government on a 50-50 basis. The greatest stimulus is that given by the Federal Government's contribution, until March 31, 1963, of 75 p.c. of the provincial government expenditures for the building and equipping of vocational training centres. In addition, the new legislation carries forward a number of the provisions of the Act which it replaces, such as contributing 75 p.c. of the cost of the program for training the unemployed, 50 p.c. of the cost of the training of physically disabled persons and apprentices in classes. As of October 1961, all provinces had signed the Technical and Vocational Training Agreement, thus assuring themselves of federal assistance.

The importance of the 1960 legislation is illustrated by the fact that federal assistance for the fiscal year 1961-62 is estimated at \$75,000,000, compared with \$8,500,000 for 1960-61. The bulk of this increase reflects the unparalleled expansion of training facilities across the country. Up to October, 1961, 116 capital projects had been approved involving \$101,000,000 of federal assistance. It is expected that before the agreement expires at the end of the fiscal year 1962-63, many other provincial projects will be submitted to the Federal Government.



The Thea Koerner graduate centre at the University of British Columbia—a social centre for students enrolled in the faculty of graduate studies—was opened in 1961.

Capital Projects under the Technical and Vocational Training Assistance Act, as of October, 1961

	No. of Projects		Estimate of Total Costs	Federal Share	
	New Institutions	Additions			
			\$'000,000	\$'000,000	per cent
Vocational High Schools.....	10	11	31	22	70.9
Composite High Schools.....	9	63	73	46	63.0
Trade Schools.....	7	6	15	8	52.9
Institutes of Technology.....	1	2	7	5	74.5
Combined Trade Schools and Institutes of Technology.....	6	1	27	20	74.1
Total.....	33	83	153	101	66.1

On all the above capital projects, including equipment, the Federal Government contributes 75 p.c. of the total cost of those facilities which are relative to vocational training and education. The somewhat lower percentages shown in the table are due to the fact that the total estimated cost includes other than vocational facilities, especially in the case of composite high schools. The apparently low percentage of the federal contribution to the cost of new trade school facilities arises from the inclusion of two large trade schools being built in stages and to which the Federal Government contributed in previous fiscal years.

The whole burden of training skilled manpower does not rest only with the local, provincial, and federal governments. There are in Canada many private institutions which provide opportunities for the acquisition of skills in many fields. In 1959-60 there were 234 private trade schools, 257 private business schools, and 56 correspondence outlets, enrolling a total of 108,000 persons in vocational subjects on a full- and part-time basis or in correspondence courses.

Adult Education

A cross-country glance at lighted school room windows in Canada on any evening might reveal such varied activities as a class for upgrading unemployed workers in British Columbia; a workshop for public library trustees in Alberta; a community development project among the Indians of northern Saskatchewan; highway safety lectures in Manitoba; an executive development seminar for business men in the wilds of northern Ontario, and English and citizenship classes for new Canadians in cosmopolitan Toronto; marriage preparation courses for youthful students in a Quebec classical college; handicraft workshops for tourists at a national park in New Brunswick; a co-operative management institute for fishermen in Nova Scotia; a film showing on agricultural management in Prince Edward Island; and a demonstration of nutrition principles to housewives in Newfoundland.

Adult education activities in Canada are conducted under a wide variety of auspices, both public and private, and reflect, to a large extent, local conditions and needs. Co-ordination at a national level is achieved through membership in such organizations as the Canadian Association for Adult Education and the Institut canadien d'éducation des adultes, which jointly sponsored a national conference in October 1961, attended by nearly 300 delegates.

Heightened interest in education in general is reflected in sharp increases in reported enrolment in courses leading to high school diplomas and university degrees. Such credit courses are available, through attendance and correspondence, from universities and colleges, government departments, and night schools organized by local school boards, with assistance from provincial departments of education. Enrolment reported in credit courses at all levels increased 38.2 p.c. in 1958-59 over the previous year.

Vocational and professional courses under the auspices of government, university and private institutions, represented 43.3 p.c. of the reported adult education enrolment, an increase of 7.3 p.c.



Enrolment in home economics classes in the public schools was 96,403, taught by 2,222 special teachers during 1959-60.

Other types of courses reported were social education, fine arts and other cultural subjects under university, government and public library auspices. In addition, many adult education activities are sponsored by private organizations and establishments such as churches, employers, service clubs, women's groups, and many others. On the basis of a survey of participants in adult education, June 1960, it is estimated that the total number of persons who took adult education courses during that year under any auspices was close to 1,000,000.

Besides classes and courses with enrolment, public lectures, film showings, radio and TV forums and exhibits and performances of an educational nature were provided, and attendance reported at such events by the agencies surveyed for 1958-59 was close to 2,500,000. However, there is reason to believe many more such informal activities under private auspices reach an even larger audience. For example, the National Film Board reports total attendance of more than 5,000,000 at showings of their productions to a wide variety of audiences.

Statistics of Canadian Education

Type of School or Course	Total for Canada		
	Schools	Full-time Teachers	Enrolment
	No.	No.	No.
Full-Time Courses (1959-60)			
Elementary and Secondary Education:			
Public and separate schools ¹	26,237	144,061	3,813,711
National Defence schools (overseas).....	15	342	6,624
Indian schools ²	474	1,171	31,465
Schools for the blind.....	6	91	671
Schools for the deaf.....	9	253	1,881
Private schools.....	1,324	8,818	165,295
Higher Education:			
University grade.....	350	7,550	102,000
Teacher Training:			
Teachers' colleges.....	137	1,056	16,428
Faculties of education.....	2	3	3
Vocational Education:			
Trade courses (apprenticeship).....	...	...	8,448
Trade courses (pre-employment).....	...	...	23,972 ⁴
High schools.....	8	5	5
Technical institutes.....	27	820	10,283 ⁵
Private business colleges.....	257	1,111	18,491
Private trade schools.....	234	400	11,580
Totals.....	29,070	165,673	4,210,849
Part-Time Courses for Adults (1958-59)			
Publicly-operated:			
Academic.....	...	...	87,369
Vocational.....	...	...	202,096
Other (social, cultural, etc.).....	...	...	119,215
Universities and Colleges:			
Academic, for credit toward a degree.....	36	...	56,677
Other (extension, etc.).....	35	...	90,370
Private business colleges.....	107	...	24,601

¹ Includes schools in the Territories administered by the Federal Government.

² Day, residential and hospital schools administered by the Federal Government.

³ The 23 faculties enrolling 7,839 students included under "Higher Education".

⁴ Includes courses of one week to two years; includes also training under federal assistance, e.g., unemployed persons, disabled persons, etc.

⁵ An estimated 500 vocational, technical, commercial and composite high schools enrolling about 107,000 pupils in vocational courses included under "Public and separate schools".

⁶ Includes 1,950 pupils in preparatory year in Quebec.



Sharp contrast is shown in these two library buildings, one a converted railway station and the other a specially-designed regional library at New Westminster, B.C. The latter has a mezzanine floor housing an art exhibit room, a meeting room with a stage, a board room and offices; special features are anti-glare frosted glass windows and a system of fans installed in ceiling wells.

Libraries

Canadians are served by public libraries, organized at a local or regional level; academic libraries in schools, colleges and universities; and special libraries in federal and provincial government departments and agencies and professional, business and technical organizations and establishments. More than 30,000,000 volumes were available in various types of libraries in 1960.

Canadian public libraries concluded a decade of unparalleled growth and expansion during the 'fifties, with particular emphasis on the development of larger units of service. By the end of 1960 just over 200 larger urban, regional and provincial libraries were serving a total population of nearly 14,000,000, at a cost of about \$1.50 per person. Nearly 12,000,000 volumes held by these libraries circulated an average of 4.24 times each. In addition, about 800 public libraries in smaller centres offered more limited service.

Centralized school libraries in urban centres in 1960 contained more than 3,500,000 volumes to serve a total enrolment of more than 1,500,000 pupils.

Larger university libraries, attached to institutions with full-time enrolments of 500 or more students, reported, in 1960, more than 6,500,000

volumes to serve about 90,000 full-time students and faculty members, and an equally large part-time clientele.

Special libraries, in federal and provincial government departments, private professional organizations and business and technical establishments, contain an estimated 6,000,000 volumes, available to employees and members for information and research.

The shortage of librarians to staff these collections continues, despite rising enrolments in the four Canadian library schools at the universities of Montreal, McGill, Ottawa and Toronto, which graduated 154 professional librarians in 1961. A fifth library school, at the University of British Columbia, was opened in September 1961. Approximately 4,500 full-time employees staff Canada's larger libraries and about 28 p.c. of these are professional librarians.

The National Library. The National Library, formally established in 1953, publishes *Canadiana*, a monthly bibliography of books, pamphlets and music published in Canada or relating to Canada and including federal and provincial government publications; maintains the National Union Catalogue; and is building an extensive general collection of books with special emphasis on the humanities, music and the social sciences.

During the calendar year 1960 *Canadiana* listed 10,552 separate items in library cataloguing form and was used extensively in Canada and abroad.

The National Union Catalogue includes about 4,600,000 entries, listing volumes in 164 important Canadian libraries, and is kept up to date by reports of new accessions. Libraries of all kinds, in Canada and abroad, use this catalogue to locate books for inter-library loan purposes. During 1960-61, 11,462 enquiries were received.

The National Library lends its books (other than the reference collection) to libraries across the country for the use of their patrons. The collection now in use includes nearly 350,000 books, microcards and microfilms, but is limited by lack of space and facilities, while housed in temporary quarters.

An unusual bookmobile, run by a library co-operative, serves the area from Timiskaming to the end of road at Cochrane on its own wheels; at Cochrane it rolls aboard a flat car and visits communities from there to Moosonee, conducting its business from a siding.





Demonstrations on the use of live oral polio virus vaccine were pioneered at Prince Albert, Saskatchewan and Wedgeport, Nova Scotia. Participation was voluntary, with a 95 p.c. response.

Health

The rapid post-war expansion of basic preventive care and rehabilitation services across the country and the federally supported provincial hospital insurance schemes in all provinces have done much to raise general health levels in all age groups and to alleviate the financial hardships of ill-health. Nevertheless, there remain the challenges of the sharp growth in population, the increasing numbers of older persons, the fact that accidents constitute the primary cause of death among people under 20 and heart disease and cancer the two first causes of death among the population as a whole. The future development of health services is yet to be determined; Canada has arrived at a period of stock-taking.

In December 1960, the Prime Minister announced the establishment of a Royal Commission on Health Services. Given broad terms of reference, the task of the Royal Commission will be to make a comprehensive and independent study of the existing facilities and the future need for health services for the people of Canada and the resources to provide such services, and to recommend such legislative measures as it believes will ensure that the best possible health care is available to all Canadians.

Attacks on certain special problems have been made through federal legislation enacted during 1961. Under the Vocational Rehabilitation of Disabled Persons Act, the Federal Government is authorized to enter into agreements with the provinces respecting support for their programs of vocational rehabilitation of disabled persons.



A crowd of children aboard the M.V. *Christmas Seal* at Badger's Quay, Newfoundland. The vessel was bought as war surplus and converted into a floating X-ray clinic by the Newfoundland Tuberculosis Association.

Under the Act to provide for the Control of Narcotic Drugs, previous narcotic legislation was completely revised and an important new policy was announced: the setting up of special federal institutions to which drug addicts can be sent for treatment and rehabilitation and from which they will be released only when, in the opinion of competent authorities, they are ready to face life in society. These institutions will also be open to addicts who may enter them voluntarily.

An Act to amend the Food and Drugs Act provides for more effective control of certain drugs commonly called "goof-balls". Internationally, a milestone in the history of narcotic control was reached when 73 governments covering the entire global area of the world signed the International Narcotic Drug Convention at the United Nations.

Another important highlight of 1961 was the completion of the Medical Research Council's first organizational year of existence. Medical research has expanded greatly in recent years and about \$10,000,000 was spent on it in Canada in 1961. The Medical Research Council's function is to promote, stimulate and co-ordinate research carried on by universities and foundations.

Health Services

The various health professions, the hospitals and institutions operated by the community, by religious orders and by the different levels of government, public health, welfare and other departments, and the voluntary and research agencies all play fundamental roles in the development and administration of

health services in Canada. Provincial governments bear the major responsibility, with the municipalities often exercising considerable authority over matters delegated to them by provincial legislation. The Federal Government has jurisdiction over a number of health matters of a national character and provides important financial and technical assistance to provincial health and hospital services. All levels of government are aided and supported by a network of voluntary agencies and institutions working in different health fields.

The various health programs of the Federal Government indirectly affect the lives and welfare of all Canadians. 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 of National Defence. The Dominion Bureau of Statistics is responsible for the collection, analysis and publication of health statistics, and the Medical Research Council and Defence Research Board support medical research programs. In addition, the Department of Labour plays an important role in the rehabilitation of disabled persons, while the Department of Agriculture has certain health responsibilities connected with food production. The Department of National Health and Welfare serves in an advisory and co-ordinating capacity to the provinces and administers grants to provincial health and national voluntary agencies, administers food and drug legislation (including narcotics control), operates quarantine, immigration and sick mariners' services, administers health care programs for Indians, Eskimos, and other special groups, conducts health planning and research activities and co-ordinates Canadian participation in international health matters. Administration of federal aspects of the Hospital Insurance and National Health Grants Programs has become a major activity of the Department during the past decade.

The health and hospital services administered by the provinces are wide ranging, with new functions in the field of hospital insurance having been added in the last years of the decade to the provision of public health services either directly or in co-operation with the municipalities. The main categories of

Members of municipal fire departments use their spare time to aid worthy causes and many are active supporters of the Muscular Dystrophy Association. Here two children afflicted with this handicap discuss a forthcoming campaign for funds with the fire chief.



provincial and local health services comprise general public health services, primarily of a preventive nature; services for specific diseases or disabilities, generally chronic or long-term in nature, combining prevention and treatment; services related to general medical and hospital care; and rehabilitation services for disabled persons.

Although governmental health activities have increased steadily in scope, the health professions and voluntary agencies and institutions have participated directly in all health advances by supplying services, initiating new activities, stimulating better standards and extending public and professional education. These agencies supplement the services of the federal, provincial and local authorities in many health fields and play a leading role in increasing public awareness of health needs and in promoting action to meet them. One of the most spectacular and effective examples of the progress of the voluntary agency has been the work of a growing number of organizations established to aid mentally-retarded children.

Hospital Services. In 1957, with the enactment of the Hospital Insurance and Diagnostic Services Act designed to share the costs of provincial prepaid hospital care plans on a grant-in-aid basis, the Federal Government entered the field of general hospital care and diagnostic services for the whole population. From the point of view of the individual sick person, the new legislation meant prepayment of the bulk of the cost of his hospitalized illness. To the individual hospital, it provided a guarantee of stable income and continuing financial support, thus facilitating the improvement of patient care. To provincial governments, it represented a federal undertaking to share the costs of provincially-administered hospital insurance plans. By 1961, the federal-provincial hospital insurance program had become nation-wide with publicly-financed hospital insurance plans established in all provinces and both territories.

In accordance with the federal Act, each participating province is required to make a specified range of in-patient benefits available to all insured residents of the province under uniform terms and conditions. These insured services, available without any limit on the total days of care provided, include standard or public ward accommodation and meals; necessary nursing service; laboratory, radiological and other diagnostic procedures, together with the necessary interpretations; specified drugs and biologicals; use of operating room, case room and anaesthetic facilities; routine surgical supplies; use of radiotherapy and physiotherapy facilities where available; and services rendered by hospital personnel. The same insured services for out-patients, although authorized for federal assistance, are not mandatory in provincial plans, but have been adopted in widely varying degree by provincial authorities, the majority thus far restricting out-patient benefits to emergency care following an accident.

Federal legislation covers only services provided by active treatment, chronic and convalescent hospitals, and specifically excludes the costs of care for patients in tuberculosis sanatoria, mental hospitals and institutions providing custodial care, though some provinces cover tuberculosis and mental services under the provincial programs. Also excluded from shareable costs are capital costs, such as the payment of capital debts or interest, and depreciation allowances. Each province decides the form of its own program, including the method of financing the provincial share of costs, eligibility for benefits,

the pattern of provincial administration and the types of services offered above the minimum stipulated in the Act. There is considerable variation among provinces in the administration and financing of programs, with general revenues, provincial sales tax and personal premiums being utilized in the different provinces.

Bed Capacity of Hospitals, by Province, as at Dec. 31, 1960
(Excluding bassinets)

Province	General		Mental		Tuberculosis		Other		Totals	
	Beds	Per 10,000 Population ¹	Beds	Per 10,000 Population ¹	Beds	Per 10,000 Population ¹	Beds	Per 10,000 Population ¹	Beds	Per 10,000 Population ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland . . .	1,644	35.8	835	18.2	458	10.0	84	1.8	3,021	65.8
Prince Edward Island . . .	707	68.6	377	36.6	100	9.7	30	2.9	1,214	117.9
Nova Scotia . . .	4,117	56.9	2,673	37.0	510	7.1	148	2.0	7,448	103.0
New Brunswick . . .	3,346	55.8	1,331	22.2	709	11.8	212	3.5	5,598	93.3
Quebec . . .	25,498	49.9	19,390	38.0	3,334	6.5	10,481	20.5	58,703	115.0
Ontario . . .	32,116	52.7	20,808	34.2	2,855	4.7	4,961	8.1	60,740	99.8
Manitoba . . .	5,529	61.5	3,425	38.1	729	8.1	758	8.4	10,441	116.1
Saskatchewan . . .	6,367	70.0	3,179	34.9	662	7.3	527	5.8	10,735	118.0
Alberta . . .	8,424	65.7	5,303	41.3	1,100	8.6	640	5.0	15,467	120.6
British Columbia . . .	10,037	62.5	6,127	38.2	942	5.9	315	2.0	17,421	108.5
Yukon and North-west Territories . . .	416	115.6	—	—	422	117.2	—	—	838	232.8
Canada . . .	98,201	55.1	63,448	35.6	11,821	6.6	18,156	10.2	191,626	107.6

¹ Based on population as at June 1, 1960.

During the 11 years 1948-58, \$1,178,900,000 was spent on building and equipping hospitals, of which \$101,300,000 were federal funds under the National Health Grants Program. This is the Lion's Gate Hospital in North Vancouver.



Cancer. In the detection and treatment of cancer, specialized medical care, hospital services, and an expanding public health program are closely related. The administration of provincial programs is carried on either by departments of health or cancer commissions. A notable development in recent years has been the establishment of special research centres for the investigation of cancer. Supported by provincial and public contributions, research laboratories exclusively for cancer have been set up in Saskatchewan, British Columbia, and Quebec, while in Ontario the new Cancer Institute in Toronto, operated by the Ontario Cancer Treatment and Research Foundation, and opened in 1958, provides the most up-to-date facilities for treatment as well as research.

Mental Health. The wide field of mental illness constitutes the largest single special medical and hospital problem in Canada. In 1959 the total operating cost of mental hospitals was over \$100,000,000. While hospital care is the highest single item of expenditure of all the mental health services, the cost of treatment outside hospitals, provided through clinics and after-care centres, day hospitals, privately-sponsored community schools for the mentally retarded, together with the amounts spent on research and training of mental health personnel, add many more millions to the total cost.

Bolder and more vigorous experiments are being introduced in hospital treatment. More extended use is being made of open wards where patients are free to move at will, and, in some hospitals, to leave the grounds without supervision. Many institutions encourage use of week-end privileges and holidays with families and relatives. Valuable assistance in the development of recreational activities for patients has been provided through the volunteer visiting service organized by community groups of the Canadian Mental Health Association.

More community services are developing for patients who can be treated at home or who need a short period of in-patient care. Psychiatric units in general hospitals and community clinics are admitting increased numbers of



Classes in life-saving and resuscitation are given under either governmental or voluntary auspices, to both children and adults, in a nation-wide water safety program.

patients. Local associations of the Canadian Association for Retarded Children continue to expand services for the less seriously retarded under home care.

Public Health Services. Besides the services in which clinical medicine has played so important a part, there is another important and complementary group of services directed to the protection and care of community health by preventive measures. These programs are concerned chiefly with the group health of man in his physical and social environment and include environmental sanitation, communicable disease control, child and maternal health, health education, vital statistics, public health laboratories, occupational health, dental public health, and nutrition services. To maintain standards in the well-established services, special training is required in such fields as sanitary engineering, industrial hygiene and public health nursing. In addition, new environmental problems are emerging in the form of air pollution, water pollution, and radiation protection, which require new knowledge and study in their relationship to public health.

Services for the Chronically Ill and Physically Disabled. Health and welfare agencies are constantly expanding their treatment and rehabilitation services for persons handicapped by disease or disability. As progress is made in preventing or controlling certain disease conditions, for example, tuberculosis and poliomyelitis, increasing efforts are being made to restore persons suffering from multiple and severe disabilities arising from accidents, congenital handicaps or chronic disease. Aided by medical research, various types of demonstration projects are being carried out to improve therapy and the related social-vocational services required by the disabled. To provide this broad range of specialized services the numerous governmental and voluntary agencies have established methods of co-ordinating their programs. All provinces have organized rehabilitation services, and some have instituted disabled persons registries and advisory committees on rehabilitation.

Medical restoration facilities in general hospitals and separate rehabilitation centres, established in the larger cities, provide assessment and treatment services including physical, occupational and speech therapy as well as personal aids such as prostheses, orthopedic appliances and wheel chairs. Such programs may include social and psychological evaluation, pre-vocational testing and vocational counselling. These and other services are also made available by sheltered workshops, and the vocational counselling, training and special job placement agencies. Comprehensive rehabilitation programs are provided for injured workmen, veterans, children, and also for Indians and Eskimos.

Important progress has been made in the care of handicapped children with the assistance of crippled children's organizations. To facilitate early correction of abnormalities, registers of handicapped children have been established in several provinces. All provinces make some provision for the education of handicapped children such as the blind, the deaf, the mentally retarded and the physically handicapped in general, either through the operation of special schools or by financial grants.

Because of the prevalence of chronic illness among the elderly, more attention is being given to their health needs. Provincial health departments are extending hospital facilities for chronic care and alternative care institutions such as nursing homes, homes for the aged and home care services. In many cases, restorative services can assist the chronically ill to regain the capacity for independent living.

Welfare

All levels of government are concerned with maintaining the incomes of persons who become dependent on the community. In addition, family allowances are designed to provide a special measure of aid to families with young children. Family allowances, old age security and unemployment insurance are administered by the Federal Government. Other major programs are the administrative responsibility of the provinces, in some cases with federal assistance.

Family Allowances. Family allowances are paid, normally to the mother, for children under 16 years of age who have been resident in Canada for one year. Allowances are paid by the Federal Government from general revenue, involve no means test and are not considered income for tax purposes. They are paid at the monthly rate of \$6 for children under 10 years and \$8 for children 10 to 15 years of age. An allowance of \$60 a year is paid on a quarterly basis for each child under 16 years of age supported by an immigrant who has landed for permanent residence in Canada or by a Canadian returning to Canada to reside permanently. It is paid for a period of one year, until the child is eligible for family allowances.

Old Age Security. A pension of \$65 a month is paid by the Federal Government to all persons aged 70 or over who have been resident in Canada at least ten years. It is financed through a 3-p.c. sales tax, a 3-p.c. tax on net corporation income and, subject to a maximum limit of \$90 a year, a 3-p.c. tax on individual net taxable income. Payment of the pension outside the country is made for six months in any case, and indefinitely for a person who has had 25 years residence since age 21.

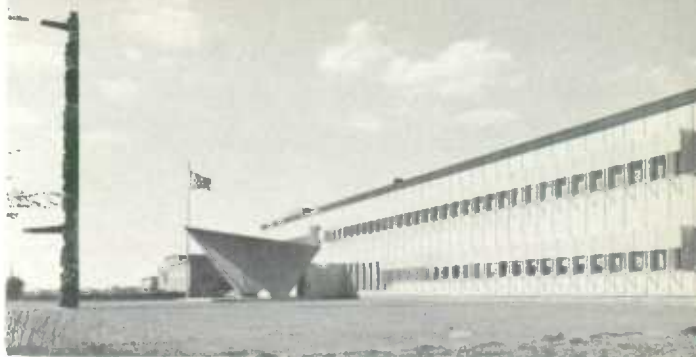
In Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and the Yukon, supplementary payments are available under the provincial social assistance legislation for those recipients of old age security who are in need. The amount is determined largely through an individual assessment of need which takes into consideration the recipient's requirements and resources.

Unemployment Insurance. The Unemployment Insurance Act provides for a co-ordinated program of unemployment insurance and for an employment service through offices of the Unemployment Insurance Commission across Canada. In general, all employed persons, with certain excluded occupations such as agriculture (with minor exceptions), domestic services and school teaching, are insured irrespective of length of residence, if their annual earnings do not exceed \$5,460. Additional information giving rates of contribution and benefit as well as the operations of the service are given on pp. 67-70.

Old Age Assistance, Disabled and Blind Persons Allowances. Assistance of up to \$65 a month is paid under the Old Age Assistance Act to needy persons aged 65 to 69 years; under the Disabled Persons Act to those 18 years of age or over who are totally and permanently disabled; and under the Blind Persons Act to blind persons aged 18 or over. In each case there is a residence requirement of ten years, and the allowance is subject to a means test.

For old age assistance and disability allowances, total annual income may not exceed \$1,140 for a single person, \$1,980 for a married couple and \$2,340 for a married couple, one of whom is blind. For blindness allowances it may

The new \$850,000 Ottawa headquarters of the 300,000-member Boy Scouts of Canada. In front, a 70-foot totem pole carved by famed Indian totem carver, Chief Mungo Martin, and his nephew, was the gift of the British Columbia-Yukon Boy Scouts.



The flag-raising ceremony at a Girl Guide Camp. The Girl Guides, inaugurated in Canada in 1910, and the Boy Scouts (1914) provide training in citizenship and character development and have provided summer camping for hundreds of thousands of children.

not exceed \$1,380 for a single blind person, \$1,860 for an unmarried blind person caring for a dependent child, \$2,340 for a married couple when one spouse is blind and \$2,460 for a married couple when both are blind.

Programs are administered by the province; the Federal Government reimburses the province for one-half the costs of old age assistance and disability allowances and for three-quarters of those of blindness allowances.

In Quebec, Ontario, Manitoba, Alberta, British Columbia, and the Yukon, supplementary payments are available under the provincial social assistance legislation for those recipients who are in need. The amount is determined largely through an individual assessment of need which takes into consideration the recipient's requirements and resources.

Mothers' Allowances. Allowances to certain needy mothers with dependent children are provided by all provinces, in some through Mothers' Allowances Acts, in others through general social assistance legislation. Assistance is granted to widows, mothers with husbands in mental hospitals, mothers who are deserted and mothers whose husbands are disabled. Some provinces provide also for mothers with husbands in penal institutions and for divorced, separated and unmarried mothers. To be eligible, an applicant must be caring for one or more children and must meet specified conditions of need and residence and, in some provinces, of character or competence and, in one province, of citizenship.

General Assistance. Aid is provided in all provinces to persons in need who cannot qualify under programs designed for specific groups. Assistance is normally determined by the local authority and is given on the basis of a

means or needs test. In general the municipalities administer the program, with provincial governments assuming responsibility in unorganized territory. In four provinces, however, aid to certain groups of people requiring long-term assistance is administered by the province. All provinces provide for substantial reimbursement to municipalities for relief expenditures except in Newfoundland where the provincial government administers all forms of general assistance. Under the terms of the Unemployment Assistance Act, the Federal Government shares with the provinces and their municipalities 50 p.c. of the cost of assistance payments to unemployed persons. Immigrants in their first year in Canada may receive aid through the local authority under an agreement made with the province whereby costs are shared by the provincial and federal governments, or they may be referred directly to the local office of the Department of Citizenship and Immigration.

Other Welfare Services

Provincial and municipal government departments, in addition to administering income maintenance programs, offer a number of other services to the community. There are wide differences in the degree to which services have been developed. These may include child welfare and old age services, public housing, post-sanatorium rehabilitation programs, nursery and day care programs, recreation, family and juvenile courts and other correctional services, and the maintenance, supervision and licensing of welfare institutions.

An important role in meeting the needs of families is also played by voluntary family service agencies, of which there are 100 in the principal centres throughout the country. These agencies, which sometimes combine certain child welfare services with their family programs, were among the pioneer welfare agencies of Canada but, whereas their principal function for many years was the provision of material aid, emphasis today is largely on casework and counselling, though groupwork techniques are now being introduced.

In addition to family agencies, more specialized organizations are available in some centres to meet particular needs. Services such as home-maker services, recreation, day care centres, services for special groups such as the aged, immigrants, youth groups and former



An arthritis patient finds relief in a hot wax bath supervised by a therapist sent by the Canadian Arthritis and Rheumatism Society to her home.

prisoners are also provided by voluntary agencies, with co-ordination of services in the larger centres a function of the local welfare council. Ethnic and religious groups also provide many services to special groups.

Voluntary agencies are financed by public contributions, usually through a united fund or community chest, and some may also be assisted by grants from municipal, provincial or federal governments.

Child Welfare and Protection. Services for children, especially those suffering from parental neglect or deprived of normal home life, were among Canada's earliest welfare programs. Child welfare agencies in most Canadian communities increasingly emphasize casework designed to strengthen the family's capacity to care for its children. Where placement is essential, children may be made wards of child welfare agencies either temporarily pending the improvement of home conditions or permanently where a return to the home is not envisaged. Action to transfer the guardianship of children from a parent to an agency is taken only on court authority.

The unmarried mother is assisted in social and legal problems and when the decision is to place the child, adoption is the plan normally made. More than 12,000 adoptions are completed in Canada annually, the majority of children involved being those of unmarried parents.

Children in the care of agencies and not placed for adoption are usually cared for in foster homes, though institutions are still used extensively. Specialized institutions care for children having emotional disturbances or problems which cannot be met adequately in the normal foster home. Rapid expansion is occurring in community services for retarded children and many centres have classes and schools for them.

Child welfare services are provided under provincial legislation and all provinces have some central authority. Except in Quebec, the program may be administered by the provincial authority itself or may be delegated to local children's aid societies, which are voluntary agencies with local boards of directors supervised and assisted financially by the province. Services are operated provincially in Saskatchewan, Prince Edward Island, Newfoundland, and to a large extent in Alberta, where there is also some delegation of authority to the municipalities. In Ontario and New Brunswick, services are administered by a network of children's aid societies covering the entire province; in British Columbia, Manitoba and Nova Scotia, children's aid societies serve some areas with the province providing direct services elsewhere. In Quebec, child welfare services are provided by agencies and institutions under private, and largely religious, auspices with provincial supervision and grants toward child maintenance being administered by the Department of Family and Social Welfare.

Services for the Aged. A variety of welfare services is offered under public and voluntary auspices to older persons in many communities. These include informational, counselling and referral services, friendly visiting, housing registries and homemaker services. Voluntary services are provided in several cities by family agencies and in a few by agencies organized specially to serve older persons. A large number of clubs and some centres have been established to provide recreational and social activities, ranging from games and group singing to extensive handicraft programs and lectures. Some centres provide casework, counselling and employment services.

In recent years a number of specially designed low-rental housing projects have been built for older persons, particularly in Ontario and the four western provinces. Generally these have been financed by a combination of federal low-interest loans, provincial grants and municipal and voluntary contributions. Welfare institutions are maintained to care for many older people who do not require hospital care, and are operated mainly by municipal governments or voluntary and religious organizations, generally with some form of public aid. An effort is made in some provinces to place well, older persons in small boarding homes. The aged who are chronically ill are cared for in chronic and convalescent hospitals, private or public nursing homes and in homes for the aged and infirm.

Correctional Services. The responsibility for Canada's adult correctional services is shared by the federal and provincial governments. Institutions that care for prisoners who receive a sentence of two years or more are a federal responsibility; institutions for short-term prisoners are provincial. Voluntary welfare agencies do much of the parole supervision and provide after-care service. The juvenile services are provincial with institutional care and preventive services under the auspices of voluntary welfare agencies in some provinces.

Veterans Affairs

Two of the major pieces of legislation in Canada's Veterans Charter—the Pension Act and the War Veterans Allowance Act—were amended during 1961. The Army Benevolent Fund Act was also amended, the principal change being an increase in the interest rate paid by the Government on the funds on deposit, of from $3\frac{1}{2}$ p.c. to 4 p.c. on the first \$5,000,000, and from $2\frac{1}{2}$ p.c. to 3 p.c. on the balance.

The amendments to the Pension Act and the War Veterans Allowance Act included increases of 20 p.c. in the disability and widows pensions, and in the allowances paid to WVA recipients. Pensions and allowances paid on behalf of children and orphans increased by 30 p.c.



Besides manufacturing, supplying, fitting and maintaining prosthetic devices for disabled veterans, the Department of Veterans Affairs, in its prosthetic services factory in Sunnybrook Hospital, Toronto, conducts original research aimed at improving these appliances.

A pensioner, married and with two children, now receives a maximum pension of \$3,444 a year. The maximum annual allowance for a married WVA recipient is \$1,728, and his annual income ceiling is \$2,088 exclusive of casual earnings of up to \$900.

Other amendments simplified the administration and extended the scope of both pieces of legislation.

The higher rates and ceilings of the amended WVA Act increased slightly the amounts available under the Assistance Fund to qualified veterans, the maximum annual grants being \$288 for single veterans and \$360 for those who are married.

At September 30, 1961, there were approximately 150,000 disability pensions in payment with another 30,000 being paid to dependants. The estimated annual liability for these pensions is over \$170,000,000. The number of WVA recipients, including veterans and their dependants, is over 70,000 and the estimated annual liability for their allowances is \$76,000,000.

A change in the Veterans' Land Act Regulations during the year made it possible to settle veterans on half-acre small holdings again. Since 1946 the minimum small holding has been two or three acres, depending upon the cost to the veteran of serviced land.

There were 52,600 active VLA accounts at the end of September, 1961; 38,000 veterans had earned their conditional grants, and 24,500 settlers had received titles to their properties. The total number of veterans assisted under the Act is 86,500 and the investment on their behalf is over \$480,000,000.

The number of students receiving assistance under the Children of War Dead (Education Assistance) Act continues to exceed the original estimates. At September 30, 1961, nearly 2,500 had been assisted to receive higher education, and about 1,100 of these were still in training. The cost of this program to that date is approximately \$2,000,000.

The Department of Veterans Affairs continued its hospital construction program during 1961. This program, started in 1947-48, is designed to replace obsolete hospital accommodation with new and modern buildings and equipment. Major projects in progress during the year were a new 300-bed wing at Westminster Hospital in London, Ont., a Veterans Pavilion being added to St. John's General Hospital, St. John's, Nfld., and preliminary planning for replacement construction at Queen Mary Veterans Hospital in Montreal.

Applications for veterans insurance declined during 1961, in comparison with the previous year, but still remains comparatively high. As at September 30, 1961, the number of policies in force was 30,824 and their face value totalled nearly \$97,000,000.

The Veterans' Bureau continues to provide a free legal service to veterans and to the dependants of deceased veterans in the prosecution of their claims for disability and dependants' pensions. The number of claims prepared by the pension advocates of the Bureau has been declining, but the passage of time tends to increase the work involved in preparing and presenting these claims.

In October, 1960, the only Stone of Remembrance in Canada was officially unveiled in Brookside Cemetery, Winnipeg. These memorials are erected by the Commonwealth War Graves Commission in the larger Commonwealth war cemeteries throughout the world.



Labour

In the decade ending in 1961 nearly 1,300,000 people were added to the Canadian labour force which in 1961 averaged almost 6,500,000. About 800,000 of this increase was concentrated in the last five years of the period.

Immigration made a substantial contribution to growth in the labour force during the 1951-61 period. Net immigration amounted to about 940,000, and since immigrants of working age tend to comprise a relatively high proportion of all immigrants, the percentage entering the labour force also was higher than for the population as a whole. About 24 p.c. of immigrants arriving in the first nine months of 1961, expressed the intention of entering manufacturing and construction occupations, while service and professional occupations were the objective of 18 p.c. and 19 p.c. respectively.

Intended Occupations of Immigrants, Jan. 1-Sept. 30, 1961

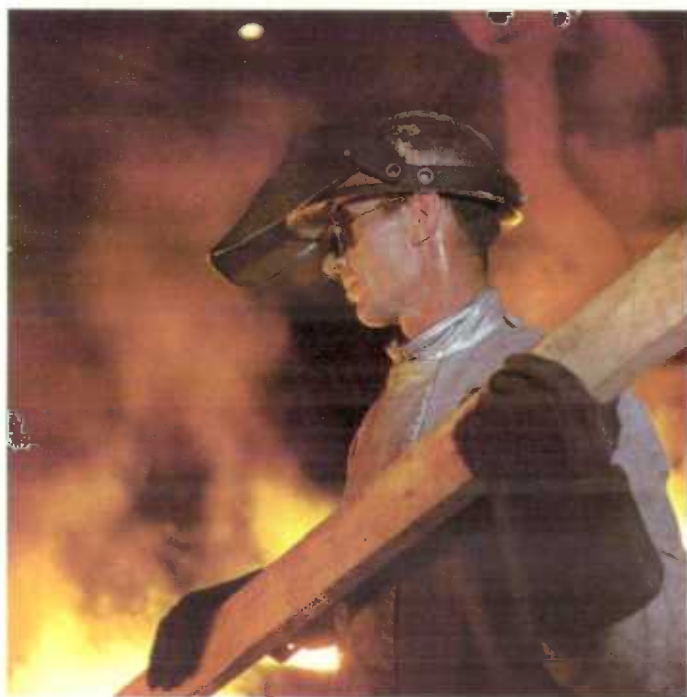
	No.
Managerial.....	682
Professional.....	5,301
Clerical.....	3,402
Labourers.....	3,110
Agriculture.....	2,020
Construction.....	1,988
Commerce, finance and real estate.....	978
Fishing, trapping, logging.....	55
Manufacturing and mechanical.....	4,666
Mining.....	82
Service.....	5,081
Transportation and communication.....	460
Others.....	47
Total.....	27,872

In the third quarter of 1961 about 6,300,000 persons were employed throughout Canada. Almost two-thirds of these were located in the more highly industrialized central provinces of Ontario and Quebec. Close to 20 p.c. were employed in the Prairie Provinces while the remainder were almost evenly distributed between the Atlantic and Pacific regions.

Regional Distribution of Employment
Third Quarter 1960 and 1961

Region	1960		1961	
	No. '000	p.c.	No. '000	p.c.
Atlantic	549	8.8	573	9.0
Quebec	1,725	27.7	1,716	27.1
Ontario	2,286	36.7	2,336	36.9
Prairie	1,124	18.1	1,147	18.1
Pacific	543	8.7	563	8.9
Canada total	6,227	100.0	6,335	100.0

Almost 25 p.c. of all Canadian workers are employed in manufacturing. Close to another 25 p.c. are located in the service industry. Trade accounts for 16 p.c. while agriculture provides employment for about 12 p.c.



In the first 60 years of the 20th century in Canada, the number of workers engaged in manufacturing rose from 15 p.c. to 25 p.c. of the total industrial labour force, while those engaged in providing services rose from 14 p.c. to 25 p.c. On the other hand, the number of agricultural workers dropped from 40 p.c. to 11 p.c.

**Industrial Distribution of Employment
Third Quarter 1960 and 1961**

	1960		1961	
	No. '000	P. C.	No. '000	P. C.
Goods-producing Industries:				
Agriculture.....	799	12.6	773	12.2
Other primary industries.....	225	3.6	202	3.2
Manufacturing.....	1,506	24.2	1,574	24.9
Construction.....	484	7.8	471	7.4
Service-producing Industries:				
Transportation and other utilities.....	532	8.5	528	8.3
Trade.....	995	16.1	1,013	16.0
Finance, insurance, real estate.....	228	3.7	241	3.8
Service.....	1,458	23.5	1,533	24.2
Totals.....	6,227	100.0	6,335	100.0

Of recent years seasonal unemployment has represented a considerable problem in Canada. To encourage provincial governments and municipalities to undertake construction projects during the off season, the Federal Government since 1958 has provided financial assistance for certain types of construction projects undertaken during the winter months. In the winter of 1960-61 the Federal Government's contribution was about \$36,000,000 on projects involving a total expenditure during the period of approximately \$213,000,000. It is estimated that this provided almost 5,200,000 man days of employment.



The proportion of women in the labour force continues to increase. The 1,593,000 women in the labour force in 1960 represented 25 p.c. of the total; of these, nearly 46 p.c. were married women.

There were 19,947 indentured apprentices in the skilled trades as of September 31, 1961,—an increase from 9,482 in 1950. This boy has the distinction of being Alberta's 7,000th apprentice.



In order to facilitate the entry of young persons into industry and to assist unemployed persons in becoming relocated in employment, the new Technical and Vocational Training Assistance Act of 1960 provided for expanded contributions by the Federal Government to provincial costs of technical and vocational training. New training facilities being developed under this legislation are enabling a rapid growth in numbers trained and a marked improvement in training offered. Considerable emphasis is being placed on short courses particularly for the unemployed in occupations currently in great demand.

Under the Apprenticeship Training Agreement the Federal Government since 1944 has shared equally with provincial governments in the costs of training programs for apprentices. During 1960 over 20,000 persons were registered in apprenticeship courses covering more than 50 trades.

Through the apprenticeship training program encouragement is being given to the development of uniform standards of trade competency. Thus interprovincial standards examinations are now being used in most provinces in the final testing of candidates for trades qualification in the motor vehicle repair trade, and in the electrical, construction, and plumbing trades.

Weekly Average Hours and Earnings. Weekly earnings of Canadian wage-earners have more than doubled since 1945. The increase has been relatively steady, although differences in the rate of advance have been apparent in major industries and in different parts of the country. The area disparities result largely from variations in the industries represented in different provinces. Increases have been relatively large in construction, manufacturing and mining, and they have been somewhat greater in the western provinces than elsewhere. Between 1960 and 1961 weekly wages, on average, increased by more than two p.c.

During this period, weekly hours of work have declined, on average, by more than 5 p.c. An exception is construction, in which shortages of material and labour in the immediate post-war years had limited activity. The average for all wage-earners in 1961 was slightly more than 40 hours per week. Small year-to-year differences between 1960 and 1961 are more closely related to changing amounts of short-time and overtime than to changes in the standard work week.

Average Weekly Hours and Wages of Hourly-Rated Wage-Earners in Specified Provinces and Industries, 1946, 1960 and 1961¹

NOTE: These statistics, relating to the last pay periods in the month, are calculated from monthly returns furnished by establishments usually employing 15 persons and over.

Industry and Province	Average Weekly Hours			Average Weekly Wages			Change in Average Hours in 1961 ¹ from		Change in Average Wages in 1961 ¹ from	
	1946	1960	1961 ¹	1946	1960	1961 ¹	1946	1960	1946	1960
	No.	No.	No.	\$	\$	\$	p.c.	p.c.	p.c.	p.c.
Industry							(Decline indicated by minus sign)			
Mining	42.7	41.7	41.9	37.53	87.26	89.10	-1.9	0.5	137.4	2.1
Manufacturing	42.7	40.4	40.5	30.15	71.96	74.10	-5.2	0.2	145.8	3.0
Durable goods	42.8	40.7	40.8	33.00	78.70	81.00	-4.7	0.2	145.5	2.9
Non-durable goods	41.8	40.1	40.4	26.92	65.67	67.95	-3.4	0.7	152.4	3.5
Construction	38.4	40.4	40.5	29.53	78.36	80.45	5.5	0.2	172.4	2.7
Services ²	43.1	39.1	38.9	20.08	49.58	41.50	-9.7	-0.5	106.7	2.3
Provinces-- Manufacturing										
Newfoundland		40.3	41.1		65.94	69.50		2.0		5.4
Prince Edward Island	45.8	41.0	41.1	20.93	48.05	49.20	-10.3	0.2	135.1	2.4
Nova Scotia	43.4	40.8	40.9	29.86	64.13	65.00	-5.8	0.2	117.7	1.4
New Brunswick	45.2	41.4	41.0	29.19	64.21	63.85	-9.3	-1.0	118.7	-0.6
Quebec	44.6	41.2	41.5	28.95	66.10	68.10	-7.0	0.7	135.2	3.0
Ontario	41.8	40.3	40.4	35.53	75.52	77.85	-3.4	0.2	119.1	3.1
Manitoba	42.1	39.9	39.9	33.60	66.67	68.20	-5.2		103.0	2.3
Saskatchewan	41.9	38.9	39.0	29.54	74.02	76.90	-6.9	0.3	160.3	3.9
Alberta	42.1	39.5	39.7	30.52	74.76	77.45	-5.7	0.5	153.8	3.6
British Columbia	40.3	37.6	37.7	34.30	81.69	84.10	-6.5	0.3	145.2	3.0

¹ Estimated on the basis of statistics available for 8 months of 1961.

² Mainly hotels, restaurants, laundries and dry-cleaning establishments.

.. Signifies not available.



Some industries carry out safety education among their own employees and those who will use their products. Here workers receive a demonstration lesson on fighting chemical fires.

Automation is replacing human effort—with the possibilities of human error—in many fields. This machine weighs packages of meat and produces a tag with weight, price per pound and price of the package imprinted on it. All the machine needs to be told is the price per pound.



Unemployment Insurance

In July 1940, an Unemployment Insurance Act provided Canada with a contributory scheme of unemployment insurance and a nation-wide free employment service. Administration of the Act is entrusted to an Unemployment Insurance Commission, consisting of a Chief Commissioner and two commissioners—one appointed after consultation with organized labour and one after consultation with employers. Regional and local offices strategically located across the country handle applications for employment and claims for unemployment insurance benefit. Persons applying for unemployment insurance benefit are required first to register with the National Employment Service.

All persons employed under a contract of service are insured unless specifically excepted. Exceptions include such employments as agriculture, domestic service, school teaching and those employed on other than an hourly, daily, piece or mileage basis with annual earnings exceeding \$5,460. Persons employed on an hourly, daily, piece or mileage basis are insured regardless of earnings level. As of June 1960 it was estimated that about 80 p.c. of non-agricultural paid workers came under the scope of the Act. Equal contributions are required from employers and employees, the specific amount to be determined by the weekly earnings of the employee. The Federal Government adds one-fifth of this total and pays administration costs. In order to protect, in some measure, the standard of living of the wage-earner when unemployed, the weekly benefit rate is related to the weekly contribution which varies between defined earnings classes. The contribution schedule contains 12 classes, ranging from 10 cents where weekly earnings are under \$9.00 to 94 cents in respect of weekly earnings of \$69.00 or over. Maximum weekly benefit rates are \$27.00 to persons

claiming at the single person rate and \$36.00 for those with dependants. Maximum entitlement in dollars is a function of previous contributory employment and the current weekly benefit rate. An allowable earnings feature provides automatic adjustment of weekly benefit where earnings in a week exceed 50 p.c. of the claimant's benefit rate.

The Act contains a special provision whereby the usual contribution requirements are relaxed somewhat during a 5½-month period commencing with the first week of December each year. During this interval workers unable to fulfil the normal requirements for benefit may draw seasonal benefit if they have at least 15 weeks in insured employment during the fiscal year, or have terminated benefit since the previous mid-May. During the six-month period December 1, 1960 to May 31, 1961 almost 42 p.c. of the benefit periods established were classed as "seasonal benefit periods".

Estimates of the Insured Population under the Unemployment Insurance Act, August 1960 - August 1961

	Total	Employed	Claimants
	No.	No.	No.
1960—August 31.....	4,003,000	3,722,800	280,200
September 30.....	3,998,000	3,718,500	279,500
October 31.....	4,002,000	3,671,800	330,200
November 30.....	4,110,000	3,624,800	485,200
December 31.....	4,251,000	3,496,900	754,100
1961—January 31.....	4,240,000	3,393,100	846,900
February 28.....	4,247,000	3,374,200	872,800
March 31.....	4,210,000	3,372,000	838,000
April 30.....	4,126,000	3,412,900	713,100
May 31.....	3,891,000	3,550,000	341,000
June 30.....	3,943,000	3,676,100	266,900
July 31.....	3,971,000	3,715,700	255,300
August 31.....	3,945,000	3,715,700	229,300

During the 12 months ending September 1961, a total of 2,623,000 claims for benefit were filed at local offices. A total of 2,173,000 claims were classed as entitlements and benefit payments amounted to \$513,500,000. For the 12 months ending September 1960 comparable data were 2,641,000 claims filed, 2,189,000 entitlements and payments amounting to \$458,700,000.

National Employment Service. The National Employment Service of the Unemployment Insurance Commission provides a public employment service on a national basis to all workers and employers in Canada. Its main purpose is to organize the labour market in the most effective manner in bringing together employers and work seekers.

Important features of the National Employment Service operations are the employment counselling service to those entering or re-entering employment, the counselling and selective placement service to handicapped workers, and the specialized employment service to employers and workers in the executive and professional fields. During the year ending September 30, 1961, the 200 local National Employment Service offices effected placement of 1,059,000 workers in vacancies listed with National Employment Service by employers. Included in this total were 49,300 placements which involved movement of workers to employment in other than their area of residence. In the same period 250,000 counselling interviews were accorded workers entering or re-entering the employment market.

Labour Legislation

Under Canada's federal system of government, labour laws may be enacted either by the provincial legislatures or by Parliament, depending on the nature of the industries concerned. The field in which federal legislation applies includes such industries as navigation and shipping, air transport, transportation extending beyond the bounds of a province, telegraphs, radio and television, grain elevators, banking, and operations of federal crown companies. Most employment in factories, mines, construction, commercial firms and the service industries is subject to provincial legislation.

In only one province—Newfoundland—are trade unions required to be registered. In Quebec, a trade union may be incorporated upon application.

The federal Industrial Relations and Disputes Investigation Act and a comparable Act in each province assert the right of workers to belong to unions of their own choice, and provide a procedure for the certification of a union as the bargaining agent of a unit of employees. Following certification, that is, official recognition by the Labour Relations Board that a union represents a majority of the workers in a plant or part of a plant, the union and the employer are required to bargain collectively for an agreement governing wages and working conditions. Once signed, a collective agreement is binding upon the employer, the trade union and all the employees concerned,

and any differences arising during the term of the agreement must be settled by arbitration or otherwise, without resort to strike or lockout.

The federal Act and most of the provincial Acts provide for compulsory conciliation. If a dispute arises in connection with the negotiation of an agreement, employees are forbidden to strike until they have gone through a process of conciliation (first, by government conciliation officers and, secondly, failing settlement at the first stage, by a conciliation board). One member of a conciliation board is nominated by the union and one by the



The proportion of the labour force engaged in manufacturing is now less than 25 p.c. This operator, using an ancient Egyptian "lost-wax" method, in which a clay mold is formed around a wax model which is then melted out, prepares a mold for precision casting. The metal to be cast is stellite, a Canadian-discovered and produced alloy of cobalt, chromium and tungsten, which has a hardness rating 3 to 25 times that of tempered tool steel.



Employment in service industries increased from 16.8 p.c. in 1946 to 24.6 p.c. in 1960. The proportion of women employed in the service industries increased from 33.4 p.c. to 46.1 p.c. in the same period.

employer. The chairman is named by the other two members or, failing agreement, by the Minister of Labour.

The board hears each side present its position and tries to narrow the area of disagreement. If no settlement is reached, the board reports to the Minister its recommendations with respect to the issues, and under the federal Act and in some provinces the report is published, on the theory that public opinion may in this way be brought to bear on the parties to reach agreement. In Quebec the legislation was amended in 1961 to provide that a board will no longer issue a report containing recommendations but will report to the Minister only whether or not agreement has been reached.

The parties are not obliged to accept the recommendations of a conciliation board and, at the end of a specified period after the receipt of the board's report by the Minister, are free to strike or lockout.

Unfair labour practice provisions prohibit employer participation in the organization or administration of a trade union or discrimination against workers for union membership or activities. It is also an unfair labour practice for any person acting on behalf of a trade union to use coercion or intimidation to induce any person to become, or cease to be, a member of a trade union. In Alberta and British Columbia, restrictions have been placed on picketing in support of an illegal strike.

In some provinces, certain classes of employees such as policemen, firemen, teachers and, in Quebec, employees of municipalities or public utilities and members of the provincial civil service are forbidden to strike and, in case of dispute, have their wages and working conditions determined by final and binding arbitration.

Fair employment practices laws enacted by Parliament and by the legislatures of six provinces are designed to ensure to all persons an equal opportunity to obtain and retain employment, subject only to individual qualifications for a particular job. Discrimination on grounds of race, colour, religion or national origin is forbidden. The Acts also forbid discrimination by trade unions in the admission of their members. The procedure for dealing with complaints under the Acts is one of investigation, conciliation and persuasion but there is provision for the issuance of an order by the Minister requiring compliance with the law, and, as a last resort, for prosecution in the courts. In some Acts provision is made for educational programs to promote a public awareness of the law.

Under a workmen's compensation law in each province, a worker employed in an industry covered by the Act is entitled to compensation and medical aid for personal injury resulting from an accident arising out of and in the course of employment or for disablement caused by an industrial disease, unless he is disabled for less than a specified number of days, known as the waiting period. Compensation is paid at the rate of 75 p.c. of average earnings, subject to the provision that earnings above a specified maximum may not be taken into account. The ceiling on annual earnings varies from one province to another, ranging from \$3,600 to \$6,000. After the period of temporary disability is over, any permanent disability resulting from the accident is determined, and an award made in the form of a life pension or a lump sum. In fatal cases, dependants are awarded fixed monthly amounts. Compensation and medical aid are paid from an accident fund to which employers are required to contribute and which provides a system of mutual insurance.

Apprenticeship laws in all provinces provide for the training of young people in designated skilled trades through a combination of on-the-job training and class instruction.

Eight provincial laws and a federal law require that women be paid the same wage rates as men when they do "the same", "identical or substantially identical", or "comparable" work. (The wording of the Acts varies.) Provisions for enforcement of the equal pay laws are similar to those of the fair employment practices Acts.

All provinces have minimum wage laws, and, except in Prince Edward Island, minimum wage rates are in effect. These are applicable in most provinces to workers of both sexes. In Nova Scotia and Ontario, minimum rates apply only to women, and in New Brunswick, only one order covering the canning industry is in effect for men.

Five provinces have laws of general application limiting working hours. The Acts of Alberta, British Columbia and Ontario set daily and weekly limits on hours (e.g., 8 hours in a day and 48 hours in a week in Ontario), whereas those of Manitoba and Saskatchewan provide that time and one-half the regular rate must be paid where work is carried on beyond specified daily or weekly hours.

This girl is employed in a German electrical industry in Ontario. Almost one-quarter of immigrants expect to engage in manufacturing occupations; 2.4 p.c. look forward to managerial careers.



Minimum wages and maximum hours of work are set for some industries and areas under the Quebec Collective Agreement Act and under industrial standards or similar laws in six other provinces.

Annual vacations with pay are provided for workers in Canada under eight provincial laws and a federal law. The federal law provides for a one week's vacation with pay after one year of service and two weeks after two years for employees in undertakings subject to the jurisdiction of Parliament. In New Brunswick, Nova Scotia, Ontario and Quebec, a worker is entitled to a vacation with pay of one week after a year of employment; in Alberta, British Columbia, Manitoba and Saskatchewan, an employee is entitled to a two weeks' vacation with pay after working one year. The Saskatchewan Act further provides for a three weeks' vacation after five years' service with the same employer. The New Brunswick legislation applies only to mining, construction, and the canning and packing industries.

Legislation, which may be federal, provincial or in some instances municipal, sets standards to be observed in work places so as to secure the safety and health of employees and provides for a system of inspection to ensure their enforcement. In all provinces in which mining is carried on, laws designed to ensure the safest possible working conditions in mines are in effect. Factories Acts in eight provinces lay down rules with respect to premises, equipment and practice in factories, covering such matters as sanitation, heating, lighting, ventilation, machine-guarding, reporting of accidents and various welfare measures. Steam boilers must be built to an approved design and operated by engineers holding certificates of the proper class for the equipment involved. Legal standards for the construction industry are enforced by municipal inspectors in some provinces. With respect to railways, a Board established by federal legislation has authority to issue safety rules having the force of law. Safety measures for the protection of seamen are prescribed by a federal law, the Canada Shipping Act.

It was raining in Belleville on Labour Day, 1913, but the parade, including some of the newest automobiles of the day, went on just the same.





The Canadian Labour Congress conducts an extensive educational program through labour schools, workshops, week-end institutes, discussions and lectures, in co-operation with a local or group of locals or with provincial federations of the Congress. Here delegates to a summer school attend a lecture on economics.

Labour Organizations

At the beginning of 1961 approximately 1,447,000 workers from Newfoundland to British Columbia belonged to labour unions. Close to 75 p.c. of the organized workers were in unions affiliated with the Canadian Labour Congress, and approximately 7 p.c. belonged to affiliates of another central body, the Confederation of National Trade Unions, which until 1960 was known as the Canadian and Catholic Confederation of Labour. The balance of union membership was represented either by organizations independent of a central labour congress or, to a lesser extent, by unions having no congress link in Canada but affiliated with the American Federation of Labor and Congress of Industrial Organizations.

More than two-thirds of Canada's organized workers belong to unions that operate in the United States as well. In January 1961, 89 of the 108 international unions active in Canada were affiliates of the Canadian Labour Congress, and 85 of these were also within the American Federation of Labor and Congress of Industrial Organizations. Eleven of the remaining 19 international unions had no congress affiliation in Canada, but belonged to the AFL-CIO.

National and regional unions operating in Canada at the beginning of the year totalled 50, with 18 unions in this group holding CLC affiliation and 13 belonging to the CNTU.

Taken together, international, national and regional unions had within their ranks close to 1,364,000 workers in a total of 158 organizations ranging in size of their Canadian membership from under ten members to the 82,000 reported by the United Steelworkers of America. The United Brotherhood of Carpenters and Joiners of America, with 65,000 members, continued to rank second among unions in Canada, ahead of the 56,000 strong International Union, United Automobile, Aircraft and Agricultural Implement Workers of America. Among national unions, the National Union of Public Employees, with 46,000 members, continued to be the largest for the third consecutive year, followed by the 33,000-member Canadian Brotherhood of Railway, Transport and General Workers.



A scene from Gluck's *Orphée*, produced in French in Montreal during the winter of 1961.

The Arts

It is difficult to speak of the arts in Canada with the same precise definition that might be possible in some European countries. Canadian artistic traditions derive from two separate and distinct cultures which, however obscured by a common North American environment, continue to exert their influence on French and English Canadian poets, artists and composers. This cultural dichotomy is further confused by a lack in Canada of a single large metropolitan centre which like London, Paris or Vienna might serve as the focal point of the country's artistic endeavours. Problems of space and distance are central to much of Canadian life. It is not surprising therefore, that playgoers in Toronto are often indifferent to the theatrical season in Vancouver or that painters in Montreal are unfamiliar with much that is happening in the Toronto "school".

It was perhaps a consciousness of this diffuseness and a desire to formulate a more accurate estimate of Canadian arts that led to the most significant "cultural" event of 1961—The Canadian Conference of the Arts. Convened

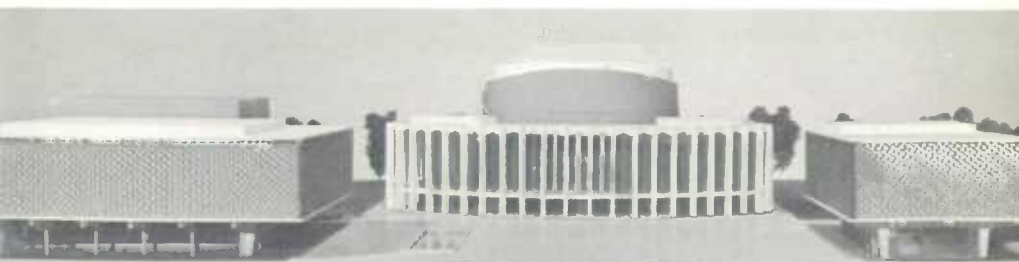
with the purpose of "measuring Canada's cultural maturity", the conference brought together creative artists, patrons and interested laymen from many parts of the country. During the three-day gathering at Toronto's O'Keefe Centre many aspects of the arts in Canada were examined in speeches, discussion groups and informal gatherings. Opinion was divided, of course, on the ultimate value of this, as of any, conference. Nevertheless it seemed clear that artists could only benefit from the contact thus provided with colleagues from distant parts of the country. Furthermore, it was apparent that while there might be considerable disagreement as to their purpose or quality, the arts in Canada were attracting a steadily growing audience.

Another striking indication of the recent growth and development of the arts in this country was given during the year by the Canada Council. This body, in addition to other functions, has served since 1957 as a national arts council, making grants to organizations and individuals in various creative fields. It has available for this purpose about \$1,250,000 from the income of a \$50,000,000 Endowment Fund. During 1961 the Council announced that the legitimate claims upon its resources had almost doubled in the four years of its existence. Furthermore, it pointed out that during the same period, of the many talented young artists and performers applying for scholarships, only one in five could be assisted. During the year the Council submitted a brief to the government making known these facts and announced widely that continued development of the arts in Canada would depend increasingly upon local support.

Festivals

Something of the growing vitality of Canadian arts is demonstrated each year at the principal summer festivals. These events have, particularly in the last decade, served to provide a showcase for Canadian talent, bringing together performers and exhibitions from many regions of the country and gaining for Canada considerable recognition abroad. The most strikingly successful of these has been the Stratford Festival which in nine years has established itself as one of the foremost classical theatres in North America if not in the English speaking world. In recent years the Festival has sought somewhat to offset its reputation as an exclusively Shakespearean theatre by performing contemporary drama and by broadening the scope of its activities to include many ancillary activities such as opera, music, exhibitions

In this architect's model, the huge Place des Arts complex in Montreal is dominated by the central concert hall, construction of which began in 1961. Flanking it will be a theatre and a chamber music hall for which a competition was held for the final design. A three-level parking garage will be built under the plaza.



of paintings, books and handicrafts, Shakespeare seminars, a film festival and a theatre school. In addition to its own productions, it has brought in attractions from other parts of Canada such as Montreal's Le Théâtre du Nouveau Monde and, this year, a large exhibition of the arts of French Canada. In spite of its attempts to loosen its association with the Bard, however, it is the Shakespearean productions which remain the central and unique feature of the Stratford Festival.

If the Stratford Festival has been seeking to expand its character, Canada's other two major festivals in Montreal and Vancouver have to some extent been striving to establish personalities of their own. To date, however, each has been faced with the same difficulty—that of making a distinctive impression in a city already possessing an active cultural life. During its 26th season, the Montreal Festival concentrated more heavily on novelty combined with high quality. The summer program included seldom-heard operas of Ravel and Pergolesi, plays by Musset and Sacha Guitry, a musical by Sandy Wilson, recitals by Vlado Perlemuter, the Pro Musica Antiqua de Belgium, the Hungarian Trio, and Ali Akbar Khan. An International Week of Today's Music featured a series of concerts of contemporary concrete and electronic music together with performances of modern ballets. Several of the Festival productions, including the operas and dramas, were produced in Montreal.

The Vancouver Festival also seems to have been seeking to find its own format. Having concentrated on seasons of internationally famous artists in the early years, the management has recently begun including more popular and local productions in an attempt to attract larger audiences. This season the Festival added something of a novelty in the form of a gigantic outdoor military tattoo. This single event grossed nearly as much as all the arts attractions together. A somewhat less predictable hit was the North American première of Benjamin Britten's opera, *A Midsummer Night's Dream*, produced with some local talent. A production in English of Gratien Gélinas' highly successful play about life in Quebec, *Bousille and the Just*, was brought from Montreal. These, together with concerts and recitals by Glenn Gould, Isaac Stern, Irmgard Seefried, Russell Oberlin and the Paganini Quartet, and performances by the New York City Ballet were presented. Also featured were appearances by the Red Army Chorus and the folk singer Harry Belafonte. A single performance of Jean Giraudoux's *Men, Women and Angels* with Uta Hagen and Fritz Weaver was given.

A scene from *Love's Labour's Lost*, one of three Shakespearean plays presented at the ninth annual season of the Stratford Shakespearean Festival in 1961.





A scene from the Vancouver International Festival's production of *Men, Women and Angels* by Jean Giraudoux.

Music

The core of the musical life of many Canadian cities is the local symphony orchestra. There are in Canada at present some 20 such organizations ranging in size and capability from the fully professional Montreal and Toronto orchestras to small groups made up entirely of spare-time musicians. Almost without exception, however, these organizations are faced with similar problems. Box office revenues are seldom sufficient to meet even the most modest budgets and managements must campaign ceaselessly for funds to hold deficits within reasonable bounds. The condition of some of these orchestras has been somewhat improved in recent years by the financial support of the Canada Council. Grants to symphony orchestras, (amounting to close to \$225,000 during the 1960-61 season), have enabled many of them to offer youth concerts, tour to neighbouring areas or place a nucleus of professional musicians under seasonal contract. Nevertheless the struggle to raise standards and expand activities is still waged against odds that would discourage all but the most determined or the most optimistic. The steadily improving quality of many Canadian orchestras is tribute to the dedication of managers and committees as well as to the ability of conductors and musicians.

An event of considerable significance for the future of these orchestras took place during the 1960-61 season. A National Youth Orchestra made its concert debut before a large and enthusiastic audience in Massey Hall. The orchestra was patterned after a similar organization in Britain and consisted of some 124 young players from all parts of Canada who had come to Toronto during their Christmas holidays to study under some of the leading orchestral players in the country. The second session of this orchestra was held during the summer of 1961 at the Stratford Festival. Once again the quality of the playing spoke well of the calibre of young talent in the orchestra and of the quality of the instruction received.



The National Youth Orchestra, in a performance of Beethoven's Seventh Symphony during its first concert tour, 1961-62.

There is evidence that the performances of the National Youth Orchestra reflect a fast-spreading interest in serious music among young Canadians. This is due in part, no doubt, to the fine musical instruction now given in many schools and to the increasingly active musical life of the larger cities. It is due also, perhaps, to the growing number of concerts being given by orchestras and chamber groups specifically for young people. Foremost among the organizations encouraging a love of music among the young is Les Jeunesses Musicales du Canada. This organization, a branch of a movement originally begun in Belgium, now numbers more than 50,000 members under 30 years of age. It organizes four concert circuits sending promising young Canadian and European instrumentalists to some 72 Canadian centres. The organization also operates a record club and sponsors a summer music camp near Montreal. In 1961, JMC held its first National Music Competition, an event which promises to become an important annual highlight of Canadian musical life. The winner, Marek Jablonski, a young pianist from Edmonton, will be given the opportunity to perform with several Canadian symphony orchestras during the coming season. These concerts will be sponsored by the Canada Council. He will also be given a recital tour by Jeunesses Musicales, debuts in Paris and New York and a recording opportunity.

In addition to the success of JMC, there are other signs of a growing interest in chamber music among Canadians. Such groups as the McGill Chamber Orchestra, the Hart House Orchestra and the newer Pro Arte Orchestra of Toronto have small but devoted followings. The University of Toronto announced in 1961 that it would sponsor a Canadian String Quartet with Albert Pratz as first violinist. At the Montreal Festival, concerts by the Pro Musica Antiqua of Belgium and by the Hungarian Trio drew enthusiastic audiences. At Stratford, the "workshop" concerts given by members

of the National Festival Orchestra proved more popular than ever before.

Long the poorest relation in the Canadian music family, the native composer is at last gaining wider recognition and support. Many of the principal orchestras now regularly include Canadian works in their seasons, some specially commissioned by the organizations themselves. A considerable number of these commissions have been made possible by grants from the Canada Council. Another source of encouragement for the Canadian composer has been the Samuel Lapitsky Foundation of Montreal which over a number of years has enabled the McGill Chamber Orchestra to commission and perform original works. The Montreal Symphony, during the past five years, has also given annual performances of Canadian compositions commissioned by the orchestra. Abroad, Canadian music is gaining a wider hearing through the efforts of the Canadian Music Centre, an organization located in Toronto and devoted to the dissemination of information regarding Canadian music.

Opera

It is a paradox that this country's reputation in the field of opera was first established abroad. Such names as Edward Johnson, George London, Emma Albani, Pauline Donalda and, more recently, Raoul Jobin, Pierrette Alarie and Leopold Simoneau, give some indication of the wealth of musical talent that has left Canada for the operatic stages of the world. There are at present more than a dozen Canadian singers who appear regularly at Covent Garden, the Metropolitan Opera or other famous opera houses. But today names of such stars as Jon Vickers, James Milligan, Robert Savoie, Louis Quilico, Teresa Stratas, Irene Salemka, Andre Turp, Richard Verreau,

School bands and choirs attain a high degree of skill. Here massed bands from eight Vancouver high schools put on a concert.





A movement class at the National Theatre School of Canada which opened in Montreal in November 1960, offering a three-year course for professional actors and, beginning in November 1961, a two-year course in directing, design and stage production. Summer school courses are held in Stratford. Financial support is derived from the Quebec provincial government, the Canada Council and student fees of \$700 a year. With the opening of this national bilingual school and the National Ballet School in Toronto in 1959, young Canadians are now able to train in Canada for Canadian theatre.

Andrew McMillan, Ilona Kombrink, Joseph Rouleau, and many others are as familiar to audiences in Canada as to those abroad.

Regular seasons of opera are now presented in three Canadian cities. The longest and most ambitious of these is in Toronto where during 1961 the Canadian Opera Company celebrated its third season as a professional company by moving into Toronto's impressive O'Keefe Centre. There the company presented 15 performances of five operas—*Tosca*, *The Bartered Bride*, *Cavalleria Rusticana*, *Pagliacci* and *Carmen*. Attendance reached close to 90 p.c. of capacity as the company recorded its most successful season to date. The Montreal Opera Guild, for its 20th season, presented Pierrette Alarie and the American tenor, Richard Cassilly, in a production of Gounod's *Romeo and Juliet* at Her Majesty's Theatre. The Vancouver Opera Association completed its second season during which it played to better than 90 p.c. audiences at the new Queen Elizabeth civic auditorium. Two productions were given: *La Traviata* by Verdi with Beverly Bower and Igor Gorin, and Offenbach's *The Tales of Hoffman* with Irene Salemká.

There was also an increase in operatic productions in some of the smaller Canadian centres. The Canadian Opera Company completed its fifth national tour presenting "chamber" versions with piano accompaniment. The operetta *Orpheus in the Underworld* by Jacques Offenbach was staged in centres from Corner Brook, Newfoundland to Nanaimo, B.C. A newer entrant into the field of travelling opera in 1961 was Les Jeunesses Musicales du Canada which took performances of two chamber operas to JMC members in many parts of the country. The two works by Canadian composer Maurice Blackburn, *Pirotte* and *Une mesure de silence* were originally commissioned by JMC in 1959 and given their first performance at the organization's summer camp at Mount Orford.

Many of the young Canadian singers now making their names on operatic stages abroad received their first training at the Opera School of the Royal

Conservatory in Toronto. The regular productions of the Opera School given at the Hart House Theatre are therefore of considerable significance for the future of opera in the country. In 1961 two little known works were given strong performances by the student casts. Respighi's *Maria Egiziaco* was presented on a double bill with Stanley Hollingworth's *The Mother* for three performances.

The CBC continues to present full length operas on television. The highlights of the 1961 season were outstanding productions of Richard Strauss' *Elektra* with the American soprano Virginia Gordoni, *Falstaff* by Verdi with the Canadian baritone, Louis Quilico, and *Orphée* by Gluck with Pierrette Alarie and Leopold Simoneau.

Opera has been a feature of the major Canadian summer festivals over the past few years. It has assumed most importance and proved most successful perhaps at Vancouver where productions of *Don Giovanni*, *Orpheus and Euridice* and *Madame Butterfly* have attracted enthusiastic audiences. This year the Vancouver Festival presented the North American première of Benjamin Britten's *A Midsummer Night's Dream*. The production featured the American counter tenor, Russell Oberlin, and was conducted by Meredith Davies from the original London production. The Montreal Festival this year offered works which were less familiar to the general public than operas presented in the past. Nevertheless Ravel's *L'Heure Espagnole* and Pergolesi's *La Servante maîtresse* were well received. Aside from the French soprano, Jane Berbié, the cast was entirely Canadian. At Stratford the trend in lyric productions in recent years has been away from serious opera which, for some reason, has proved less successful at that Festival. In 1960 a Tyrone Guthrie production of Gilbert and Sullivan's *H.M.S. Pinafore* set attendance records for a festival musical presentation of its kind. In 1961 Sir Tyrone Guthrie repeated his triumph with a production of *The Pirates of Penzance* which played for six weeks at the Avon Theatre in Stratford. Following the Festival run the production went to New York to the Phoenix Theatre and early in 1962 to England where it toured with a revival of *Pinafore*.

Ballet

The story of ballet in Canada, like that of many of the performing arts, is one of the struggles, success and gradual eclipse of amateurism. In 1949 ten ballet companies, from Vancouver, Winnipeg, Hamilton, Toronto, Ottawa and Montreal, danced at the Canadian Ballet Festival held in Toronto. In the next few years two groups were able to become fully professional and by 1954 the amateur movement was largely superseded by the emergence of the Royal Winnipeg Ballet and the National Ballet of Canada. A few years ago these two companies were joined by a third, Les Grands Ballets Canadiens, which makes its home in Montreal. Today such groups as the Ottawa Classical Ballet and the Vancouver Ballet Society continue to do interesting work locally but it is the three professional troupes which have begun to establish Canada's ballet reputation internationally.

The most widely known Canadian company is the National Ballet of Canada which in a little over 10 years has played in more than 100 centres in this country and the United States. During that time it has presented many of the standard works of the classical repertoire including *Swan Lake*, *Coppelia*

and *Giselle*, as well as original Canadian ballets. During their 38-week 1960-61 season, the company played to close to 200,000 patrons, and a televised version of *Pineapple Poll* was seen over the CBS network in the United States by many thousands more. The company also performed *Swan Lake* on CBC-TV for Canadian audiences. In spite of some retrenchment necessitated by an unusually large deficit, the company plans to add two new works to its repertoire including George Balachine's *Concerto Barocco* and Ray Powell's *One in Five*. It also announced that in addition to several new dancers entering the company from the Ballet School, Galina Samistova, a soloist formerly with the Kiev Ballet, would join the autumn tour.

Canada's other major ballet companies are smaller in scope than the National. They make no effort to mount productions of the classics and usually travel with piano accompaniment only. During 1960-61 Les Grands Ballets Canadiens undertook a six week tour giving 23 performances mainly in the United States. It also gave three TV presentations over the French network and seven performances in Montreal, where the season at Her Majesty's Theatre included a number of original ballets by the company's artistic director, Mme. Ludmilla Chiriaeff and premier danseur, Eric Hyrst.

The Royal Winnipeg Ballet during 1960-61 added four new works to its repertoire. Three of these, including *Un et un font deux* by Michel Conte, *Ballet Three* by Don Gillies, and *Hansel and Gretel* by Arnold Spohr, were by Canadian choreographers. The company made an extensive tour of eastern Canada appearing in 28 cities before some 28,000 spectators. A highlight of the season was the appearance with the group in Winnipeg of two soloists from the Leningrad Ballet. The company was also seen nationally on the CBC's *Festival* series.

The considerable achievements of Canadian ballet in recent years are due in some measure to financial support received from the Canada Council. In 1960-61 the three major companies received a total of \$160,000 from this source or a subsidy averaging slightly more than 20 p.c. of the total expenditure of these organizations. In the face of rising demands, however, the future of ballet in Canada will in large measure depend upon the expansion of private resources.



Les Grands Ballets Canadiens, though small, are noted for the artistry and polish of their performances. Two of its members are shown here in a scene from the ballet *Pulcinella*.



A scene from the play *Caesar and Cleopatra* presented at Saskatchewan House in Regina during the Saskatchewan House Summer Festival of 1961.

Theatre in English Canada

Although an active amateur theatre has existed in English Canada for many years, the growth of native professional drama has been slow. This is due partly to the competition of films and partly to this country's long reliance on touring companies from abroad. In the years following World War II, however, an upsurge of interest in the theatre resulted in the emergence of several troupes, mainly in and around Toronto. Since the advent of the Canada Council, theatre in many parts of English Canada has gained new vitality.

Nevertheless it is the Stratford Festival which continues to be the symbol and strength of English professional theatre in Canada. Its boldly conceived stage and auditorium are generally recognized as a significant contribution to theatrical design and the Shakespearean productions are of a standard comparable to the best in the world. In 1961 these standards were maintained. *Coriolanus*, *Henry VIII* and *Love's Labour's Lost*, though relatively unfamiliar, proved highly successful. In addition, the Festival staged *The Canvas Barricade*, a new play by the Canadian playwright, Donald Jack, which, under the direction of George McCowan and in the hands of a talented cast headed by Peter Donat and Kate Reid, was extremely amusing.

In Toronto, the Crest Theatre, Canada's only fully professional English repertory company, had one of its most successful seasons to date. During the year it staged its 100th production and estimated that it had played to more than 500,000 spectators since its opening night in 1954. Its season ranged from Eugene O'Neill's *Long Day's Journey into Night* to a musical version of Sheridan's *The Duenna*. Several other groups produced plays in Toronto during the season but none on the scale of the Crest. The New Play Society's annual review, *Spring Thaw*, was highly successful. Less fortunate was the Speakeasy cabaret theatre which finally closed its doors after the final performance of a revue optimistically named *Just for Fun*.

Outside of Toronto, the most active theatrical enterprise is located in Winnipeg where the Manitoba Theatre Centre under the direction of John



For the first time at the Stratford Shakespearean Festival, a new Canadian play—*The Canvas Barricade* by Donald Lamont Jack—was presented in 1961.

Hirsch continues to make striking progress. During the 1960-61 season, the semi-professional company presented 8 major plays, a studio series of 5 productions, 2 children's plays, a TV performance, and toured with the comedy *The Fourposter*. Attendance during the season reached a total of 64,000. Farther west, in Vancouver, an effort was made during the year to establish professional theatre in that city. A group calling themselves the Actors' Theatre presented plays in the intimate Cambie Theatre. Productions alternated with a series of art and foreign films.

In Montreal, the picture was somewhat more melancholy as the Montreal Repertory Theatre, for some 30 years the focus of English theatrical activity in that city, closed the doors of its third home, the Closse St. Playhouse. The future of the group was uncertain but it looked at year end as though the career of an active little theatre which had made the difficult transition to professionalism might at last be at an end. To a certain extent this set-back was overcome by the introduction of a winter season at the Mountain Playhouse. But in general, the English theatre in Montreal remains rather isolated in a city where the dominant language of the stage is French.

A more encouraging feature of the 1961 season was the gradual re-emergence of the straw-hat circuit. In Ontario, four companies of young actors staged productions. These included the Red Barn at Jackson's Point, the Straw Hat Players in Muskoka, the Sun Parlor Playhouse in Leamington and the Garden Centre Theatre in the Niagara area. Some of these groups aspired to move their productions into Toronto at the end of the summer. Whether or not many of the stock productions ever reach the metropolitan area, the straw-hat circuits are once again providing the grass roots training which is the foundation of a flourishing theatre.

Theatre in French Canada

Montreal is the centre of the sometimes ailing but always exciting theatre in the French language. Rumours of crisis are frequently current and companies occasionally go into decline or disappear. Like the mythical phoenix, however, these moribund troupes seem to give birth to others eager to cater to that love of theatre which seems so deep-rooted in the residents of French Canada. It is not at all unusual that the recent Montreal season began with talk of impending crisis and saw the development of a permanent repertory company and the production of two of the most successful "hits" to be seen in the city for many years.

There are five major companies operating in Montreal. The only one performing regularly is the Rideau Vert which last season presented a nine-month season at the reconverted Stella Theatre. The group concentrated on boulevard comedies, performing 8 times a week and introducing a new bill every month. The most widely known company outside of the province is Jean Gascon's Théâtre du Nouveau Monde which has toured extensively in Canada and abroad. In ten years, this company has presented 41 productions and played to more than 580,000 spectators. In spite of these considerable achievements, however, the troupe is still without a permanent home and is unable to put its actors on a permanent contract. During 1960-61, the company presented a limited season of four plays. One of these, however, *Le Dindon* by Georges Feydeau, proved to be their most successful production to date running for more than 80 performances.



A performance of *Un garçon d'honneur*, a French adaptation of Oscar Wilde's *Lord Arthur Saville's Crime*, was one of the outstanding dramatic television presentations of 1961.

The Comédie Canadienne is operated by one of Quebec's most celebrated theatrical personalities, Gratien Gélinas. The company stages productions of its own and rents its facilities to various other theatrical groups in the city. During the 1960-61 season, several plays by Canadian authors were produced including Gélinas' *Bousille et les Justes*, which became the second Canadian drama to run for more than 100 performances. (The first production to win this distinction, *Ti Coq*, was also by the redoubtable Mr. Gélinas.) In spite of this success, however, serious financial difficulties faced the Comédie Canadienne at the end of the year. Accordingly, it announced that it would abandon its policy of staging its own productions and concentrate on renting its facilities to other groups.

The Montreal International Theatre, more familiarly known as La Poudrière from the converted powder magazine in which it performs, presented a lively season of plays in French, English and German on St. Helen's Island. About 145 performances of 9 plays were presented.

Somewhat less lively was the program of the Théâtre-Club. This troupe has performed for some years in its intimate theatre on Luke Street. During 1960-61 it presented two modern plays, a play for children and rented its quarters to several other producing groups.

Montreal also boasts what is probably Canada's most active semi-professional theatrical activity. Some of the companies seen during a season have little identity other than the production which has brought actors, directors and stage crew together. Others are more permanent, shaping their season around a definite purpose. One of the most audacious of such groups to emerge during the 1960-61 season was Le Théâtre des Auteurs,

dedicated to the production of plays by Canadian authors. The success of its first presentation (an evening of one act plays), plus the assurance of its director, Marcel Sabourin, that he is in touch with at least a hundred Canadian playwrights, speaks well for the vitality of French Canadian theatre.



The work of Canadian sculptors in permanent materials suitable for outdoor use was presented by the Women's Committee of the Art Gallery of Toronto. All the works are in material which will withstand winter exposure or are of portable size for indoor storage.

A demonstration of weaving attracts young and old at the Nova Scotia Festival of the Arts and Crafts at Tatamagouche.

Another determined small group is L'Egrégore, which covers its limited expenses by taking a collection following each performance. The company suffered a temporary set-back last year when it lost its home, but by March it was once again performing for the public at a new address.



The Visual Arts

Few Canadian centres of any size now lack facilities of some kind for the display of travelling or permanent exhibitions of painting. In recent years numerous art circuits have come into existence which make available a wide variety of exhibitions to small galleries, libraries and universities throughout the country. In addition the extension activities of the major metropolitan galleries reach many of the outlying areas. As a result there has been a growing public awareness of the visual arts in general and of painting in particular. In spite of this fact, however, the long standing artistic controversy between the traditionalists and the modernists seems to grow most heated when it is concerned with the subject of non-objective painting.

In the midst of the controversy Canadian art galleries continue to function efficiently and to gain increasing public attention. In Toronto, the exhibition of paintings by Vincent Van Gogh, previously seen in Montreal and Ottawa, drew a record attendance of 113,600. The National Gallery in Ottawa continued to attract large numbers to its new quarters in the Lorne Building. The Fourth Biennial Exhibition of Canadian Art held during the year was one of the broadest in scope presented by the gallery. Some 1,900 paintings were submitted to the jury by artists from all parts of the country. Of the 91 selected for exhibition many were by young and some by comparatively unknown painters. Two other highlights of the season in Ottawa were the exhibitions of Mexican art and the display of British sculpture.

The Montreal Museum of Fine Arts held its 78th Spring Exhibition during the year. As usual representation was stronger from the province of Quebec and the prize for sculpture was shared by two sculptors now living in Montreal, Armand Vaillancourt and Marcel Brault. The prize for painting, however, went to Richard Gorman of Toronto. The Museum entered its second century of existence with the publication of an illustrated catalogue of its collection. The work was written by Brenda Bowman Turner and designed by W. D. Feist. Another feature of 1961 at the Museum was the exhibition during the autumn of an extensive collection of French art. Entitled "The Heritage of France", the exhibition was the first major collection from France to come to Canada for many years. Montreal continues to be a vital artistic centre.



Gnarled juniper roots found in coulees and clay lands of Alberta are carved into exquisite figurines by a retired cowboy and trick rider, who describes his carvings as "fashioned by nature and finished by man".

Writing

A striking feature of Canadian letters in recent years has been the consistently high level of Canadian poetry. Although the poet's audience was often not large, he was at least assured of publication in one of the many literary magazines of the country where his work would receive discriminating critical attention. Too often, however, such limited circulation was the most that could be expected. More recently a growing interest among a wider reading public has made possible the publication of a number of volumes of poetry, some of which have achieved minor commercial successes.

A comprehensive picture of Canadian poetry was made available to readers during 1961 by the appearance of the *Oxford Book of Canadian Verse*. Several other important collections also appeared during the year including Leonard Cohen's *The Spice Box of Earth*, *River Among Rocks* by Ralph Gustaphson, *The Devil's Picture Book* by Daryl Hine and Irving Layton's collection of stories and poems, *The Swinging Flesh*. The Governor General's Award for Poetry in English for 1960 went to Margaret Avison for *Winter Sun and Other Poems*, her first published collection. Poetry in French Canada is no less important and vital as was amply illustrated in the *Oxford Book*. Among the most widely known of the younger poets are Alain Grandbois, Rina Lasnier and Anne Hébert. The latter received the Governor General's Award for French Poetry for her book *Poèmes*.

Canadian fiction is perhaps somewhat less vigorous. Some very fine novels have appeared in recent years including Hugh MacLennan's *The Watch that Ends the Night* and *The Luck of Ginger Coffey* which won for its author Brian Moore the Governor General's Award for 1960. During the first half of 1961, Morley Callaghan's new novel, *A Passion in Rome*, a new collection of stories by Ethel Wilson entitled *Mrs. Golightly and Other Stories* and a promising first novel by Patricia Blondel called *A Candle to Light the Sun* appeared. Possibly the most critical interest was focussed on a collection of

stories by the late Malcolm Lowry which was published posthumously during the year. Lowry, who lived for twenty years near Vancouver, had gained considerable reputation abroad with his first novel *Under the Volcano* but his work was not widely known in this country. The publication of *Hear Us O Lord From Heaven Thy Dwelling Place* plus the acquisition of unpublished manuscripts by the University of British Columbia did much to stir interest in this talented writer.

History and biography seem to be very popular with Canadians coming to new awareness of their past and traditions. The Governor General's Awards for non-fiction for 1960 were won by Frank Underhill for *In Search of Canadian Liberalism* and by Paul Toupin for *Souvenirs pour demain*. Fewer studies of Canadian historical figures appeared during the first part of the year but such titles as Frank Rasky's *Great Canadian Disasters*, *The Man Who had to Hang* by G. B. Osler, *The Birth of Western Canada* by George F. Stanley, and *Ordeal by Fire*, by Ralph Allen indicate a continuing interest on the part of Canadians in their country, its history and resources.



When Jack Dempsey was interviewed in Canada's first broadcast station in 1922, equipment was relatively simple, compared with the complex mechanisms required today.

Radio and Television

Since the opening program from Canada's first radio station was beamed into a few Montreal homes in 1919, the role of radio and television programs in the daily living of the average Canadian family has grown to startling prominence. Today, with radio service reaching into 98 p.c. of Canadian homes, its programs are being listened to by the family, or some member of it, for an average of two hours and 20 minutes a day. A good television signal now reaches more than 90 p.c. of homes, where it is watched an average of four hours and 45 minutes each day.



Whether the clowns are human and speak French, or animal and grunt and chatter, Canadian children are well catered for in television programming. Emphasis is placed on educational as well as entertainment programs and special telecasts are provided for both junior and senior schools in collaboration with teacher consultants.



Huge physical problems of distance and geography had to be overcome to achieve the present coverage. With the majority of Canada's people in communities that stretch along a 4,000-mile southern frontier, through seven time zones and a variety of topographical and climatic conditions between Atlantic and Pacific, and with others scattered northward over thousands of square miles to the shores of the Arctic Ocean, some 320 radio transmitters with 15,000 miles of land lines and 85 TV transmitters with 8,500 miles of microwave circuits are required to serve them.

The cost of the broadcasting industry to each Canadian was approximately 6½ cents a day by 1960, or \$443,000,000 for the year, of which 46 p.c. was spent on station and network operations and 54 p.c. on purchase and maintenance of receiving sets.

The development of such a popular and powerful force of inexpensive and instantaneous mass communication to a community, a province, a region or the whole nation, has been accomplished by a unique combination of private and public enterprise. The publicly-owned Canadian Broadcasting Corporation maintains 36 radio stations and 21 television transmitters from coast to coast. In addition, there are 196 privately-owned radio stations and 78 privately-owned TV transmitters. Many of the private stations carry CBC programs. A group of them formed a television network in 1961.

The Board of Broadcast Governors. The Board of Broadcast Governors, created in 1958, regulates the establishment and operation of networks of broadcasting stations, the activities of individual stations of the CBC and private companies, and the relationship between stations and networks.

Applications for licences to establish new broadcasting stations, for

increases in power and changes in facilities of existing licensees, and for changes in the share structure of licensees, are referred by the Department of Transport to the Board which makes its recommendation to the Minister of Transport, who issues the licences. The Board has recommended the granting of licences to provide second television stations in nine of the larger Canadian cities. Permission was also granted by the Board to a private company to form a second English-language television network in Canada.

Failure to maintain proper program standards can mean the suspension or non-renewal of a broadcasting licence. Since April 1st 1962, all TV stations and TV networks are required to carry 55 p.c. Canadian content in their schedules.

The Board is composed of three full-time and 12 part-time members. It reports to Parliament through the Minister of National Revenue.

The Canadian Broadcasting Corporation. The Canadian Broadcasting Corporation is a crown corporation, which reports to Parliament through the Minister of National Revenue, and is empowered to establish and maintain program networks and stations "for the purpose of operating a national broadcasting service".

Two complete and distinct broadcasting services, one in English and the other in French, have been established. Montreal, where Canadian radio began in 1919 and Canadian television began in 1952, is the main centre of French-language production, and also contributes to the English-language service. It has become the largest centre for the production of live French television programs in the world. The main production centre for the English-language network service is in Toronto, which originates 65 p.c. of the network programming. The remaining 35 p.c. is largely originated from CBC centres in Halifax, Montreal, Winnipeg, Vancouver and Ottawa.

To broadcast these programs throughout the land, three national and seven regional radio networks, operated by the CBC, have been formed by combining the facilities of privately-owned and CBC stations. Nationally, there are the Trans-Canada and the Dominion Networks ranging from Vancouver Island to Newfoundland, and the French Network running from Alberta to Nova Scotia. Regionally, hook-ups serve British Columbia, the Prairies, Ontario, the Maritime Provinces and Newfoundland, and in Quebec there



Twenty Questions is a popular quiz program produced for the newly-formed network of private television stations.

are two regional networks, one English and one French. There are also two national television networks, the English—ranging from CJON-TV in St. John's, Newfoundland, to CHEK-TV in Victoria, British Columbia, (the longest microwave system in the world—4,000 miles); and the French TV network extending between Winnipeg, Manitoba, and Moncton, New Brunswick. There are regional television networks in British Columbia, the Prairies, Ontario, Quebec and the Maritime Provinces.

The private stations affiliated with the CBC carry certain minimum amounts of national service from CBC production centres. All of the national service is available to them, and many stations carry considerably more than the minimum.

In addition, the CBC operates a special radio service to those who live in outposts scattered throughout the Yukon and Northwest Territories. Transmitters located in 11 communities include programs in Indian and Eskimo dialects in their schedule. Programs from CBC's shortwave transmitters are also reaching much of the Northland each day. During 1960, a new bilingual frequency modulation high-fidelity radio network was started on an experimental basis between CBC-FM stations in Montreal, Ottawa and Toronto.

Over all these networks of private and CBC stations some 90,500 radio and TV programs are fed annually. This service is comprised of 12,500 TV programs and 78,000 radio programs. The programs totalled 32,760 hours of network broadcasting time, consisting of 5,824 radio hours and 26,936 TV hours (calculated from an average of 630 hours of network programs per week, 518 of radio and 112 of television). In both TV and radio approximately 67 p.c. of the fare was predominantly entertainment, 22 p.c. was information, and 11 p.c. concerned with ideas or opinions. In radio, 94 out of 100 programs are Canadian produced; in television, 68 p.c. on the English network and 78 p.c. on the French network are Canadian produced.

Through network facilities, schools across Canada are provided with at least 30 minutes daily of radio broadcasts specifically planned to meet class-



A pottery demonstration was one of many attractions at the week-long Children's Festival of the Arts held in Winnipeg in April, 1961. Others included a concert by the Young Musicians of Tomorrow, Children's Theatre productions, a square-dancing jamboree, a weaving demonstration and art exhibitions, including a display of Eskimo prints.



Television provides opportunities for all types of dancing talents: western, modern and classical interpretive dancing. Some programs hold courses for dancers considered to have outstanding potential.

room requirements in each province. Time devoted to school telecasts for 1961-62 was increased from 13 to 58 half-hour programs. Prior to 1960 school telecasts had been regional and experimental, but now are carried on the national network, with others still being produced for regional distribution. The same is true for farm and fisheries and news broadcasts, some of which are national, but the majority of which are like the Atlantic coast fisheries programs, a vital service to that area but not heard west of Quebec. Canada's agricultural population receives the most complete service of farm broadcasts in the world. National programs of interest to women such as "Trans-Canada Matinee" on radio and "Open House" on television, are scheduled for afternoon listening. There are also special children's programs for out-of-school listening, and time allotted daily for religious programs. Free-time political broadcasts are arranged with the various parties for programs such as "The Nation's Business" and "Provincial Affairs".

The CBC News Service provides 14 p.c. of all CBC radio programming with 120 news broadcasts a day, and over seven p.c. of all CBC television programming with 25 news telecasts a day. This includes a full schedule of radio news for the Far North, special cultural news for the FM network, news for ships at sea and news for Canadian service personnel abroad.

On radio a special "CBC Wednesday Night" program offers a full evening of the finest drama, music, documentary, talks, poetry and recitals. CBC television's "Festival" series, begun in the fall of 1960, brings drama, opera and special musical productions to TV screens across the country.

In November of 1960 the CBC, together with television broadcasting groups in three English-speaking countries, formed Intertel. The aim of this

international television federation is to promote a wider knowledge of contemporary world affairs and a better mutual understanding of world problems. Members of Intertel include the CBC, the Australian Broadcasting Commission, the National Education Television and Radio Centre and Westinghouse Broadcasting Company, both of the U.S., and Associated-Rediffusion of England.

To maintain the national broadcasting service during the 1959-60 fiscal year the CBC spent approximately \$101,000,000. About \$63,000,000 of this was for program production, including some \$15,000,000 paid in fees to performing artists for scripts, performing rights, special events and music. About \$59,000,000 of this budget came from public funds and \$42,000,000 from commercial sources.

In its administration, the CBC is responsible to Parliament and not to the Government of the day.

Over the past 30 years three Royal Commissions and 14 Parliamentary Committees have studied the broadcasting industry in Canada, a major study every 21 months. The most recent Royal Commission, in 1957, returned a report which formed the basis for the new Broadcasting Act of 1958.

In 1961, the CBC was honoured by the Institute for Education by Radio-Television at Ohio State University when it was presented with 21 first Ohio State Awards and honourable mentions—more than any other North American network.

CBC International Service. The International Service of the Canadian Broadcasting Corporation provides news and information about Canada to listeners in other lands. There are direct shortwave transmissions to listeners in eleven languages—English, French, German, Spanish, Portuguese, Czech, Slovak, Russian, Ukrainian, Polish and Hungarian. Broadcasts are directed to Europe, Latin America, the Caribbean area and Australasia; English and French transmissions to Africa were started in 1961.

In addition to its shortwave transmissions, the International Service provides a music transcription service which features the recorded works of



The Hon. George Hees, Minister of Trade and Commerce, is an interested spectator as interviews with two Nigerian businessmen are recorded for transmission as part of the new African service of CBC International Service.



The Pirates of Penzance, produced for the Stratford Festival during the summer of 1961, later was filmed for television and moved on to New York and London.

Canadian composers and performances by Canadian musicians. These music transcriptions are offered free of charge to broadcasting organizations abroad. Spoken-word transcriptions in English, French, Spanish and Portuguese are also provided to broadcasting organizations which broadcast in those languages. Special relays on tape or disc, both music and spoken-word, are also made available as required.

International Service broadcasts were started in 1944 and the service was officially inaugurated on February 25, 1945. Since then, some 440,000 letters, cards and reception reports have been received from listeners in all parts of the world. These communications have been answered and replies are often accompanied by printed and illustrated information about the diversified aspects of life in Canada.

The Private Stations. Canada's private radio and television stations provide about 1,500,000 hours of programming every year. Even the newest of the independent television stations programs about 3,000 hours annually and many of the radio stations program 24 hours a day, 365 days a year.

Most of Canada's privately-owned radio and TV stations are members of the Canadian Association of Broadcasters, a non-profit association dedicated

to improving broadcasting locally, regionally and nationally.

There are also regional broadcasting associations for the Atlantic area, central Canada, the Prairie Provinces, and British Columbia. In addition, there is the Association Canadienne de la Radio et de la Télévision de langue française with a membership of 35 French-language stations from Quebec, Ontario, the Maritimes and the Prairies. Private stations, through the C.A.B., are also members of the Inter-American Association of Broadcasters.

One of the most popular public service programs carried by private stations is "Report from Parliament Hill". Recorded in C.A.B.'s Ottawa studios, this program permits Members of Parliament, of all parties, to make 15-minute radio reports to their constituents throughout the parliamentary session.

When Parliament is not in session, this program carries Ottawa reports from members of the diplomatic corps, senior civil servants and members of the parliamentary press gallery, on events in the nation's capital.

"Report from Parliament Hill" has been carried now for 17 years by some 85 radio stations.

Private radio and TV broadcasters work closely with their local civic and municipal leaders. On the national scene, they work with such groups as the Canadian Centennial Committee, the Canadian Conference on Education, the Canada Council, and the Dominion Drama Festival. The C.A.B. is the major sponsor of the Dominion Drama Festival presentation of plays from each region in Canada, which takes place each year in May.

Individual private stations have won awards national and international each year for news coverage and public affairs programming. A Canadian company also gives an award to private radio and TV stations which make new technical contributions to the industry. This award (which is not given on an annual basis but only when outstanding new technical contributions have been made) has gone to stations in all areas of Canada.



Private television stations undertake increasingly ambitious presentations. This is a scene from a live production of *My Fair Lady*.



In this scene from the NFB film, John A. Macdonald—*The Impossible Idea*, a familiar painting comes to life. This film is one of a 12-section movie version of the historical events and personalities in the 30 years before Confederation in 1867. First shown on television, these films were then made available to schools and the general public.

The private sector of the Canadian broadcasting industry has also been interested in expanding broadcasting research. A research project is being contemplated by the C.A.B. at the University of British Columbia. Private broadcasters were also instrumental in setting up the Radio Sales Bureau and the Television Sales Bureau to produce valid research material on the two industries.

The tremendous expansion in radio and television in recent years has provided a stimulus and a challenge to the broadcasting industry. In the five years from 1956 to 1961, 39 new private radio stations and 38 new private television stations have gone on the air. One effect of this rapid growth has been an increasing shortage of trained staff. To ameliorate this situation, the Canadian Association of Broadcasters underwrote a special course on radio and television broadcasting for the junior staff of member stations. Seventy-seven young men and women graduated from this course which was given at the Ryerson Institute of Technology in the summer of 1961.

Films

The impact of television on the film production industry can be readily assessed by the fact that of the 3,446 films produced as advertising, trailers, newsclips and newsreel stories by Canada's 66 private and 8 government film-making agencies in 1960, 2,854 were for television; of the 829 films of five minutes or longer, 346 were for television. Of these, 382 were adaptations or language versions of existing films. About two-fifths (42 p.c.) were made in French and another 10 p.c. in languages other than English or French.

Canadian laboratories printed 34,298,059 feet of 16mm film and 19,565,561 feet of 35mm film in black and white, a total of more than 13,000 miles of film. In addition 8,766,135 feet of 16mm film and 10,595 feet of 35mm film were printed in colour.

The National Film Board. The National Film Board is a government agency whose function is the production and distribution of documentary films on all aspects of Canadian life. The Board is composed of four senior public servants and five prominent citizens representing Canada's five major geographical regions.

Highlights of the year 1960-61 were the production of the first six of a series of dramatic films recalling the principal events and personalities of Canadian history, and the extension of the Board's distribution system to increase its service to isolated areas in Canada and to facilitate distribution abroad. NFB offices are located in 43 Canadian cities and in New York, Chicago, London, New Delhi and Buenos Aires, the last-named having been opened in 1961. Film awards won during 1960-61 totalled 76, including 34 from Europe and 19 from the United States. The estimated aggregate audience for NFB films, excluding newsreels, was more than 600,000,000.

During the year ending March 31, 1961, the Board completed 339 motion pictures, including 84 originals, 84 revisions and adaptations, 100 foreign language versions, 43 newsreel stories and 28 other items. It also completed 38 filmstrips, issued 26 photo feature stories and added 6,704 still photographs to its library. A total of 16,399 prints of films and 31,704 of filmstrips were placed in distribution during the year.

Cultural Organizations

In addition to the Canada Council there are many important organizations engaged in the encouragement and promotion of the arts. A few of these such as the Royal Society, (founded in 1882 for the promotion of development in science and literature), and the Royal Canadian Academy of Arts, (founded in 1880), receive grants from the national treasury. Most of the groups, however, are financed and directed by private enterprise. One of the most active of these is the Canada Foundation. Among the more important professional cultural organizations maintaining membership in the Canadian Conference of the Arts are the Royal Architectural Institute of Canada, the Canadian Authors' Association, La Société des Écrivains Canadiens, the Federation of Canadian Artists, the Canadian Music Council, the Canadian Handicraft Guild, Canadian Guild of Potters, Canadian Group of Painters, Canadian Society of Painter-Etchers and Engravers, Sculptors Society of Canada, Canadian Society of Graphic Arts, Canadian Society of Landscape Architects and Townplanners, the Arts and Letters Club, the Canadian Ballet Association and the Canadian Society of Creative Leathercraft.

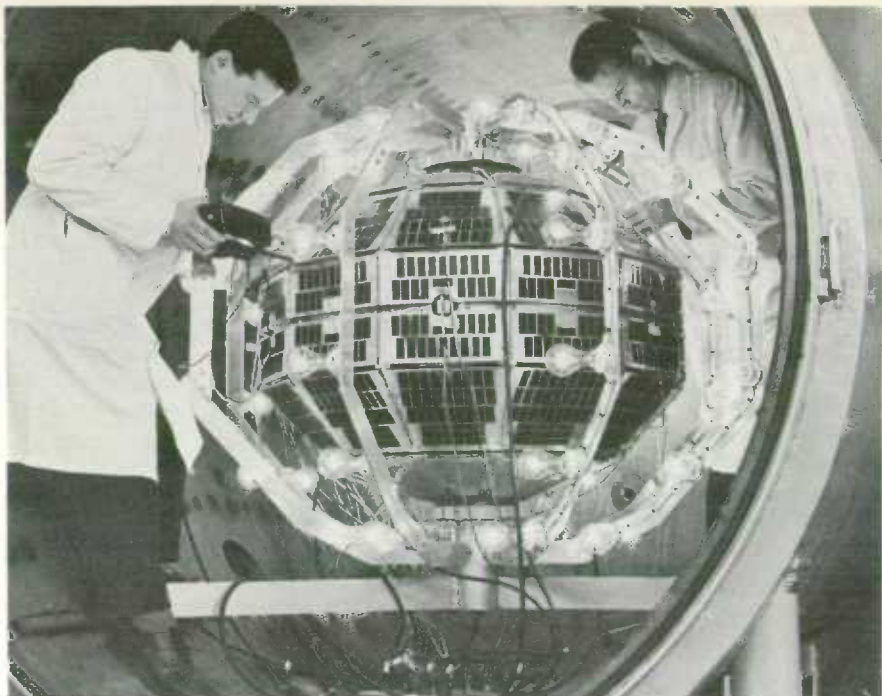
UNESCO

The Canadian National Commission for UNESCO was formed in 1957, as an agency of the Canada Council. The body is intended to act as a clearing house of information and a liaison between the many educational, scientific and cultural organizations in Canada and the UNESCO headquarters in Paris. The Commission also acts as an adviser on matters pertaining to the UNESCO program to the Department of External Affairs. On April 25, 1960, the Canadian Government named the first Permanent Delegate of Canada to UNESCO in Paris.



An Act to encourage Fitness and Amateur Sport provides for the establishment of a National Advisory Council on Fitness and Amateur Sport and provision of up to \$5,000,000 annually for the following uses: to provide greater assistance to Canadian teams participating in sports meets both at home and abroad; for the expansion of facilities and services for the training of coaches and instructors; to provide bursaries and fellowships to improve the competence of personnel connected with fitness and sport; to support research and public information; to grant fitting recognition for outstanding achievement.





Defence Research Board electronics technicians work on a prototype of Canada's "Topside Sounder" satellite, subjecting it to a simulated space environmental test and vacuum and heat tests. The lights provide heat and test the hundreds of black solar cells used to recharge the batteries. "Topside Sounder" is expected to be launched in 1962.

Scientific Research

There is a great deal of soul searching going on among leaders of industry, government, and the universities to find out how Canada can best keep abreast of the tremendous scientific research effort that has become a hallmark of our civilization.

The Dominion Bureau of Statistics, jointly with the National Research Council of Canada, produces two sets of surveys that may help to put this complex problem into some sort of perspective: the one deals with research expenditures by the Federal Government and the other with industrial research and development expenditures. Both surveys indicate a levelling-off in research spending at the start of the '60s after the phenomenal growth of research activities of all kinds during the '50s.

Federal Government spending in this field decreased by 4.6 p.c. between 1958-59 and 1959-60; but this was due largely to a decline of 9.9 p.c. in development contracts for the Armed Services, so that the civilian branches actually showed an increase of 16.3 p.c. from \$127,000,000 in 1958-59 to \$147,700,000 in 1959-60.

A similar situation characterizes research and development expenditures of Canadian industry in Canada, which amounted to \$99,300,000 in 1959—a decrease of 22.6 p.c. from the \$128,200,000 spent in 1957. But here again, the decline was due to a single sector, the transportation equipment industry reducing its expenditures from \$64,600,000 in 1957 to \$25,600,000 in 1959,

while all other industrial groups taken together increased their spending by 20 p.c. from \$60,900,000 to \$72,900,000.

Naturally, such a shift must influence research statistics all along the line. For instance, the number of persons doing industrial research and development declined from 11,479 in 1957 to 9,949 in 1959; once again, the largest decrease occurred in the transportation equipment industry where research and development staff fell from 4,118 in 1957 to 1,460 in 1959, or by 64.5 p.c. By the same token, capital expenditures declined most noticeably in the transportation equipment industry, falling from \$5,400,000 in 1957 to \$1,400,000 in 1959, while substantial increases in capital expenditures were incurred by the non-ferrous metal, electrical apparatus and supplies, petroleum and coal, and chemical industries, and, to a lesser extent, by the textile, non-metallic minerals, and food and beverage industries.

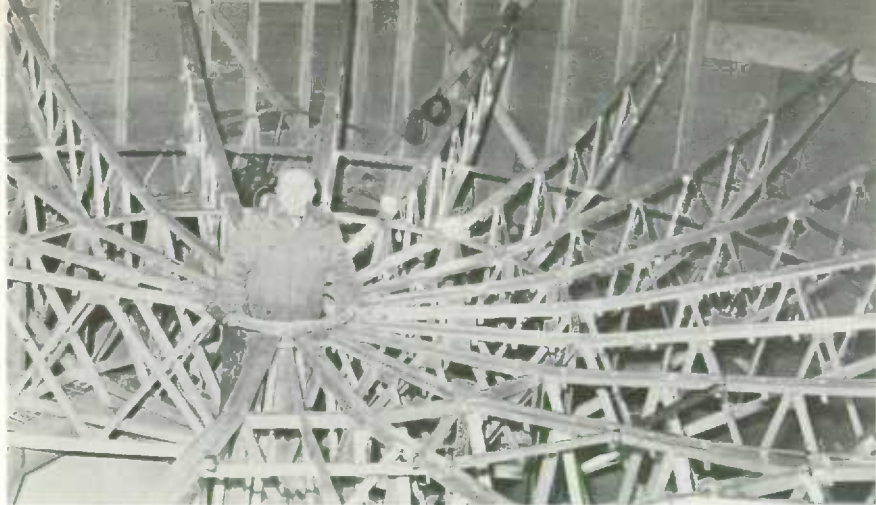
Care must be taken to interpret this major rearrangement within Canada's industrial research structure as a unique occurrence rather than a trend. One explanation is that federal funds for industrial research and development were concentrated in the transportation equipment industry and the electrical apparatus and supplies industry; and while funds to the latter increased from \$2,000,000 to \$6,400,000 the amount going to the transportation equipment industry declined from \$58,000,000 in 1957 to \$14,000,000 in 1959.

Encouraging aspects of Canada's industrial research picture are not lacking: while industry in Canada is not yet either performing or financing research on the same scale as industry in the United States and Britain, the gap is gradually being closed by a sort of pincer movement; in the United States, the state bears an increasingly large share of expenditures in fields such as aeronautical, atomic energy, and space research; in Britain, the ratio between governmental and industrial support of research remained fairly steady over the past decade; in Canada, the reporting and associated companies, which had financed only 46.4 p.c. of their own research in 1957, raised this percentage in 1959 to 75.8. In addition, industrial grants in aid of research showed a significant increase from \$559,036 in 1957 to \$708,485 in 1959.

Encouragement of corporate support of higher learning is the chief goal of the Industrial Foundation on Education, established in 1956. Direct

A seismologist of the Dominion Observatory emerges from the igloo which houses the entrance to the seismological vault at Resolute, one of the seismic stations selected for Canada's part in the Upper Mantle Project, an international scientific study of the earth's interior. To run from January 1962 to December 1964, it is the counterpart of the International Geophysical Year, except that scientists round the world will co-operate in a study of the earth's interior rather than its atmosphere and oceans. The earth consists of three principal layers: crust, mantle and core. To explore the resources of the mantle, deep drilling, to a depth of 10,000 feet, will be carried out.





The partially completed rib structure of the 33-foot diameter reflector for the National Research Council's new radio-astronomy laboratory at Algonquin Park, Ontario.

research grants from all sectors of business and industry to Canadian universities and colleges have risen from \$469,120 in 1956 to \$1,668,715 in 1959.

Support by the National Research Council and the Medical Research Council for research at Canadian universities reached a record \$10,477,031 in 1960-61, an increase of \$1,110,000 over 1959-60 and \$7,000,000 over 1956-57. An additional sum of about \$2,000,000 is contributed to university research by other government agencies.

While there is no absolute standard against which to assess the level of expenditure on research, all evidence indicates that, since their beginning in the 18th century, organized scientific activities throughout the world have been doubling every 10 to 15 years, corresponding to a growth of between five and nine p.c. per annum. This rate of growth is considerably greater than that of most other human activities (population, gross national product, government expenditures, etc.), and it follows that this rate cannot be maintained indefinitely. As yet, however, there is no sign that it has started to level off in the world at large.

Canadian Patents and Development Limited. This company was set up in 1948 as a subsidiary of the National Research Council to handle the patenting and licensing of inventions made by scientific workers of NRC; it has since taken over similar work for most of the other government departments and many Canadian universities.

At present there are more than 500 inventions available for licensing. Altogether, more than 300 patents have been licensed to industrial companies in Canada and abroad. Patents available for licensing are listed in a Patents Handbook distributed to industry.

Exchange agreements are in operation with similar patent organizations in Britain and India; moreover, patents are exploited in North America for scientific organizations in Australia, New Zealand, and South Africa. Various commercial agencies in foreign countries are also active in promoting inventions for Canadian Patents and Development, with the result that inquiries from foreign countries are very much on the increase.

The Defence Research Board. The formulation of broad general policies for defence research and development in Canada, together with the co-ordination of the defence research program in the universities and with industry and government agencies, is the responsibility of the Defence Research Board. The Board has been functioning since 1947 under the National Defence Act and is made up of a chairman, a vice-chairman, six ex-officio members and a number of appointed members.

In addition to its Ottawa headquarters, the Board has an operational research corps and 8 field research stations across Canada, as well as liaison offices in London and Washington. Its efforts are concentrated on defence problems of particular importance to Canada or on those problems for which Canada has unique resources or facilities. Existing research facilities are used wherever possible to meet the needs of the Armed Forces and new facilities have been built up only in those fields that have little or no civilian interest. All operations are co-ordinated with developments in Britain and the United States in order to eliminate any duplication of effort.

National Research Council. The most diversified program of civil research in Canada is carried out by the National Research Council. Its laboratories, at Ottawa, Saskatoon and Halifax, are engaged in many investigations of interest to Canadian industry. Many are undertaken on the initiative of the Council itself in order to develop promising ideas of its own scientists. Some are taken up on recommendation of the Council's associate committees, which include representatives from industry who are interested in particular problems. Others are undertaken in co-operation with individual companies. Routine test work is avoided except when the Council is asked to certify performance of equipment in its capacity as an independent body.

In January 1962 the National Research Council announced the appointment of an industrial advisory committee composed of representatives of top management in Canada. Objectives of the new committee are to bring management into closer contact with the work of the NRC; to keep NRC informed of the problems of industry; and to consider ways of encouraging research in industry. Emphasis will be given to the part NRC may take in furthering these aims.

One of the most lively and pleasant ways in which basic knowledge is being advanced by NRC is the Postdoctorate Fellowship Scheme, which enables hundreds of young research workers from all over the world to spend a year or two in selected departments of Canadian universities and in the laboratories of certain federal government departments, located in more than twenty centres across the country, from Halifax to Vancouver. A variation of this scheme is the recent exchange agreement for visiting scientists, signed by NRC with the Academy of Sciences of the U.S.S.R.

The NRC also advises the government on scientific matters generally; for example, it operates the Secretariat of the Canadian Government Specifications Board—a group of deputy heads of government departments, organized to issue specifications required in purchasing government supplies; these materials may range from abrasives and aluminum kitchen utensils to wood fibreboard and x-ray films.

Moreover, NRC gives financial assistance to scientific societies in Canada, such as the Canadian Standards Association—essentially an industrial body

designed to take care of industrial interests respecting specifications and standardization.

In addition, NRC provides money and administrative services to international congresses meeting here, such as the 18th International Congress of Pure and Applied Chemistry, held in Montreal in 1961, and the Eighth International Congress for Microbiology in Montreal in 1962.

An international expedition to Baffin Island, led by NRC, was successfully carried out in late winter 1960 to study cold adaptation in the Eskimos of Cumberland Sound. Ten scientists and technicians participated in the six-week venture. Various functional tests relating to reactions to cold, including measurements of metabolism, body temperatures, shivering and degree of sleep were carried out all night on Eskimos and control (white) subjects during moderate cold stress. There were various small differences between Eskimo and white subjects but no important features of cold adaptation such as were seen for Australian aborigines. The lack of major adaptive changes in the Eskimos studied may be attributed to their excellent clothing and arctic technology which largely insulate them from the cold.

In co-operation with commercial interests a semi-continuous dryer for the red seaweed known as Irish moss has been designed and constructed at NRC's Atlantic Regional Laboratory. Optimum conditions of operation have been determined and the quality of extracts tested. This equipment has served as a prototype for the design of mobile dryers to be used in various parts of the Atlantic Provinces. The first plant for the manufacture of alginates from seaweed was constructed at Wood's Harbour, N.S. in 1960.

The Division of Building Research concentrates on building problems peculiar to Canada such as the performance of buildings in cold weather. Since the construction industry is the largest in Canada, with operations in all parts of the country at all times of the year, the provision of a building research service covers a wide field of activity. In providing this service the Division co-operates with other interested agencies (e.g. the Central Mortgage and Housing Corporation) and develops special facilities for the use of the industry.

The results of tests carried out in the Division's fire resistance furnaces are of special importance in connection with the National Building Code of Canada.

In response to frequent requests for coastal engineering work, a large number of harbour investigations and models have been made by the Mechanical Engineering Division. This work has given rise to various studies of the motion and breaking of water waves. The results of these studies have led to the development of a new kind of breakwater which absorbs rather than reflects waves, and correspondingly reduces the loading. Successful model experiments have been carried out; means for making full-scale tests are being explored.

Railway work continues to grow in scope, with the emphasis mainly on locomotives and on the riding qualities and mechanical behaviour of freight cars. Short-term work on locomotives is concerned with the improvement of brakes and with the substitution of cheaper fuels. A long-term effort is being made to determine in detail the relative advantages and disadvantages of the gas turbine as a locomotive power plant. The mechanical characteristics of this type of machinery and the availability in Canada of highly suitable petroleum fuels imply a profitable future for turbine machinery.



This new research building provides a firm engaged in processing food with up-to-date laboratory facilities for product research and development and the maintenance of quality controls.

◻ In another industrial laboratory, a research worker uses a high-shear viscometer to investigate the behaviour of thermoplastics in the molten state.

Extensive flight operations were involved in a long-term study of the physics of atmospheric precipitation. This is now in its second year and involves close collaboration between NRC's National Aeronautical Establishment, the Department of Transport and the RCAF.

This Establishment has maintained an intimate technical relationship with the Advisory Group for Aeronautical Research and Development of NATO and also with the Commonwealth Advisory Aeronautical Research Council. A number of research projects now in progress were undertaken by agreement with these two organizations; e.g., research on atmospheric turbulence, the fatigue of aluminum alloys and unsteady aerodynamics.

The Radio and Electrical Engineering Division co-operates with the Armed Services and associated industries in design, production, and evaluation of new equipment; about one-third of the staff is engaged in this work.

Some years ago the Division developed a highly mobile counter-mortar radar for the Canadian Army. Technical support of this program was continued. During the past year a combined NRC-Army team conducted a successful demonstration of this equipment for interested NATO countries.

Technical Information Service. The Technical Information Service works in co-operation with provincial technical service organizations wherever they exist. Its purpose is to help industry with its problems by providing information from library researches and from consultation with working scientists. The service is entirely free. Last year some 3,500 enquiries were answered by the T.I.S. office in Ottawa, and roughly 11,000 by the field offices.

Lately, T.I.S. has also sponsored studies and lecture programs on industrial productivity—an interest that actually preceded the recent formation of the National Productivity Council.



Fallout from the skies is checked by testing daily air samples collected at meteorological stations across Canada. Rain and snow samples fall into plastic bags which are changed every month and sent to the Department of National Health and Welfare for analysis.

Medical Research

Although there were isolated instances of excellent medical research in Canada dating from about the turn of the century, medical research in this country, as a national effort, began only after World War II. Nevertheless the quality of this work, and of the relatively small number of medical scientists trained in Canada, is comparable to that in many nations with a much longer history of accomplishment in this field.

Much of the fundamental medical research in Canada is carried out in universities, where advances are continually being made in such sciences as anatomy, physiology, biochemistry, pharmacology and genetics, on which the practice of medicine is based. In addition to the investigations undertaken in basic science departments, research is carried out in special institutes and departments of Canadian universities such as the Charles H. Best Institute and the Connaught Medi-

cal Research Laboratories at the University of Toronto, the Collip Department of Medical Research at the University of Western Ontario, the Institutes of Microbiology and Hygiene and of Experimental Medicine and Surgery at the University of Montreal, and the Montreal Neurological Institute and the Allan Memorial Institute of McGill University, all of which have achieved international reputations in their particular fields of endeavour.

Clinical research, both fundamental and applied, is also carried out in hospitals affiliated with universities, in mental hospitals and in the hospitals operated by the federal Department of Veterans Affairs; the latter are particularly well suited to the study of chronic diseases or conditions requiring the prolonged follow-up of patients. The Defence Research Medical Laboratories at Toronto and the laboratories of the Department of National Health and Welfare at Ottawa are other noteworthy examples of the Federal Government's active participation in medical research.

The studies undertaken by Canadian scientists range over the whole field of diseases that afflict man. They include fundamental research on the function and inter-relations of areas in the brain and the brain stem, on structural changes as shown by the electron microscope, on the mechanism of insulin action, and on genetic changes based on chromosomal deficiency.

Much work is being done in bacteriology, immunology and virology for the elucidation of disease processes, for identification of causative agents and for practical control; for example, testing poliomyelitis live virus preventive treatment or comparisons of drug treatments for tuberculosis. Diagnostic research is going on in many subjects ranging from urine analysis to obscure blood changes in rheumatic and mental diseases. Surgical procedures are continually being improved by further research into such subjects as the use of heart-lung pumps and hypothermia.

The rapid expansion of medical research in Canada, and the accompanying need for increased funds for its support, has led to significant changes in its financing. Initially, research was supported almost exclusively by the universities. While the universities continue to make important contributions in the form of salaries for senior staff who supervise research, provision and maintenance of buildings in which to carry on research, and support of library and administrative services, they must draw increasingly on other sources for support for research projects and personnel.

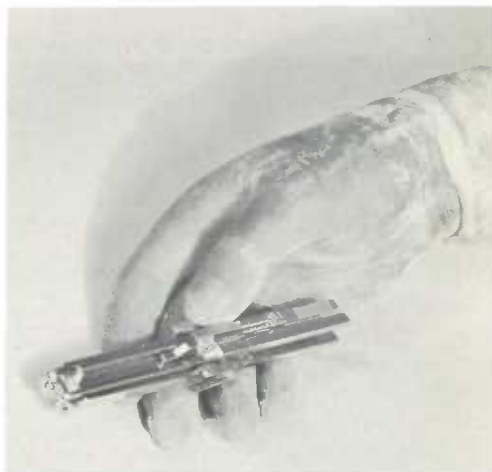
During the past twenty years, government, both at the federal and provincial levels, has been called upon to contribute to the development of medical research. In 1938, the National Research Council established an Associate Committee on Medical Research which began giving grants-in-aid of research on a small scale. After the War, this Committee was replaced by a Division of Medical Research whose budget had increased gradually from \$200,000 in 1947 to approximately \$2,300,000 when it was disbanded in 1960. Virtually all these funds were used in the training of scientists and the support of medical research in the universities and their associated institutes and hospitals; the National Research Council maintained no medical laboratories of its own.

In 1946, a Defence Research Board was set up for the Armed Services, and one of its functions was the support of medical research related to defence problems, both in its own laboratories and, through grants-in-aid, in the universities.

A growing recognition of the importance of medical research to the health of Canadians led to the establishment, in 1948, of health grants by the Department of National Health and Welfare. While these grants are designed primarily to assist the provinces in providing health services in such fields as mental health, cancer control, child and maternal health and rehabilitation, a portion of these grants may, at the discretion of the provinces, be used for research. There is also a public health research grant designed for the support of investigations which may be expected to yield results of more or less immediate practical value in the diagnosis and treatment of disease.

In 1960, a highlight of Canadian medical research was the establish-

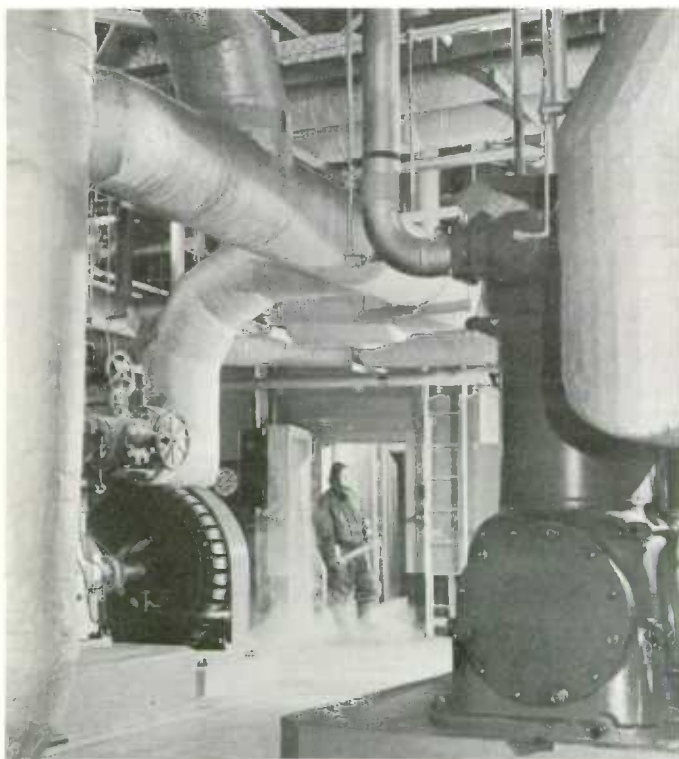
An example of the collaboration of surgeons and engineers is the vascular suturing device designed at the National Research Council.



ment by the Federal Government of a Medical Research Council. Set up initially as an autonomous unit within the administrative framework of the National Research Council, the Medical Research Council has a membership of 15 medical scientists drawn from Canada's 12 medical schools. It is prepared to support research in the broad field of medical science through an extensive program of grants-in-aid of research proposed and carried out by staff members of Canadian universities, hospitals and institutes, and the provision of personnel support under its fellowship and associateship programs.

In addition to the federal government agencies which support medical research, an increasingly important role is played by provincial governments, by private foundations or corporations (e.g. the J. P. Bickell, the Atkinson, the McLaughlin, and the Banting Research Foundations, and the Life Insurance Officers Association) and by voluntary agencies such as the National Cancer Institute of Canada, the National Heart Foundation, the Canadian Arthritis and Rheumatism Society and the Muscular Dystrophy Association of Canada which derive funds chiefly from public subscription. Some funds are also provided by various agencies in other countries such as the United States and Britain. All these organizations provide grants-in-aid of research being carried out by competent research workers and/or personnel support in the form of fellowships or associateships.

While it is difficult to establish a total figure for the direct contribution to medical research made by all agencies, it is estimated that the amount available for grants and personnel support for the current year will be approximately \$10,000,000, or approximately 55 cents per capita of the population.



In this giant refrigeration plant for low temperature research, cold chambers that can simulate Arctic weather conditions are used to find out more about the behaviour of men and materials in Canada's far north.



The future development of Canada and of the world may be deeply influenced by the uses to which atomic energy is put. At the Chalk River research centre of Atomic Energy of Canada Limited, many industrial uses of this new form of power have been developed.

Atomic Energy

Three government organizations have basic responsibilities for Canada's atomic energy activities: the Atomic Energy Control Board, responsible for all regulatory matters concerning work in the nuclear field; Eldorado Mining and Refining Limited, a crown company with a double function as producer of uranium and as the Government's agent for buying uranium from private mining companies; Atomic Energy of Canada Limited, a crown company concerned with nuclear research and development, the design and development of power reactors, and the production of radioactive isotopes and associated equipment.

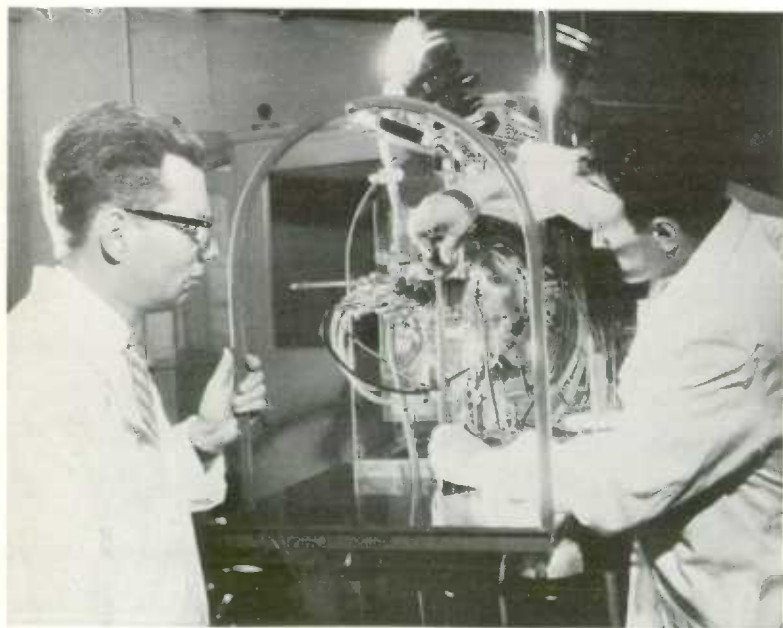
The Atomic Energy Control Board, at present a five-man body including the presidents of the two crown companies, was set up in 1945 principally to control the distribution of fissile and other radioactive material. The activities of the Board have increased with the expansion of the Canadian nuclear program until, today, they include all regulatory matters such as the licensing of reactors, financial assistance to Canadian universities engaged in nuclear studies, etc.

Uranium continues to play an important role in the Canadian economy and is high on the list of export commodities. However, after reaching a maximum of 15,900 tons of uranium oxide in 1959, deliveries have since fallen steadily; this fall reflects the fall in demand from Canada's main customer, the United States.

For the greater part, the mining operations themselves are conducted by private companies, and activities in this sphere are at present in an unsettled state. Atomic energy activities in many countries originated as and have been characterized by a rapid expansion of mining operations to supply uranium for military uses. This growth has been accompanied by an

inherently much slower technological development towards harnessing nuclear energy for electrical power generation—a development that will eventually lead to the time when the principal uses of uranium will be civilian rather than military. Unfortunately for the mining industry, the demand in support of military uses is falling off before the civilian program can make use of the full production capacity. The situation in Canada has been relieved to some extent by stretching out to 1966, without increase in total supply, contracts that would have expired in 1962. There is also some prospect for a new contract with Britain. Nevertheless, many of the less economic mines have had to close down.

In contrast to that of the uranium industry, the picture of AECL activities is much brighter, and it now seems that, in certain areas, economic nuclear power generation will be achieved in Canada within relatively few years. From the diverse reactor types that can be conceived for power generation, AECL chose the heavy-water-moderated, natural-uranium reactor as being the most suitable under Canadian conditions. Of the many reasons for this choice, the principal one is that heavy water permits a very high burn-up of the fuel in a single pass through the reactor; this, combined with the low cost of natural uranium, results in a very low total fuel cost. In fact, the Canadian nuclear power program is unique in that it aims for such a high burn-up that used fuel elements may be discarded as waste rather than put through expensive recovery processes for extraction of plutonium and unburned uranium. Of course, heavy-water natural-uranium reactors do have disadvantages, not the least being their high capital cost. However, in Ontario, where the publicly owned utility (The Hydro Electric Power Commission of Ontario) can borrow money at low interest rates, and where large base-load stations are required, the component of power cost due to capital is tolerable. Under these special circumstances, it is probable that a second CANDU type reactor, incorporating capital economies resulting from the experience gained



The electromagnetic isotope separator is used to separate extremely small quantities of radioisotopes for experiments in nuclear chemistry and nuclear physics.

in the construction of the first, would generate electricity at a cost competitive with conventional stations. While emphasizing that this applies only to the special circumstances in Ontario, one must not forget that on the Canadian scene, it is only in Ontario, whose industries are at present fed by electricity generated from coal imported at \$8 short ton (a fuel cost of 3mill/kwh.), that an urgent need for a new source of power is felt. In the western provinces, which have vast resources of natural gas and untapped hydro-electric potential, it is unlikely that any existing type of reactor could compete until its technology is more advanced.

The major AECL research facilities required for pursuing this goal of economic nuclear power are located at its Chalk River, Ontario, plant. The Head Office and the Commercial Products Division, concerned with the production of radioactive isotopes and associated equipment—for example the cobalt-60 beam therapy units used in the treatment of cancer—are located in Ottawa. The design and construction of the CANDU power plant is being carried out in co-operation with Ontario Hydro by AECL's Nuclear Power Plant Division in Toronto. In order to keep abreast of the rapid development of nuclear technology throughout the world, and to stimulate the interest of private companies in the construction of power reactors, AECL devotes a major effort to co-operation with other organizations. Besides the collaboration on the CANDU project, a smaller power demonstration reactor, NPD, has just been constructed by the joint efforts of Ontario Hydro, the Canadian General Electric Company Ltd., and AECL. Located at Rolphton, near Chalk River, this is in effect a prototype CANDU and, after commissioning, will feed 20 electrical megawatts into the Ontario Hydro system. CGE has also been contracted to carry out design and development of organic-cooled reactors. Facilities for the large-scale testing of this concept under operating conditions will probably be constructed at AECL's new research establishment now taking shape adjacent to the Whiteshell forestry reserve of Manitoba. AMF Atomics Canada Limited and CGE are AECL's chief contractors for fuel-element fabrication. Other work related to Canada's nuclear power program is carried out in collaboration with other companies.



The steam generator in the Nuclear Power Demonstration Station at Rolphton, Ontario.

These close ties are highly desirable in that they prepare private industry to take over the construction of power plants when the time arrives, leaving AECL free for fundamental studies and developing new reactor concepts. 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. An agreement with the United States provides for the free exchange of all technical data on heavy-water-moderated reactors and commits the USAEC to spend \$5,000,000 in the United States on research and development related to reactors of Canadian design. More or less formal collaboration has also been established with the International Atomic Energy Agency, the Organization for European Economic Development, and with Euratom, as well as with France, India, Japan, Pakistan, Sweden, Switzerland and West Germany. In India, the inauguration of the Canada-India Reactor in January 1961 was followed in August by the two countries agreeing to undertake a joint study of the cost of building, in India, a nuclear power station similar to CANDU.

The Chalk River project of AECL is not only concerned with the development of power reactors. A great deal of basic research is carried out by the project's 420 professional scientists and engineers in such diverse fields as 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

A production line of Gammacells, portable units which are designed for industrial use and make possible the gamma irradiation of various materials using cobalt-60 as the source.



spectrometer, mass-spectrometers, an electron microscope, a mass separator, multi-channel pulse analyzers, automatic recorders, analogue and digital electronic computers. In recent years a great technological advance has been based on the properties of nearly perfect crystals with controlled impurities, of which the transistor is the best known example. Studies of the energy changes of very-low-energy neutrons have greatly extended the knowledge of similar processes in solids and liquids; pioneer work in this field has been carried out at AECL.

Other projects outside the sphere of fundamental research and only indirectly related to the nuclear power program are under way. These include studies of potential accident conditions in and around reactors, studies on the disposal of radioactive wastes and on the design of instruments to facilitate the fail-safe and dependable control power reactors, to monitor radioactivity in flowing water, and for detecting traces of normal water in heavy water.

Although the CANDU-type reactor shows great promise, it represents only one stage in the evolution of power reactor technology, and an appreciable effort is being devoted to more advanced systems which would have a higher efficiency than CANDU, and would be suitable in even larger sizes. With the demand for electricity in Ontario currently growing at more than 200 megawatts capacity per year, these very high power reactors will fill a definite need by the time they are developed, and as much as 400 electrical megawatts from one reactor may be desirable.

Canadian Nuclear Reactors

(in operation, under construction or approved for construction)

Name	Location	Date of Start-up	Power	Use
Zero Energy Experimental Pile (ZEEP)	Chalk River, Ontario	1945	100 w	Lattice experiments
National Research Experimental (NRX)	Chalk River, Ontario	1947	42,000 kw	Research and isotope production
National Research Universal (NRU)	Chalk River, Ontario	1957	200,000 kw	Research and plutonium and isotope production
Pool Test Reactor (PTR)	Chalk River, Ontario	1957	100 w	Reactivity and absorption measurements
Toronto University Sub-Critical Reactor	Toronto, Ontario	1958	—	Research and teaching
McMaster Nuclear Reactor (MNR)	Hamilton, Ontario	1959	1,000 kw	Research
ZED-2	Chalk River, Ontario	1960	100 w	Lattice experiments
Canada-India Reactor (CIR)	Bombay, India	1960	40,000 kw	Research and isotope production
Nuclear Power Demonstration (NPD-2)	Rolphon, Ontario	1961-62	20,000 kw (electricity)	Power demonstration
Canadian Deuterium-Uranium (CANDU)	Douglas Point, Ontario	1964-65	200,000 kw (electricity)	Power



New and elaborate forms of earth-moving equipment have been devised to speed the preparation of land for the construction of roads, industries, dams and power plants to match the needs of an expanding economy.

Canada, The Industrial State

Canadian industry has been forged in the face of challenging and stubborn obstacles. Canadians are a northern people and while nature has provided them with bountiful and diverse natural resources, she has at the same time placed obstacles such as climate, mountains and distance in their path. Historically, as world markets created a demand for Canadian products, the response has depended on improved techniques of exploration, production and transportation and has proceeded at uneven rates. Advance has often had to await scientific knowledge, cost reductions and transportation improvement in an atmosphere of a northern climate, an uneven and sparse population and the attendant high cost of creating an economic and social structure.

Notwithstanding these obstacles the Canadian people have not only met effectively the challenge but have succeeded so well in their efforts that today Canada is among the six leading nations in terms of economic achievements. Canada has become the world's fourth largest trading nation, third in terms of international trade per capita, second in terms of real income and living standards, and sixth among industrialized nations of the world in terms of national income originating in manufacturing. It appears from available world statistics that Canada ranks second in total installed hydro-electric power per capita and is in approximately fifth place in potential power resources.

The Canadian economy up to the time of World War II was dominated by bulk exports of food and lightly processed materials: pulp and paper, wheat,

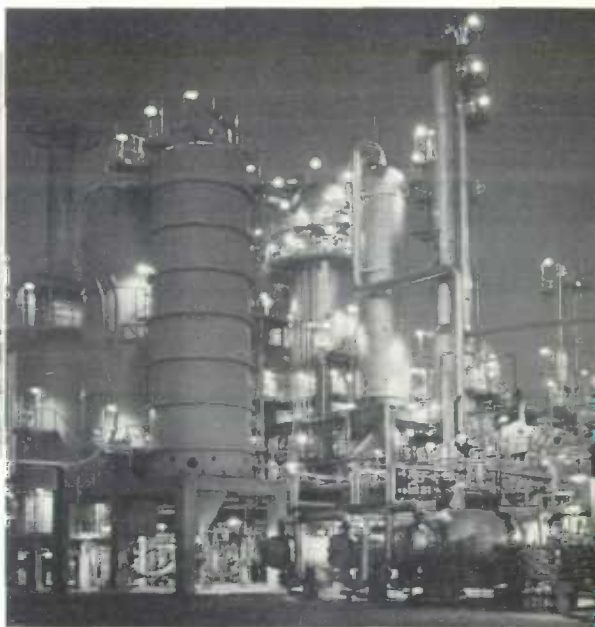
non-ferrous metals. Of great regional importance were such products as lumber, fish and certain specialized items. A significant export of manufactures in automobiles, electrical equipment, rubber and other products went primarily to Commonwealth countries where they enjoyed the advantage of preferential tariffs. A number of United States firms found it profitable to concentrate in Canadian branches or affiliates the manufacture of products for export to the Commonwealth. There also was a considerable production of manufactures for the home market, protected by tariff and other devices but subject to competition over the tariffs of the United States, Britain and other countries. During the great depression of the 'thirties, the Canadian economy, faced with practices of discrimination and high protection in international trade and over-production of food and raw materials at home, fell far short of the full use of its resources. Moreover, when the recovery came in the second half of the 'thirties the persistent over-supply of wheat, pulp and paper gave Canada less than her proportionate share of its benefits.

Closely integrated with the economies of the United States and Europe, the Canadian economy has been peculiarly sensitive to world fluctuations. It has been the economy of a sparsely settled country whose main cities lay close to the United States border. Counterbalancing Canada's mass exports have been mass imports to meet national and regional deficiencies, conspicuously in coal, petroleum and iron ore. There were also varied imports of consumer goods, particularly from the United States, which provided Canadians with a wide range of choice and on the other hand gave Canadian producers a much greater degree of competition from abroad than that encountered generally by other countries. Characteristically, also, the Canadian economy received substantial imports of capital in periods of active investment and had to pay back a portion of the investment in periods of slack business.

Seeking markets in many countries after the war, Canada favoured policies leading to convertibility of currencies and to the freer flow of inter-



Since the first commercial oilwell in North America was drilled in Ontario in 1858, the oil industry has made giant strides with telling effect on the Canadian economy. The new \$14,000,000 oil refinery at Calgary covers 340 acres of land and can produce 14,700 barrels of high-octane gasoline a day.





The interdependence of the primary and secondary industries is nowhere better illustrated than on the prairies, where suddenly a heavy industry springs up in the middle of a field of golden grain.

national investment. During the war Canadian operators had manufactured standardized products in large volume with man-hour requirements not more than those of Britain or the United States and in some cases distinctly less. They looked forward to a considerable industrial expansion by processing to a higher degree of fabrication Canadian materials. This resulted in the creation of many ancillary industries.

Developments in Canada in the decade and a half since the war have outrun the most optimistic expectations although at the same time a number of disturbing problems have come into prominence. Of great significance to industry is Canada's broadened population base and this country, which entered the war with barely 11,000,000 people, had by the end of 1961 exceeded 18,000,000, an increase of close to two-thirds. Increased urbanization and improved communications in Canada and abroad have greatly enlarged the demands for paper and have encouraged a great expansion and modernization of the Canadian paper industry. The increased use of non-ferrous metals both for defense and civilian purposes and a decline of external sources of cheaper supplies have stimulated Canadian expansion and have encouraged widespread exploration with the best scientific equipment for the discovery of new resources. Intensive and systematic prospecting has reaped rich rewards. The extension of electrometallurgical processes and increased demands from a score of industries have accelerated the development of hydro-electric resources, making profitable the use of water powers hitherto too remote for economic development. During much of the period, special needs and special shortages here and there provided scattered markets for a great variety of Canadian manufactures which had not normally enjoyed a large export sale. Not only has the period been favourable to exports but the development of the prairie oil fields has relieved us of much of our foreign payment for one of our largest imports.

The breadth, diversity and massive qualities of Canada's post-war industrial development have tended to emphasize the fact that its open economy is highly dependent on international trade. To a large degree both current Canadian prosperity and economic problems are the complemen-

tary end-results of a remarkably successful development of the resource industries in which the service of foreign markets has been an impelling force.

The relatively high output of Canadian resource commodities, in relation to the total costs of labour and capital, allow these products to compete successfully in the international market. Moreover, the margin of international prices over Canadian production costs has been such as to encourage further capital investment and to allow for comparatively high wage rates.

The resource sector of the Canadian economy gained strength through 1959 and in 1960 reached the highest level of overall activity on record. There was a two-fold reason for the strong recovery in mining activity. One was the general economic expansion in North America. The other was the renewed expansion in Europe after a pause in growth which characterized much of 1958. At the beginning of 1959 most of the mineral-extracting industries in Canada were operating at well below capacity levels but as the year progressed various demand forces began to assert themselves. As 1960 got under way the resource industries were operating at much higher levels than in early 1959, indicative of the growth that has occurred in world demand for industrial raw materials. Despite a high level of activity for 1960 for the resource industries on an overall basis there were weaknesses present in some areas such as uranium and to a lesser extent in lumber.

The value of production of the Canadian mineral industry reached a record high of \$2,476,240,506 in 1960 and each segment of the industry—metallics, industrial minerals and fuels—registered a gain over the previous year. Nickel, copper, uranium, iron ore, gold, zinc, lead and silver, in that order, were the leading metallic minerals in output value in 1960 and accounted for about 96 p.c. of the total value of the metallics output. Nickel developments, both domestic and foreign, indicate an even more dominant position for Canadian nickel in the years ahead than the present 70 p.c. of the world's total supply. Copper output was at an all-time high despite apparent over-supply in world markets which resulted in price declines in the last quarter of 1960. Uranium production declined because of the 'stretchout' program for uranium in 1960 to allow some mines to remain in production until the end of 1966 to fill

Today's frontier is the rich but forbidding northland. Better equipped than the explorers of past centuries, today's explorers are the scientists and pilots who probe the secrets of the silent reaches of the Arctic.



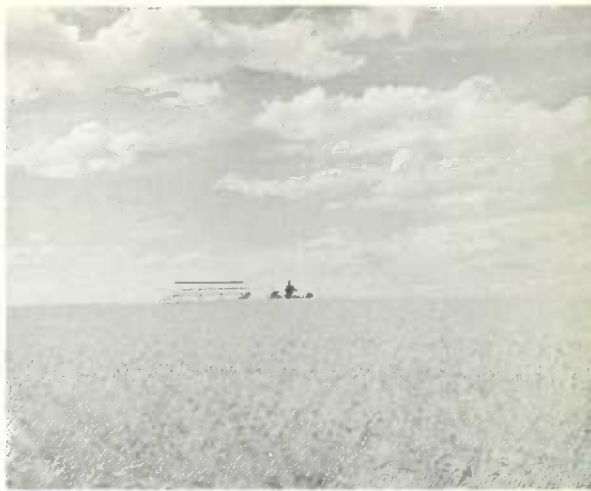
existing purchase contracts with the United States Atomic Energy Commission.

Since 1953, crude petroleum has been the largest single contributor to Canada's mineral output. In 1960 production was slightly above the previous year with Alberta continuing to contribute about 70 p.c. of the total supply and Saskatchewan over 25 p.c. Natural gas production registered more than a 20 p.c. increase with about 73 p.c. coming from Alberta and most of the remainder from British Columbia, Saskatchewan and Ontario. Significant gas discoveries continued to be made in northeastern British Columbia and known gas fields in Alberta and Saskatchewan were extended. Coal output increased in 1960, reversing a trend of many years.

From a mineral resource and supply point of view, Canada gives every indication of becoming increasingly important.

Mineral	Av. 1945-49	1959	1960	1960 as p.c. of 1945-49	Canadian Production as p.c. of 1959 World Production	Canada's World Rank 1959
Copper... '000 tons	230.3	395.3	439.3	190.8	10	5
Nickel... "	119.5	186.6	214.5	179.5	60	1
Gold... '000,000 oz. t.	3.3	4.5	4.6	139.4	11	2
Zinc... '000 tons	244.9	396.0	406.9	166.1	13	3
Iron ore... "	1,923.3	24,488.3	21,550.8	1,120.5	5	5
Lead... "	167.9	186.7	205.6	122.5	8	4
Uranium '000 lb.	—	31,784.2	25,495.4	—	—	2
Asbestos '000 tons	595.7	1,050.4	1,118.5	187.8	46	1
Gypsum... "	2,275.7	5,878.6	5,205.7	228.8	14	2
Petroleum '000 bbl.	11,470.5	184,778.5	189,534.2	1,652.4	3	7
Silver... '000,000 oz. t.	14.3	31.9	34.0	237.8	15	3

While developments in resources and manufacturing industries have changed the face of the country it should be noted that there has been a revolution in Canadian agriculture as well. Twenty years ago, a worker in Canadian agriculture supplied, on the average, enough food for himself and nine other persons; today he produces enough for himself and 22 other persons. Although the area of occupied farm land has shown little increase over two decades and remains only a little over 10 p.c. of the total area of the provinces, cultivation has become greatly intensified, producing most of the food products required by a rapidly increasing population and providing surpluses of wheat and other grains, wheat flour, livestock, fruits and vegetables and of many prepared and manufactured agricultural products for world markets. The agricultural economy has been undergoing continual change ever since the pioneer farmer first began to produce more than his requirements and to desire products other than those produced on his own land, a change which has now become extremely marked. Among the most revealing aspects have been the recent decline in the number of farms and in the number of farm workers, the increase in the average size of farms, the changes in the kinds of power used by farmers to produce crops and animal products, the development of specialization and commercialization in agricultural production and the increase in capital invested in farm machinery and equipment.



RESOURCES FOR TOMORROW:— the topic of a conference co-sponsored by all the provincial and the federal governments and held in Montreal in October, 1961. It climaxed two years of preparation, including the writing of more than 80 background papers. Under seven headings—agriculture, forests, wildlife, water, fisheries, recreation and regional development—experts in these fields discussed the conservation and planned use of Canada's renewable resources.



This tractor-driven transplanting rig deposits fertilizer on both sides of shallow trenches approximately 40" apart. Every two feet it releases a jet of water, at which point the men seated behind the tractor place the transplants in the trench. It is then closed in by two metal arms. In this picture, tobacco plants are being set out.

Agriculture

In the period since World War II, pronounced changes have occurred both in the structure of Canada's agricultural industry and in productive capacity. One of the outstanding changes since 1946 has been the reduction in the number of people employed in agriculture. Farms have become larger and fewer in numbers and, with the increased use of mechanical equipment, fewer people have been employed directly in agriculture in the production of increased quantities of farm products.

Technological improvements and the growing use of power equipment have caused agriculture to become more commercialized. A greater interdependence with the rest of the economy has resulted. Farmers today are using increased quantities of products from industry such as commercial fertilizers, weed killers and insecticides. Huge expenditures are made for fuel

oils and other products to operate mechanized equipment. Farm-home production of butter and hatching of baby chicks have practically all been transferred from farms to creameries and commercial hatcheries. Many farmers buy prepared feeds which contain farm-grown grains and additives derived from other industries. Technological advances in the biological and engineering fields have made possible the development of larger farms specializing in poultry, dairying, grain growing, potato growing and so forth. For the most part these farms are still owned and operated by individual farm operators and there does not appear to be any pronounced trend away from this established practice.

Canada's farm lands stretch from sea to sea and, although concentrated along the border with the United States, they do extend northwards to a considerable degree, especially in the four western provinces. While occupied farm land is only 7.7 p.c. of the total land area, it amounts to the impressive total of 174,000,000 acres, of which 100,000,000 acres are improved.

Scattered across the nation are 575,000 farms, according to the 1956 Census. A farm was defined in this census as 'a holding on which agricultural operations are carried out, and which is three acres or more in size, or from one to three acres in size; and with the agricultural production in 1955 valued at \$250 or more'. There are, therefore, many small farms which do not provide sufficient income to support farm families. Many of these so-called farms are merely rural residents and the owners are employed in walks of life other than farming. In 1956, 52,000 or nearly 14 p.c. of farms were under 50 acres in size. Many of these would be 'part-time' farms.

Quonset-shaped "green-houses", composed of portable units of aluminum-framed polyethylene film keep out wind, cold and snow and preserve heat and moisture. Easily stacked when not in use, and weighing only 25 pounds each, these units make it possible to produce three vegetable crops in one season.



The number of farmers does not necessarily correspond to the number of farms because many people occupying farms have main occupations other than farming. The labour force survey of June 1956 estimated that there were 531,000 farm operators in the population plus 167,000 family workers and 106,000 paid workers.

Types of farming in Canada include dairying, cattle raising, general livestock, poultry raising, grain growing, fruit and vegetable production and specialties, such as tobacco and sugar beet farming. Many farms have combinations of these types. Farm lands are not evenly distributed in the various regions across Canada, and there are also variations in size and type of operation by region. In the Atlantic Provinces the agricultural land areas are relatively small and, except for Prince Edward Island where the proportion of cultivated land to total is high, only a small proportion is suitable for cultivation. The area of purely commercial farming in Newfoundland is quite small and chief activities centre around dairying and poultry raising. Crops like cabbage, potatoes and other root crops grow particularly well there. No province in Canada is as completely dependent upon agriculture as Prince Edward Island. Mixed farming prevails on the Island with major emphasis being placed upon production of potatoes, dairy products and hogs. In Nova Scotia and New Brunswick, a little less than one-fifth of the total land area is arable and little more than one-quarter of the farm lands are improved. There is a larger number of part-time farmers with quite small holdings, but in contrast there are many well developed large scale enterprises. In Nova Scotia these large farms specialize in poultry raising and dairying, while in New Brunswick the outstanding large enterprise is potato growing.

Forty feet of wedge-type packers in five eight-foot sections are drawn behind a specially constructed rubber-tired hitch over a field of summer fallow seeded to wheat. The packers firm the soil around the seed, conserving moisture and promoting more even germination.



Agriculture is diversified in the central region—Ontario and Quebec—yet there are also many specialty farms including dairying, poultry raising, tobacco and sugar beet raising and fruit and vegetable production. Cash crops such as corn, soybeans and white beans are also important sources of income.

The chief characteristic of agriculture in the Prairie Provinces is the emphasis on grain production. Cattle and sheep ranching have long been established in southeastern Saskatchewan, southern Alberta and the foothills of Alberta and sizeable herds of cattle are to be found scattered through the grain growing areas. Wheat, coarse grains and oilseed crops, however, dominate the production pattern on the majority of farms.

British Columbia has wide variations in soil, climate and agricultural possibilities. In the Lower Fraser Valley general mixed farming and dairying are the chief types of farming. The high interior flatlands support grazing of cattle and sheep, while in the interior mountain valleys in southern British Columbia irrigation has transformed the land into rich fruit growing areas. Far to the north in the Peace River country, farming conditions are more like the northern Prairie Provinces areas where grain growing and mixed farming predominate. On Vancouver Island crops not cultivated elsewhere in Canada can be grown. Here fruit and vegetables, flowering bulbs and seeds are all grown commercially.

Canada's production of agricultural products except for a few items is geared principally to the domestic markets. Wheat is still the major agricultural export and up to 67 p.c. of production is exported. Other products, not as important as wheat, with a high proportion exported are rye, flaxseed, rapeseed, clover and grass seeds, milk powder and maple products. Important other exports are tobacco and cattle but the proportion consumed in Canada of these products is high.

Farm Income

From the standpoint of the farmer, agricultural production is undertaken for two basic reasons: (1) to satisfy directly a part or all of his need for food and other products of the farm, such as wool and wood, and (2), to provide something which he may sell in order to obtain those goods and services required for family living and for production which he is unable or unwilling to supply directly himself. The farm value of those products sold off the farm is designated as farm cash income from the sale of farm products; at the present time this component of farm income also includes deficiency payments made under the provisions of the current farm price support program of the Federal



Two giant Zucca melons, weighing 70 and 67 pounds, respectively. Zuccas are used by fruit processors in the manufacture of candied fruit, peel, cherries and pineapple.



A self-propelled sprayer that can be raised to six feet for corn or lowered to six inches for strawberries.

Government and cash advances on farm-stored grains in the Prairie Provinces. The value of those products retained for home consumption, together with the imputed rental value of the farm house, is called income in kind. In addition to these two forms of income, farmers in Western Canada receive payments made under the provisions of the Western Grain Producers' Acreage Payment Plan and the Prairie Farm Assistance Act. Payments of this kind are not associated directly with farm production and are set forth in a separate component called "supplementary payments". The total of cash income from the sale of farm products, income in kind and supplementary payments is considered to be realized gross income; the term "gross" is used to indicate that no allowance has been made for the costs of production.

In order to obtain total gross income from farming operations for a year, it is necessary to consider, not only cash income, income in kind and supplementary payments, but also the additions to or subtractions from the farm inventories of grains and livestock. In some years farm production may exceed the amounts sold or consumed and the excess must be stored on farms until final disposition can be made. Although this excess is not immediately realizable, it does represent a potential income and as such it is considered as a part of total gross income from farming operations. Whenever these accumulated stocks are sold or consumed, adjustments must be made to realized gross income in the year of disposition in order to avoid counting them as part of income for more than one year. Thus, in the year of accumulation, the addition to inventories form a part of total gross income while in those years when inventories are being depleted the value of the reduction in inventories is deducted from realized gross income to arrive at total gross income from farming operations. By deducting total operating expenses and depreciation charges

from these two concepts of gross farm income, estimates are obtained for realized net farm income and total net farm income.

Net Income of Farmers from Farming Operations, 1958-60

Item	1958	1959	1960
	\$'000	\$'000	\$'000
1. Cash income.....	2,794,615	2,789,348	2,782,953
2. Income in kind.....	340,665	344,165	350,157
3. Supplementary payments.....	60,128	22,087	77,204
4. Realized gross income (1 + 2 + 3).....	3,195,408	3,155,600	3,210,314
5. Operating and depreciation charges.....	1,793,190	1,879,771	1,887,998
6. Realized net income (4 - 5).....	1,402,218	1,275,829	1,322,316
7. Value of inventory changes.....	-64,619	-69,504	36,111
8. Total gross income (4 + 7).....	3,130,789	3,086,096	3,246,425
9. Total net income (8 - 5).....	1,337,599	1,206,325	1,358,427

During the year 1960, cash returns to Canadian farmers, arising out of their farming operations, amounted to \$2,783,000,000. This estimate is fractionally below the figure of \$2,789,300,000 for 1959 but 5.8 p.c. above the average of \$2,629,900,000 for the five-year period 1955-1959. On a commodity basis, the more important declines in farm cash income during 1960 were for barley, flaxseed and hogs. On the other hand, the more important gains were realized from the sale of wheat, potatoes, fruits, vegetables, tobacco, cattle, dairy products, and from a substantial increase in cash advances on farm-stored grains in Western Canada.

Income in kind, estimated at \$350,200,000 for 1960, was slightly above the figure of \$344,200,000 for 1959, the gain attributable, for the most part, to an increase in the value of consumption of poultry products, potatoes and fruit and to an increase in the imputed rental value of the farm dwellings.

Although the upward trend of total farm operating expenses and depreciation

Western Canada's first steel grain elevator stands 110 feet above ground, has a capacity of 60,000 bushels of grain and requires less maintenance and lasts longer than the conventional wooden elevator like the one in the background.



charges continued during 1960, the increase over 1959 was less than one p.c., Farmers continued to increase their outlays for such items as property taxes, rent, hired labour, interest payments on indebtedness, the operation of power machinery and motor vehicles, fertilizers and pesticides. Allowances for depreciation on buildings and machinery were also higher. Offsetting these gains, to a large extent, were smaller expenditures for such things as repairs to machinery and buildings, feeder cattle, fencing and livestock feed. The very substantial reduction in feed expenditures seemed to reflect the cutback in hog production during the year.

Although cash income was down slightly between 1959 and 1960 and operating expenses and depreciation charges were fractionally higher, this was more than offset by a small gain in income in kind and a substantial increase in supplementary payments to farmers in the Prairie Provinces. In 1960 these payments amounted to about \$77,000,000 and were made under the provisions of the Prairie Farm Assistance Act, the Western Grain Producers' Acreage Payment Plan and the Federal-Provincial Unthreshed Grain Assistance policy. This was in contrast to a year earlier when farmers received approximately \$22,000,000, most of which represented payments under the Prairie Farm Assistance Act. As a consequence, realized net income of Canadian farmers from farming operations amounted to \$1,322,300,000 for the year 1960. This estimate is 3.6 p.c. above the revised estimate of \$1,275,800,000 for 1959 and 6.8 p.c. higher than the average level of \$1,238,200,000, established for the five-year period 1955-1959.

During 1960 inventories of both grains and livestock increased as a result of larger crops and a continued build-up of Canada's cattle population which more than offset reduced hog numbers. When these gains in farm-held inventories were taken into account, total net farm income for 1960 was estimated at \$1,358,400,000, 12.6 p.c. above the revised estimate of \$1,206,300,000 for 1959 and 7 p.c. above the average of approximately \$1,270,000,000 for the five-year period 1955-1959.

Cash Income from the Sale of Farm Products, by Province, 1958-60

Province	1958	P.C. of Total	1959	P.C. of Total	1960	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	27,773	1.0	28,309	1.0	29,220	1.0
Nova Scotia.....	41,738	1.5	42,618	1.5	43,176	1.6
New Brunswick.....	45,703	1.6	43,844	1.6	47,597	1.7
Quebec.....	420,989	15.1	419,937	15.1	414,556	14.9
Ontario.....	854,807	30.6	857,272	30.7	877,069	31.5
Manitoba.....	223,144	8.0	230,220	8.3	223,071	8.0
Saskatchewan.....	573,654	20.5	563,873	20.2	546,178	19.6
Alberta.....	484,381	17.3	480,018	17.2	474,870	17.1
British Columbia.....	122,426	4.4	123,257	4.4	127,216	4.6
Totals.....	2,794,615	100.0	2,789,348	100.0	2,782,953	100.0



This valuable market garden is growing on reclaimed marshland. Ditches beside the raised roadway provide controlled drainage by which the water table is regulated to prevent flooding or drought.

Field Crops

Field crop production in Canada is subjected to a multitude of vagaries each season but paramount are the effects of the weather. Given his land resources, the farmer can adopt a most efficient combination of crops, cultural practices and good farming techniques, but, in spite of his best efforts, the powerful elements of the weather can wreck and even destroy his well founded plans. Such conditions were the lot of a vast proportion of the prairie farmers in 1961 as they watched crops deteriorate under the onslaught of one of the most persistent spells of drought and hot weather ever experienced during the settled history of the region. Outturns, as a result, were only a little more than half normal. A half-crop translates into huge financial losses for prairie farmers but, considering the year, the remarkable aspect is that losses were not heavier. This is a tribute to the farmers' careful attention to their work.

The limiting factor in field crop production in the prairie region is usually moisture, and although rainfall normally is heaviest in the months of rapid crop development, precipitation during this period is seldom enough to meet the full requirements for maximum plant development. For this reason, in most seasons it is necessary for crops to draw on moisture reserves stored in the soil. By far the most important method of building a moisture reserve bank is the use of summerfallow, a system whereby the land is not cropped for one season. Approximately 21 months elapse from the time a crop is harvested, through a season of summerfallow, to the planting of the next crop. Methods of handling the land during this period can spell the difference between success and failure when dry weather strikes.

Control or elimination of weed growth is also recognized as an important means of conserving scarce moisture and the widespread use of chemical weed killers combined with summerfallowing operations has aided farmers greatly in closing this gap.

In all of these operations, timing is most important and farmers have been steadily increasing the amount of power equipment available in order to complete operations in the most advantageous manner. However, these methods of moisture conservation are expensive and producers are continually searching for means to cut expenses and still conserve the necessary moisture; in this regard, changes in the type of crop rotations are gaining favour in some areas.

Dry weather was not the only problem facing prairie farmers in 1961. Outbreaks of grasshoppers were very numerous but, due to efficient chemical control methods, damage, while severe in local areas, was not widespread. There was one bright side to the prairie drought—damage from hailstorms was very light.

In contrast to the difficulties experienced in the Prairie Provinces, growing conditions were ideal in Ontario for late crops like corn and soybeans and average yields were far in excess of any previous season. Record hay yields were also obtained as these crops responded to the warm, humid summer weather. Other provinces experienced their share of weather, ranging during the season from floods to drought in the Maritimes and parts of Quebec to fairly average conditions in British Columbia.

Canadian wheat supplies are well below the levels of recent years. The carryover at July 31, 1961 amounted to 523,200,000 bushels and the addition of the new crop placed total supplies at 784,800,000 bushels for the 1961-62 crop year. Estimated domestic requirements are between 150,000,000 and 160,000,000 bushels and it is expected that some 325,000,000 will be exported, leaving in the neighbourhood of 310,000,000 bushels for carryover into the crop year 1962-63.

Wheat growing at Whitehorse, Yukon Territory, indicative of the northward advance of agriculture.





Working on the sugar
beet harvest on an
irrigated farm in
Alberta.

A field of the potatoes
for which Prince
Edward Island is
famous.



Canada's 1960-61 crop year clearances of the five principal grains, together with exports of bagged seed wheat and wheat flour, totalled 413,500,000 bushels, 16 p.c. above the 1959-60 total of 357,600,000 and one p.c. more than the ten-year (1949-50—1958-59) average of 409,300,000. The 1960-61 shipments were made up of 311,000,000 bushels of wheat, 6,600,000 of bagged seed wheat, 36,200,000 of wheat flour (expressed in terms of wheat equivalent), 1,900,000 of oats, 41,500,000 of barley, 2,600,000 of rye and 13,600,000 bushels of flaxseed.

Compared with last year's total, exports of wheat flour, oats, barley and rye registered declines of varying degree, while those of wheat, bagged seed wheat and flaxseed increased.

Mainland China, Czechoslovakia and the U.S.S.R. bought substantial quantities of Canadian bulk wheat during the 1960-61 season and contributed significantly to the increased export movement. Exports amounted to 34,700,000 bushels to China, 12,100,000 to Czechoslovakia and 7,500,000 to the U.S.S.R. Gains of substantial magnitude also occurred in wheat exports to a number of traditional Canadian markets, as indicated by the following figures, in millions of bushels with 1959-60 data in brackets: Japan, 54.0

(45.7); Federal Republic of Germany, 33.0 (24.9); Italy, 14.9 (2.2); Belgium-Luxembourg, 12.2 (10.7); France, 9.9 (5.5); and Poland, 5.7 (4.9). Exports of bulk wheat to the United Kingdom, Canada's traditionally largest market, registered a relatively slight decline from 80,000,000 bushels in the 1959-60 crop year to 78,600,000 in 1960-61. Although, declines of 500,000 and 1,300,000 occurred in shipments to Switzerland and the Netherlands, respectively, it is noteworthy that the 12 markets already discussed accounted for some 89 p.c. of the total 1960-61 clearances. Exports of wheat flour during the first 11 months of the 1960-61 crop year went to 76 countries. The United Kingdom, with imports amounting to the equivalent of 12,000,000 bushels, accounted for 36 p.c. of the August-June total, compared with the revised 12,900,000 bushels and 38 p.c. of the corresponding total in 1959-60.

The Canadian Wheat Board, a crown corporation in operation since August 14, 1935, is the general agency for all wheat, oats and barley produced in Western Canada and sold commercially for interprovincial or export movement. The farmer places these grains in annual marketing pools operated by the Board. He receives an initial payment at the time he delivers the grain at a country elevator or into a railway car and participates on the basis of his grain deliveries in any surplus the Board may subsequently realize on the sale of grain. Through the provision of an initial price guaranteed by the Government of Canada, the Board stands as a buffer between the farmer and the constantly changing conditions of supply, demand and price under which

wheat is produced in Western Canada and throughout the world. At the same time, the distribution of participation payments carried out from time to time helps to steady the flow of farm income and to spread it throughout the year.



Wheat for China. Purchase agreements concluded in 1961 made China Canada's third largest customer for wheat, after Britain and Japan, and contributed to the decrease in carryover.

The most ubiquitous crop in Canada, hay is grown in every province and in many areas two crops are produced each year.

The initial payment set by the Wheat Board in the 1959-60 crop year was again \$1.40 per bu. basis No. 1 Northern, in store Fort William-Port Arthur or Vancouver. The initial payment for No. 1 C. W. Amber Durum was also \$1.40 per bu. The 1959-60 pool account was closed on May 26, 1961, with producers averaging about \$1.59 per bu. for No. 1 Northern wheat.



Estimated Area, Yield and Production of Principal Field Crops, 1960 and 1961

Crop	Area		Yield per Acre		Production	
	1960	1961	1960	1961	1960	1961
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	23,198,200	23,792,300	21.1	11.0	489,624,000	261,679,000
<i>Winter wheat</i>	525,000	550,000	33.5	35.5	17,570,000	19,525,000
<i>Spring wheat</i> ¹	22,673,200	23,242,300	20.8	10.4	472,054,000	242,154,000
Oats for grain.....	11,146,700	11,583,400	40.9	28.8	456,134,000	333,907,000
Barley.....	7,359,700	6,089,900	28.1	20.2	207,036,000	123,167,000
All rye.....	543,100	519,800	18.6	12.0	10,125,000	6,229,000
<i>Fall rye</i>	442,100	425,600	19.4	13.0	8,575,000	5,546,000
<i>Spring rye</i>	101,000	94,200	15.3	7.2	1,550,000	683,000
Flaxseed.....	2,577,200	2,362,900	8.9	6.5	23,020,000	15,322,000
Mixed grains.....	1,380,600	1,562,900	43.2	39.6	59,711,000	61,947,000
Corn for grain.....	514,000	509,600	57.1	72.6	29,337,000	36,988,000
Buckwheat.....	85,000	77,500	21.6	19.2	1,835,000	1,485,000
Peas, dry.....	54,000	65,400	18.4	16.0	993,000	1,048,000
Beans, dry.....	67,200	66,900	15.1	20.2	1,012,000	1,349,000
Soybeans.....	256,500	272,500	22.1	31.8	5,675,000	8,656,000
			cwt.	cwt.	cwt.	cwt.
Potatoes.....	314,100	331,700	144.8	136.6	45,490,000	45,298,000
			lb.	lb.	lb.	lb.
Mustard seed....	131,050	142,000	440	319	57,715,000	45,300,000
Rapeseed.....	763,000	744,700	729	749	556,000,000	558,000,000
Sunflower seed....	25,500	25,000	863	800	22,000,000	20,000,000
			tons	tons	tons	tons
Tame hay.....	12,176,000	12,316,000	1.79	1.73	21,762,000	21,358,000
Fodder corn.....	370,200	391,400	9.05	11.03	3,352,000	4,318,000
Field roots.....	27,400	26,700	9.60	10.52	263,000	281,000
Sugar beets.....	86,060	85,477	12.76	12.99	1,098,220	1,110,400

¹ Includes relatively small quantities of winter wheat in all provinces except Ontario.



Spring turns Canada's orchards into vistas of fragrant elegance.

Fruits and Vegetables

The most important trend in Canadian fruit and vegetable growing is the part played by the canning, freezing and processing industries. Over the years factories have been built in most of the important growing regions and considerable proportions of fruit crops and vegetables, particularly asparagus, beans, peas, corn and tomatoes are canned, frozen or otherwise processed each season. Most of the vegetables for processing are grown under a system whereby the processor contracts annually with each grower for certain acreages.

In recent years the importance of freezing has been increasing although the amount of produce processed in this way is still much smaller than the volume canned. In 1955, 27,200,000 pounds of frozen fruits were produced which was equal to about 14 p.c. of the volume canned. By 1960 the output had risen to 32,800,000 pounds equivalent to 18 p.c. of the volume canned. The total output of frozen vegetables in 1960 stood at 57,000,000 pounds equal to 10.6 p.c. of the canned production. This is a considerable increase from five years earlier when 26,600,000 pounds were produced equivalent to only 5 p.c. of the canned production.

Fruits. The most important fruit grown in Canada is the apple. Commercial apple orchards are found in Nova Scotia, New Brunswick, southern Quebec, much of Ontario and the interior of British Columbia, particularly in the Okanagan Valley. Tender tree fruits—pears, peaches, cherries, plums—are also grown in Ontario with the most important concentrations in the Niagara Peninsula and in Essex County. These same fruits as well as apricots are also grown extensively in the southern part of the Okanagan Valley in British Columbia.

The total value of fruit crops in Canada was estimated at about \$53,000,000 in 1960. In the districts where these fruit crops are produced, sales make up an important part of the agricultural income.

In addition to the tree fruits, strawberries and raspberries are cultivated on a commercial scale in Prince Edward Island, Nova Scotia and New Brunswick, Quebec, Ontario and British Columbia. Raspberries are also grown in commercial quantities in the mainland Maritime Provinces, Quebec, Ontario and British Columbia. British Columbia fruit growers also produce loganberries on a commercial scale in the lower mainland and on Vancouver Island. Grapes, too, are grown quite extensively in the Niagara district of Ontario and on a smaller scale in British Columbia.

The native blueberry is found wild over large areas in Canada and is harvested in commercial quantities in the Atlantic Provinces, Quebec and Ontario. A cultivated crop is grown in British Columbia.

Canada exports apples and blueberries. For most of the other fruit crops, however, Canadian production is usually somewhat below domestic consumption with imports making up the deficit. However, a considerable proportion of the fruits imported are brought in during the season when domestic supplies are off the market.

Vegetables. In 1961, 217,000 acres were planted to commercial vegetable crops, other than potatoes and turnips, in Canada. The 1960 harvest was valued at \$61,000,000, of which \$22,892,000 was made up by the principal processing crops: beans, corn, peas and tomatoes. Ontario is the biggest producer of vegetables with production valued at \$36,690,000 in 1960 followed by Quebec (\$14,662,000) and British Columbia (\$4,614,000).

Some market garden acreages are found close to the larger centres of population throughout Canada. In such areas a wide variety of crops is produced to meet the needs of the local market. Land holdings are often small. There is also considerable production of vegetables in areas where soils and climatic conditions are particularly suitable to vegetable crops. Production in these areas is often on a large scale and the output is marketed over wide areas. Greenhouse-grown vegetables valued at \$3,421,000 were produced in 1959. Fall and spring tomatoes and spring cucumbers are the most important items.

A harvesting unit gathers pea vines in the field. Inside the harvester the peas are separated from their pods and discharged into a collecting hopper which is then pushed hydraulically up an inclined track and tips over to pour the peas into a truck-mounted tank of chilled water. The truck can deliver them to the processing plant literally within minutes of the time they were picked.



The production of field grown vegetables in Canada is seasonal. During the winter when no domestic crops are being harvested, supplies of fresh vegetables are imported from the United States. At other times a very large proportion of the domestic requirements is met from Canadian output. Some exports from Canada to the United States are made, movement taking place particularly where there are large centres of population in the United States close to the Canadian border.

Farm Values of Fruit Produced, 1957-60, with Averages 1952-56

Fruit	Average 1952-56	1957	1958	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	15,970	18,035	14,729	17,294	23,147
Pears.....	2,540	2,201	2,986	2,355	3,209
Plums and prunes.....	1,143	946	1,194	1,020	970
Peaches.....	4,882	6,218	5,761	5,444	6,137
Apricots.....	314	523	443	464	1
Cherries.....	2,754	3,606	3,736	2,523	3,219
Strawberries.....	5,900	3,675	5,264	4,711	5,734
Raspberries.....	2,907	3,008	2,655	2,781	3,126
Grapes.....	3,477	2,832	4,867	4,034	4,899
Loganberries.....	150	161	134	184	163
Blueberries.....	3,022	1,888	2,365	2,710	2,383
Totals.....	43,059	43,093	44,134	43,520	52,987

¹ Not available.

Livestock

The sale of meat animals and dairy products accounts for approximately one-half of the farm cash income of Canadian farmers. Increasing population and consumption trends for meats together with relatively more favourable marketing conditions during recent years for livestock products than for the principal field crops have contributed to the situation where income from livestock production exceeds that from field crops by a widening margin.

Preliminary estimates for 1961 indicate that cattle numbers rose almost 45 p.c. between 1951 and 1961, from 8,363,000 to 12,116,000 head. Almost all

During the winter, cattle on range in southern Alberta are fed from hay sleighs drawn by tractor.





The number of sheep on farms dropped sharply from 3,213,000 in 1944 to 1,461,000 in 1951, increased gradually to about 1,773,000 in 1960, but now appears to be declining again. Per capita consumption of mutton and lamb in Canada is low, but substantial imports are required to meet the demand.

of the increase during this period was in beef cattle. Ontario and Quebec have over two-thirds of the milk cows while about four-fifths of the beef cows are found in the western provinces. Beef feeding operations are quite heavily concentrated in southwestern Ontario, southern and central Alberta. In Saskatchewan and Manitoba beef production is more general and diffuse. Feeder cattle move in considerable volume from the interior valleys of British Columbia and from Alberta and Saskatchewan to the United States and to Ontario. Cattle production exceeds domestic requirements. Exports of live cattle and beef are principally to the United States and price movements in Canada are very closely related to those in the United States.

Hog production has been characterized by pronounced cycles. A rapid build-up of numbers on farms took place through 1958 and high pork production in 1959 resulted in price declines which, in turn, caused farmers to reduce production. Again, a more favourable price situation starting in 1960 caused farmers to plan increasing production during 1961. Current increase in production, however, appears to be tempered by rising costs of feed resulting from the drought-reduced grain production in Western Canada.

Although hog production has been common to most farming areas throughout Canada there is increasing specialization concentrating production into fewer but larger units. Ontario and Alberta lead in volume of production by provinces. Bacon-type rather than heavy lard-producing hogs are raised in Canada and quality of product is a most important consideration in maintaining exports to the United States, the principal export market. To stimulate improvement of carcass quality a premium, currently \$3, is paid to the producer for each Grade A hog marketed.

Sheep are raised on much fewer farms in Canada than are cattle and hogs. In the eastern provinces almost all sheep are raised in relatively small farm flocks and are mostly of the medium and coarse wool breeds. A considerable portion of the sheep in the Prairie Provinces and British Columbia are raised under range-management conditions and finer wool breeds predominate. Cross-breeding, however, is practised fairly extensively to produce better market lambs. Movement of ranch ewes to eastern farms for this purpose has been encouraged.

Estimated Meat Production and Consumption, 1959 and 1960

Item		1959	1960	1959	1960
		BEEF		VEAL	
Animals slaughtered.....	No.	2,216,100	2,438,400	1,184,500	1,190,600
Animals exported.....	"	312,351	242,142	30,347	30,712
Meat production ¹	'000 lb.	1,129,989	1,249,455	130,532	137,749
Total domestic disappearance...	"	1,123,020	1,233,366	130,238	135,755
Per capita consumption.....	lb.	64.4	69.2	7.5	7.6
		PORK		MUTTON AND LAMB	
Animals slaughtered.....	No.	9,882,700	8,134,600	749,400	839,500
Animals exported.....	"	4,530	6,781	29,878	3,154
Meat production ¹	'000 lb.	1,265,971	1,033,097	32,824	35,929
Total domestic disappearance...	"	1,018,961	984,149	52,469	56,742
Per capita consumption.....	lb.	58.4	55.2	3.0	3.2
		OFFAL		CANNED MEAT	
Production.....	'000 lb.	101,493	97,548	175,738	67,225
Total domestic disappearance...	"	86,474	86,688	75,039	134,156
Per capita consumption.....	lb.	5.0	4.9	4.3	7.5

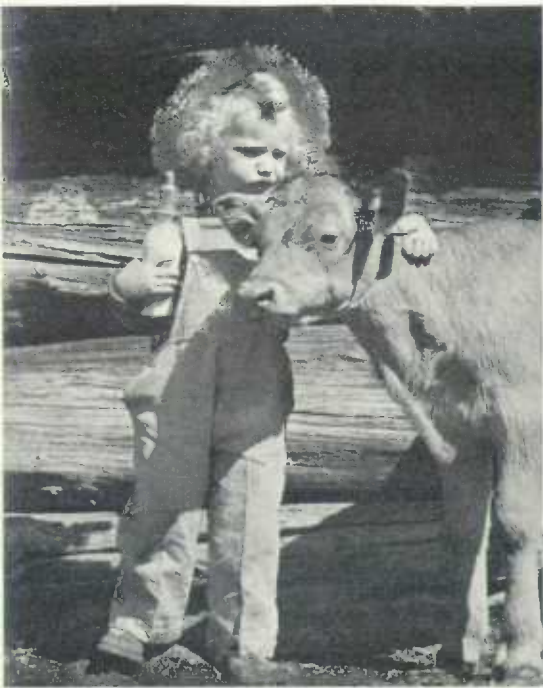
¹ Production from animals slaughtered in Canada, basis cold dressed weight excluding offal and, in the case of pork, fats and offal.

Dairying

Dairying is common to practically all farming areas in Canada with highly specialized production occurring in the milk sheds of the more densely populated sections. Ontario and Quebec each account for about one-third of the milk cows in Canada and a corresponding share of total milk production. In 1956 cows kept for milk purposes were reported on 70 p.c. of the 575,000 farms in Canada but only 15 p.c. of the farms had herds of 13 or more milk cows.

Canada's climate makes the cost of milk production relatively high. Except in areas where farmers supply milk for the fluid milk trade a high proportion of the cows freshen in the spring. This results in pronounced seasonal fluctuation with high milk production during the spring and early summer, when pasture conditions are normally good, and rapidly declining production in the fall months to a mid-winter monthly output about one-half that of June. Increasing urbanization and population growth are resulting in a gradual modification of this production pattern.

Butter, cheddar cheese and evaporated milk are the leading dairy products manufactured in Canada. Most of the cheddar cheese and a high proportion of the concentrated milk products are produced in Ontario and Quebec. Butter production is more widely distributed. The principal dairy products



exported are cheddar cheese, skim-milk powder, evaporated and condensed milk, while imports consist almost entirely of special varieties of cheese.

Per capita consumption of milk and all other dairy products in whole milk equivalent averaged over 1,000 pounds per year till 1957 but declined through 1958, 1959, and 1960 to 940 pounds in 1960. This has resulted in raising the excess of total milk production over total domestic consumption from a position previously near balance.

Sale of milk and cream during 1960 accounted for 18.1 p.c. of cash farm income.

Dairy Production, by Economic Area, 1958, 1959 and 1960

Economic Area and Year	Total Milk Production	Milk Used in Fluid Sales	Products Manufactured ¹			
			Butter		Cheddar Cheese	Ice Cream Mix
			Creamery	Dairy		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....1958	1,102,302	360,431	19,223	1,907	1,642	1,264
.....1959	1,101,554	370,624	18,180	1,560	1,957	1,432
.....1960	1,063,305	378,953	16,088	1,467	1,713	1,542
Que. and Ont.....1958	12,085,407	3,708,264	222,994	2,049	86,514	11,327
.....1959	12,226,531	3,793,845	214,508	1,943	102,842	12,722
.....1960	12,393,916	3,847,625	208,673	1,658	103,619	12,699
Prairies.....1958	4,060,531	966,871	90,493	7,478	2,374	3,573
.....1959	4,018,074	995,354	88,623	6,618	2,152	3,717
.....1960	4,100,015	1,025,976	90,126	5,977	2,529	4,064
B.C.....1958	805,643	455,862	3,280	343	791	2,118
.....1959	840,578	462,040	4,267	411	705	2,138
.....1960	876,084	475,261	4,990	416	954	2,175
Totals.....1958	18,053,883	5,491,428	335,990	11,777	91,321	18,282
.....1959	18,186,737	5,621,863	325,578	10,532	107,656	20,009
.....1960	18,433,320	5,727,815	319,877	9,518	108,815	20,480

¹ Not included in this table are: whey butter, with a production of 2,137,000 lb. in 1958, 2,722,000 lb. in 1959, and 2,965,000 lb. in 1960; other cheese with 10,406,000 lb., 11,464,000 lb., and 12,476,000 lb., respectively; and concentrated milk products with 586,317,000 lb., 583,244,000 lb., and 613,467,000 lb., respectively.

Poultry and Eggs

Poultry meat and egg production enterprises on Canadian farms have changed greatly in scale of operations and efficiency of production since the end of World War II. There are still many small farm flocks but increasing specialization has been general to all provinces and is most highly developed in parts of Nova Scotia and Quebec, southwestern Ontario and the lower mainland in British Columbia.

New and improved strains of birds have resulted in year by year increases in the number of eggs per laying bird and in the amount of meat produced per pound of feed. Production of eggs in 1960 was about 23 p.c. greater than in 1945 although the number of laying hens was slightly lower. With the development and tremendous expansion of chicken broiler production the output of total chicken meat has almost doubled since 1945 and broiler chicken meat has largely displaced that of the heavy chicken. Turkey meat production dropped to 107,644,000 pounds in 1960 from the record output of over 130,000,000 pounds in 1959 but was still almost two and a half times the volume produced in 1953, and the volume of production in 1961 is expected to exceed that of 1959.

Total farm value of poultry meat and egg production amounted to \$300,597,000 in 1960. By areas, this value of production was distributed as follows: Maritime Provinces, 7.0 p.c.; Quebec, 18.5 p.c.; Ontario, 41.5 p.c.; Prairie Provinces, 24.4 p.c.; and British Columbia, 8.6 p.c.

Summary of Supply, Distribution and Consumption of Poultry Meat and Eggs in Canada, 1959 and 1960

(Poultry meats on eviscerated weight basis)

Item	1959					
	Total Meat	Fowl and Chicken	Turkey	Goose	Duck	Eggs
	'000 lb.		'000 lb.			'000 doz.
Stocks at Jan. 1.....	44,223	25,736	18,043	224	220	7,890
Production ¹	502,763	365,198	130,614	3,170	3,781	460,004
Imports.....	8,233	6,262	438	—	1,533	2,449
Total Supply.....	555,219	397,196	149,095	3,394	5,534	470,343
Exports.....	717	648	69	—	—	29,932
Stocks at Dec. 31.....	24,870	12,783	11,804	129	154	6,030
Domestic disappearance.....	529,632	383,765	137,222	3,265	5,380	434,381
Less used for hatching.....	—	—	—	—	—	15,456
Domestic consumption.....	529,632	383,765	137,222	3,265	5,380	418,925
Per capita consumption.....	30.4 lb.	22.0 lb.	7.9 lb.	0.2 lb.	0.3 lb.	24.0 doz.
	1960					
	'000 lb.		'000 lb.			'000 doz.
Stocks at Jan. 1.....	24,870	12,783	11,804	129	154	6,030
Production ¹	472,864	357,939	107,644	3,145	4,136	451,050
Imports.....	22,829	16,339	4,680	—	1,810	1,772
Total Supply.....	520,563	387,061	124,128	3,274	6,100	458,852
Exports.....	178	107	7	64	—	10,911
Stocks at Dec. 31.....	25,805	14,877	10,573	72	283	6,030
Domestic disappearance.....	494,580	372,077	113,548	3,138	5,817	441,911
Less used for hatching.....	—	—	—	—	—	15,111
Domestic consumption.....	494,580	372,077	113,548	3,138	5,817	426,800
Per capita consumption.....	27.8 lb.	20.9 lb.	6.4 lb.	0.2 lb.	0.3 lb.	24.0 doz.

¹ Production estimates do not include Newfoundland.



Poultry-raising and egg production are big businesses. On this Nova Scotia farm, 100,000 layers are kept in two round hen-houses each 250 feet in diameter.



The tremendous expansion in the broiler industry has forced egg producers to adopt breeding methods to develop special lines. There are about five broiler breeding lines in Canada, all under close control.

These eggs now being inspected at the egg candler will be marked "Importado a Canada" and shipped to South America.



Automatic feeding, watering and manure-disposal unit in a modern poultry house.





The Arctic fox is caught by trappers but almost all mink are raised on farms.

Furs

Since the earliest days of Canadian settlement, the fur trade has played an important part in the economy. In the 16th century French fishermen first came into contact with the hunting Indians and, as settlement spread along the St. Lawrence, fur traders followed the paths of the explorers up the river systems to the north and west, establishing trading posts and bartering European commodities, especially iron, in exchange for furs brought in by the Indian trappers. In 1670, Charles II of England incorporated the Hudson's Bay Company under a charter that granted it jurisdiction over Rupert's Land and the sole right to carry on trade in this area which comprised the whole of the Hudson Bay drainage area. By 1821, through amalgamation with the North West Company and the acquisition of a licence, it held the vast North-Western Territory and subsequently, through leasehold, the Pacific Coast drainage basin. This massive monopoly was eventually broken by the gold rush of 1857, the creation of the crown colony of British Columbia, the formation of a strong central government through Confederation in 1867, the transfer of Rupert's Land and the North-Western Territory to Canada in 1869 and the development of steam transportation which opened the prairies to settlement and linked the Atlantic to the Pacific in 1885.

As the country opened up to agricultural settlement and to mining development, the fur resources of the settled areas gradually became exhausted. While the northern regions of Canada may still be regarded as one of the greatest fur preserves in the world, the trend in the southern areas is toward fur-farming and the adoption of conservation measures.

Fur-farming began when foxes were first successfully raised in Prince Edward Island in the late 1880's. Since then, many other fur-bearing animals have been raised in captivity—mink, marten, fisher, rabbit and chinchilla, and today about 62 p.c. of Canada's fur pelt production is raised on farms. In 1961, 2,323 fur farms were in operation throughout Canada, with mink farms by far the most numerous. An experimental fox ranch operated by the federal Department of Agriculture at Summerside, P.E.I., specializes in the breeding, feeding, housing and general care of foxes and mink.

Conservation of fur-bearing animals is of concern to federal, provincial and territorial governments. Expedients which have been put into force to

protect fur resources include the regulation of the taking of animals by limitations of catch or closed season; the provision of sanctuaries in strategic places which serve as reservoirs from which large areas of surrounding wild country may be restocked; and the rehabilitation of lands to provide good grounds for such aquatic animals as beaver and muskrat.

Fur is a luxury item, highly international in character, and the fur trade is particularly susceptible to world economic and political conditions. For several years after World War II, a number of countries with which Canada had been dealing imposed restrictions on imports of luxury commodities, and these resulted in a decline in fur prices to a post-war low in the 1953-54 season. Since then the market has revived, partly due to the popularity of ranch mink in a great variety of colour mutations.

Since 1948, exhibits of Canadian furs have been sent to many international trade fairs in Europe and South America through the co-operation of government departments and, more recently, of the fur industry itself, in an attempt to attract foreign buyers to Canada's fur auctions. In 1960, 118 European buyers from nine different countries attended the opening fur sales—roughly double the number attending the previous year. Exports of raw furs were valued at \$25,690,188 in 1960, an increase of \$1,253,425 over 1959 and of \$1,171,329 over 1958.

**Number of Fur Farms and Number Reporting Specified
Animals by Province at January 1, 1960 and 1961**

Province	Total Fur Farms		Number of Farms Reporting:							
			Mink		Fox		Chinchilla		Others	
	1960	1961	1960	1961	1960	1961	1960	1961	1960	1961
Newfoundland.....	36	35	36	35	—	—	—	—	—	—
Prince Edward Island...	22	20	12	9	15	15	1	1	—	—
Nova Scotia.....	102	108	83	87	3	2	19	18	—	2
New Brunswick.....	47	39	14	11	10	8	23	20	—	—
Quebec.....	333	313	94	92	18	16	156	117	84	90
Ontario.....	686	667	490	494	24	23	157	132	40	37
Manitoba.....	271	249	269	242	7	5	1	5	3	2
Saskatchewan.....	158	157	136	134	1	1	20	22	2	1
Alberta.....	315	294	228	227	5	5	79	67	12	14
British Columbia.....	488	441	299	278	1	—	165	145	28	18
Canada.....	2,458	2,323	1,661	1,609	84	75	620	527	169	173

¹ Not available.

Government and Agriculture

The Federal Government and the provincial governments each maintain a Department or Director of Agriculture having the general function of giving the utmost aid and guidance to the farmer in almost every field of his operations. The activities of the federal Department include research, promotional and regulatory services, and assistance programs. Much of this work is carried out in co-operation with provincial authorities.

The Department seeks the solution of practical farm problems through the application of fundamental scientific research to all aspects of soil management and crop and animal production. Its broad program of investigation is conducted through nine research institutes, seven of them at Ottawa, nine re-

gional research stations, six research laboratories, 26 experimental farms, two forest nursery stations, one experimental fur ranch, and 20 substations, located throughout the 10 provinces and the Yukon and Northwest Territories.

Research conducted by the institutes embraces breeding, nutrition and management of animals; plant studies including disease control and breeding of superior varieties; fruit and vegetable processing and storage; soil chemistry and classification; entomology; bacteria of agricultural significance; processing of dairy products; control of destructive insects and noxious weeds; control of insects and diseases through biological means; and examination of chemical pesticides. Other units deal with regional problems such as cereal diseases, exploitation of peat bogs, reclamation of marshland, shelter-belt trees, soil erosion, dryland agriculture and the growing of special crops such as tobacco.

Other Departmental services are directed toward the prevention or eradication of livestock diseases, the inspection and grading of agricultural products and the promotion of sound policies for crop and livestock improvement. Safeguarding crops and livestock from diseases or pests that might be imported with shipments from abroad is an important part of this service. A 40-year campaign against bovine tuberculosis culminated in the spring of 1961 and a program for eradicating brucellosis in Canada's cattle herds is now in its fifth year. Analytical and diagnostic services are also provided for domestic and wildlife diseases. The promotion of high quality seed and purebred livestock is also of great importance. Another type of activity is the enforcement of laws governing the sale of feeds, fertilizers, pesticides and many other products purchased by farmers.

Canada has enacted a number of financial measures to ensure greater stability of the farm economy.

The Farm Credit Act, passed in 1959, made ample, long-term credit available to competent Canadian farmers who own, or wish to acquire, economic farm units. From 1929, when the earlier Canadian Farm Loan Act took effect, until March 31, 1961, 64,955 loans valued at \$257,051,482 were made to farmers.

The Farm Improvement Loans Act, 1944, which provides funds for equipping, improving and developing farms, made 862,859 loans totalling \$1,013,782,362 from 1945 to the end of 1960.

Another important piece of legislation passed in 1959 was the Crop Insurance Act, which authorizes the Minister of Agriculture to sign separate agreements with provinces wishing to undertake crop insurance and willing to set up and administer the scheme most suitable to their needs.

A number of federal Acts assist the marketing of produce. The Agricultural Stabilization Act provides price support for any designated natural or processed product at the discretion of the Agricultural Stabilization Board, but is mandatory for nine commodities, cattle, hogs, sheep, cheese, butter, eggs, and wheat, oats and barley outside the jurisdiction of the Canadian Wheat Board.

The Agricultural Products Marketing Act provides for the extension of all or any powers exercised by provincial boards, established under provincial legislation for the marketing of agricultural products within the province, to permit them to exercise those powers outside the province in interprovincial and export trade.

Where natural hazards cause severe crop loss, farmers may obtain compensation through the Prairie Farm Assistance Act, and prairie farmers who cannot deliver all their grain to market are given temporary financial assistance under the Prairie Grain Producers Interim Financing Act. The Prairie Grain Advance Payments Act permits the Canadian Wheat Board to make interest-free advances to farmers against threshed grain stored elsewhere than in an elevator.

Irrigation and Land Conservation. Under the Prairie Farm Rehabilitation Act of 1935, the Federal Government, jointly with the respective provinces, undertook a long-term water conservation and land utilization program. Five major irrigation projects, which will assure adequate supplies of water for more than 1,500,000 acres of land, have been or are being constructed in southern Alberta and Saskatchewan.

A PFRA water development program has resulted in construction of 70,000 projects, varying in size from individual farm dugouts to community dams. Several major reclamation projects have been undertaken in Manitoba, Saskatchewan and British Columbia, where flood problems exist. In addition, 66 community pastures have been developed under PFRA in Saskatchewan and Manitoba on 1,933,834 acres considered unsuitable for grain production.

In mid-1961, PFRA boundaries were extended to take in all the settled areas of the three prairie provinces.

Federal aid to New Brunswick and Nova Scotia, under the Maritime Marshland Rehabilitation Act, has provided permanent protection from flooding for approximately 80,000 acres of low-lying lands, which have been adapted for the growing of crops. Construction of dykes and the damming of tidal rivers were involved.

The Department of Agriculture's Central Experimental Farm in Ottawa. The Dominion Observatory is also on this property.





The large open pits from which iron ore is derived on Texada Island, British Columbia, and the 2,500-ton mill in which concentrates are produced. In this photograph a Japanese freighter is seen loading magnetite for shipment to Japan.

Mining

Canada experienced rapid growth in the volume of its mineral production in the decade 1950 to 1959. During that period output increased nearly 2½ times in value from \$1,045,000,000 to \$2,409,000,000 and the per capita value increased from \$74.68 to \$138.12. Since 1959 a 'plateau of mineral production' has been in evidence with value of output in 1960 rising only 3.5 p.c. from the previous year to \$2,493,000,000 and increasing in 1961 to \$2,574,000,000.

The production of minerals in Canada is essentially an export business and as such it is particularly sensitive to economic conditions of the major industrial nations. From 1958 to the end of 1961 the United States, Canada's largest customer, did not experience the high rate of industrial growth that was evident during the early 1950's. Canadian mineral output reflects that period of quiescence or, at best, slow growth. Some of the slack in mineral and mineral-based export growth to the United States was taken up by increased exports to the United Kingdom, Western Europe and Japan where markets for minerals and their products are even more competitive than they are in the United States.

In 1960 the value of all exports was \$5,266,000,000, an increase of \$244,000,000 from the previous year. The export value of minerals as raw materials and semi-processed goods reached a record \$1,680,000,000, or 32 p.c. of the value of all exports. If fully-manufactured goods of mineral origin, valued at \$487,200,000 in 1960, are included, the value of mineral-based exports then becomes 41 p.c. of all exports. This is illustrative of the increasing importance of the mineral and mineral-based industries in Canada's economy.

Mineral Exports by Classification, 1960

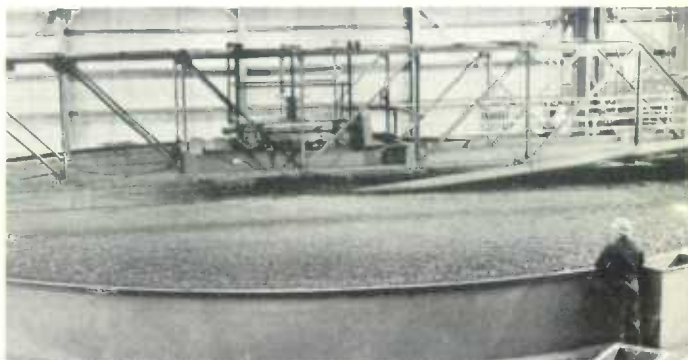
	Raw Material	Semi- Processed	Fully Manu- factured	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Iron and Its Products.....	155.5	73.2	376.6	605.3
Non-Ferrous Metals and Their Products.....	428.0	715.3	79.1	1,222.4
Industrial Minerals and Their Products.....	190.4	117.6	31.5	339.5
Total.....	773.9	906.1	487.2	2,167.2

Mineral-Based Exports by Destination, 1960

	United States	United Kingdom	Other Countries	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Iron and Its Products.....	325.4	72.8	207.0	605.2
Non-Ferrous Metals and Their Products.....	564.9	297.3	360.3	1,222.5
Industrial Minerals and Their Products.....	248.2	16.6	74.7	339.5
Total.....	1,138.5	386.7	642.0	2,167.2

From the new \$12,000,000 mill at the Levack Mine near Sudbury, more than 30 railway cars of nickel and copper concentrates are shipped daily. This modern mill makes extensive use of instrumentation in the production of concentrates from ore.

One of three 60-foot tray thickeners in which nickel concentrate is dewatered after flotation.





An oil rig probes beneath the floor of Lake Erie as part of a renewed search for "black gold" in Ontario. The first commercial oil well in North America was drilled in Ontario in 1858.

Measured in relation to the country's population, the value of the per capita output of the mineral industry, not including fully-manufactured goods, rose from \$74.68 in 1950 to a peak of \$138.12 in 1959. The succeeding years show little change in the per capita value of output which is indicative that the industry is keeping pace with Canada's population growth but is not experiencing the rapid advances it had in the 1950 to 1959 decade. The accompanying table outlines the value of Canadian mineral output in the metallics, industrial minerals and fuels sectors since 1950 and the per capita value of output.

Canada's Mineral Production, by Type and Per Capita Value, 1950, 1955-61

Year	Metallics	Industrial Minerals	Fuels	Total	Per Capita Value
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$
1950.....	617	227	201	1,045	74.68
1955.....	1,008	373	414	1,795	113.68
1956.....	1,146	420	519	2,085	129.65
1957.....	1,159	466	565	2,190	132.03
1958.....	1,130	460	511	2,101	123.22
1959.....	1,371	502	536	2,409	138.11
1960.....	1,407	520	566	2,493	139.92
1961 ¹	1,397	533	644	2,574	

¹ Preliminary.

Despite the size of the country and the abundance of its natural resources, Canada's population and hence the Canadian market for raw materials, semi-processed goods and manufactured goods remains relatively small. Its economic well-being is dependent in large measure on its ability to export raw materials and semi-processed goods, in the case of minerals to the prime metal stage, to nations with large populations and highly developed industrial economies. Canada's mineral resources are ample to support a much larger industrial output and at the same time to provide minerals and primary products to satisfy any foreseeable demand by other countries. To realize the potential output value of the mineral industry it will be necessary to attain the highest degree of mineral processing and metal fabrication possible before export. Progress in this direction is encouraging as the following table shows.

Exports of Minerals and Their Products in Relation to Total Trade, 1959 and 1960

	1959		1960	
	\$'000,000	p.c.	\$'000,000	p.c.
Raw Material.....	777.8	15.4	773.9	14.7
Semi-Processed.....	752.8	14.9	906.1	17.2
Fully Manufactured.....	441.5	8.7	487.2	9.2
Total.....	1,972.1	39.0	2,167.2	41.1
Total, exports of all products.....	5,060.9	100.0	5,266.4	100.0

Canada holds a prominent and sometimes dominant position in world production of a large number of mineral commodities. Developments presently underway in many areas will appreciably increase this country's production capacity of many minerals in all three sectors of the industry—the metallics, industrial minerals and fuels. Canada leads the world in the production of nickel and asbestos; holds second place in uranium, platinum and platinum metals, and cadmium; third place in zinc, aluminum, gypsum, gold, silver and barite; and stands high among world producers of many others including iron ore, titania, copper, lead, cobalt and magnesium.

In 1961 the mineral industry experienced mixed production trends. Uranium and iron ore showed serious declines which were balanced by increases in crude petroleum and natural gas. Modest increases were also shown for nickel, lead and cement. Notwithstanding general world conditions of mineral oversupply and little change in Canada's mineral output in 1961, the mineral industry of this country made giant strides towards increasing and diversifying its output. Some large mining projects under development for several years reached production in 1961 and others continued to be developed in preparation for production. Prospecting and exploration of mineral occurrences showed a quickening pace. The industry generally is looking beyond the current imbalance of supply over demand to the eventual strengthening of mineral markets.

This open-pit mine at Murdochville, Que., is the third largest copper producer in Canada. Holes are drilled in the rock-face by drill rigs such as this, explosives are placed in the holes and a section of rock blasted out. Electric shovels load the ore into trucks which carry it to the mill.

Copper was first observed in Canada in the eastern townships of Quebec in 1846, and the Eustis Mine, opened there in 1865, remained in continuous operation for almost 75 years.



Metallics

The value of Canada's production of the metallics in 1961 at \$1,397,014,089 was down 0.7 p.c. from that of the previous year. The decline was due mainly to reduced shipments of uranium and iron ore brought about by conditions of over-supply in world markets. Production of the remaining leading base metals—nickel, copper, lead and zinc—was, in the aggregate, about the same as the year before with nickel and lead showing increases and copper and zinc registering declines.

Nickel was again the leading metallic in value of output rising from the previous record high of \$295,600,000 recorded in 1960. By mid-year the \$175,000,000 Thompson project of the International Nickel Company of Canada, Limited in northern Manitoba had attained a rated capacity of 75,000,000 pounds of electrolytic nickel a year following several months' operation at below capacity. This project raises Canada's nickel production capacity to over 480,000,000 pounds a year. International Nickel's capacity is comprised of 310,000,000 pounds in the Sudbury, Ontario area, and 75,000,000 pounds at Thompson, Manitoba. Falconbridge Nickel Mines Limited has 70,000,000 pounds annual capacity in the Sudbury area and Sherritt Gordon Mines Limited 27,500,000 pounds at Lynn Lake, Manitoba. There are also small shipments of concentrate to Japan from British Columbia.

Gunnar Mines uranium property in the Beaverlodge Lake area of Saskatchewan. This firm is one of the six uranium-producing companies in Canada which joined together late in 1960 to form the Canadian Uranium Research Foundation, "to provide for research in the use of the products of the uranium industry, to disseminate information relative to such products and to promote, foster, and stimulate the uranium industry".





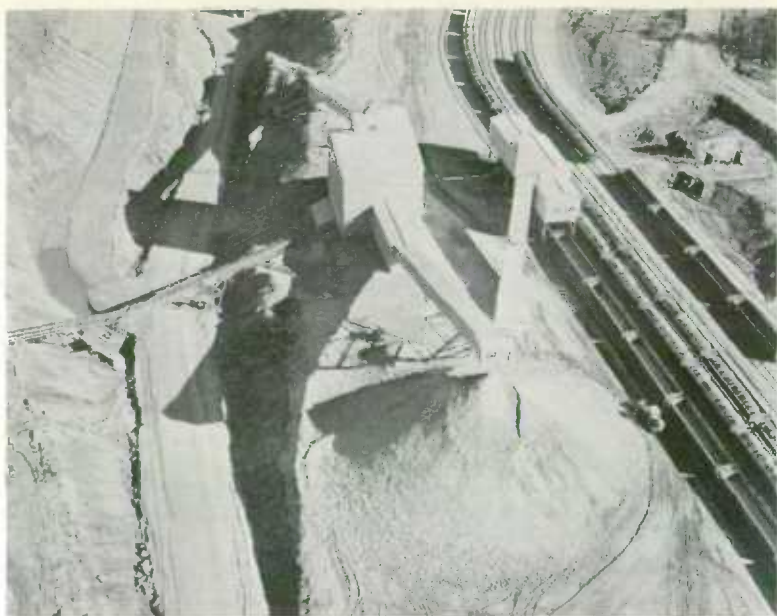
During the winter, three-man teams (including a Cree-speaking lecturer) visit remote northern settlements in Manitoba and give five-day courses in prospecting to Indian trappers, teaching them how to identify minerals and stake claims.

The outlook for nickel is encouraging as the markets in United States, United Kingdom, Japan and Western Europe are firm and steadily growing.

Copper production in 1961 was approximately the same as last year's recorded 439,262 tons despite the fact that several copper mines in Canada entered producers ranks during the year. These included one mine in Newfoundland, two in New Brunswick, four in Quebec, one in Ontario and six in British Columbia. Because of over-supply in world markets, some Canadian mines cut back their 1960 copper production rate by 10 p.c. as did some of the larger companies in the United States and Northern Rhodesia, in an attempt to keep copper supply and demand in balance.

Uranium was third in the metal group in 1961 in value of output, placing Canada second to the United States among world producers. Industrial applications for uranium have not advanced rapidly enough to consume the output from the world, or even Canada's, production capacity. Canadian reserves of uranium in the Elliot Lake and Bancroft areas of Ontario and in the Lake Athabasca area of Saskatchewan are the largest in the world. At the beginning of 1961 there were eleven uranium mines in operation compared with twenty a year previously. Production of 9,822 tons valued at \$204,138,553 was 23 p.c. lower than in 1960. Further declines can be expected over the next few years.

Shipments of iron ore showed a second successive decline from the all time high of 24,500,000 tons in 1959 to 21,500,000 tons the next year, and 20,400,000 tons in 1961. The declines in both years are attributable to reduced exports to the United States, Canada's best customer, where steel operating rates were relatively low. Shipments to Japan from British Columbia and to the United Kingdom and west European countries were maintained at about 1960 levels. Further prospects for iron ore production remain very promising with shipments expected to rise to about 45,000,000 tons in the mid-1960's and still further to about 55,000,000 tons a year in 1970. Three large iron mining operations with a combined 21,000,000 tons a year capacity, two of them in Labrador and one in Quebec, should reach this level of production by 1965 if market conditions are favourable.



Gypsum workings near Milford, Nova Scotia. This province produces about 90 p.c of the Canadian output and has an estimated 627 square miles of gypsiferous deposits. Gypsum is used extensively in the building and construction trades, as a constituent of wall board, lath and insulating material; Portland cement, plaster of Paris, wall plaster, stucco and whitewash; and also in surgical plaster and casts and molds.

Lead-zinc producers are still confronted with over-supply in world markets and the import quotas on unmanufactured lead and zinc that were imposed by the United States Government in September, 1958. A large number of mines contributed to Canada's lead-zinc output with a major portion coming from mines in British Columbia. A number of mines in the planning or development stages will result in an appreciable increase in productive capacity. Significant developments include the imminent construction of a 438-mile railway from Grimshaw, Alberta, to large high-grade lead-zinc deposits near Pine Point on the south shore of Great Slave Lake in the Northwest Territories; the possible construction of an electrolytic zinc refinery in the Upper St. Lawrence River in Quebec; and new or renewed production of lead, zinc and copper from deposits in Newfoundland, New Brunswick, Quebec and British Columbia.

Canada remains the world's second largest gold producer with more than one half of the production coming from Ontario. The outlook for the industry improved considerably in 1961 as it was benefited directly by the reduction in the value of the Canadian dollar in terms of the United States dollar. During the year the dollar's value ranged from \$1.05 (U.S.) to a low of about 96¢ (U.S.) to settle in the last quarter of the year at about 97¢. The Emergency Gold Mining Assistance Act, which provides financial assistance to gold mines having high operating costs, was extended in 1960 for three years to the end of 1963.

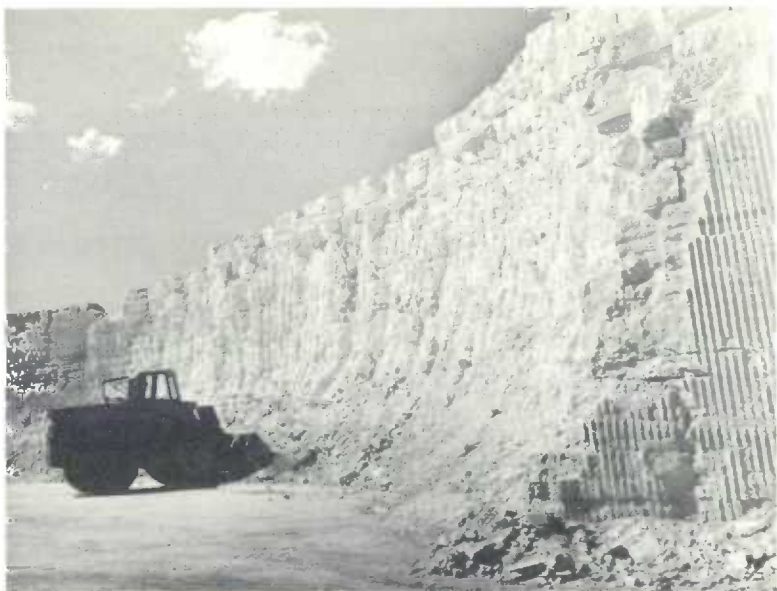
Industrial Minerals

The value of industrial mineral output which includes non-metallic minerals and construction materials increased slightly from the previous year's record high of \$520,000,000 to \$533,000,000. Asbestos remains the largest contributor in this sector of the industry. Canada continues to supply about 50 p.c. of the world's total asbestos followed by Russia with about 25 p.c. and by the Union of South Africa and Southern Rhodesia which supply most of the remainder. Output comes mainly from mines in the eastern townships of Quebec with Ontario and British Columbia sharing about 6 p.c. of total output. Important asbestos deposits are being developed in the Baie Verte area of Newfoundland with production scheduled to begin in 1963.

Canada is rapidly becoming a major producer of elemental sulphur obtained almost entirely from gas processing plants in Western Canada. The total rated output of gas processing plants in production and under construction late in 1961 was 5,770 short tons a day, or over 2,000,000 tons a year. Several other non-metallic minerals including titania, salt and nepheline syenite have continued to show regular year-to-year production growth. Renewed potash production from extensive deposits in Saskatchewan is scheduled for 1962. Within a few years developments in that province will make Canada one of the world's major suppliers of this important fertilizer constituent.

Output of structural materials comprising clay products, cement, lime, sand and gravel and stone increased in value slightly from the \$323,000,000 registered in 1960. Increased activity in home and industrial construction and road building was responsible for the increase. This sector of the mineral industry is dependent primarily upon the industrial and economic growth of Canada for its well-being rather than on export markets.

The bulk sulphur storage area at a gas processing plant in Alberta. Canada now ranks fifth in the world in production and consumption of sulphur in all its forms.





The immense popular interest in mineralogy is reflected in the number of clubs composed of amateur "rock hounds" who, in scores and even hundreds, make field trips to rock out-croppings.

Fuels

The fuels sector of the mineral industry embracing crude petroleum, natural gas and coal has, in the aggregate, experienced more rapid growth in value of output over the past few years than have the other two sectors of the industry. Conditions that were prevalent in 1960 continued in 1961. There has been a general over-supply of crude petroleum, both in world and North American markets which resulted in about 50 p.c. shut-in production capacity in Western Canada. In contrast to limited developments in the exploration for new sources of crude petroleum during the past year, activity in the natural gas industry in exploration, development and transportation has been at an accelerated pace since 1960. This is borne out by the estimated capital expenditures of the two industries in 1960 when \$77,000,000 was spent on gas processing plants and \$134,000,000 on gas pipelines compared with \$33,000,000 for oil processing facilities and \$8,000,000 for oil pipelines.

Production of crude petroleum in 1961 reached an all-time record. The industry gained considerable impetus early in 1961 when the Federal Government announced its 'national oil policy' with the 1961 objective of an average daily output of 640,000 barrels of crude oil and natural gas liquids, increasing to 800,000 barrels a day in 1963. The 1961 target was achieved with Alberta contributing 72 p.c., Saskatchewan 25 p.c. and several other areas, the remainder. Although production of crude oil was at an all-time high, discoveries of additional reserves more than kept pace with the industry's rate of output and at the end of 1961 reserves had risen to almost 4,000,000,000 barrels. No new oil refining facilities were completed in 1961 but construction of one refinery was under way near Toronto. Upon its completion crude oil refining capacity in Canada will exceed 1,000,000 barrels a day.

Natural gas output for 1961 increased by 24 p.c. The increase is attributable to greater exports to mid-western and western United States and to higher domestic sales. To clean the gas before transmission 53 gas processing plants were in operation at the end of the year with processing capacity in excess of 2,500,000,000 cubic feet of raw gas daily. Impetus was given natural

gas industry growth early in 1960 when the Canadian Government approved the National Energy Board's recommendation that four gas pipeline companies be allowed to export a total of 900,000,000 cubic feet of gas daily to the United States and sanction for import was given by United States regulating authorities.

In contrast with rising output of crude petroleum and natural gas, Canada's output of coal declined an average of about 9 p.c. a year from 1950-1960. The shrinkage of the traditional industrial, railway and home-heating outlets has been arrested and production of all types of coal will range from 10,000,000 to 11,000,000 tons a year.

Mineral Production of Canada, by Province, 1960 and 1961¹

Province or Territory	1960		1961 ¹	
	Value	Per cent	Value	Per cent
	\$		\$	
Newfoundland.....	86,637,123	3.5	92,681,614	3.6
Prince Edward Island.....	1,172,587	0.1	947,186	0.1
Nova Scotia.....	65,453,531	2.6	59,544,574	2.3
New Brunswick.....	17,072,739	0.7	17,851,151	0.7
Quebec.....	446,202,726	17.9	447,437,159	17.5
Ontario.....	983,104,412	39.4	948,255,587	36.7
Manitoba.....	58,702,697	2.3	99,156,908	3.8
Saskatchewan.....	212,093,225	8.5	218,201,040	8.5
Alberta.....	395,344,010	15.9	463,709,114	18.0
British Columbia.....	186,261,646	7.5	192,319,685	7.5
Northwest Territories.....	27,135,087	1.1	20,691,909	0.8
Yukon.....	13,330,198	0.5	12,986,911	0.5
Total.....	2,492,509,981	100.0	2,573,782,838	100.0

¹ Preliminary.

A remarkable engineering feat culminated in the opening of this potash mine at Esterhazy, Saskatchewan, in 1961. To reach the potash beds, 3,150 feet below the prairie, it was necessary to pass through a 200-foot deep conglomeration of sand, clay and water under a pressure of 500 pounds per square inch. To solidify this barrier and allow passage of the 18-foot diameter shaft, a brine solution at -50° was pumped down, freezing the formation and permitting drilling for another 1,700 feet.



Mineral Production of Canada, by Kinds, 1960 and 1961

Mineral	Unit of measure	1960		1961 ¹	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	1,651,786	538,482	1,308,015	461,729
Bismuth.....	lb.	423,827	762,048	479,700	886,933
Cadmium.....	lb.	2,357,497	3,347,646	2,399,095	3,838,552
Calcium.....	lb.	134,801	159,241	72,597	76,359
Cobalt.....	lb.	3,568,811	6,763,016	3,236,323	4,902,657
Columbium (Cb ₂ O ₅).....	lb.	—	—	61,050	64,375
Copper.....	lb.	878,524,096	264,846,637	889,270,964	258,582,247
Gold.....	oz. t.	4,628,911	157,151,527	4,425,820	156,851,060
Indium.....	oz. t.	—	—	—	—
Iron ore.....	ton	21,550,830	175,082,523	20,383,333	180,457,020
Iron, remelt.....	ton	—	10,972,979	—	14,481,184
Lead.....	lb.	411,300,451	43,926,888	462,394,101	47,395,393
Magnesium.....	lb.	14,577,138	4,313,987	15,480,618	4,334,573
Molybdenum.....	lb.	767,621	1,015,380	765,897	1,085,091
Nickel.....	lb.	429,012,707	295,640,279	475,895,770	357,515,337
Platinum, group.....	oz. t.	483,604	28,873,508	404,883	23,829,172
Selenium.....	lb.	521,638	3,651,466	469,892	2,990,595
Silver.....	oz. t.	34,016,829	30,244,363	31,981,210	30,068,733
Tellurium.....	lb.	44,682	156,388	95,873	475,545
Thorium.....	lb.	—	—	—	—
Tin.....	lb.	621,718	522,243	870,569	797,180
Titanium ore.....	ton	2,947	16,265	—	—
Uranium (U ₃ O ₈).....	lb.	25,495,369	269,938,192	19,644,905	204,138,553
Zinc.....	lb.	813,745,341	108,635,003	824,726,932	103,781,801
Totals, Metallics			1,406,558,061		1,397,014,089
Arsenious oxide.....	lb.	1,724,326	70,400	306,363	16,350
Asbestos.....	ton	1,118,456	121,400,015	1,171,245	131,053,441
Barite.....	ton	154,292	1,462,212	177,954	1,607,442
Diatomite.....	ton	44	1,430	25	500
Feldspar.....	ton	13,862	239,273	9,852	215,326
Fluorspar.....	ton	—	1,921,820	—	1,904,000
Garnet.....	ton	32	4,480	33	4,620
Graphite.....	ton	—	—	3	1,654
Grindstone.....	ton	10	2,000	8	1,600
Gypsum.....	ton	5,205,731	9,498,711	5,014,905	9,098,571
Iron oxides.....	ton	909	76,780	690	57,110
Lithia.....	lb.	204,666	84,135	515,110	362,850
Magnesian dolomite and brucite.....			3,279,021		2,992,101
Mica.....	lb.	1,702,605	94,203	2,061,970	131,375
Mineral waters.....	gal.	375,425	201,764	375,500	201,800
Nepheline syenite.....	ton	240,636	2,891,095	247,688	2,473,118
Peat moss.....	ton	185,784	6,088,138	195,030	6,328,953
Potash (K ₂ O).....	ton	—	178,700	—	—
Pyrite, pyrrhotite.....	ton	1,032,288	3,316,378	505,912	1,493,546
Quartz.....	ton	2,260,766	3,266,705	2,168,005	2,828,198
Salt.....	ton	3,314,920	19,355,658	3,213,600	19,121,900
Soapstone and talc ²	ton	41,636	523,181	48,095	710,418
Sodium sulphate.....	ton	214,208	3,449,155	249,694	4,024,558
Sulphur in smelter gas.....	ton	289,620	2,854,623	311,211	3,028,776
Sulphur, elemental.....	ton	274,359	4,298,906	396,286	6,305,183
Titanium dioxide, etc.....	ton	—	12,947,000	—	16,287,293
Totals, Non-metallics			197,505,783		210,250,683
Coal.....	ton	11,011,138	74,676,240	10,366,678	69,983,343
Natural gas.....	Mcf.	522,972,327	52,196,882	646,018,204	63,607,157
Natural gas by-products.....	bbl.	—	16,052,210	—	22,530,000
Petroleum, crude.....	bbl.	189,534,221	422,926,497	220,460,562	487,304,660
Totals, Fuels			565,851,829		643,425,160
Clay products (brick, tile, etc.).....			38,226,538		38,045,405
Cement.....	ton	5,787,225	93,261,473	6,145,168	100,692,169
Lime.....	ton	1,529,568	19,301,790	1,385,953	17,275,787
Sand and gravel.....	ton	192,074,498	111,163,886	178,502,194	106,413,509
Stone.....	ton	45,359,449	60,640,621	45,315,108	60,666,036
Totals, Structural Materials			322,594,308		323,092,906
Grand Totals			2,492,509,981		2,573,782,838

¹ Preliminary.² Includes pyrophyllite.

... Not applicable.

Forestry

Canada's forests, covering almost half the total land area of the country, extend in an unbroken belt 600 to 1,300 miles wide from the Atlantic to the Pacific. They form one of the world's finest and most extensive forests and comprise a multitude of tree associations varying greatly in age and density, in diameter and height, from the mature stands of merchantable timber to the recently cut-over areas already partially stocked by nature with young growth. In addition to supplying raw material for our great lumber and pulp and paper industries, the forests control water run-off and prevent erosion, provide shelter and sustenance for wildlife, and recreational facilities for people. In short, the forests are one of Canada's greatest renewable resources, and it is this ability of the forest resource to renew itself that makes possible the continued existence of the Canadian forest industries.

Of the total forest area of Canada, about 56 p.c. may be classified as productive. The remaining unproductive areas are found chiefly along the northern edge of vegetation where the small size of the trees and the slowness of their growth combine to give them little potential value. The productive forest—that capable of producing continuous crops of wood of commercial value—covers an area of nearly 1,000,000 sq. miles. About 75 p.c. of this area is considered to be accessible and contains an estimated volume of 589,000,000,000 cubic feet of merchantable timber. Of the accessible productive forest area, 55 p.c. is comprised of softwood types, 21 p.c. of mixed-wood and 12 p.c. hardwood, the remainder being unclassified. There are more than 150 tree species in these forests, 31 of them conifers.

The year 1961 has the unhappy distinction of being the worst year on record for forest fires, measured by area burned. To the end of September, 9,680 separate fires had burned an estimated total of 8,280,000 acres, with the worst loss in Manitoba, followed by British Columbia, Ontario and Newfoundland. The Northwest Territories suffered very heavily also. The next worst year on record was 1919 when 7,600,000 acres were burned.

The major part of the forested area of the country is owned by the Crown, that is, by the people of Canada. Of the total forest classed as productive, 9.5 p.c. is privately owned, 20.1 p.c. is leased by the Crown to the forest industries, and approximately 70.4 p.c. is unleased crown land. Thus every Canadian has a direct interest in the forests, their nature, their future and the wealth they create for the country. The provincial governments administer the crown land within their boundaries except for national parks and other areas under the jurisdiction of the Federal Government. The latter also administers the forests in nearly 1,500,000 sq. miles of land area in the Yukon and Northwest Territories.



Trays filled with small pine match splints are set out on the forest floor at a fire research station and are weighed each day to determine the fuel moisture conditions in the area. This information is used in the development of forest fire danger index tables.

Through appropriate management the productivity of the forest can be maintained indefinitely or even increased. Depletion by cutting, fire, insects, disease and natural mortality tends to reduce the volume of the growing stock, but average annual utilization, about 3,200,000,000 cu. feet, together with losses by fire, are still much less than the annual growth of the forests. Nevertheless, the drain on the forest is increasing, prompting governments and industry alike to plan for greater productivity by more intensive forest management, by harvesting over-mature forests and by restoring forest cover on millions of acres which were denuded by fire and overcutting, or which were cleared for agriculture and later abandoned. There is now much more efficient utilization of timber cut. More pulp and paper is produced from a cord of wood today than even a few years ago, and the use of more species brings greater returns per acre of woodland. More commercial products like alcohol, tanning liquor, road binders and turpentine are made from what were formerly waste materials in the production of pulp. The manufacture of rayon and cellulose products, plastic wood products, fibreboard, laminated wood and wood particle products is permitting the utilization of inferior grades of wood and species of trees.

Forest Industries

Canada has always been a great exporter of wood products. The products taken from the forests have far exceeded the needs of the present population and have become its most valuable export commodities. In fact, the forests are the source of over 30 p.c. of all Canadian exports.

The forest industries consist of woods operations, the lumber industry, the pulp and paper industry and the wood-using and paper-using groups of industries. The latter use partially manufactured wood, pulp or paper as their raw materials.

Woods Operations. The harvesting of the forest crop has become in most areas of Canada a highly mechanized operation with methods varying according to the terrain and character of the forest. Because of the rugged terrain, the large size of the trees, and the nature of the integrated operations, logging in the far west coastal areas has long been highly mechanized. This has less often been the case in the integrated operations of the east where the



This fabulous machine for loading the enormous logs from the British Columbia forests onto trailers is nicknamed the "cherry-picker".

About three-quarters of Canada's annual harvest of more than 16,000,000 Christmas trees are exported. While these ever-green trees—pine, fir, balsam and spruce—are cut in every province and territory, 94 p.c. come from New Brunswick, Nova Scotia, Quebec, Ontario and British Columbia.



smaller trees with their generally lower individual values make highly developed mechanization economically difficult. The eastern picture is changing, however, owing to the development of new pulpwood harvesting machinery that fells, limbs, tops, and skids trees in continued flow operation. Although access and transportation are constantly improving, places of work continue to be usually removed from centres of large population; yet they remain, as in the past, the preference of all those who favour life in the woods.

The output of Canada's forests in 1959 amounted to 3,186,387,000 cubic feet of solid wood, with products valued at \$715,716,000. This includes logs, pulpwood, bolts, fuelwood, poles, railway ties, and other primary

Tree nurseries attempt to replace the loss of burned and cut-over forests and also help to reclaim hilly pasture land improperly cleared.



products. Minor products include Christmas trees, cascara bark, balsam gum, resin, etc. Over 96 p.c. of the timber cut in 1959 was processed to some degree in Canada. Estimates of output for 1960 indicate an increase of about 227,000,000 cubic feet over the 1959 figure.

With regard to volume of production of primary wood products, in 1959 logs and bolts were the most important products in Canada as a whole and in British Columbia, Alberta, Saskatchewan, Nova Scotia, the Yukon, and the Northwest Territories in particular. Pulpwood was most important in all the other provinces except Prince Edward Island where fuelwood took the lead.

Lumber. The lumber industry in Canada is particularly dependent upon the general economic condition of the country and on the state of foreign markets. The effects of fluctuating demand are more noticeable in British Columbia than elsewhere in Canada because of the dependence of that province on the lumber industry. The provisional figure for Canadian lumber production for 1960 stands at 8,013,441,000 ft.b.m.¹ an increase of about 5½ p.c. over the 1959 figure of 7,591,419,000 ft.b.m. Of the 1960 total, British Columbia accounted for 68 p.c., the Prairie Provinces for 5 p.c., Ontario for 7½ p.c., Quebec for 12½ p.c., and the Atlantic Provinces for 7 p.c. These respective percentages have not changed substantially from those for the previous year.

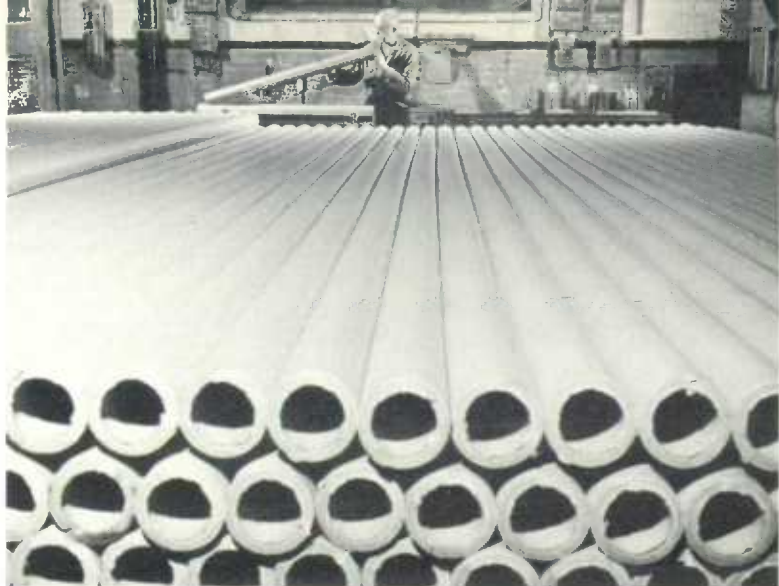
Canadian sawmills vary greatly in size and in product. A very few, located in coastal British Columbia, are capable of cutting up to half a million board feet of lumber in a single shift. Others are small enterprises, often only turning out five or six thousand feet a day. Spruce continues to lead Douglas fir in quantity sawn but the position is reversed when market values are computed. These species are followed in volume produced by hemlock, cedar, white pine, jack pine, balsam fir, yellow birch, and maple.

There were 5,678 active sawmills of all kinds reporting in 1959, a drop

¹ Feet board measure.



Canadian lumber being unloaded at Amsterdam. By value, newsprint, lumber and timber, and woodpulp rank first, third and fifth among Canada's domestic exports.



Cores, around which newsprint is rolled, are cut according to customers' specifications. These are some of the largest made.

from 5,769 in 1958. They employed 48,659 employees who earned \$144,759,203 in salaries and wages. The industry produced 7,591,419,000 ft. b.m. of lumber with a gross value of \$490,540,000. About 55 p.c. of this production was exported at a value of \$323,716,841.

Pulp and Paper. The manufacture of pulp and paper has been Canada's leading industry for many years. It stands first among all industries in value of production, exports, total wages paid, and total capital invested. It is the largest consumer of electrical power and the largest buyer of goods and services in the land. The industry has a newsprint capacity of more than three times that of any other country and provides nearly 50 p.c. of the world's newsprint needs. Canada stands second only to Sweden as the world's largest pulp exporter and second only to the United States as the world's largest pulp producer. The largest individual pulp and paper mill in the world is located in Canada.

The industry includes several forms of industrial activity: logging operations, manufacture of various kinds of pulps and papers, and manufacture of a variety of paperboard products. In 1959 there were 27 mills making pulp only, 26 were making paper only and 74 were making pulp and paper. Some of the latter are completely integrated establishments conducting all operations from cutting to the final production of newsprint, wrapping paper, fine paper, tissue paper, paperboard and other wood fibre and cellulose products. About 78 p.c. of the wood pulp manufactured was converted to other products in Canada, the remainder was shipped abroad. Newsprint accounted for about 75 p.c. of all paper products manufactured and about 95 p.c. of all paper products exported in 1959. Canadian production of paper, paperboard, and building board in 1959 was 8,550,000 tons. Quebec's share of this figure was 45 p.c., Ontario's was 28 p.c., British Columbia's was 12 p.c., and that of the remaining provinces was 15 p.c.

Principal Statistics of the Pulp and Paper Industry, 1940, 1957, 1958 and 1959

Item	1940	1957	1958	1959
Establishments..... No.	103	128	128	127
Employees..... "	34,719	65,940	64,084	65,028
Salaries and wages.. \$	56,073,812	307,627,849	307,415,615	322,311,000
Gross value of factory shipments..... \$	298,034,843	1,411,934,462	1,394,679,180	1,499,585,000
Value added by manufacture..... \$	158,230,575	693,475,562	702,950,789	761,036,000
Pulp produced..... tons	5,290,762	10,425,295	10,137,454	10,832,000
	\$ 149,005,267	706,194,649	703,365,594	744,940,000
Paper produced..... tons	4,319,414	8,299,889	8,081,293	8,550,000
	\$ 225,836,809	1,056,371,332	1,044,640,200	1,106,071,000
Pulp exported..... tons	1,068,516	2,282,656	2,219,314	2,450,000
	\$ 60,930,149	292,406,102	285,448,649	311,252,000
Newsprint exported. tons	3,242,789	5,900,625	5,682,832	5,910,000
	\$ 151,360,196	715,489,761	690,209,468	722,271,000

Wood-Using Industries. This group includes thirteen industries, other than sawmills and pulpmills, using wood as their principal raw material. In 1959, these industries, comprising 4,130 establishments, gave employment to 75,132 persons and paid out \$243,102,524 in salaries and wages. The gross selling value of their products was \$853,313,012. The furniture industry (which includes metal furniture as well) accounted for \$329,845,815 of the total output, the sash, door and planing mills industry for \$254,861,818, the veneer and plywood industry for \$141,573,444, and the hardwood flooring industry for \$16,212,518. The other industries making up the remaining \$110,819,417 included: boxes, baskets and crates; wood-turning; morticians' goods; cooperage; woodenware; lasts, trees and wooden shoe-findings; bee-keepers' and poultrymen's supplies; excelsior; etc.

Paper-Using Industries. Three industries engaged primarily in manufacturing commodities of paper and paperboard constitute this group, which in 1959 comprised 432 establishments, employed 29,203 persons and distributed \$108,053,202 in salaries and wages. The gross value of factory shipments was \$527,713,524 and the net value \$219,542,941. The paper box and bag industry contributed products valued at \$309,442,911 to the total output, the roofing paper industry \$41,409,899, and the miscellaneous paper goods industry \$176,860,714.



This plywood plant in Alberta is one of eight in the Prairie Provinces. Most plywoods and veneers are manufactured in Quebec, Ontario and British Columbia. They are produced in British Columbia chiefly from Douglas fir logs, while east of the Rockies, hardwood—mainly maple, poplar and basswood—is used.



Fishing boats at anchor, Hibb's Cove, Newfoundland.

Fisheries

In an era of phenomenal industrial growth, Canada's fishing industry continues to make a significant contribution to the overall well-being of many thousands of Canadians. The country's fishermen annually take some 2,000,000,000 pounds of fish and shellfish from the salt and freshwater areas of the Atlantic and Pacific coasts and in the rivers and lakes of the inland provinces. The marketed value of this catch, of which two-thirds is exported, is more than \$200,000,000. Canada ranks third among the fish exporting nations of the world, surpassed only by Norway and Japan.

The fisheries directly support the families of some 80,000 fishermen, and many thousands of others, employed in processing plants, transporting and marketing enterprises and ancillary industries, also benefit in varying degrees.

Canada is singularly blessed in the variety and abundance of her fishing resources in marine and inland waters, factors which are further enhanced by their ready accessibility to the nation's fishermen. On the Pacific, the mainland coastline extends 1,600 miles to which is added 4,000 miles of island seaboard. On the Atlantic, the respective stretches of coastline are 6,100 miles and 8,700 miles. Inland there are 260,000 square miles of freshwater

areas, the largest of any country in the world. The riches of Canada's coastal waters are supplemented by those of the offshore banks, especially on the Atlantic, which extend out over the continental shelf.

On the Pacific coast, salmon constitutes the most highly prized species, as it provides the most valuable catch. In terms of landings, however, herring produce the greatest volume. Halibut is the third in importance followed by several groundfish species and shellfish.

The salmon catch comprises five species, sockeye, pinks, chums, cohos, and springs. These fish are caught as they return from the sea to their streams of origin to spawn and die. Sockeye, for example, return after four years at sea. Thus, four years after a favourable hatching year on sockeye streams, a heavy catch of this species can be expected. When the peak runs of several different salmon species occur in the same year, fishermen reap a rich harvest. The fish congregate off the mouths of their rivers and move into them in heavy concentrations. Commercial salmon fishing is restricted to tide-water and is divided principally into two efforts—the net fishery by seine and gillnet for the canneries which take three-quarters of the salmon catch, and the troll fishery for the fresh fish market. Net fishing is carried out in all the protected waters of British Columbia's deeply etched shoreline, and troll fishing off coasts facing the open Pacific, especially off the western shore of Vancouver Island.

The main herring stocks move inshore in the fall and winter, spawn in the spring and then return to summer feeding grounds offshore. Only small stocks remain on the fishing grounds throughout the year. As a result, the bulk of the catch is taken from October to March. Fishing is by purse seine and the catch is converted into oil and meal, mainly at Steveston, Vancouver and Prince Rupert.

Canadian and American longliners share in the halibut fishery off both Alaska and British Columbia. By a joint agreement of the two countries, this fishery is controlled by a system of catch quotas and fishing seasons in various areas. Halibut feed on the bottom and are usually



Sockeye salmon in a seine-net is pulled aboard a seiner off the coast of British Columbia. About three-quarters of the annual salmon catch is canned. Sockeye, with its firm texture and attractive colour, commands the highest consumer price for canned salmon.

A government inspector examining freshly caught halibut. The Pacific halibut fishery is managed jointly by the governments of Canada and the United States through the International Pacific Halibut Commission. Halibut, which may reach a size of 470 pounds, lie on one side on the sea bottom and have both eyes on the upper side of the head. The Pacific halibut fishery yields more than 70,000,000 pounds annually.



caught beyond the three-mile limit. The most productive halibut grounds in North America are those adjacent to British Columbia, and American as well as Canadian boats, even when fishing off Alaska, usually land at Prince Rupert or Vancouver.

Other fish caught commercially on the west coast include sole, grey cod, ling cod and black cod. British Columbia also has a significant shellfish resource, including crabs, oysters, shrimps, and clams.

Groundfish, especially cod, along with lobsters are the mainstay of the Atlantic fisheries, while mackerel and alewives support a pickling industry which also is of considerable importance. In normal years the Atlantic catch is about twice as heavy as the Pacific and, generally, is also more valuable.

The cod banks in the Atlantic off Newfoundland are known by fishermen from many parts of the world. Besides cod, they yield other groundfish, mainly haddock, redfish, plaice and flounders. About two-thirds of the cod catch is landed in Newfoundland. The traditional Newfoundland schooner fishery which formerly supplied the saltfish trade with a substantial proportion of its raw material has died out but a very active inshore trap fishery, followed by a trawl fishery from small boats in the late summer and early fall, continues to supply the industry. The bulk of the trap and trawl catches is salted.

Although the majestic schooner fleets have all but disappeared, except for a handful of vessels sailing from Nova Scotia ports, modern trawlers and dragners out of settlements along the southern coast of Newfoundland and the Atlantic coast of Nova Scotia fish the banks in all seasons to supply mixed groundfish to the fresh plants in their home ports. These produce fresh and frozen fish and fillets as well as frozen fish blocks to meet North American demand. The frozen blocks are the raw material of the now important fish stick industry.

Lobsters, with their relatively high unit prices, are the main sources of income for fishermen in Prince Edward Island and New Brunswick. They



Manitoba produces a third of Canada's total of more than 100,000,000 pounds of freshwater fish, more than half of this in winter. Above, fishing boats are tied up at Selkirk, waiting for the opening of the season. Right, ice fishermen on Lake Manitoba pull their net out of the hole in the ice.

also contribute about one-third of the value of the Nova Scotian catch. Fishermen place baited traps in shallow water where the lobsters are certain to fall prey to the bait as they search such areas for food. Most of the catch is marketed alive, fresh boiled or as fresh or frozen lobster meat. The rest is canned. The United States is an excellent market for the product with peaks of demand in the summer months and at Christmas.

The Atlantic herring catch averages about 225,000,000 pounds per year. The small-size herring used by New Brunswick's sardine canneries makes up about one-third of this total. The bulk of the catch is taken in purse seines or weirs.

Mackerel and alewives catches have declined considerably over the past decade. However, there is optimism for the future of the Atlantic salmon fishery, which improved in 1958 after a long and fairly steady decline.

A large proportion of Canada's inland fish catch comes from the Great Lakes, the Manitoba lakes and Great Slave Lake, but 600 smaller lakes are also fished commercially. Ontario leads in production followed by Manitoba and Saskatchewan.

The development of the fisheries demands a management program based on sound scientific research, with constant emphasis on conservation, new and improved fishing and processing techniques, and greater diversification of the fishing enterprise as a whole. The federal Department of Fisheries is charged with these responsibilities.

In a broad sense the Department's management policy is designed to maintain the fish resource in abundance and to utilize its products to the

greatest possible advantage to Canada as a whole. This policy takes into account scientific, economic, sociological and other factors in order to provide the optimum sustainable yield.

Fisheries Statistics

For the second consecutive year Atlantic coast fishermen enjoyed a stellar year in 1960. Both the total landings and value of the catch to fishermen matched those of 1959. Stocks of frozen fish were at the same level at the end of the year as at the beginning; however, salt fish stocks were heavier.

On the Pacific coast the fisheries suffered another poor year. The salmon catch of 74,000,000 pounds was the lowest on record. However, the low catch was not unexpected as 1960 was a low cycle for both the sockeye and pinks, the main support of the canning industry. Because of unsettled conditions in the world market for fish meal, the 1960 herring industry was almost at a standstill with landings down some 256,000,000 pounds from the previous year. A degree of stability was restored to the industry in late November, and the year ended on an optimistic note for the future.

Export demand for inland fish was strong and prices were high when lake fishing got underway in May, 1960. Through the summer, markets remained steady and prices were higher than in the previous years. Shipments of whole fish expanded in both volume and value.

Atlantic cod caught in an otter-trawler are being cleaned and sorted into pens before being stowed in ice in the hold.



Quantity and Value of Landings of the Chief Commercial Fish, 1958-60

Kind of Fish	1958		1959		1960 ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
Atlantic Coast.....	1,251,039	51,153	1,362,259	58,436	1,368,393	59,685
Cod.....	530,932	13,228	639,138	17,023	604,987	16,509
Haddock.....	103,366	4,092	111,997	4,970	95,146	3,689
Halibut.....	6,730	1,761	6,424	1,687	6,574	1,704
Herring and "Sardines".....	233,044	2,826	238,916	3,279	243,592	3,682
Lobsters.....	42,950	15,376	45,714	17,387	51,587	18,055
Mackerel.....	16,147	737	9,451	579	12,999	728
Redfish.....	61,371	1,488	40,618	977	46,784	1,172
Salmon.....	3,453	1,226	3,956	1,453	3,536	1,444
Swordfish.....	5,376	1,439	6,703	1,383	3,890	1,342
Other.....	247,670	8,980	259,342	9,698	299,298	11,360
Pacific Coast.....	650,589	51,352	613,597	34,995	335,040	27,962
Halibut.....	23,708	4,902	23,799	4,398	27,161	4,379
Herring.....	405,123	6,712	444,032	7,355	187,675	2,178
Salmon.....	181,318	37,129	105,680	20,503	75,153	18,401
Other.....	40,440	2,609	40,086	2,739	45,051	3,004
Inland.....	114,613	14,024	117,212	12,103	119,656	12,353
Pickarel (blue).....	834	216	50	15	5	1
Pickarel (yellow).....	15,475	3,387	12,996	2,994	13,543	2,907
Whitefish.....	24,023	3,496	24,696	3,548	25,356	3,288
Other.....	74,281	6,925	79,470	5,546	80,752	6,157
Totals.....	2,016,241	116,529	2,093,068	105,534	1,823,089	100,000

¹ Preliminary.

Landings and Values of All Fishery Products, by Province, 1958-60

Province or Territory	Quantities Landed			Value of Products		
	1958	1959	1960 ¹	1958	1959	1960 ¹
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Newfoundland.....	464,024	562,228	573,771	25,746	31,675	33,783
Prince Edward Island.....	39,078	42,025	42,283	5,449	5,961	7,261
Nova Scotia.....	468,478	423,273	430,310	51,302	50,480	51,753
New Brunswick.....	160,972	227,994	232,662	24,623	28,367	33,130
Quebec.....	124,020	112,954	96,923	7,827	7,856	8,000
Ontario.....	47,175	48,984	47,600	8,180	5,475	5,606
Manitoba.....	31,929	31,052	31,944	6,844	6,689	7,035
Saskatchewan.....	12,600	12,550	11,161	2,339	2,596	2,066
Alberta.....	11,482	12,664	15,852	1,450	1,684	2,021
British Columbia.....	650,589	613,597	335,040	97,016	67,062	53,983
Northwest Territories.....	5,894	5,747	5,543	1,235	1,146	702
Totals.....	2,016,241	2,093,068	1,823,089	232,011	208,991	205,340

¹ Preliminary.

Lobster fishermen and their traps at Grand Entrée, Magdalen Islands, Quebec.



Canada's first full-scale nuclear power station under construction at Douglas Point on the eastern shore of Lake Huron, Ontario. It will have an electrical output of 200,000 kw. when it goes into operation in 1965.

Electric Power

Canada is richly endowed with energy potential in many forms—wood, coal, petroleum, natural gas, falling water, and the recently recognized minerals which, because of their atomic structure, contain a tremendous energy potential. In the production of electric power, Canada ranks fourth among the nations of the world and, on a per capita basis, consumption of electricity by Canadians is the second largest in the world.

Hydro-electric energy from Canada's many fast-flowing rivers supplies 90 p.c. of the country's total electric power needs, and undoubtedly will continue to do so for some years to come. Being renewable, this source of energy is the most permanent of the country's natural energy resources.

In many parts of the country, however, the installation of hydro-electric generating capacity has now reached a stage in which most of the sites that are economic under present conditions have been developed, necessitating the installation of increasing amounts of thermal-electric capacity. The benefits of integrated operation of power systems supplied by both hydro-electric and thermal-electric facilities are receiving increased recognition, even in the provinces of Quebec and British Columbia, where there are still many hydro-electric sites capable of economic development. In the Atlantic Provinces and in Ontario, the fuel supply for thermal-electric plants is mainly coal, while in Western Canada, coal, oil, and natural gas are the main fuels used. Important progress is being made in the development of electric power from nuclear sources, and the year 1962 will mark the entry of the first nuclear-electric power into a power supply system in Canada. It is still too early, however, to estimate the time at which electric energy from nuclear sources will compete economically with energy from conventional sources.

To meet the ever-increasing Canadian demand for electric power to operate mines, mills and factories, to power farm machinery and home



Hamilton Falls, Labrador, 12 miles northeast of the Twin Falls project, has been surveyed and full engineering design has been prepared for a 4,000,000 hp. development. These beautiful falls in the northern wilderness drop 245 feet.

appliances, and to light homes, offices and streets, almost 300,000 hp. of new hydro-electric capacity and over 660,000 kw. of new thermal-electric capacity were installed during 1961. Ontario led the other provinces in terms of installation of new generating equipment by placing a net amount of 144,950 hp. of hydro-electric capacity and 500,000 kw. of new thermal-electric capacity in service during the year.

Available and Developed Water and Thermal-Electric Power, January 1, 1962

Province or Territory	Water Power			Thermal-Electric Power
	Available Continuous Power at 80 p.c. Efficiency		Installed Turbine Capacity	Installed Generator Capacity
	At Ordinary Minimum Flow	At Ordinary Six-Months Flow		
	hp.	hp.	hp.	kw.
Newfoundland.....	1,608,000	3,264,000	384,025	74,900
Prince Edward Island.....	30,500	3,000	1,660	37,700
Nova Scotia.....	30,500	177,000	204,538	398,800
New Brunswick.....	123,000	334,000	254,258	250,400
Quebec.....	12,527,000	23,706,000	12,576,845	123,500
Ontario.....	5,496,000	7,701,000	7,959,512	2,023,700
Manitoba.....	3,492,000	5,798,000	988,900	336,800
Saskatchewan.....	550,000	1,120,000	142,135	644,000
Alberta.....	911,000	2,453,000	414,455	669,000
British Columbia.....	18,200,000*	19,400,000*	3,701,326	424,600
Yukon Territory.....	4,678,000*	4,700,000*	38,190	1,500
Northwest Territories.....	374,000	808,000	22,250	14,500
Canada.....	47,990,000*	69,464,000*	26,688,094	4,999,400

*The figures marked with an asterisk reflect the effect of possible stream flow regulation based on known storage potentials.

Atlantic Provinces

Of the Atlantic Provinces, Newfoundland alone derives its electric energy mainly from water power. Nova Scotia and Prince Edward Island depend primarily upon thermal-electric capacity for electric power supply, while generating capacities in New Brunswick are about equally divided between water power and thermal power.

In Newfoundland, including Labrador, installed water power capacities totalling 384,025 hp. make up more than 80 p.c. of the province's installed power capacity. Expansion of electric power generating facilities in the province in 1961 was limited to 1,200 kw. of new thermal capacity, to bring Newfoundland's total thermal capacity to 74,900 kw. A significant increase in hydro-electric capacity will result in mid-1962 with completion of the initial stage of a development at Twin Falls on the Unknown River in Labrador. This development, which will consist initially of 120,000 hp. in two units and ultimately of 300,000 hp. in five units, is one of three subsidiary projects which can be utilized prior to development of the major project on the main channel of the Hamilton River. On the island portion of the province, the Deer Lake development on the Humber River, with 156,000 hp. installed capacity, is the largest single installation in the province.

In Prince Edward Island, two thermal stations, one at Charlottetown and the other at Summerside, supply the major portion of the province's electric power requirements. In 1961, thermal generating capacity at Summerside was increased to 5,081 kw. with the installation of a 2,200-kw. unit.

The concrete gravity dam and spillway, and unattended generating station, at Sissiboo Falls, Nova Scotia. The plant, which went on line in 1961, is completely automatic and is controlled by operators at the Gulch generating station on the Bear River by means of power line carrier. This is the first of five generating stations under construction on the Sissiboo River.



In Nova Scotia, the larger part of the province's electric power supply is generated in thermal plants, the more important of which are located at Halifax, Trenton, Glace Bay and Sydney. Completion in 1961 of a new 11,500-kw. station at Port Hawkesbury increased the province's total thermal capacity to 398,800 kw. Notwithstanding the emphasis on thermal power generation, there has been considerable progress in the development of the province's water power resources. On the Sissiboo River, two hydro-electric stations totalling 20,000 hp. went into operation in 1961, bringing the total hydro-electric capacity in Nova Scotia to 204,538 hp.

In New Brunswick, a total of 254,258 hp. of hydro-electric generating capacity and 250,400 kw. of thermal-electric capacity were in operation at the end of 1961. The total turbine capacity of the Beechwood and Grand Falls plants, at present 170,000 hp., will be increased in 1962 to 225,500 hp. with the addition of another unit at the Beechwood station. Generating capacity at the Courtenay Bay steam plant is 50,000 kw.

Quebec

Quebec is Canada's richest province in terms of available water power resources; it also ranks highest in terms of developed water power. The installation in 1961 of 76,700 hp. of new hydro-electric capacity and the re-rating of existing equipment at a major development raised the figure for the province's total installed hydro-electric capacity to 12,576,845 hp., representing about 47 p.c. of the total for Canada. Vast power resources are available on tributaries of the St. Lawrence River and Gulf, where most of the province's water power installations are located and where additional capacity planned or under construction will amount to nearly 6,000,000 hp.

While most of the existing hydro-electric generating facilities in the province are owned by private corporations, the major producer is the Quebec Hydro-Electric Commission, an agency of the provincial government. A combined capacity of 4,587,800 hp. has been installed by the Commission at

The gigantic Manicouagan No. 5 power project, as it will look when completed. The concrete dam—most massive dam of its kind in the world—will be 4,000 ft. long and 650 ft. high. The harnessing of the Manicouagan and Outardes rivers will provide Hydro-Quebec's system with another 6,000,000 hp.



seven developments. The largest of these and also the largest single hydro-electric station in Canada is the Beauharnois development on the St. Lawrence River, with an installed capacity of 2,161,000 hp., and a potential ultimate capacity of 2,234,700 hp. Electric power from the 840,000-hp. development at Carillon on the Ottawa River will begin flowing into the Commission's power distribution system in the latter part of 1962. Initial construction is under way at the site of a 1,500,000-hp. development on the Manicouagan River as the first stage of a major power scheme which involves the development of five major sites on the Manicouagan and Outardes Rivers.

The Aluminum Company of Canada Limited, operating five hydro-electric developments with a total capacity of 3,060,000 hp. on the Saguenay and Peribonca Rivers, ranks second in the province of Quebec in terms of installed hydro-electric capacity. The Shawinigan Water and Power Company operates seven developments totalling 1,753,500 hp. on the St. Maurice River and two smaller developments totalling 26,200 hp. on the Batiscan and Ste. Anne de la Pérade Rivers. The Company has commenced construction of a 210,000-hp. development at Rapide des Coeurs on the St. Maurice River. The initial stage, comprising 168,000 hp. in four units, is due to be completed in 1965. In 1961, l'Office de l'Électrification Rurale completed a 3,000-hp. hydro-electric development at the mouth of the Magpie River near Magpie on the north shore of the St. Lawrence River.

Quebec continues to obtain most of its electric energy from water power. Work is in progress, however, on a new 300,000-kw. thermal-electric station, scheduled to go into operation in 1964 near Sorel. At present, the total thermal-electric generating capacity in the province amounts to 123,500 kw.

Ontario

Ontario ranks third among the provinces in total available water power resources and second in the amount of hydro-electric capacity installed. The province has now reached the stage where most of the hydro-electric power sites capable of economic exploitation have already been developed. It can be expected that the future trend in power development will be marked by increasing emphasis on thermal-electric power generation either at conventional fuel-fired plants or in uranium-fuelled plants utilizing energy released by nuclear reaction.

The year 1961 saw the net addition of 144,950 hp. of hydro-electric capacity and the completion of 500,000 kw. of thermal-electric capacity.

The Hydro-Electric Power Commission of Ontario, Canada's largest power-producing and distributing agency, owns and operates 66 hydro-electric developments with a total turbine capacity of over 7,000,000 hp. The Commission also operates three major thermal-electric plants which have a combined total capacity of 1,764,000 kw. The Commission's transmission network is interconnected with other transmission systems in the provinces of Quebec and Manitoba and in the states of New York and Michigan.

Major water power developments totalling some 4,400,000 hp. are concentrated at nine sites on the St. Lawrence and Niagara Rivers and on the Welland Canal. Largest of these developments are the 1,200,000-hp. Robert H. Saunders-St. Lawrence Generating Station and the 2,521,000-hp. combined Sir Adam Beck developments. In Northern Ontario, the Commission added



Power was delivered in 1962 by the Thunder Bay Generating Station, the first thermal-electric plant built in the northern part of Ontario. The powerhouse structure approximates the height of an 11-storey building, while the stack rises to 350 feet. The coal-conveying equipment can carry 500 tons an hour from the dock to the stockpile.

the final 26,500-hp. unit at its Red Rock Falls plant on the Mississagi River, raising the total capacity of the plant to 53,000 hp. On the Abitibi River, the first two 60,000-hp. units were placed in service at the Otter Rapids plant designed for a total initial capacity of 240,000 hp. and for a total ultimate capacity of 480,000 hp. On the Mattagami River, Little Long Generating Station is now under construction and work is due to start soon on the Harmon and Kipling Generating Stations. Initial combined turbine capacity of the three Mattagami River plants will amount to 528,000 hp., with the possibility of installing additional units at a later date. Efficient long-distance transmission is a prerequisite to the economic development of far northern rivers, and the Commission is developing new techniques in high voltage transmission to permit power from these northern rivers to be carried economically to distant load centres. A 460,000-volt transmission line will transmit power from the northern rivers to northwestern Ontario and to major load centres in southern Ontario.

Dwindling opportunities for water resource development in the province have brought about the need for thermal-electric expansion in areas adjacent to present load centres. Three conventional thermal-electric projects were included in the Commission's construction program for 1961. At the Richard L. Hearn Generating Station in Toronto, the last of four 200,000-kw. units was installed, bringing the total capacity of the station to 1,200,000 kw. The first of six 300,000-kw. units was placed in service at the Lakeview Generating Station, also in Toronto, while at the Thunder Bay Generating Station in Fort William, a 100,000-kw. unit is expected to go into service in the spring of 1962. The Thunder Bay station is capable of eventual development to a capacity of 1,000,000 kw. In the field of nuclear-electric power, the Commission, in conjunction with Atomic Energy of Canada Limited, is constructing a 20,000-kw. Nuclear Power Demonstration Plant near the existing Des Joachims Hydro-Electric Generating Station on the Ottawa River. Initial operation of the Demonstration Plant is scheduled for 1962, while a 200,000-kw. uranium-fuelled, heavy-water moderated plant at Douglas Point on the shores of Lake Huron, is expected to be in service in 1965.

Prairie Provinces

Of the three prairie provinces, Manitoba is the most abundantly endowed with water power resources. In contrast, Alberta and Saskatchewan have relied to a large extent on thermal-electric power. It is significant, however, that of four large hydro-electric developments under construction in the Saskatchewan River Basin, two are located in Saskatchewan and one in Alberta.

Most of Manitoba's present hydro-electric capacity is concentrated on the Winnipeg River which is completely developed with a total turbine capacity of 763,000 hp. at six generating stations. The capacity of Manitoba Hydro's Kelsey Generating Station on the Nelson River was increased to 210,000 hp. with the installation of the fifth unit in 1961. Construction was progressing at the site of the 450,000-hp. Grand Rapids development on the Saskatchewan River. The initial stage of development of Manitoba Hydro's Selkirk steam plant was completed in 1961 with the installation of a second 66,000-kw. unit. The site of the Selkirk plant is capable of being developed to permit a total ultimate installation of as much as 1,000,000 kw.

An aerial view of the excavation at Squaw Rapids, site of Saskatchewan's first hydro-electric power project near Nipawin. The step-like earthworks in the centre are the site of the power penstock area. The plant is scheduled for completion in 1964, at a cost of \$46,250,000. It will be operated by remote control from the Queen Elizabeth Power Station at Saskatoon, and will add 276,000 kw. to the power resources of Saskatchewan.



In Saskatchewan, electric power requirements in the southern part of the province have been supplied by thermal-electric generating stations, notably the Queen Elizabeth and Boundary Dam stations which together make available 252,000 kw. of generating capacity. At the end of 1961, the total installed thermal-electric capacity in the province amounted to 644,000 kw. Hydro-electric power supply in Saskatchewan is at present confined to the requirements of the mining areas and is provided by three developments with combined capacities totalling 142,100 hp. The role of hydro-electric energy in the province's power economy took on added importance with the commencement of the South Saskatchewan River Project which, although designed primarily to impound water for irrigation purposes, will incorporate facilities for hydro-electric power generation. The Saskatchewan Power Corporation, which is responsible for the power development aspects of the project, proposes to install three units, each of approximately 60,000 hp., with provision for additional units to bring the ultimate capacity to 300,000 hp. Construction of the Squaw Rapids site on the Saskatchewan River, made economically feasible by flow regulation provided by the South Saskatchewan River Project, is well advanced.

Alberta's major hydro-electric installations are located in the south-eastern region of the province on the Bow River and its tributaries. Reserves of water power are available in northern areas, but southern Alberta's increasing power demands are being met by thermal-electric plants burning local fuels. At the end of 1961, the total installed thermal-electric capacity in the province amounted to 669,000 kw. Plant capacities of 255,000 kw. at Edmonton and 132,000 kw. at Wabamun together account for over one-half of the province's total thermal capacity. In 1962, addition of a 150,000-kw. steam unit will boost the capacity of the Wabamun plant to 282,000 kw.

British Columbia

British Columbia's many fast-flowing mountain rivers offer a wealth of opportunity for power development, and give the province a standing second only to Quebec in terms of available water power resources. In the amount of hydro-electric generating capacity installed, British Columbia is exceeded only by Quebec and Ontario. Despite the province's abundant water power resources, some 424,600 kw. of thermal-electric capacity has been installed in the province and another 900,000 kw. will be added with the completion of development of the new thermal station on Burrard Inlet.

In 1961, the Government of British Columbia enacted legislation to bring the British Columbia Electric Company and the Peace River Development Company Limited under public ownership. The total combined hydro-electric generating capacity of the British Columbia Electric Company and the British Columbia Power Commission, also provincially-owned, amounts to over 1,800,000 hp. The total thermal-electric capacity in plants operated by these two agencies is almost 270,000 kw.

In 1961, the British Columbia Power Commission completed and put into operation a 1,000-hp. hydro-electric development on Clayton Creek near Bella Coola. Thermal-electric capacity totalling 6,500 kw. also was put into operation.



Moving the massive reactor tank, or calandria, from Peterborough, where it was built, to Rolphton, site of Canada's first nuclear-electric station on the upper Ottawa River—a distance of 230 miles—was a major job. The calandria weighs 21 tons, is 22 feet long, 17 feet wide and 18 feet in height from the road. It was transported on a truck-trailer 10 feet wide, overlapping 3½ feet on each side. Escorted in the lead and in the rear by police cruisers, the calandria truck-trailer was preceded by a truck used to gauge the height of wires along the route and a lift-truck to raise power lines if necessary. Travelling only by day at an average speed of 15 miles an hour, the seven-vehicle convoy took 2½ days to make the trip. Two truck-trailers carried fuelling equipment.

Large hydro-electric capacities have been installed in the province by private companies concerned with the mining, refining and wood products industries.

Of major significance to British Columbia are plans for the future development of the Columbia and Peace Rivers. In the case of the Columbia River, a treaty signed by Canada and the United States provides initially for the construction of three storage dams in Canada to control approximately 20,000,000 acre-feet of usable storage. This treaty, not yet ratified by Canada, contains the provision that Canada would receive one-half of the power benefits accruing in the United States from the regulation of 15,500,000 acre-feet of this storage plus one-half of the value of the estimated flood damage prevented in the United States through operation of the storage projects for flood control. Planning for the development of the hydro-electric power potential on the Peace River is, as yet, in a preliminary stage.

Yukon and Northwest Territories

In the Yukon Territory, substantial water power resources exist on the Yukon River and its tributaries. In the Northwest Territories, more than half the resources are located on rivers flowing into Great Slave Lake. At present, the total hydro-electric turbine capacity in the Yukon and Northwest Territories amounts to 60,440 hp. The Northern Canada Power Commission, which has a total hydro-electric capacity of 38,550 hp., is the largest distributor of electric power in the territories. Seven diesel plants with capacities varying from 225 kw. to 3,000 kw. are also operated by the Commission in the Northwest Territories.

Electric Power Statistics

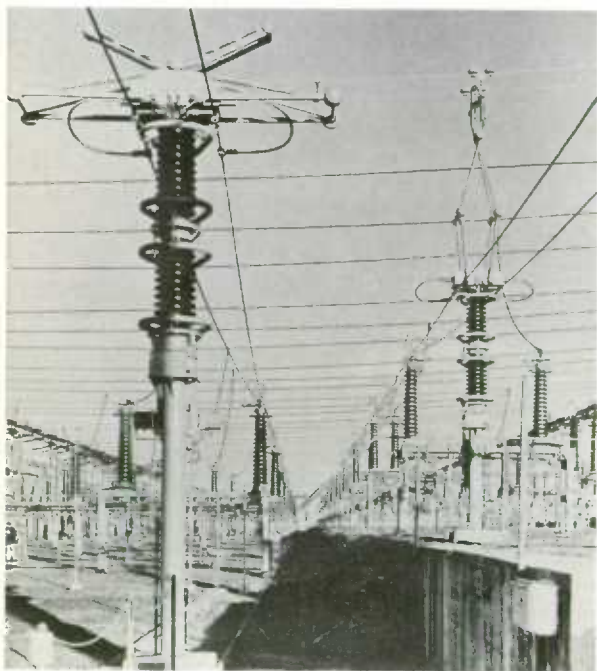
The total electric energy generated in Canada in 1960 amounted to 114,377,933,000 kwh. This figure includes energy generated by publicly or privately owned utilities and energy generated by industrial establishments, mainly for use in their own plants. Of the total, 93 p.c. was produced from water power and the remainder was generated thermally; 5,495,572,000 kwh. were exported to the United States.

Electric utilities provide much of the power for industry, but many large industrial establishments generate their own requirements. In 1959 manufacturing industries purchased 35,616,421,000 kwh. but generated 18,222,248,000 kwh. for their own use. Of this amount 4,753,454,000 kwh. were generated by pulp and paper industries and 11,764,412,000 kwh. by smelters and refineries. The primary mining industry purchased 4,173,617,000 kwh. from electric utilities but generated 648,330,000 kwh.

In 1960 there were 4,542,780 domestic, including rural, customers in Canada compared with 4,381,564 in 1959. The amount of electricity consumed domestically advanced from 19,007,111,000 kwh. to 20,391,857,000 kwh., or from 4,338 kwh. to 4,489 kwh. per customer. The per customer consumption varied widely among the provinces; Manitoba led with 6,184 kwh. while Prince Edward Island and New Brunswick still had the lowest averages. Farm customers added during 1960 numbered 1,726.

Canadians enjoy one of the lowest rates per kilowatt hour in the world. The revenue from domestic consumers averaged 1.60 cents per kwh. in Canada in 1960 as compared with 2.50 cents in the United States, and commercial and industrial sales averaged 0.8 cents per kwh. in Canada compared with 1.3 cents in the United States. The 1960 average bill for domestic and farm

service stood at \$71.75 against \$69.76 for 1959, an increase of 2.9 p.c., while consumption per customer rose 3.5 p.c. Provincial bills ranged from \$103.56 in British Columbia to \$59.20 in Quebec.



The first pantographic switches in North America were installed at the new power station at Wabamun, Alberta. This high voltage isolating switch consists mainly of a pantographic structure with contact scissors, supporting insulator, a porcelain rod drive shaft and a compressed-air operating mechanism. The entire unit is mounted on a single tubular steel column. During a closing operation, the pantograph rises and the contact scissors close against a contact rod, completing the connection.



The main conveyor system at the new \$80,000,000 iron ore development at Atikokan, Ontario, consists of three flights of belts traversing almost a mile of some of the most rugged of mining territory, and incorporating a lift of 495 feet. Designed to carry 1,000 tons per hour, the installation features 10,200 feet of belting which go through a 180° turn for the return run and then through a similar turn just before the tail end, in this way presenting a clean side to the return idlers and so preventing material build-up on the equipment.

Manufactures

At the time of Confederation, about half of Canada's workers were employed in agriculture, and about one-sixth each in manufacturing and service industries. By the end of World War II agriculture employed only about 25 p.c. of the total, manufacturing a little more than 25 p.c. and service industries 40 p.c. In 1960 workers in agriculture were down to 12 p.c. as increased mechanization and better methods of cultivation made it possible to combine increases in output with a reduction in farm labour. In the same year the proportion of workers in manufacturing remained about 25 p.c. while in service industries their numbers had risen to 52 p.c. Over the past fifteen years the number of workers rose at an annual average rate of about 1.7 p.c. for all industries, by 3 p.c. for industries other than agriculture and in agriculture employment actually declined at an annual rate of around 4 p.c.

Historically, manufacturing has paralleled and reflected the rates of growth of the economy generally. At the time of Confederation Canada had a scattered population of some 3,500,000 people with a gross national product



Canada's greatest concentration of petrochemical industries is located in Sarnia, Ontario's "Chemical Valley". Here are huge oil refineries and plants producing synthetic rubber, glycol, carbon-black, caustic soda, styron plastic, acoustical tile, fabricated and structural steel and many other products.

of less than \$200 per capita in terms of today's dollar. Most of the country's trade was based on the products of the farmer, fisherman and lumberman in which occupations over half of the population was employed. Manufacturing was on the whole a local occupation of a semi-handicraft nature employing very little capital and producing such basic consumer goods as woollens, boots and shoes and alcoholic beverages, processing raw materials such as tobacco, flour and lumber or making certain capital goods in which Canadians had acquired special skills as, for example, shipbuilding and agricultural implements.

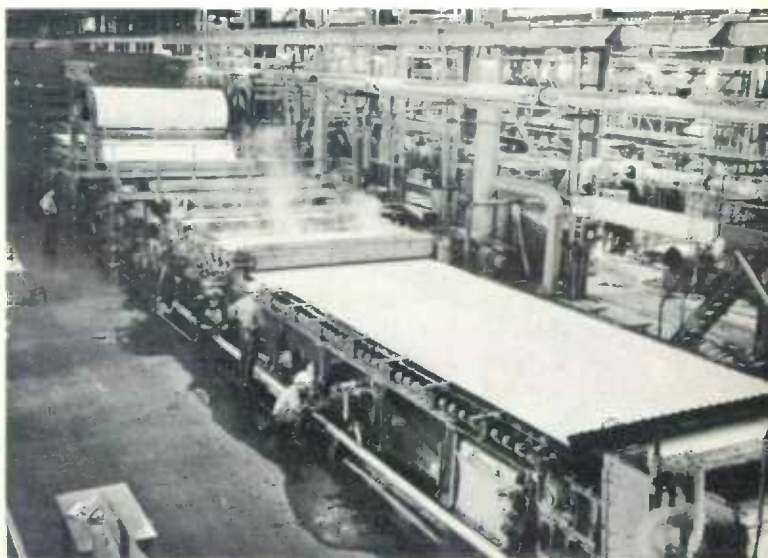
In the succeeding period from 1871 to 1896 the industrial revolution of steel and railroads had its real impact on Canadian manufacturing. More advanced technology, corporate organization and low cost transport combined to foster a unified market and a factory-based system of specialized mass production to serve it. This period may be said to embody in many ways the main features which continue to characterize Canadian development down to the present day: expanding output based on technological advances, strong competition, and a continually increasing use of machinery and mass production techniques to reduce dependence on expensive labour.

The national tariff policy, developed in Canada after 1879, was to some extent responsible for permitting the new manufacturing techniques to establish and expand in the face of strong foreign competition and limited domestic markets. The basic structure of the tariff was set in this period: the multiplicity of rates applying to different countries, the end-use items, the drawbacks for home consumption or export, and the concessions for goods or materials of a kind not available in Canada. While definite progress was made it would be wrong to claim that the bulk of Canadian manufacturing by the end of the last century was made up of anything more than comparatively simple processing. However, between 1870 and 1900 food processing industries doubled in size, the wood-using industries more than doubled, textiles nearly tripled and the annual production of farm implements reached well over \$8,000,000. In addition a beginning was also made on such new industries as pulp and paper, railway rolling stock and chemicals.

From the turn of the century to World War I the gain in manufacturing output in real terms was over 90 p.c. or greater than for the economy as a whole. A significant stimulus was given to the economy by the development of the new resource industries such as hydro-electric power, metal mining and forest products. Rising incomes and population led to an expanded net value of production for the consumer goods industries such as textiles, tobacco and boots and shoes. There was improvement in those industries processing goods for the expanding export market. The growth of the market created favourable conditions for the very rapid development of the capital goods industries. Steel production rose, while railway rolling stock expanded its net value of production five times and electrical apparatus and supplies increased its output sevenfold.

Following the sharp but short postwar recession in 1920-21 the Canadian economy moved steadily ahead until 1929. Rapid progress was made by industries producing consumer durables, electrical machinery and capital equipment. Production of motor vehicles rose from 94,000 to more than 262,000, electrical equipment more than doubled its output and industrial machinery production rose by nearly three-quarters.

One of the largest paper machines in the world is located in the St. Maurice Valley of Quebec, the world's largest newsprint area. Here seven paper-producing mills turn out 125 tons of paper per hour, 24 hours a day. The manufacture of pulp and paper has been Canada's leading industry for many years.





One of Canada's first industries—ship-building—is still carried on in establishments both large and small. Here a fishing trawler nears completion in a plant in Quebec.

The progress of secondary industry, like all other sectors of the economy, suffered a very sharp setback in the depression of the 1930's. The individual secondary industries providing consumer soft goods, such as clothing, boots and shoes, food and tobacco, purchases of which are not easily deferrable, suffered declines in output of 15 p.c. to 20 p.c., compared to much sharper falls in the more volatile capital goods, luxury or consumer durables industries; for example, steel and automobile production fell to less than 20 p.c. of capacity in 1932. Although population continued to grow, the economy recovered only slowly and it was 1939 before real national output surpassed its 1929 peak.

The all-pervading demands of modern war caused the Canadian economy to undergo a dynamic surge of growth which reached its peak in 1944. Secondary industry reached very high levels of output during the war years, but these levels of production were achieved as the result of emergency conditions and a complex system of priorities, allocations and controls. But the gains were real and in 1946 the output of secondary industry was almost double its 1939 level. Tangible evidence of the permanence of these gains was provided by the fact that a substantial portion of our war-expanded manufacturing facilities found a profitable use in the post-war period.

Within the totals of manufacturing output, changes have occurred in the relative growth and importance of different industries and products from one period to another. With growing industrialization and rising incomes there has been a relative decline in the importance of industries manufacturing the basic necessities of life such as foods, textiles, clothing, tobacco and leather products. At the same time there have been pronounced increases in the relative importance of industries producing consumer durables, such as automobiles and electrical apparatus, on which a rising proportion of income is being spent. The growing importance of construction and investment generally has been responsible for the increase in the rank of non-metallic mineral products and primary iron and steel, while defence orders and development of new products and technology have clearly been important influences on such industries as aircraft and electronics.

Moreover, within industries very different rates of growth have taken place. In primary textiles, production of woollens has failed to progress while output in synthetics is many times as great as in the pre-war period. Within the industrial classification of "products of petroleum and coal", petroleum products have risen three times as fast as coal products due among other things to their more rapidly growing demand, the discovery of Canadian resources and a successful record of cost control and technological improvement. Within the rubber industry, output of tires and tubes has risen more than four times as fast as that of rubber footwear; in the primary iron and steel industry, the growth of the market, enterprising management and new technology have led to the extremely rapid growth of many products not even produced in Canada two decades ago.

The following table gives a brief statistical summary of the long-term growth in Canadian manufacturing. Certain qualifications must be made in the interests of strict comparability and these are detailed in the footnotes to the table. One footnote concerning value of factory shipments may be further clarified. In 1952 the collection of data on gross value of production was replaced by value of factory shipments. The former included all goods produced during the year irrespective of whether they were shipped from the factory during that year. The latter includes all goods leaving the plant during the year regardless of when produced. The difference is not great since in most cases goods are shipped during the year in which they are manufactured. Gross values of production or shipments represent more than the actual contribution of the industry to the economy because they would generally include the value of certain components manufactured elsewhere as well as raw material costs.

Catering to the rapidly growing popularity of bowling are an estimated 1,500 establishments in Canada, doing nearly \$50,000,000 of business a year. These bowling pins—targets for balls which travel up to 40 m.p.h.—are made of hard white maple from midway between the heart of the tree and the bark. After having been lacquered, they pass in front of heat-lamp driers.



Manufacturing Statistics, 1960

	Employees ¹	Salaries and Wages ¹	Value Added By Manufacture ²	Selling Value of Factory Shipments ³
	No.	\$'000	\$'000	\$'000
Provinces				
Newfoundland.....	9,590	31,850	60,900	125,600
Prince Edward Island.....	1,980	4,395	7,200	27,000
Nova Scotia.....	28,675	92,255	165,700	409,200
New Brunswick.....	22,015	70,515	144,300	350,300
Quebec.....	430,375	1,607,265	3,010,000	6,936,200
Ontario.....	599,120	2,574,940	5,307,000	11,612,500
Manitoba.....	41,590	151,535	302,200	728,200
Saskatchewan.....	12,415	48,020	120,400	332,600
Alberta.....	37,860	151,590	347,700	891,400
British Columbia.....	101,470	436,155	865,000	1,910,700
Canada⁴.....	1,285,700	5,169,460	10,333,800	23,326,700
Industrial Groups				
Foods and beverages.....	191,700	681,100	1,592,000	4,615,200
Tobacco and tobacco products.....	9,650	37,200	115,900	337,000
Rubber products.....	20,060	83,470	173,400	320,600
Leather products.....	29,460	80,830	125,800	262,700
Textiles.....	62,180	204,730	371,100	819,300
Clothing, including knitting mills.....	105,735	278,000	453,900	945,500
Wood products.....	123,420	403,375	651,200	1,440,800
Paper products.....	94,795	451,450	996,700	2,059,300
Printing, publishing and allied industries	75,480	325,220	606,600	904,000
Iron and steel products.....	186,600	856,275	1,501,500	2,950,000
Transportation equipment.....	108,000	520,955	898,200	1,996,000
Non-ferrous metal products.....	53,220	252,590	634,000	1,837,700
Electrical apparatus and supplies.....	72,400	323,195	551,500	1,019,400
Non-metallic mineral products.....	42,400	179,000	367,600	628,400
Products of petroleum and coal.....	16,650	96,700	255,700	1,162,400
Chemicals and allied products.....	56,000	261,000	725,400	1,425,100
Miscellaneous industries.....	39,000	140,600	343,400	603,500

¹Estimated on the basis of the monthly employment survey which covers manufacturers employing 15 hands or over only.

²Estimated on the basis of the percentage for 1959 of value added to shipments.

³Estimated on the basis of the monthly survey of shipments by manufacturers.

⁴Provincial and group figures do not add exactly to the Canada totals.

In 1960 manufacturing production was fractionally higher than in 1959 with a 2.3 p.c. increase in the output of non-durable goods somewhat offset by a 1.7 p.c. decline in durables. A further major cause of this slow growth in manufacturing output was the steady downward adjustment of inventories at all levels during 1960. This was further accentuated by a relatively small rise in retail sales and, in the latter part of the year by a weakening in export demand.

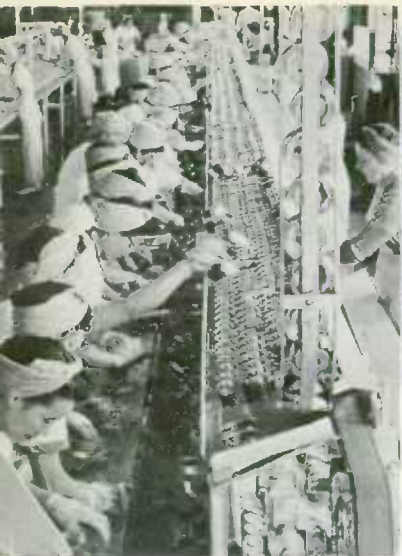
The above table summarizes estimated manufacturing statistics by industrial groups for the year 1960. Most of the non-durable goods industries recorded gains but they were small, with the important exceptions of the chemical components for which output rose 12 p.c. A substantial decline in output occurred in rubber products and leather products and a moderate decline was recorded by the textile industry. Only two of the durable goods industries showed expanded production in 1960. An advance close to 10 p.c. in the output of non-ferrous metal products reflected the buoyancy of overseas export demand and slightly higher production of transportation equipment reflected increased output of motor vehicles which more than offset lower production of other equipment.

Typical of the new industries appearing on the prairies are a rubber factory near Calgary and a cement plant north of Regina.



Turning to the individual industrial groupings the volume of production and employment in the foods and beverages sector expanded very little during 1960. The increase for the most part was concentrated in the production of beverages as food output rose only modestly. Within this sector the slaughtering and meat packing industry is the fourth principal manufacturing industry in Canada. In 1960 lower production of hogs was responsible for reduced activity in meat packing. Cattle slaughterings increased during the year but not to the extent necessary to offset the drop in hog slaughterings. The dairy products industry was a strong expansionary factor in the volume of production of the food and beverages sector; this was due to the first increase in the dairy herd since 1957 and the resulting production was accompanied by an increase in the inventories of butter and cheese. The canning and preserving industry showed little expansion during 1960; lower landings of salmon and herring were largely responsible. The volume of production of grain mill products was practically unchanged with the increased production of flour offsetting the lower output of prepared feeds. In the miscellaneous food industries there was a strong expansion in the latter part of 1960, largely accounted for by a higher level of production in sugar refineries. The volume of production of all beverages increased but only moderately due primarily to the relatively cool summer.

The tobacco and tobacco products group was relatively unchanged in volume terms but employment declined. This was a direct consequence of



Food-processing—whether of a staple like canned salmon or of a specialty like Easter eggs—continues to grow in importance, keeping pace with Canada's high standard of living.

the small tobacco crop of 1959 which resulted in some liquidation of inventories and increased imports. During 1960 domestic demand expanded at a much slower rate than in 1959 and this slackening was felt especially in the consumption of cigarettes.

In both the rubber and leather products groupings the index of physical production fell between 1959 and 1960. High inventories of leather footwear at the retail and wholesale levels played a significant part. Imports continued to dominate the rubber-soled canvas, rubber waterproof and plastic footwear market. There was a sharp drop in the production of rubber tires.

A major factor in the moderate decline in the textile industry was inventory adjustment combined with a further rise in imports. Production and shipments of the cotton textile industry during 1960 were steadily below those of the previous year. Both domestic shipments and imports of woollens and worsted broadwoven fabrics fell during the year with the result that Canadian producers continued to make small gains in their share of a shrinking total market. Domestic disappearance of synthetic broadwoven fabrics declined moderately during 1960 following several years of continuing growth. Rayon continued to decline in importance while the other synthetics were becoming increasingly popular in blends with the natural fibres.

The clothing industry recorded a drop in the first quarter of 1960 but recovered during the balance of the year. The clothing year was marked by an increase in imports as well as by major inventory adjustments.

In the woods products industry production in 1960 was slightly lower than in 1959. The level was influenced by the weakness in the demand from the construction industry. Also the production of furniture fell sharply. The level of output of this industry has almost continually moved upwards during the past fifteen years, the exceptions occurring during periods of credit shortage. In 1960 there was a severe decline despite the fact that there was no general credit shortage.

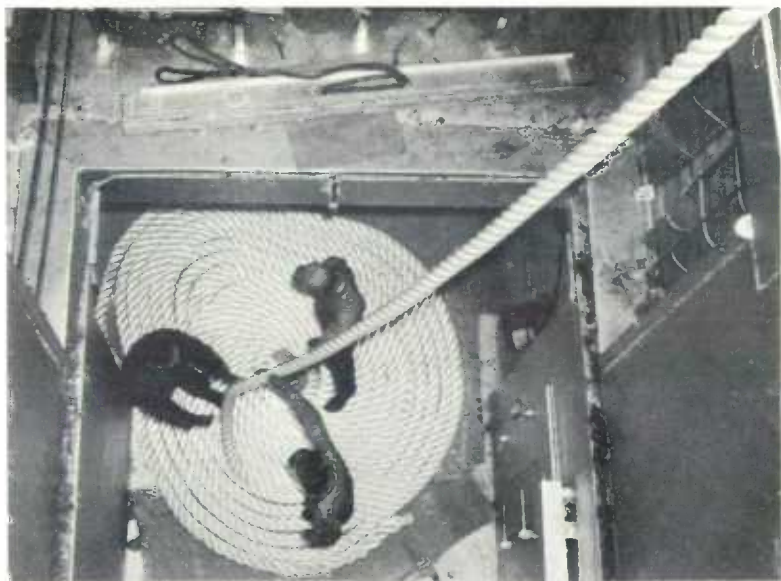
In the pulp and paper grouping the output showed impressive gains in 1960. Consumption of newsprint in the United States had fallen off during the third quarter of 1959, reflecting in part the effects of widespread steel and base metal strikes on advertising in that country. By 1960, however, con-

sumption had resumed the strong growth curve established during pre-strike months. 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 in Canada stands first 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. The industry has a newsprint output more than three times that of any other country and provides about 45 p.c. of the world's newsprint needs.

Output in the printing, publishing and allied industries showed a modest increase in 1960. The printing trades group is made up of five closely related industries: printing and publishing, comprised of publishers who operate printing plants; printing and bookbinding, including general or commercial printers and bookbinders; lithographing, comprised of plants specializing in that process; engraving, stereotyping and electrotyping, including photo-engraving; and trade composition or typesetting for printers. A sixth industry covering publishers of periodicals who do not print their own publications has been included since 1949.

The physical volume of production in the iron and steel products grouping registered a decline in 1960. In the primary iron and steel industry, however, shipments of rolling mill products reached such a high level during the first three quarters of 1960 that it appeared likely that ingot production would exceed the record level of 1959. The decline in both domestic and export demand during the fourth quarter was such however that total ingot production was slightly below the previous year.

Coiled below decks, the big nylon line is ready to offer a tow if needed. Manufactured in Newfoundland, the hawser has a weight of one pound for each four inches of its length, but a tensile strength of 250,000 pounds,—more than twice the pulling ability of a Manila rope 12 inches in diameter.





Synthetic materials play an important part in the packaging so widely accepted today. Here a completed roll of cellulose film is swung away from the wind-up end of a casting machine.

Production of agricultural implements had in 1959 reached the highest levels since 1954-55. While the volume of production, value of shipments and employment declined in 1960 they were still above 1958 levels. Wholesale sales remained practically unchanged while imports and exports dropped sharply. Shipments by the industrial machinery industry were higher in 1960 than in the previous year. This was primarily due to work under way on hydro turbines, steel mill and paper mill machinery and export orders.

Physical volume of production in the transportation equipment group was lower in total in 1960, lower for aircraft and railway rolling stock but higher for motor vehicles. In the railway rolling stock industry, following the completion of the diesel conversion program, activity has been confined largely to the production of new type bulk carriers and the repair and maintenance of existing equipment. Activity in the aircraft industry dropped substantially between 1958 and 1959 and there was a more modest decline in 1960.

The motor vehicle industry, within the transportation group, is the fifth leading industry in Canada. Retail sales of passenger cars rose in Canada during 1960 but imported British and European cars were largely responsible with only a modest increase for Canadian-made cars. Nearly all the increase occurred towards the latter part of the year when the 1961 models were introduced. In Canada the first major effect of the compact automobile has been to reduce the sales of the standard North American-type cars. Although domestic sales of Canadian-made cars increased only slightly, production increased much more rapidly due to a rise in export shipments. In 1960 sales of commercial vehicles were consistently below those of the previous year.

Within the non-ferrous metal grouping, the non-ferrous metal products smelting and refining industry is the second largest manufacturing industry in Canada. An advance of 9.9 p.c. in the output of non-ferrous metal products in 1960 reflected the buoyancy of overseas export demand. This industry is

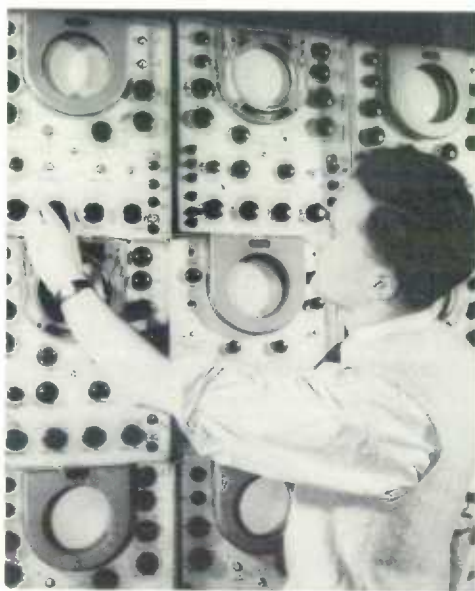
based on mineral deposits but is also a heavy user of electric power. Because of the availability of this power, most of the non-ferrous ores mined in Canada are processed within the country and for the same reason huge aluminum smelters operate in Quebec and British Columbia using imported ores and concentrates.

The electrical apparatus and supplies grouping failed to make any solid advance in 1960. Production and employment in the heavy electrical apparatus industry were at low levels primarily because of the lower demand in Canada for power-generating equipment. Shipments of the major household appliances presented two conflicting trends during the first half of 1960. Shipments of refrigerators, freezers, gas stoves and vacuum cleaners all improved during the early part of 1960, while shipments of washing machines, clothes dryers and electric stoves were below those of the year previous. By the end of the third quarter, however, demand had generally weakened so that shipments of all appliances were either only slightly above or below those of a year earlier.

The manufacturers of non-metallic mineral products failed to increase their volume of production in 1960. In 1959 there had been advances in the production of concrete products and domestic clay products with only a small drop in hydraulic cement. However in 1960 all three of these industries showed a decline.

In the petroleum and coal products segment notable progress has been made in both groupings. Petroleum products form the third largest Canadian manufacturing industry and in the last few years oil production has returned to the peak levels achieved at the time of the Suez crisis. Natural gas output, while continuing to make rapid gains each year, still occupies a relatively junior status in comparison with oil.

Output in the chemicals and allied products grouping advanced in 1959 and 1960 but conditions for various types of products showed wide differences. Consumer chemicals lagged during 1960; the volume of production of fertilizers dropped; and pharmaceuticals failed to progress. However there was some improvement in paints, varnishes and pigments. In contrast, the



The twentieth century has been called the electronic age. Certainly much new industry has grown up to supply electronic equipment for many ingenious uses.

production of industrial chemicals increased significantly in 1960 but due to higher productivity employment did not expand to the same extent.

Finally, in the large grouping brought together under miscellaneous manufacturing it is significant that physical volume of output has increased every year over the past five. In this grouping is found a most interesting diversity of manufacturing products that can now be produced economically in this country.

It appears in summary that while manufacturing industry experiences many kinds of stresses, strains and maladjustments from both within and without, the groundwork for the future is being firmly established. While future conditions in manufacturing will continue to be extremely competitive and while productivity gains may mean that increased production will not always mean more employment and man-hours there is every indication of a future expanding market for both capital and consumer goods which are based on advanced technology and skill. There is no cause for pessimism in Canada as we have far more than our proportionate share of the world's resources; we are richly endowed in our political and social institutions and we have the full inheritance of the scientific tradition. We are entering a new phase of development but in the future, as in the past, our progress will depend on our readiness to adapt to changing conditions and our ability to take advantage of new opportunities.

The production of motor vehicles has grown in four decades to take fifth place among Canada's leading industries. Here a freshly painted automobile passes through the drying room.





Road construction is never ended in Canada. During the year ended March 31, 1960, \$582,000,000 was spent on construction of new roads, \$206,000,000 on maintenance of existing roads, and \$41,000,000 on administration and general costs. By October 31, 1961, 3,088 miles of the 4,859-mile Trans-Canada Highway had been completed at an estimated cost of \$673,633,705 since its beginning in 1950. The Roads to Resources program, in its fourth year, had spent and approved contracts for \$129,000,000. A \$5,000,000 road construction program in the Yukon Territory was started in 1961, as was a \$4,000,000 program in the Northwest Territories.

Canada, the Land of Business

The Economy

While 1961 opened in an atmosphere of hesitation and uncertainty following a mild contraction in economic activity in 1960, expansion was resumed during the course of the year*. By the third quarter, gross national product, which measures the value of the nation's production, was running at an annual rate of \$37,364,000,000 compared with one of \$35,668,000,000 in the first quarter. This expansion was accompanied by generally stable prices and an improvement in the market for labour although unemployment continued to remain high in terms of post-war experience.

Expansion in Canada took place in a favourable international economic environment throughout most of 1961. The United States was making a prompt and vigorous recovery from a mild and short-lived recession, to the

* Data used for the full year 1961 are based for the most part on data for the first nine months.

advantage of Canada's exports to that country. In a situation of rapid growth in production in many other industrialized countries, exports elsewhere made further large gains; however, there were signs that industrial expansion in Western Europe and Britain was levelling out in 1961. While business demand for plant and equipment was reduced in the early part of the year a perceptible improvement was taking place by the third quarter. Housing was also picking up after a weak second quarter and a strong first. Supported by rising personal income, consumers were increasing their purchasing.

The upturn in the economy was reflected in the size and direction of income flows and in the developing pattern of production and employment. Typically sensitive to the changes in the tempo of economic activity, corporate profits turned sharply upward from depressed levels during the course of the year. At the same time cyclical recovery in production was gradually adding to the flow of income to wage and salary workers. Farm income, however, fell sharply, largely in reflection of the drop in the grain crop in the Prairie Provinces due to drought. Production and employment trends showed signs of developing strength. While Western Europe and Japan did not maintain

Rolls of newsprint, each weighing nearly a ton, ready for export. Pulp and paper stands first among all industries in capital invested as well as in net value of shipments, in exports and in total wages paid.



in 1961 their extraordinarily high rates of economic expansion of preceding years, they nonetheless provided a buoyant market for Canadian export products. Meanwhile, recovery in the United States was restoring the level of Canadian export products to that overwhelmingly important market. In these circumstances Canada's exports of goods and services rose about 5½ p.c.* In the first eight months of the year merchandise exports to the United States and Britain were down by about 3 p.c., but sales to the countries of the European Common Market and Japan were up 18 p.c. and 40 p.c. respectively. Sales to all other countries rose by about one-third, an important factor being the sale of wheat to China under a government negotiated contract.

The change in merchandise exports was the outcome of large and partly offsetting

* These are eight months percentages.



Under the chairmanship of H. George De Young and attended by the Hon. George Hees, Minister of Trade and Commerce and the Hon. Michael Starr, Minister of Labour, the first meeting of the National Productivity Council was held in March 1961. Of its 25 members, five represent industry and commerce, five represent primary industries, including agriculture, five represent organized labour and five other interests, four are technically qualified government officials and one is the executive director. Their objective is to promote increased productivity throughout all sectors of the Canadian economy.

changes among commodities. Among the leading commodities there was an increase of about \$160,000,000 in sales of wheat and an increase of about \$33,000,000 in sales of nickel, partially offset by decreases of about \$47,000,000 in sales of uranium and concentrates, about \$25,000,000 in sales of aluminum, and a considerable reduction in sales of copper and products of farm machinery.

Sales abroad were a continuing source of strength to the Canadian economy throughout the year. By the third quarter, merchandise exports were at a seasonally adjusted annual rate of \$6,100,000,000, compared with one of \$5,500,000,000 in the first quarter and merchandise account was showing a surplus for the third quarter in succession, after having been in deficit for many years.

The quickening tempo of activity as the year advanced made for some rise in imports, in contrast to the declining trend that characterized most of 1960. Thus in the first nine months imports of goods and services rose 3 p.c.

Part of the increased value of both exports and imports reflected the altered exchange rate of the Canadian dollar. In the June budget the Government announced its intention of using the resources of the Exchange Fund to bring down the exchange value of the Canadian dollar, with a view to encouraging exports and discouraging imports to the advantage of the balance of payments. Thereafter the exchange rate moved to a discount of approximately 3 p.c. below the American dollar, after having been at a premium for several years.

Thus one of the important developments of the year was the drop in the deficit in current international transactions. By the third quarter the deficit was at an annual rate of about \$800,000,000 in contrast to one of \$1,200,000,000 in the first quarter.

The demand for capital goods in 1961 continued to reflect the weakness in outlays for plant and equipment which had begun to become apparent in 1958.



The trend in consumer spending continues, as fewer Canadians invest in durables, particularly household appliances, and more spend their money on non-durables. An increase in consumer retail outlets—particularly those classed as "discount houses"—was noticeable during 1961.

Expenditures for expansion and modernization of productive capacity during most of the year were running 5 p.c. below those of 1960 and some 18 p.c. below the 1957 peak. However, toward the end of 1961, against a background of sharply rising profits and moderately expanding production some quickening in the demand for capital goods began to become evident, to the advantage of employment and activity in the supplying industries. This quickening in demand was an element in the end of year rise in imports. By the third quarter, outlays for plant and equipment were running at an annual rate of \$5,000,000,000 which compares with one of \$4,900,000,000 in the first quarter.

Conditions of mortgage credit had eased during 1960 and at the turn of the year lending terms under the National Housing Act were liberalized. In these circumstances housing units started had begun to rise in the second half of 1960 and were at a very high level in the first quarter of 1961. These high levels were far from being maintained in the two following quarters. However, housing units started in the first nine months of 1961 were nearly 28 p.c. higher than in the like period of the previous year, but housing units completed were about 11 p.c. lower. By the third quarter, outlays for housing were running at an annual rate of \$1,600,000,000 when seasonal factors are taken into account, which represents a gain of about 5 p.c. from the annual rate for 1960 as a whole. Despite the improvement in 1961, expenditures for housing were well below the extremely high levels of 1958 and 1959.

Toward the end of the year further steps were taken to encourage housing when interest rates for loans financed under the National Housing Act were reduced from $6\frac{1}{2}$ to $6\frac{1}{2}$ p.c.

Consumer spending acted as an expansionary influence in 1961 on about the same scale as in 1960 when it rose about 4 p.c. The pattern of consumer purchases was much the same as in the previous year when there was only a

small increase in purchases of durable goods and a sizeable increase in spending for such services as shelter, medical care, and household operation, which for some time have tended to absorb a growing share of the consumer's dollar.

The operations of the government, in the course of the flows of income between the government and the private sector, provided support to the economy in 1961. The deficit on account of all governments, that is the excess of payments to the private sector over receipts from taxes and other sources of revenue, was almost twice as high as in the previous year.

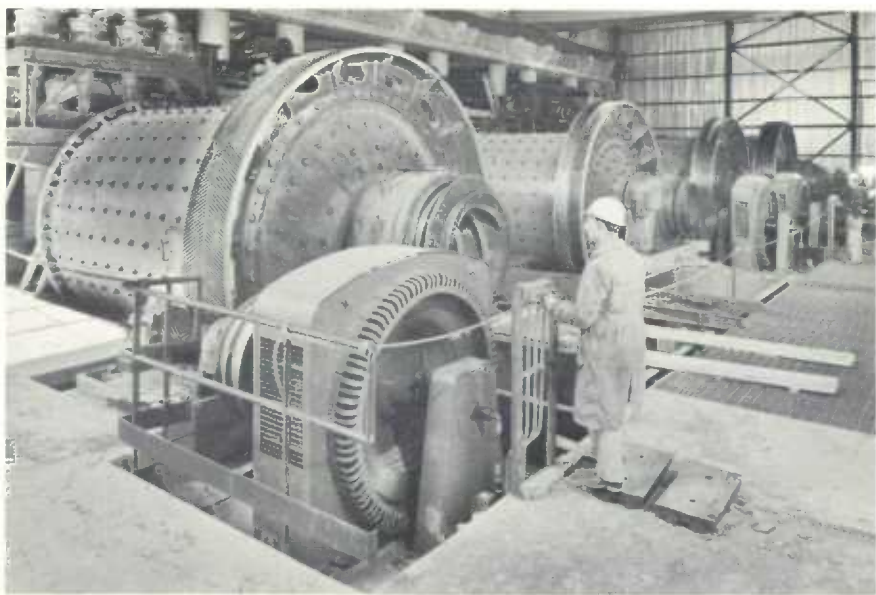
Income Flows

While corporate profits in 1961 showed very little change from the previous year, there was a very sharp change within the year as this extremely sensitive component of income reflected the progress of recovery from the depressed levels of the first quarter.

However, apart from recovery, corporate profits in the latter part of the year were pushed up by the decline in the exchange rate of the Canadian dollar which tended to raise in terms of Canadian dollar receipts the value of sales of a number of primary commodities.

In reflection of some gains in employment and a further advance in wage rates, the flow of income to wage and salary workers rose by $3\frac{1}{2}$ p.c. in 1961. Not all industries shared in the gain. There were fewer job opportunities in forestry, mining and construction, and income in these industries declined accordingly. As has been characteristic of the industrial composition of income flows in the recent past, much the largest gains occurred in the service industries where they were of the order of 9 p.c.; the gain of 7 p.c. in financial services was also relatively large. It is in these groups that the employment

Two rod mills and two ball mills used in grinding ore at a copper mine at Merritt, B.C. Copper is an important export and the opening up of new ore-bodies in British Columbia is contributing to the steady increase in value of exports.





Of great importance to a nation's economy are its public utilities which in recent years have had to expand to meet the needs of growing communities. In this circular building of the Public Utilities Commission in Stratford, Ontario, the various departments are spaced around the curved counter.

situation remained strong. In manufacturing, which had felt much of the impact of the 1960 down turn and where employment began to recover in the course of 1961, labour income was higher by nearly 2 p.c. In most other industries the advance in income was in the neighbourhood of 3 to 4 p.c.

Farm income in 1961 was down sharply, largely as a result of the severe drought in the Prairie Provinces. It is estimated that the physical volume of production of all farm commodities was off from the previous year by 25 p.c. The wheat crop was nearly 50 p.c. below that of 1960 and to the same extent below the 1951-1960 average. Crops of other grains were also decidedly smaller than those of the previous year.

Sales of wheat were nevertheless maintained at the 1960 level by drawing on existing stocks. Returns from livestock were well maintained as farmers marketed livestock as a means of coping with dry weather and short pastures. Thus farm cash income was more than maintained by a sharp drop in stocks of grain and in livestock numbers.

Production and Employment

While production turned up within the year, the year's average was only about 1 p.c. higher than in 1960. This estimate, however, takes into account the crop failure in the Prairie Provinces, which in value terms represents \$400,000,000, or about 1 p.c. of the gross national product. Among non-agricultural industries, almost all the increase was attributable to the service-producing industries.

Manufacturing output was very little higher, the losses in durables largely offsetting modest gains in non-durables. Likewise in mining production, there were partially offsetting changes, with a small increase in total. Production in forestry was considerably lower and in construction moderately lower.

The quickening tempo of economic activity in the latter part of the year is evident in production indicators. When seasonal factors are taken into account, manufacturing production rose $3\frac{1}{2}$ p.c. in the third quarter, bringing it somewhat above its previous peak in the first quarter of 1960 and 5 p.c. above the level of the first quarter of 1961. Despite a considerable advance in the third quarter the index of durable manufacturing was 5 p.c. below its record in the last quarter of 1956 when the demands of investors and consumers for durable goods was exceptionally higher.

The expansion in job opportunities in the course of 1961 raised the level of employment by $1\frac{1}{2}$ p.c. but the pattern of expansion during most of the year was such as to create more jobs for women than for men. Thus the number of women employed rose by 5 p.c. while the number of employed men was virtually the same as in the previous year. There was no increase in employment in agriculture and a sharp decline in job opportunities in other primary industries as well as some decline in construction and transportation. On the other hand, jobs in the service industries, where women are concentrated, increased by almost 6 p.c. The progress of recovery was such as to raise employment in manufacturing by 2 p.c., in contrast to a decline in the previous year.

The effect of quickening activity within the year is evidenced by the fact that when seasonal factors are taken into account the rate of unemployment in November had fallen to 6.1 p.c. of the labour force compared with its post-war peak of 7.9 p.c. in the previous March.

The first cluster of apartment buildings in one of Canada's most ambitious developments—Thornclyffe Park, built on the 300-acre site of the old Thornclyffe race track. Started in 1955, the development is expected to become a self-contained community of industries, apartment buildings, stores, schools and churches at an estimated total cost of \$100,000,000.



Source of Personal Income, Selected Years 1939-60

(Millions of Dollars)

Source	1939	1946	1950	1957	1958	1959	1960
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	16,018	16,524	17,761	18,514
Less: Employer and employee contributions to social insurance and government pension funds.....	-35	-149	-256	-590	-615	-649	-739
Military pay and allowances.....	32	340	137	476	491	496	509
Net income received by farm operators from farm production ¹	412	1,034	1,156	1,026	1,198	1,136	1,201
Net income of non-farm unincorporated business.....	475	1,072	1,439	2,008	2,125	2,218	2,105
Interest, dividends and net rental income of persons.....	570	817	1,268	2,141	2,288	2,559	2,696
Transfer payments to persons:							
From government (excluding interest).....	229	1,106	1,030	2,076	2,653	2,758	3,116
Charitable contributions by corporations.....	6	12	25	36	38	40	40
Personal Income.....	4,290	9,719	13,428	23,191	24,702	26,319	27,442

¹ This item differs from item five of the table on p. 199 in that it excludes the adjustment to take account of accrued net earnings arising out of the operations of the Canadian Wheat Board.

Disposition of Personal Income, Selected Years 1939-60

(Millions of Dollars)

Disposition	1939	1946	1950	1957	1958	1959	1960
Personal Direct Taxes:							
Income taxes.....	62	711	612	1,693	1,554	1,744	1,977
Succession duties.....	28	54	66	126	126	130	158
Miscellaneous.....	22	31	62	98	108	209	223
Total Personal Direct Taxes.....	112	796	740	1,917	1,788	2,083	2,358
Personal Expenditure on Consumer Goods and Services:							
Non-durable goods.....	2,186	4,829	6,711	10,402	10,878	11,315	11,783
Durable goods.....	312	596	1,451	2,430	2,499	2,680	2,687
Services.....	1,486	2,606	3,864	7,240	7,863	8,487	8,939
Total Personal Expenditure on Consumer Goods and Services.....	3,984	8,031	12,026	20,072	21,240	22,482	23,409
Personal Saving:							
Personal saving excluding farm inventory change.....	140	878	583	1,327	1,767	1,819	1,658
Value of physical change in farm inventories.....	54	14	79	-125	-93	-65	17
Total Personal Saving.....	194	892	662	1,202	1,674	1,754	1,675
Personal Income.....	4,290	9,719	13,428	23,191	24,702	26,319	27,442
Personal Disposable Income¹.....	4,178	8,923	12,688	21,274	22,914	24,236	25,084

¹ Personal income less total personal direct taxes.

National Income and Gross National Product, Selected Years 1939-60

(Millions of Dollars)

Item	1939	1946	1950	1957	1958	1959	1960
Income							
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	16,018	16,524	17,761	18,514
Military pay and allowances.....	32	340	137	476	491	496	509
Corporation profits before taxes ¹	521	1,269	2,118	2,581	2,518	2,907	2,735
Rent, interest and miscellaneous investment income.....	301	581	890	1,980	2,124	2,277	2,362
Accrued net income of farm operators from farm production.....	362	1,056	1,322	1,026	1,197	1,132	1,207
Net income of non-farm unincorporated business including independent professional practitioners.....	475	1,072	1,439	2,008	2,125	2,218	2,105
Inventory valuation adjustment.....	-56	-254	-374	-78	-35	-115	-57
Net National Income at Factor Cost.....	4,236	9,551	14,161	24,011	24,944	26,676	27,375
Indirect taxes less subsidies.....	734	1,270	2,000	3,861	3,889	4,244	4,389
Capital consumption allowances and miscellaneous valuation adjustments.....	637	998	1,913	4,009	3,930	4,143	4,291
Residual error of estimate.....	29	31	-68	28	104	-206	-96
Gross National Product at Market Prices.....	5,636	11,850	18,006	31,909	32,867	34,857	35,959

¹ Excludes dividends paid to non-residents.

Gross National Expenditure, Selected Years 1939-60

(Millions of Dollars)

Item	1939	1946	1950	1957	1958	1959	1960
Personal expenditure on consumer goods and services.....	3,984	8,031	12,026	20,072	21,240	22,482	23,409
Government expenditure on goods and services ¹	683	1,796	2,344	5,722	6,173	6,416	6,716
Business gross fixed capital formation ²							
New residential construction.....	174	368	883	1,409	1,763	1,734	1,476
New non-residential construction.....	164	435	1,042	3,103	2,811	2,589	2,567
New machinery and equipment.....	254	585	1,423	2,823	2,401	2,571	2,569
Value of physical change in inventories:							
Non-farm business inventories.....	101	360	399	305	-207	351	229
Farm inventories and grain in commercial channels.....	181	-27	151	-74	-126	-54	87
Exports of goods and services.....	1,451	3,210	4,183	6,391	6,340	6,676	6,957
Less: Imports of goods and services.....	-1,328	-2,877	-4,513	-7,813	-7,423	-8,115	-8,148
Residual error of estimate.....	-28	-31	68	-29	-105	207	97
Gross National Expenditure at Market Prices.....	5,636	11,850	18,006	31,909	32,867	34,857	35,959

¹ Includes outlays on new durable assets such as building and highway construction by governments, other than government business enterprises; includes also net purchase of government commodity agencies. ² Includes capital expenditures by private and government business enterprise, private non-commercial institutions and outlays on new residential construction by individuals and business investors.



The thunder of explosive shatters the stillness of the hinterland or roars above the clamour of a city to herald yet another achievement in the seemingly endless programs of construction across the country.

Capital Investment

Investments are expenditures made on capital goods, which, by definition, are not bought for current consumption; they are factories, stores, hospitals, mines, office buildings, railways, power installations, pipelines, telephone lines and the tools, machinery and equipment used in producing goods or services for future consumption. The term investment, as used here, does not designate the purchase of securities.

The buyers of capital goods are individuals when they buy new houses, business men when they acquire new plants and equipment, and governments when they make outlays on roads, canals, office buildings, waterworks.

The process of investment or capital formation is a vital activity of the national economy. A large proportion of the Canadian labour force is engaged in capital goods industries and its full and continued employment depends upon the economy's demands for capital goods. The level of demand for consumers' goods is partly determined by the needs and the purchasing power of the men and women employed in the capital goods industries; the level of employment in the consumers' goods industries is, of course, contingent upon the demand for such goods. Hence, a decrease in investment will bring about a reduction of employment not only in the capital goods industries, but in the consumers' goods industries as well.

The size and quality of the nation's stock of capital goods determines to a large extent its standard of living and is a governing factor in labour productivity. Maintaining the stock of capital goods contributes to maintenance of standard of living and there is hope of improving it when additions to the stock of capital goods are made or when modernization takes place.

The rate of capital spending indicates the extent to which an economy is providing for the future or, in other words, is becoming industrialized; it also reflects changes in the opinion of the business community as to future prospects, and of government, as to future demands for their services.

Total capital expenditures in Canada for 1961 were expected to reach \$8,336,000,000, an increase of \$136,000,000 or 1.7 p.c. over 1960. The increase is wholly accounted for by a larger construction program which, at

\$5,689,000,000, would exceed the previous year's expenditures by 3.7 p.c. On the other hand, expected purchases of machinery and equipment totalling \$2,647,000,000 were \$66,000,000 or 2.4 p.c. lower than in 1959.

Total capital expenditures kept climbing throughout most of the years since 1950 and reached a record level of more than \$8,700,000,000 in 1957; they declined to less than \$8,400,000,000 the following year and since then they have varied within a fairly narrow range.

Private and Public Capital Expenditures, 1950-61

Year	Construction	Machinery and Equipment	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'100,000	
1950.....	2,453	1,483	3,936	21.9
1951.....	2,871	1,868	4,739	22.4
1952.....	3,434	2,057	5,491	22.9
1953.....	3,756	2,220	5,976	23.9
1954.....	3,737	1,984	5,721	23.0
1955.....	4,169	2,075	6,244	23.0
1956.....	5,273	2,761	8,034	26.3
1957.....	5,784	2,933	8,717	27.4
1958.....	5,830	2,534	8,364	25.7
1959.....	5,709	2,708	8,417	24.3
1960 ¹	5,487	2,713	8,200	22.8
1961 ²	5,689	2,647	8,336	—

¹ Preliminary estimates.
² Original intentions.

In recent years, there has been a gradual shift from business spending to investment in social capital (housing, institutional services, government departments and waterworks). Whereas from 1958 onwards, each year has ex-

Many contractors make use of the Builders' Exchange, where plans prepared for tenders are deposited. In this plan room, estimators for plumbers, plasterers, electricians, painters and others study the specifications and prepare bids.





These workmen, working under compressed air, are placing a metal lining in a tunnel bored through clay to house a collector sewer. Later the entire tunnel will be lined with concrete.

perienced a decrease in the rate of business spending, in the same period the rate of spending for social capital has followed the opposite trend, as it has increased every year except 1960.

Business spending has declined from a peak of \$5,654,000,000 in 1957 to an expected \$4,625,000,000 in 1961, an 18.2 p.c. decrease; outlays on housing and social capital are higher by 21 p.c., having progressed from \$3,063,000,000 to an anticipated \$3,711,000,000.

In 1957, business spending represented 64.8 p.c. of all capital outlays in Canada; in 1961 this proportion was expected to be reduced to 55.5 p.c. of all capital outlays.

In the business sector for 1961, the largest decline in capital spending was anticipated in the transportation industry. Several factors contributed: the completion of major railway lines serving new mining areas; the lesser requirements of new railway rolling stock; the fact that in 1961 the commercial airlines re-equipment program involved less outlay. The most significant increase in capital outlays in the business sector was expected in the fuel and power industries. Increased expenditures were planned for new pipelines and associated facilities related to the transportation of natural gas for domestic or export purposes. Moderately increased expenditures were also planned by the power companies.

The increased strength of institutional investment was largely expected from a much expanded hospital program. Also contributing was the accelerated expansion of the universities.

Private and Public Capital Expenditures, by Sector, 1957-61

Sector	1957	1958	1959	1960 ¹	1961 ²
	\$'000,000				
Business Capital (excluding Housing):					
Forest and Mineral Products.....	1,241	715	728	822	811
Fuel and Power.....	1,559	1,329	1,044	1,038	1,114
Trade, Finance and Commercial Services....	690	705	833	787	783
Transportation, Storage and Communication	1,054	1,073	1,025	964	811
Other.....	1,110	1,048	1,171	1,165	1,106
Totals.....	5,654	4,870	4,801	4,776	4,625
Housing and Social Capital:					
Housing.....	1,430	1,782	1,752	1,489	1,569
Institutional Services.....	455	514	536	576	696
Govt. Depts. and Waterworks.....	1,178	1,198	1,328	1,359	1,446
Totals.....	3,063	3,494	3,616	3,424	3,711
Total Capital Expenditures.....	8,717	8,364	8,417	8,200	8,336

¹ Preliminary.

² Intentions.

At Carillon, Quebec, construction of the new generating station, expected to go into operation in December 1962, with a capacity of 840,000 hp., proceeds. Canada ranks second in the world in installed horsepower.





High-speed, limited-access roads are made necessary by the tremendous increase in motor traffic. Here the Homer Skyway—part of the Queen Elizabeth Highway—rises over the Welland Canal at St. Catharines, Ontario.

Private and Public Capital Expenditures, by Province, 1959-61¹

Province		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Newfoundland.....	1959	84	31	115
	1960	118	32	150
	1961	139	37	176
Prince Edward Island.....	1959	25	12	37
	1960	23	11	34
	1961	20	11	31
Nova Scotia.....	1959	161	65	226
	1960	158	65	223
	1961	161	74	235
New Brunswick.....	1959	137	66	203
	1960	127	60	187
	1961	107	53	160
Quebec.....	1959	1,460	634	2,094
	1960	1,313	647	1,960
	1961	1,350	594	1,944
Ontario.....	1959	1,904	996	2,900
	1960	1,851	985	2,836
	1961	1,921	982	2,903
Manitoba.....	1959	315	169	484
	1960	337	176	513
	1961	315	144	459
Saskatchewan.....	1959	273	194	467
	1960	289	175	464
	1961	300	185	485
Alberta.....	1959	676	271	947
	1960	678	278	956
	1961	782	268	1,050
British Columbia ²	1959	674	270	944
	1960	593	284	877
	1961	594	299	893
Canada.....	1959	5,709	2,708	8,417
	1960	5,487	2,713	8,200
	1961	5,689	2,647	8,336

¹ 1959: Actual expenditures.

1960: Preliminary estimates.

1961: Original intentions.

² Includes Northwest Territories and Yukon.



The first two buildings (Arts and Education, and Science and Engineering) on the 320-acre campus of the University of Alberta, Calgary, completed late in 1960 at a cost of \$4,000,000.

New buildings are springing up on university campuses all through the land. In the four-year period 1955-56 to 1958-59, funds for university construction amounted to approximately \$218,000,000, of which 51 p.c. was received from provincial governments, 28 p.c. from individuals, corporations and foundations, 8 p.c. from the Federal Government, and 13 p.c. from bond and debenture issues, churches, municipal governments, endowment income and sale of land and buildings. It is estimated that \$100,000,000 a year will be spent on university construction between 1960 and 1965.



The Buchanan Building, centre of liberal arts studies at the University of British Columbia, Vancouver, was the first building completed under a \$35,000,000 development plan begun in 1958. Total cost was \$3,000,000, half of which came from federal funds through the Canada Council.

The science building on the new \$14,000,000 Memorial University campus in St. John's, Newfoundland. Except for a \$1,000,000 contribution from the Canada Council, the cost was met by the provincial government.



➤ The new Arts Building at the University of Saskatchewan in Saskatoon.



Housing

The contemporary home is more than a mere weather-proof enclosure. Urgent post-war demands for shelter having been met, today's builder must satisfy wants as much as needs; the buyer looks for better design, larger rooms, adequate facilities for both individual and family pursuits and a variety of the latest examples of living conveniences.

There is also a growing desire for beauty as well as convenience—a desire that extends beyond the walls and through the windows into the surroundings beyond. Treed and landscaped lots, co-ordinated exterior designs and finishes and buried utility wiring are features appearing with increasing frequency in the highly competitive subdivision advertisements of 1961. Shops and churches, schools and parks combine to accentuate the community aspect, the cohesive and related aspects of contemporary suburban (and urban) living.

Housing legislation has played a leading role in the evolution of the Canadian habitat. Through the facilities of the National Housing Act, which is administered by Central Mortgage and Housing Corporation, housing agency of the Federal Government, much has been accomplished. By constant research the trends and demands of the public are determined and measured. Better design is encouraged and promoted. Meeting the requirements of a changing and fluctuating market, the Act stimulates and directs the flow of funds so vital to housing.

In September, 1960, Parliament approved several amendments to the NHA, including provisions specifically designed to widen the housing market while answering new housing needs. Reaction was vigorous. Before the autumn of 1961 urban dwelling starts exceeded those for the same period of 1960 by 29 p.c.

Total NHA lending activity in the field of residential construction at 45,150 dwelling units was up more than 172 p.c. Of this total, approved lenders operating under the NHA were responsible for 26,702 dwelling units and direct public funds invested by Central Mortgage and Housing Corporation accounted for 18,448 units.

In the limited-dividend sector response during 1961 was lively and sustained. Accommodation for minimum rental to the elderly and others whose incomes bar them from the general housing market increased by more than 475 p.c. in the first eight months of 1961.

With the health of two thirds of the nation's populace threatened by polluted waters, conservation measures were urgently required. The only effective answer was completely to overhaul the average municipal sewage system and install modern disposal equipment. Accordingly, the National Housing Act was changed to permit sewage construction loans to combat the pollution menace and \$100,000,000 was appropriated for the purpose.

So successful was this measure, that by September, 1961 Parliament voted another \$100,000,000 into the fund: \$44,000,000 had already been allocated for 106 approved loans and an additional 14 applications were being processed. Preliminary enquiries from 203 other municipalities were also on hand, representing another \$70,000,000 in potential loans. For the first time many of the smaller communities were thus enabled to install adequate, modern sanitation facilities.



Whether it is a bungalow in Vancouver, an apartment building with a swimming pool in Winnipeg or row housing in Halifax, new residences continue to spring up, either as redevelopment of slum areas or as extensions into suburban areas.



In 1960, Central Mortgage and Housing Corporation gained another new responsibility in administering the NHA: university residence loans.

As higher education became available to an ever increasing number of students during recent years, a new problem was growing to such proportions that it was forming, for many matriculants, a new barrier to a complete education. This was the lack of residential accommodation for the university student.

Low interest NHA loans covering up to 90 p.c. of construction costs and repayable over terms of up to 50 years provided a practical answer. By September of 1961, under the terms of the new legislation, 16 universities and colleges across the country were building residential accommodation for their



Eskimos at Frobisher Bay on Baffin Island erect a 16' x 16' rigid frame house as part of the Federal Government's ten-year program of providing low-cost Eskimo housing. This model costs about \$500 at Montreal.

students. Approved applications and preliminary enquiries represented potential housing for almost 8,000 students and a loan requirement of \$35,000,000. Consequently, the original \$50,000,000 allocated by Parliament for this work was raised to \$100,000,000.

Canada's urban skyline underwent further changes as work was started, continued or completed in federal-provincial projects across the nation. Mulgrave Park in Halifax was officially opened on June 1 and, during 1961, work continued on Westwood Park, also in Nova Scotia's capital city. On the west coast, Vancouver's fifth federal-provincial housing project was the subject of an agreement between Ottawa and Victoria, and will ultimately result in 140 homes for some of Vancouver's older citizens. CMHC will be responsible not only for financial assistance but also for design and construction. Work also continued on the MacLean Park and Skeena Street projects in the same city. Another agreement provided for construction of a 42-unit low rental housing project in Oshawa, while blueprints born of other, earlier agreements were transformed into new buildings in Sarnia, Toronto and Saint John.

However, before such programs commence, careful study and analysis are necessary to ensure effective and efficient planning. An important part of the Corporation's work each year involves financial assistance to municipalities for urban renewal studies and community planning. In 1961 more than \$200,000 in grants was approved for redevelopment surveys, community planning and housing studies, in cities from coast to coast. Recipients included the Canadian Welfare Council; the Province of Manitoba; the University of Saskatchewan; and the cities of Hull, Niagara Falls, Winnipeg, Calgary and Vancouver.

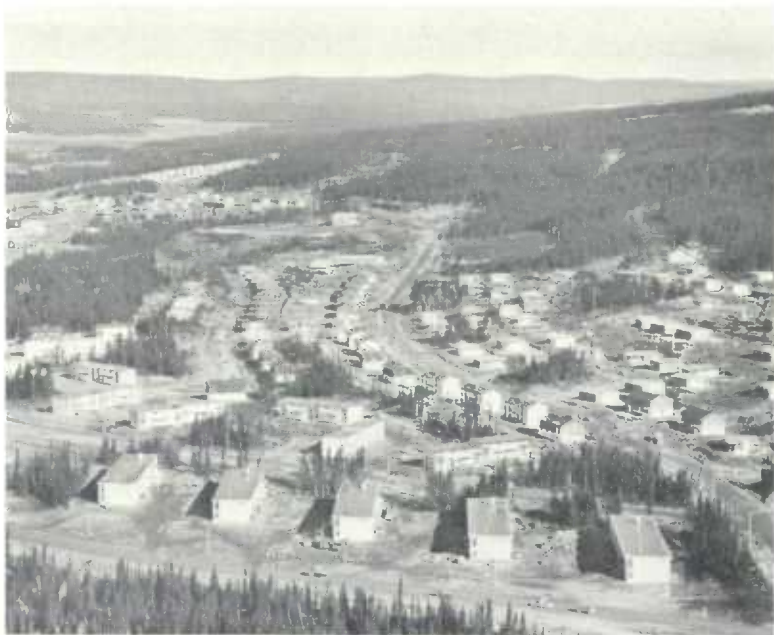
Urban renewal studies may show that renovation and conversion of the buildings will provide the answer in an area that has outlived its original purpose. On the other hand, the decay may be such that only total demolition and clearance will provide the means of rejuvenating the area. Since 1957, over \$16,500,000 has been allocated from the national treasury for this purpose. In 1961, the Halifax renewal program gained impetus with a grant of \$375,000 for the acquisition and clearance of another four acres of decay in its downtown area. In the first project of its kind in Manitoba, Winnipeg was granted more than \$3,000,000 to clear 48 acres of its slums in an ambitious program of urban redevelopment.

During 1961 work was completed on the multi-million dollar redevelopment project in Montreal, Les Habitations Jeanne-Mance. Built under federal-provincial partnership arrangements, the project, covering twenty acres and occupying six city blocks, provided 796 housing units, ranging from one-bedroom apartments to five-bedroom row houses.

Central Mortgage and Housing Corporation is especially concerned about improving housing design and environment. To encourage progress in this field, scholarships, grants and competitions are sponsored for both student and graduate architects and planners.

In addition, CMHC supports organizations such as the Canadian Housing Design Council—dedicated to the improvement of housing design in Canada—and the Community Planning Association of Canada, which endeavours to stimulate public awareness of the importance of thoughtful community planning and development.

Typical of the housing developments that have sprung up near mining sites, this townsite of Gagnonville, Quebec, is 200 miles north of the St. Lawrence River.





With the major trends in retail trade towards increasing automation, self-service and mass turnover, specialty shops such as this one, supporting hand industries, can survive only in luxury tourist areas.

Domestic Trade

Many kinds of businesses are engaged in domestic trade. Wholesale houses, retail stores, hotels, theatres, laundries and dry cleaners, transportation firms, banks, insurance companies and storage warehouses all perform functions which make it possible for raw materials needed by industries, household merchandise and services of various kinds to be distributed within the country.

The structure of domestic trade is always changing and the past decade probably has witnessed more changes than has any comparable period. Complete knowledge of these changes will not be available until 1963, when

the 1961 census of merchandising and service establishments will have been completed and analyzed. The census and investigations which will follow it have been designed to point up significant structural changes in domestic trade and to emphasize the nature and costs of the many new services provided to business firms, households and individuals.

There is a tendency for retail and manufacturing firms to extend their operations into the wholesaling field. As retail organizations increase in size, it becomes necessary for them to buy merchandise in large quantities. Consequently, some retailers have found it profitable to buy directly from the producer. As products, especially machinery and equipment, become more and more complicated, they require installation and maintenance services by factory-trained technicians. Hence, it is often desirable for the contact between the final buyer and manufacturer to be as direct as possible. Nevertheless, the volume of wholesale trade appears to have increased during the intercensal interval 1951-1960 at about the same rate as retail trade. This leads to the conclusion that other developments, such as the sponsoring of voluntary chain groups of independent retailers by wholesale firms and an increasing volume of industrial raw materials passing through the markets, have had compensating effects. The 1961 Census is designed to reveal very specific information about these changes.

The growth of shopping centres in Canada has been very rapid. In 1950 there were only two shopping centres in operation, one in Quebec and one in British Columbia. By 1959 there were 193 shopping centres with sales for that year of \$627,719,173.

Situated on a hillside in Burnaby, B.C., this shopping-centre, opened in August 1961, is built on a split-level design providing drive-up access to all three floors.





Automatic retail vending enters new fields every year. This unit, located in apartment houses, service stations and in suburban developments enables people to pick up groceries quickly at any hour of the day or night. Between 1958 and 1960 the number of automatic vending machines in Canada jumped from 26,952 to 46,072, while sales rose from \$22,573,451 to \$38,250,840.

The retail chain store development continued during the decade. The proportion of sales made by retail chain stores (excluding voluntary chain groups of independent retailers) to total retail trade has increased from 16.6 p.c. in 1951 to 20.1 p.c. in 1959. Chain stores in the grocery and combination trade accounted for about 46 p.c. of the sales of this trade in 1960.

There has been a rapid development of selling through vending machines. Between 1958 and 1959 the sales of specialist firms who make a business of supplying and servicing machines in various locations increased 28.1 p.c., from \$26,331,368 to \$33,741,939. The 1961 Census will reveal information about the other segment of vending machine business, i.e., machines operated in restaurants, hotels, etc., by the owners of these businesses, as well as other kinds of coin-operated machines found in public places.

Certain classes of merchandise are sold directly to the household consumer by the producer, usually through agents. It appears at the present time that sales to the extent of up to \$300,000,000 are made annually through this type of merchandising and that the practice is increasing.

The service trades are becoming a more important factor in the Canadian economy. Hotels and motels comprise one of the largest service industries in Canada. Receipts of hotels have risen from \$357,000,000 in 1951 to \$517,000,000 in 1959. It is expected that the 1961 Census will reveal a very large growth in coin-operated laundries, eating and drinking places, places of amusement and other kinds of businesses offering services hitherto performed by the householder. For example, it is known that the number of power laundries and dry cleaning plants have increased from 1,298 in 1951 to 1,813 in 1959 and that receipts of these businesses have grown from about \$97,000,000 to \$160,000,000. On the other hand motion picture theatre business has fallen

off during the period. In 1951, before the advent of television on a large scale in Canada, there were 1,808 regular auditorium type theatres and 82 drive-in theatres with total admissions of nearly 246,000,000. In 1959 there were 1,515 regular theatres and 234 drive-ins with only 129,000,000 admissions. Receipts fell from about \$94,000,000 in 1951 to \$75,500,000 in 1959.

Estimates of Wholesale Sales, 1957-60

Kind of Business	1957	1958	1959	1960 ¹
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	237.2	263.5	279.5	291.4
Groceries and food specialties.....	1,263.8	1,385.1	1,544.5	1,657.3
Meat and dairy products.....	152.0	175.0	171.3	176.7
Clothing and furnishings.....	116.9	123.6	120.0	117.1
Footwear.....	30.9	33.5	37.1	37.7
Other textile and clothing accessories.....	200.7	214.8	230.2	230.0
Coal and coke.....	183.0	163.6	155.9	148.2
Drugs and drug sundries.....	184.7	198.5	216.6	221.1
Newsprint, paper and paper products.....	251.8	241.9	262.8	274.8
Tobacco, confectionery and soft drinks.....	635.8	679.2	723.4	749.3
Automotive parts and accessories.....	342.1	363.9	407.9	411.2
Commercial, institutional and service equipment and supplies.....	105.1	109.3	130.2	135.8
Construction materials and supplies including lumber.....	779.6	825.2	964.4	897.6
Farm machinery.....	56.1	68.5	84.9	73.5
Hardware.....	315.2	308.8	317.6	317.5
Household electrical appliance.....	161.3	166.4	181.4	179.6
Industrial and transportation equipment and supplies.....	796.4	799.0	797.7	744.4
All other trades.....	1,878.9	1,875.9	2,145.2	2,215.6
Totals.....	7,691.5	7,905.7	8,752.6	8,878.8

¹ Preliminary.

Members of the National Design Council meet for the first time since the transfer of the Council from the National Gallery to the Department of Trade and Commerce in 1961. The Council's objective is to stimulate interest in good product design through setting high standards of design and quality, providing Design Awards and administering a scholarship program to encourage the study and teaching of good design in Canada.



Retail Statistics. Estimated retail sales totalled \$16,413,500,000 in 1960, an amount 0.8 p.c. higher than the 1959 figure. Variety stores registered the largest increase in sales from the previous year with a gain of 5.5 p.c.

Retail Store Sales by Type of Business and by Province, 1958-60

Type of Business and Province	Sales			Percentage Change 1959-60
	1958	1959	1960 ¹	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and combination stores.....	3,125.9	3,287.3	3,430.6	+4.4
Other food and beverage stores.....	1,119.7	1,177.5	1,211.8	+2.9
General stores.....	624.7	629.8	636.1	+1.0
Department stores.....	1,345.3	1,420.0	1,447.6	+1.9
Variety stores.....	315.1	330.6	348.8	+5.5
Motor vehicle dealers.....	2,413.6	2,613.4	2,612.6	²
Garages and filling stations.....	1,036.7	1,103.6	1,097.5	-0.6
Men's clothing stores.....	237.6	249.9	249.6	-0.1
Family clothing stores.....	226.6	225.8	233.4	+3.3
Women's clothing stores.....	265.0	273.2	275.1	+0.7
Shoe stores.....	146.3	155.0	161.3	+4.1
Hardware stores.....	317.8	326.4	320.3	-1.9
Lumber and building material dealers.....	481.6	492.3	439.5	-10.7
Furniture, radio and appliance stores.....	565.8	581.1	551.6	-5.1
Restaurants.....	542.8	566.7	552.8	-2.5
Fuel dealers.....	326.3	341.8	324.9	-4.9
Drug stores.....	382.7	405.1	408.7	+0.9
All other stores.....	1,970.8	2,104.1	2,111.3	+0.3
Totals.....	15,444.3	16,283.6	16,413.5	+0.8
Province				
Atlantic Provinces.....	1,290.1	1,361.6	1,416.5	+4.0
Quebec.....	3,646.7	3,877.6	3,958.4	+2.1
Ontario.....	5,934.4	6,218.4	6,258.1	+0.6
Manitoba.....	753.6	812.9	826.7	+1.7
Saskatchewan.....	913.5	950.9	937.1	-1.4
Alberta.....	1,274.8	1,355.1	1,354.9	²
British Columbia (incl. Yukon and N.W.T.).....	1,631.2	1,707.1	1,661.8	-2.7

¹ Preliminary.

² Less than 0.05 p.c.

Customers swarm through one of 24 discount department stores which have opened since October, 1960. By 1964 the eight discount retailers now in the field expect to have 90 outlets across Canada. By building these warehouse-like stores on low-tax land in the suburbs (outside early closing regulations) and keeping them open six nights a week, providing plenty of free parking-space, eliminating special services and buying directly from manufacturers in bulk, these stores have set in motion a retail revolution.



A plastic dump truck is examined by a member of the Canadian Toy Testing Council at an exhibition of toys and playthings held in 1961. The Council tests toys as to their design, safety and suitability to age of the child for whom it is created.



Chain Store Statistics, 1953-59

Year	Stores	Retail Sales	Salaries of Store Employees	Stocks on Hand End of Year		Accounts Outstanding End of Year
				Store	Warehouse	
	Av. No.	\$'000	\$'000	\$'000	\$'000	\$'000
1953.....	7,835	2,048,228	171,167	179,704	52,096	91,538
1954.....	8,136	2,146,635	181,509	191,049	57,814	102,747
1955.....	8,274	2,353,955	199,611	205,833	63,120	127,362
1956.....	8,559	2,647,055	221,136	232,392	72,183	143,357
1957.....	8,822	2,841,569	242,979	248,284	78,521	148,506
1958.....	9,122	3,073,147	262,456	265,862	78,512	158,232
1959.....	9,491	3,280,263	285,691	282,530	80,440	162,453

Sales of new passenger cars reached an all-time high during 1960 with 447,771 units sold for a total of \$1,289,073,000. The financing of new passenger vehicle sales by sales finance companies covered 36.7 p.c. of new car sales in 1960, the lowest proportion to date.

New Passenger Car Sales and Financing, 1954-60

Year	Sold		Financed		P.C. of Total Sales Financed	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000		\$'000		
1954.....	310,546	797,554	126,099	230,900	40.6	29.0
1955.....	386,962	1,023,351	156,191	305,069	40.4	29.8
1956.....	408,233	1,128,640	190,109	408,993	46.6	36.2
1957.....	382,023	1,087,620	171,904	385,043	45.0	35.4
1958.....	376,723	1,110,724	147,402	335,827	39.1	30.2
1959.....	425,038	1,240,961	158,022	371,392	37.2	29.9
1960.....	447,771	1,289,073	164,335	377,851	36.7	29.3



To keep the machinery of business turning, hundreds of thousands of office workers record and maintain information vital to the economy.

Consumer Credit. Credit has become an integral part of the distribution of goods and services and of the buying habits of a large percentage of Canadians. The extension of credit to consumers, even as the extension of credit to business men, is the quickest means by which they can expand their assets. It is, in effect, a form of compulsory saving and an important stimulus to industry.

Whether or not the securing of easy credit is an advantage to the individual, the fact remains that the amount of consumer debt increased more than 500 p.c. in the period 1946 to 1960 while retail sales, the source of most of this credit, increased only 180 p.c. The following figures of credit outstanding do not include real estate credit or other avenues of credit such as that given by service trades, professionals, loans between individuals, etc.

Consumer Credit Outstanding (estimates of selected items), 1955-61

Date	Charge Accounts	Instalment Credit			Cash Personal Loans ¹	Total Selected Items
		Retail Dealers	Finance and Loan Companies	Total		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1955—Dec. 31.	374	377	605	982	722	2,078
1956— " " " " " "	389	409	769	1,178	789	2,356
1957— " " " " " "	382	444	795	1,239	781	2,402
1958— " " " " " "	371	490	787	1,277	947	2,595
1959—Mar. 31.	330	456	770	1,226	1,006	2,562
June 30.	332	458	824	1,282	1,126	2,740
Sept. 30.	347	466	851	1,317	1,191	2,855
Dec. 31.	391	524	844	1,368	1,178	2,937
1960—Mar. 31.	342	495	830	1,325	1,177	2,844
June 30.	345	506	889	1,395	1,284	3,024
Sept. 30.	867		896	?	1,334	3,097
Dec. 31.	960		871	?	1,374	3,205
1961—Mar. 31.	882		827	?	1,394	3,103
June 30.	894		841	?	1,489	3,224

¹ Exclusive of loans extended by credit unions.

² Not available.

Retail Prices

The 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 item, a price index number is simply the price of the item 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 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 2 to 6 persons, with incomes of \$2,500-\$7,000, living in cities of 30,000 population or over. The basket, weighted at 100, consists of the following components with their relative weights: food (27); housing, including shelter and household operation (32); clothing (11); transportation (12); health and personal care (7); recreation and reading (5); tobacco and alcohol (6).

Between 1949 and 1961, the index of consumer prices rose 29.2 p.c., from 100 to 129.2. Much of this increase occurred during two distinct periods, the Korean War (1951-52) and the investment boom of 1955-57. Between 1950 and 1952, the index rose from 102.9 to 116.5 or an increase of 13.2 p.c., while between 1955 and 1958 the index moved from 116.4 to 125.1, an increase of 7.5 p.c. Thus, over two-thirds of the 29.2 p.c. rise in consumer prices between 1949 and 1961 occurred in these two periods.

Consumer Price Index Numbers, 1949-1961

(1949 = 100)

Year	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation and Reading	Tobacco and Alcohol	All Items
1949.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	102.6	104.1	99.7	105.4	101.8	102.0	102.7	102.9
1951.....	117.0	113.7	109.8	113.0	111.0	109.7	111.5	113.7
1952.....	116.8	118.0	111.8	117.4	117.8	115.7	113.3	116.5
1953.....	112.6	120.0	110.1	119.2	120.1	116.7	108.0	115.5
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

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. The General Wholesale Index includes prices mainly of manufacturers but wholesalers proper, assemblers of primary products, agents and others who trade in commodities of a type, or in quantities characteristic of primary marketing functions, are also included. In the



From the daily staple such as bread to luxurious restaurant dining, food costs represent an important part of every family's budget.

Purchases of food for home consumption represent 27 p.c. of the components making up the consumer price index.



Canadian women love furs, and "little furs"—capes, stoles and scarves—are very much in vogue. Canada imports almost as many furs as she exports: \$23,458,000 in 1960 compared with an export value of \$24,716,000.

General Wholesale Index prices are grouped according to a commodity classification scheme based on chief component materials. In addition, indexes classified according to degree of manufacture are available. In the table below, the General Wholesale Index is presented for the period 1951-61. Also presented are price indexes for two major price groups of commodities within the General Wholesale Index, namely, raw and partly manufactured and fully and chiefly manufactured. Also shown is an index for non-farm products within the Wholesale Index.

General wholesale price indexes have been calculated by most countries for many years but the question "What does a general wholesale price index measure?" cannot be given a precise answer. A retail price index can be identified with consumer expenditure, but a general wholesale index covers a much wider range; yet it is not a measure of the purchasing power of money since it does not include prices of land, labour, securities or services, except in so far as prices of these things enter into commodity prices. As a conventional summary figure, its use is as a reference level 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.

Recently, the Dominion Bureau of Statistics introduced a new system of "wholesale price indexes" called Industry Selling Price Indexes 1956=100 which refers exclusively to manufacturing industries. The foremost objective of this system is to provide measurements of price movements which occur in industries as defined under the Standard Industrial Classification. Thus, they are co-ordinated with the many other statistics which are organized according to this industry scheme of classification. In addition, the system includes price indexes for the most important products of the industries concerned. There are approximately 100 industry and 175 commodity indexes published.

Movements of Wholesale Prices. The General Wholesale Index rose 1 p.c. from 230.9 in 1960 to 233.5 in 1961. Thus there was a return to the gradual annual increase which stalled between 1959 and 1960 when the index remained virtually unchanged.

The raw and partly manufactured product index increased 2.5 p.c. from 209.6 to 212.3 and as such exceeded the increase of 10.5 p.c. shown by the fully and chiefly manufactured products index. The non-farm products group, which contains more commodities common to the latter than the former, also increased 0.5 p.c. from 237.0 to 239.0 from 1960 to 1961.

Selected Wholesale Price Indicators, 1951-61

(1935-39 = 100)

Year	(A) ¹ General Wholesale Index	(B) Raw and Partly Manufactured Goods	(C) Fully and Chiefly Manufactured Goods	(D) ² Non-farm Products
1951.....	240.2	237.9	242.4	233.2
1952.....	226.0	218.7	230.7	226.0
1953.....	220.7	207.0	228.8	223.3
1954.....	217.0	204.8	224.2	219.6
1955.....	218.9	209.7	224.5	225.9
1956.....	225.6	215.8	231.5	235.7
1957.....	227.4	209.4	237.9	236.0
1958.....	227.8	209.3	238.3	233.0
1959.....	230.6	210.9	241.6	236.0
1960.....	230.9	209.6	242.2	237.0
1961.....	233.3	212.6	244.5	239.0

¹ (B) and (C) comprise (A).² (D) is (A) less Animal and Vegetable Products.

Co-operatives

The Canadian co-operative movement continued to expand during 1960. The volume of business carried on by Canada's 2,883 co-operative associations during the year ended July 31, 1960 totalled \$1,406,675,000, an increase of \$42,923,000 over the previous year.

Increasing attention is given to urban consumers among whom the movement anticipates the greatest growth in the future. There is a growing tendency for rural people to do their buying in urban shopping centres and they are evincing interest in the development of co-operatives in urban areas.



On May 5, 1961, the first teletype hog auction was held by the Ontario Hog Producers' Co-operative which sells nearly all hogs in the province. Hogs ready for market are trucked from farms to the nearest assembly yards, where the manager notifies the Hog Co-op in Toronto by teletype. From there information on market offerings is teletyped to 17 offices of Ontario pork packers. Over the same system packers transmit their bids back. At times of peak runs, lots of 75 or so are sold every 60 seconds. In the first week of operation, 46,444 hogs were sold by teletype.

A polar bear skin is brought to the co-operative store at Port Burwell, N.W.T. by an Eskimo who will trade it for other goods.



There is also evidence of growing interest in co-operation among trade unionists.

Marketing co-operatives are still the largest part of the Canadian co-operative movement and reported sales of farm products of \$972,000,000 in 1960. Co-operative sales of farm products total more than 33 p.c. of the total value of all agricultural products marketed in Canada. By commodity groups the percentages handled by co-operatives were 72 p.c. of wool, 56 p.c. of grains, 54 p.c. of honey, 49 p.c. of

maple products, 32 p.c. of livestock, 28 p.c. of dairy products, 22 p.c. of fruit and vegetables, and 16 p.c. of poultry and eggs.

Federated Co-operatives, wholesale distributors for Manitoba and Saskatchewan, amalgamated with the Alberta Co-operative Wholesale Association late in 1961. It now serves some 575 consumer co-operatives and about 220,000 co-operative families west of the Great Lakes to the Rocky Mountains. Total sales for Federated Co-operatives in 1960 (before the merger) amounted to more than \$67,000,000. This association has under construction at Saskatoon a \$1,000,000 warehouse to provide facilities for groceries, hardware and lumber.

The Co-opérative Fédérée de Québec, one of Canada's largest multi-purpose farm centrals, providing marketing, food processing and farm supply service to some 375 affiliated local co-operatives, reported a volume of business of almost \$117,000,000 in 1960. United Co-operatives of Ontario, owned and controlled by 70,000 members, reported a business of about \$66,000,000 in the same period.

The Minister of Agriculture announced in April 1961 that federal legislation for the incorporation of co-operatives—a move recommended by the Royal Commission on Price Spreads of Food Products—was being given fullest consideration.

The first national co-operative insurance conference was held at St. Adèle, Quebec, in September 1960. Some 15 co-operative insurance companies were represented.

Canadian co-operatives reported gains in membership, total assets, members' equity and total volume of business during the crop year ended July 31, 1960. Although the total number of co-operatives decreased from 2,905 to 2,883, membership increased by 43,694. Amalgamations which took place during 1960 accounted for most of the decrease in the number of associations.

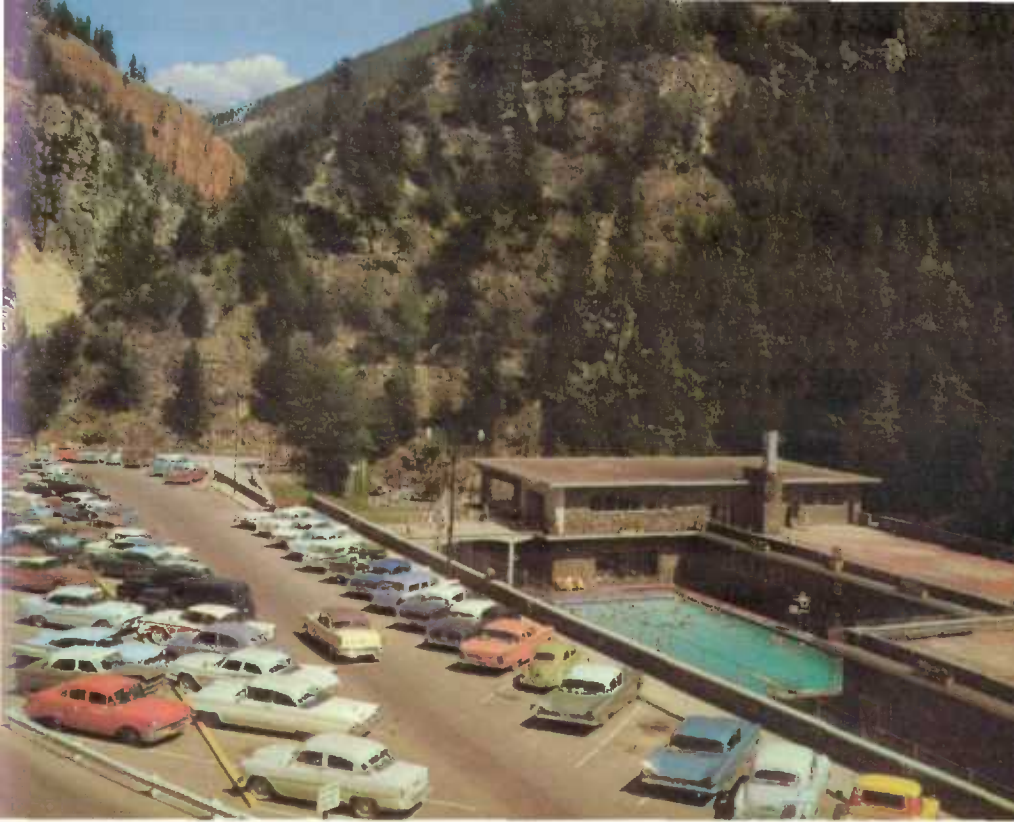
Co-operative Associations Reporting by Provinces for the Crop Year Ended July 31, 1960

Province	Associations	Shareholders or Members	Volume of Business			Grand Volume of Business Including Other Revenue
			Marketing and Purchasing	Service	Fishermen's	
	No.	No.	\$'000	\$'000	\$'000	\$'000
British Columbia.....	132	101,962	94,588	3,163	6,055	106,045
Alberta.....	610	291,628	193,094	4,574	—	207,339
Saskatchewan.....	614	488,959	334,526	640	410	341,788
Manitoba.....	122	140,836	114,801	300	—	117,509
Ontario.....	364	242,219	251,311	4,675	2,340	262,979
Quebec.....	732	156,664	205,474	5,306	4,251	217,833
New Brunswick.....	88	20,391	18,394	197	1,475	20,340
Nova Scotia.....	123	34,961	23,973	138	2,694	27,403
Prince Edward Island.....	26	6,403	7,575	—	1,142	8,805
Newfoundland.....	64	7,800	5,077	—	250	5,406
Interprovincial.....	8	116,385 ¹	86,442	24	4,169	91,228
Totals, 1960.....	2,883	1,608,208	1,335,255	19,017	22,786	1,406,675
Totals, 1959.....	2,905	1,564,514	1,296,273	22,744	25,161	1,363,752

Associations and individuals.

Fresh Gaspé salmon is cleaned and packed in the refrigeration plant of a fishermen's co-operative in Quebec.





This beautiful resort in Kootenay National Park is famous for its mineral hot springs.

The Travel Industry

Approximately 29,700,000 non-residents visited Canada during 1960 and spent an estimated \$420,000,000. Although total foreign entries were about 1 p.c. below their corresponding 1959 volume, a new record high was established in receipts which advanced some \$29,000,000 or between 7 and 8 p.c. Of course, the great majority of travellers entering Canada originate in the United States and in 1960 receipts from residents of that country totalled \$375,000,000, an increase of \$24,000,000 or almost 7 p.c. compared with the previous year. Visitors from countries other than the United States accounted for \$45,000,000 of the travel receipts, a gain of \$5,000,000 or between 12 and 13 p.c. over the comparable 1959 amount.

A slight decline occurred in the number of United States visitors entering Canada during 1960 as a result of 700,000 fewer visits in the non-automobile category of traffic. While receipts attributable to this classification fell \$4,000,000 in comparison with 1959, an expansion of \$28,000,000 in the expenditures of visitors entering Canada by automobile was responsible for the over-all increase in spending for 1960. Aggregate entries of United States residents comprised 23,300,000 by automobile, an increase of 500,000 over



An animated film enticing tourists to Canada is projected onto a 720-square-foot bank of 4,104 light bulbs in Times Square in New York. The bulbs are activated by photoelectric cells which, in turn, are set off by light passing through a moving picture film.

1959, and 6,400,000 by non-automobile forms of transportation. A breakdown of receipts reveals that automobile visitors spent \$220,000,000 while non-automobile travellers accounted for \$155,000,000.

In 1960 the method of classifying United States visitors to Canada according to length of stay (which, incidentally, may vary from an hour or less to several months) underwent a slight revision. All visits

lasting over 24 hours are now considered as long-term traffic, whereas previously visits of over 24 hours but less than 48 hours were treated as short-term. Short-term visitors arriving in Canada from the United States by all forms of transportation during 1960 numbered 20,900,000 or between 70 and 71 p.c. of the total. Many of these short-term visits occur in areas which share close social and economic relationships. However, the expenditures of the short-term group, which amounted to \$53,000,000, accounted for only 14 p.c. of total receipts. On the other hand, visitors from the United States classified as long-term, while representing less than 30 p.c. of total entries, accounted for \$322,000,000 or 86 p.c. of the expenditures. Only a portion of visitors can be properly classified as "tourists", as they include persons visiting friends or relatives, businessmen and officials, delegates to conventions or conferences, commuters and summer residents, as well as persons travelling for holiday, vacation or health.

The most popular form of transportation between Canada and the United States continues to be the automobile, which accounted for nearly 79 p.c. of the visits from the latter country in 1960, a slight increase over the comparable 1959 proportion. The completion of the Trans-Canada Highway north of Lake Superior, together with the opening of two new bridges, one at Johnstown, Ontario (affecting the port of Prescott) and one at Rainy River, Ontario during the latter half of 1960, have provided non-resident motorists with improved and more convenient routes into Canada. In addition, new bridges and highways in the United States have improved access to Canada. In the final quarter of 1960, foreign vehicles entering Canada at Pigeon River and remaining over 24 hours were almost 72 p.c.

more numerous than in the same period of 1959, while a similar analysis of traffic entering via Sault Ste. Marie reveals an increase of 58 p.c. Significant increases were also evident in the number of foreign automobiles leaving the country via Sault Ste. Marie after originally entering at Pigeon River as well as in the number travelling the opposite direction during the last three months of 1960. More recent data covering the first six months of 1961 would indicate even greater gains in the volume of non-resident automobiles entering Canada at these ports.

Non-immigrants entering Canada direct from countries other than the United States in 1960 numbered 48,000, an increase of about 15 p.c. over 1959. In addition, an estimated 24,000 overseas visitors arrived via the United States. Canadian air and steamship services accommodated approximately 39 p.c. of the overseas visitors to and from Canada in 1960—roughly the same percentage as in 1959—and received some \$25,000,000 in fares. The remaining \$20,000,000 in receipts was attributed to expenditures within Canada.

Over 50 p.c. of the non-immigrant visitors from overseas entering Canada direct in 1960 came from Britain. About 80 p.c. of these arrivals were classified as tourists and visitors, while between 14 and 15 p.c. came for temporary professional or religious purposes. Slightly over 10 p.c. of the direct visitors from overseas originated in other Commonwealth countries and some 30 p.c. had come from continental Europe. Entries from the Commonwealth recorded the highest proportion of students (19 in every 100) while those from Europe had the highest ratio of temporary professionals and clergymen (15 in every 100).

Canadians returning from trips to the United States (exclusive of Hawaii) in 1960 established new records as re-entries numbered 29,000,000 while their expenditures amounted to \$457,000,000. An increase of 1,100,000 re-entries or almost 4 p.c. over 1959 was the result of additional automobile travel, while heavier spending in the non-automobile classification was responsible for the gain of \$9,000,000 or 2 p.c. in expenditures.

The number of Canadians returning direct from countries other than the United States reached a new high of 189,000 in 1960, an increase of 32,000

To provide hotel luxury approximating motel prices, big, lavishly-equipped motor hotels are springing up, complete with swimming-pools, conference rooms, restaurants and other facilities.



or 20 p.c. over the year previous. Expenditures, which amounted to \$140,000,000, also established a record, exceeding payments in the 1959 overseas account by \$17,000,000 or 14 p.c. An additional 52,000 Canadians were estimated to have returned from overseas trips via the United States, with expenditures amounting to \$25,000,000.

Transportation costs enter prominently into overseas travel expenses and in 1960 payments to foreign carriers for transportation to and from North America accounted for 32 p.c. of all overseas expenditures by Canadians returning direct and the same proportion of expenditures by those returning via the United States. Airlines received 74 p.c. of all overseas transportation costs paid by Canadian travellers returning direct in 1960 and re-entries direct through principal Canadian airports accounted for 75 p.c. of all direct re-entries.

In 1960, the total debit balance on travel account between Canada and other countries remained unchanged from 1959 at \$207,000,000, comprising an \$87,000,000 imbalance with the United States and a \$120,000,000 deficit with other countries. The balance of payments on travel account between Canada and other countries for 1955 to 1960 were, in millions of dollars:

Item	1955	1956	1957	1958	1959	1960
Account with the United States—						
Credits.....	303	309	325	309	351	375
Debits.....	363	391	403	413	448	462 ¹
Net.....	-60	-82	-78	-104	-97	-87
Account with Overseas Countries—						
Credits.....	25	28	38	40	40	45
Debits.....	86	107	122	129	150	165
Net.....	-61	-79	-84	-89	-110	-120
Account with All Countries—						
Credits.....	328	337	363	349	391	420
Debits.....	449	498	525	542	598	627
Net.....	-121	-161	-162	-193	-207	-207

¹Includes Hawaii.

A border crossing point between Canada and the United States. The gateway carries the legend: "Brethren living together in unity".





Eager for the news, these men have stopped on a Singapore street to read the *Berita Harian*, which is printed on Canadian newsprint.

Foreign Trade

The total value of Canada's trade with other countries reached a new peak in 1960 and available figures indicate even a higher level will be achieved in 1961. For the first nine months of 1961, total exports from Canada were 6.3 p.c. above those in the same part of the preceding year and were the highest recorded for the January-September period of any year. Imports also rose, increasing by 2.2 p.c. over those in the same nine months of 1960. However, from an excess of imports over exports of \$106,000,000 in January-September 1960, the situation has changed to that of an export trade balance of nearly \$55,000,000 for the first nine months of 1961. Summary statistics of Canada's foreign trade giving exports, imports, trade totals and merchandise balances since 1955 appear in the table below:—

Exports, Imports and Total Trade of Canada, 1955-61

(Millions of Dollars)

	Exports			Imports	Total Trade	Balance of Trade
	Domestic	Re-exports	Total			
Calendar Year						
1955.....	4,258.3	69.4	4,327.8	4,567.8	8,895.5	-240.0
1956.....	4,760.4	73.3	4,833.8	5,547.0	10,380.7	-713.2
1957.....	4,788.9	95.3	4,884.1	5,473.3	10,357.5	-589.2
1958.....	4,791.4	102.9	4,894.3	5,050.5	9,944.8	-156.1
1959.....	5,021.7	118.6	5,140.3	5,508.9	10,649.2	-368.6
1960.....	5,264.1	131.2	5,395.3	5,492.3	10,887.6	-97.1
January-September						
1960.....	3,897.6	97.8	3,995.4	4,101.4	8,096.8	-106.0
1961 ¹	4,145.5	100.3	4,245.8	4,190.9	8,436.7	+ 54.9

Note: Figures revised to exclude settlers' effects, tourist purchases, private donations and other special non-commercial transactions.

¹ Preliminary.



A Welsh dresser in solid rock maple, part of a shipment of Canadian furniture to Britain—the first since before World War II—is inspected in a London department store.

International Background

Canada ranked fifth among the major trading nations of the world in the total value of commodities exchanged during 1960, preceded only by the United States, the United Kingdom, the German Federal Republic and France. Though world trade figures for 1961 are not yet available, preliminary totals indicate that a high level of activity has been maintained despite some slowing down in the first part of the year. Approximately one-quarter of Canada's national income is derived from foreign trade and developments in principal world markets are of direct interest to our economy.

Leading Countries in World Trade, 1959 and 1960

Country ¹	Exports, f.o.b.		Imports, c.i.f.		Total Trade	
	1959	1960	1959	1960	1959	1960
Value of Trade (Millions of U.S. Dollars)						
United States.....	17,576 ²	20,526 ²	16,548	16,051	34,124	36,577
United Kingdom.....	9,692	10,352	11,175	12,765	20,867	23,117
Germany, Federal Republic of.....	9,804	11,418	8,480	10,107	18,284	21,525
France.....	5,615	6,864	5,088	6,281	10,703	13,145
Canada.....	5,652	5,826	6,244	6,124	11,896	11,950
Netherlands.....	3,607	4,028	3,940	4,531	7,547	8,559
Japan.....	3,457	4,055	3,600	4,491	7,057	8,546
Italy.....	2,895	3,650	3,341	4,721	6,236	8,371
Belgium and Luxembourg.....	3,295	3,775	3,442	3,957	6,737	7,732
Sweden.....	2,206	2,567	2,405	2,876	4,611	5,443
World Trade³.....	101,660	113,400	106,890	118,990	208,550	232,390
Trade per Capita (U.S. Dollars)						
Belgium and Luxembourg.....	349	399	365	418	715	817
Switzerland.....	321	355	367	423	689	778
Netherlands.....	318	351	347	395	665	746
Sweden.....	296	343	323	384	619	728
Denmark.....	307	325	352	394	660	719
Trinidad and Tobago ⁴	318	345	319	351	638	696
New Zealand.....	352	357	278	331	630	688
Canada.....	324	323	358	339	682	662
Norway.....	228	245	372	407	600	653
Hong Kong.....	201	231	303	344	504	575

¹ Countries ranked by total trade and total trade per capita in 1960. ² Includes military aid, extended to other countries. ³ Exclusive of China, U.S.S.R., and eastern European countries not currently reporting trade but including countries not listed above. ⁴ In Canadian trade statistics included with West Indies Federation. Sources: International Monetary Fund, International Financial Statistics, October, 1961; and United Nations Statistical Office, Population and Vital Statistics Report, Series A, Vol. XIII, Nos. 2 and 3.

In general, 1961 has been a year of intensification of competition in the international trade field. Scarcities in raw materials and in many manufactured goods have given way to surpluses. The volume of output in the United States, Western Europe and Japan has increased significantly in the past few years but recently the rate of expansion in both Western Europe and Japan has slowed down somewhat. Economic activity in the United States reached its low point in February; the rest of the year showed a steady advance, except for a pause in September. Output and demand rose in the United Kingdom during the first half of 1961 but have tended to level out in the latter part of the year. The volume of commodities traded by leading countries in 1961 remained high but purchasers could afford to be more selective than in previous years.

On the international scene, the rising importance of the European Economic Community (EEC) or Common Market has been underlined by the July 1961 decision of Britain to apply for membership. This group, set up by the Treaty of Rome, came into existence on January 1, 1958, and is composed of France, West Germany, Italy, the Netherlands, Belgium and Luxembourg. By January 1962, these countries had made successive reductions totalling 40 p.c. in their tariffs against each other, except for some rates on agricultural products, and had abolished most import licences and quotas between members. The EEC countries are formulating a common tariff to be applied to all imports into the Common Market from non-member countries and about one-third of the adjustments required have been effected. Agreement on a common farm policy was reached in January 1962. A second European group, the European Free Trade Association (EFTA), was brought into being by the Stockholm Convention of November 20, 1959, and is composed of Britain, Norway, Sweden, Denmark, Austria, Switzerland and Portugal. The

This shipment of reinforcing bars, manufactured in Western Canada, is destined for California.



participating countries have reduced duties on most industrial goods produced and sold among themselves by 30 p.c. as from July 1, 1961, and a further reduction of 10 p.c. is scheduled for March 1, 1962 by all but Austria and Norway, which two have agreed to follow not later than September 1, 1962. Each nation of this group retains its own tariff against non-members.

Canada and the United States joined eighteen European nations to form the Organization for Economic Co-operation and Development (OECD), which came into being on September 30, 1961. The main objectives of the OECD are to encourage economic and financial growth within member countries, to contribute to the sound expansion of the under-developed nations and to work for an increase in world trade on a multilateral and non-discriminatory basis. Membership by Canada and the United States underlines the interdependence of the economies of the Atlantic countries.

The free world trading nations, Canada included, associated in the General Agreement on Tariffs and Trade (GATT), continued their efforts towards the reduction of duties and the removal of import restrictions. New techniques for wider tariff reductions, better access to world markets for agricultural commodities and further aid for exports from under-developed countries are being studied.

In Latin America, the seven original signers of the Latin American Free Trade Association (LAFTA)—Argentina, Brazil, Chile, Mexico, Paraguay, Peru and Uruguay—have ratified the Treaty of Montevideo which thus became effective in July 1961. Colombia and Ecuador have subsequently become members and the treaty is open to adherence by all other Latin American countries. The aim of the Association is to remove customs duties and other trade restrictions at a minimum reduction rate of 8 p.c. annually, reaching a duty-free status in 12 years. In Central America further steps were taken in 1961 towards economic integration and the establishment of a common market among Central American countries.

The future impact of these regional groups on Canadian trade is difficult to judge, particularly if the main members of EFTA should participate in the European Common Market. At present, a large proportion of Canadian exports to the EEC countries enter those markets duty free, but if and when



the proposed common external rates are implemented, almost half of these products will be dutiable. Under current conditions the bulk of Canadian exports to Britain are imported without payment of duty and almost half come in under a Commonwealth preference. If Britain joins the European Economic Community, the competitive position of Canadian merchandise on the British market may well undergo significant changes. Other re-alignments in world trading arrangements may emerge; for instance, there is a possibility of major change in United States trading policies. This could lead to a reduction of tariff barriers of consequence to Canadian trade. Continued entry to world markets is of vital importance to the Canadian economy.

Canadian Trade Trends

During the past several years the value of exports from Canada has been rising and imports have remained relatively steady, except for a considerable drop in 1958. Total exports in 1960 advanced 5.0 p.c. over 1959 and for the first nine months of 1961 increased 6.3 p.c. above those in the same period of 1960. There were smaller shipments to the United States but 20 p.c. more to overseas areas in 1960, while in January-September 1961, exports to the United States, to Britain and to the rest of the Commonwealth were each fractionally less. However, there was a gain of over one-third in shipments to other foreign countries which, during the first nine months of 1961, purchased approximately one-quarter of our exports. This rise was particularly noticeable in increased shipments to Communist China, Japan, West Germany and Italy. Imports for the first nine months of 1961 showed small advances from all main areas over arrivals from the same regions in the similar period of the preceding year.

Exports. The principal components of Canadian export trade are drawn from the forests, farms and mines of the nation. Shipments of wood, wood products and paper, agricultural and vegetable products and non-ferrous metals and products alone account for over two-thirds of total exports. In descending order of importance, newsprint, wheat, lumber, wood pulp, aluminium, uranium, nickel, copper, iron ore, asbestos and synthetic rubber and plastics were the leading commodities in 1960. Exports of each were valued

Trade missions visit foreign countries for first-hand information.

In November 1961, 20 Argentine businessmen discussed ways and means of stimulating closer commercial relations with Canada at meetings in Ottawa.

In September a Canadian mission left for Europe to determine the current and long-term market possibilities for oil-seeds produced in Canada.



in excess of \$100,000,000 and the majority showed gains during the year. Newsprint, valued at \$758,000,000, continued to occupy first place and shipments were 4.9 p.c. above those for 1959. Lumber sales rose 7.0 p.c. and wood pulp exports advanced by 4.4 p.c. For cereals, although world trade in wheat increased, Canadian wheat exports were 7.1 p.c. less in 1960 than in the preceding year and barley and wheat flour shipments declined considerably. Among non-ferrous metals, aluminum, nickel, copper and zinc, exports were all above 1959 totals but shipments of uranium ores and concentrates, mainly because of decreased deliveries to the United States, were 15.5 p.c. less in 1960. In other principal commodities, crude petroleum, rolling-mill products and non-farm machinery advanced substantially and asbestos and fertilizer exports also rose appreciably. Shipments of farm implements and machinery, however, declined considerably, and iron ore slightly.

Figures for the first six months of 1961, however, show considerable changes. Newsprint still led and sales increased 2.8 p.c. The largest absolute and relative increase was in wheat, exports of which rose over 50 p.c. above those in January-June 1960. Shipments to Britain, our principal wheat market, declined nearly a tenth, but to Japan, our second customer, they rose by one-quarter. Communist China made substantial wheat purchases, followed by West Germany and the U.S.S.R. Lumber dropped 2.5 p.c. while wood pulp rose 5.3 p.c. Nickel became the fifth most important export, shipments advancing approximately 14 p.c., while sales of aluminum, uranium and

A shipment of Canadian barley, to be used for feeding sheep, arrives in Kuwait.





Aluminum gillnetters, made in Vancouver, are ready for shipment to Washington State and Alaska.

copper all declined considerably. Crude petroleum exports increased over 30 p.c. in the first six months of 1961, while iron ore shipments fell by nearly one-third. Non-farm machinery and parts rose approximately 30 p.c. though exports of farm machinery and implements fell by 10 p.c. The following table reviews the changes in values of the twenty leading exports from Canada in recent years.

Principal Domestic Exports, 1958-61

Commodity ¹	Calendar Year			January-June	
	1958	1959	1960	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	690,209	722,271	757,930	357,609	367,601
Wheat.....	446,078	441,830	410,453	182,467	274,866
Lumber and timber.....	293,600	323,717	346,300	173,530	169,197
Wood pulp.....	285,449	311,253	325,122	160,465	169,030
Aluminum, primary and semi-fabricated	222,442	230,683	268,154	134,637	115,499
Uranium ores and concentrates.....	276,506	311,904	263,541	139,410	105,942
Nickel, primary and semi-fabricated....	212,580	226,857	258,331	130,385	149,358
Copper, primary and semi-fabricated....	135,021	158,827	211,431	106,395	93,293
Iron ore.....	107,674	157,814	155,472	51,049	34,687
Asbestos, unmanufactured.....	90,745	110,431	120,113	51,684	53,600
Synthetic rubber and plastics materials, not shaped.....	?	?	109,139	54,779	51,215
Petroleum, crude and partly refined....	73,044	74,541	94,450	48,406	63,348
Farm implements and machinery (except tractors) and parts.....	93,829	110,205	81,279	52,425	48,537
Whisky.....	70,276	78,262	79,220	31,227	30,906
Rolling-mill products (steel).....	31,833	53,509	73,979	31,506	31,983
Fish, fresh and frozen.....	70,898	66,523	68,833	26,977	29,295
Machinery (non-farm) and parts.....	46,881	48,403	67,074	33,624	43,561
Zinc, primary and semi-fabricated.....	55,385	55,287	63,534	29,864	27,059
Wheat flour.....	69,398	64,903	62,239	29,054	30,717
Basic iron and steel products.....	24,278	32,622	53,349	13,316	15,055

¹ Commodities ranked by value of exports in 1960.

² Data for 1958 and 1959 not comparable with 1960.

Imports. For many years, iron and its products have accounted for over one-third of total imports and non-farm machinery and parts have headed the list of principal commodities. Automobile parts, crude and partly refined petroleum, electrical apparatus, passenger cars, engines and boilers, rolling-mill products (iron and steel), tractors and parts, aircraft and parts, and farm implements and machinery have followed, the order of importance shifting slightly from year to year. In 1960, each of these products, except farm implements and machinery, exceeded \$100,000,000 in value.

More of the leading import commodities showed increases in 1960 than declines when compared with the preceding year. However, non-farm machinery at \$580,000,000, by far the most valuable import, was fractionally below 1959. As compared with that year, imports of automobile parts increased by 2.8 p.c., and crude petroleum by 2.1 p.c. Aircraft and parts were up more than 50 p.c. and imports of automobiles, engines and boilers and rolling-mill products showed moderate advances. Imports of cotton fabrics and raw cotton were considerably higher, apparel moderately higher and paper products slightly higher. On the other hand, imports of electrical apparatus dropped 3.3 p.c. for the year and there were considerable decreases in tractors and parts and in farm implements and machinery. Imports of fuel oils and coal declined but those of synthetic plastics increased.

During the first six months of 1961, as compared to arrivals in January-June 1960, the chief gains among imports were in aircraft and parts, which more than doubled, and in engines and boilers (including airplane engines), which rose by more than a fourth. Also, crude petroleum increased by one-

A rather unusual import is this shipment of penguins from the South Pole flown to Vancouver's Stanley Park.





A Canadian-made deep freezer being inspected on arrival in Austria.

tenth. Declines were particularly noticeable in automobiles, which decreased by one-third, and automobile parts, one-eighth less. Rolling-mill products dropped substantially and arrivals of non-farm machinery and coal were significantly less. Details of 20 leading imports are contained in the table below.

Principal Imports, 1958-61

Commodity ¹	Calendar Year			January-June	
	1958	1959	1960	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.....	532,916	585,235	579,791	308,364	292,794
Automobile parts (except engines).....	240,526	288,596	296,571	176,177	154,879
Petroleum, crude and partly refined.....	278,540	277,495	283,172	130,705	144,584
Electrical apparatus, n.o.p.....	240,112	269,402	260,473	132,374	126,850
Automobiles, passenger.....	141,543	199,601	220,144	124,646	80,166
Engines and boilers.....	134,603	135,002	141,419	73,687	94,062
Rolling-mill products (steel).....	147,049	131,263	133,007	78,091	50,900
Tractors and parts.....	117,290	172,069	131,541	79,575	82,951
Aircraft and parts (except engines).....	94,820	76,745	116,494	48,956	99,006
Farm implements and machinery (except tractors) and parts.....	81,007	101,752	97,118	60,919	62,309
Cotton fabrics.....	66,168	70,058	75,150	42,336	38,000
Paperboard, paper and products.....	65,478	68,051	68,660	34,076	35,802
Fuel oils.....	64,886	77,903	66,853	21,694	17,870
Synthetic plastics, primary forms.....	54,891	61,024	64,554	32,455	34,083
Apparel (except hats) of all textiles.....	48,903	61,830	63,873	30,367	33,888
Coal, bituminous.....	67,067	65,115	61,821	30,323	24,668
Parcels of small value.....	53,583	54,514	53,764	26,720	27,952
Sugar, unrefined.....	58,578	56,810	50,677	24,601	24,231
Cotton, raw.....	45,416	43,079	49,928	28,777	29,121
Vegetables, fresh.....	43,431	43,285	49,436	33,721	30,150

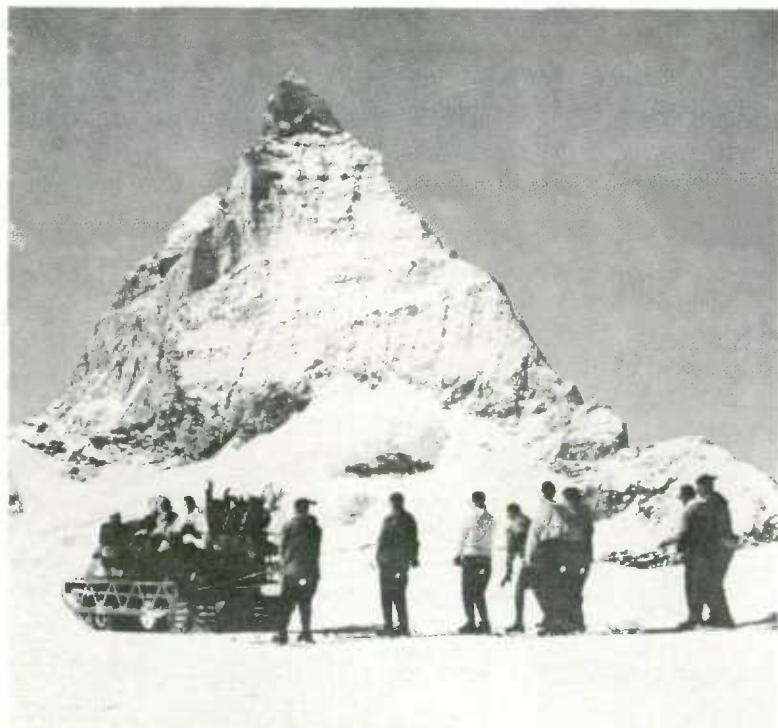
¹ Commodities ranked by value of imports in 1960.

Direction of Trade

The direction of Canadian foreign trade altered somewhat in 1961, with smaller shares of exports going to the United States and the Commonwealth and a larger proportion to other foreign countries. During the first half of 1961, 53.1 p.c. of domestic exports went to the United States compared with 58.3 p.c. in the same period of 1960. The shares taken by Britain declined fractionally to 16.3 p.c. for January-June 1961 and by the rest of the Commonwealth to 6.0 p.c. The proportion going to other countries, however, rose to 24.6 p.c., from 18.6 p.c. during the first half of 1960. A larger part of exports, 11.2 p.c., was destined to Western Europe, mainly due to increased shipments to the Federal Republic of Germany and to Italy. The proportion for Asia advanced to 6.6 p.c., principally because of greater sales to Japan and Communist China. Both South and Central America obtained larger shares of Canadian goods, with Mexico, Cuba, Brazil and Argentina increasing their purchases substantially in the January-June period of 1961.

The proportions of imports derived in the first six months of 1961 from the principal trading areas, with the exception of a smaller share supplied by the United States, showed only fractional variations from those for the

Inaugurated in February 1961, a transport service for skiers to the Theodul Pass above the famous ski resort of Zermatt in Switzerland is supplied by Canadian bombardier tractors.



This Beaver plane is one of a fleet of 16 "aerotaxis" used by government, military and private passengers in Colombia.



first half of 1960. The United States sent 68.0 p.c. of all imports compared with 69.1 p.c. in January-June 1960. Britain forwarded 11.3 p.c., other Commonwealth countries 4.7 p.c., and the remaining countries 16.0 p.c. Of imports from this last group, 6.4 p.c. of total imports came from Western Europe, 4.7 p.c. from South America and 2.0 p.c. from Asia.

Leading Trade Partners

The United States is Canada's principal trading partner, each country being the other's best customer. Britain was in second place and together these two countries accounted for approximately three-quarters of Canada's international trade. Japan and the Federal Republic of Germany were the third and fourth most important markets both in 1960 and in the first half of 1961. By the end of June 1961, Communist China had displaced Australia as the fifth leading destination for Canadian exports, purchasing \$54,800,000, mainly wheat and barley, a large increase from the total of \$6,100,000 in January-June 1960. Australia followed and shipments to Norway in the first half of 1961 were greater than those to France. Exports to Italy were next, then those to Belgium and Luxembourg.

During 1960, following the United States and the United Kingdom, the chief sources of imports were Venezuela, the Federal Republic of Germany, Japan, the West Indies Federation and France, each supplying goods in excess of \$50,000,000. Sizable amounts of merchandise were obtained from Italy, Belgium and Luxembourg, Saudi Arabia, Australia, the Netherlands Antilles, Iran, the Netherlands and India. During the first half of 1961, the same order was maintained, except that Saudi Arabia followed France and India and the Netherlands were next to Italy.

The following tables give the values of domestic exports to and imports from leading countries, 1958-61.

Domestic Exports to Leading Countries, 1958-61¹

Country ²	Calendar Year			January-June	
	1958	1959	1960	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,808,067	3,083,151	2,932,171	1,481,522	1,382,843
United Kingdom.....	771,576	785,802	915,290	433,026	425,363
Japan.....	104,853	139,724	178,008	78,455	105,216
Germany, Federal Republic of.....	201,134	129,345	165,597	63,704	80,843
Australia.....	52,562	53,929	98,862	45,016	44,248
France.....	44,688	43,157	72,907	35,973	36,686
Norway.....	55,849	62,308	70,072	35,389	38,450
Belgium and Luxembourg.....	69,531	56,127	69,131	25,972	32,412
Italy.....	29,718	31,717	68,393	19,154	35,182
Netherlands.....	74,721	53,849	62,554	28,255	27,672
Union of South Africa.....	49,960	51,243	52,655	27,066	20,243
West Indies Federation.....	35,543	39,714	39,522	19,221	19,356
Mexico.....	31,429	27,633	38,023	15,133	19,176
India.....	78,994	53,654	36,814	16,209	19,364
Venezuela.....	43,480	45,833	35,345	18,328	16,427
Switzerland.....	29,243	25,728	26,404	14,575	8,037
New Zealand.....	15,008	13,306	23,858	9,605	17,149
Hong Kong.....	6,028	11,192	22,515	11,829	8,072
Sweden.....	10,866	14,879	20,906	10,613	9,063
Brazil.....	21,088	14,148	19,755	6,073	14,970

¹Figures revised to exclude settlers' effects, tourist purchases, private donations and other special and non-commercial transactions.

²Countries ranked by value of exports in 1960.

Imports from Leading Countries, 1958-61¹

Country ²	Calendar Year			January-June	
	1958	1959	1960	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	3,460,147	3,709,065	3,693,189	1,938,023	1,885,288
United Kingdom.....	518,505	588,573	588,930	310,509	313,730
Venezuela.....	209,538	204,582	195,189	94,088	100,108
Germany, Federal Republic of.....	102,644	123,905	126,988	63,623	63,173
Japan.....	70,092	102,669	110,382	52,781	52,575
West Indies Federation.....	42,794	50,441	56,112	25,580	28,672
France.....	40,007	56,940	50,121	23,290	23,523
Italy.....	32,150	37,656	42,843	18,076	19,026
Belgium and Luxembourg.....	35,759	44,786	41,401	19,465	15,750
Saudi Arabia ³	68,021	70,725	39,774	16,224	21,361
Australia.....	32,755	41,080	35,508	13,148	14,519
Netherlands Antilles.....	39,453	47,120	32,521	10,561	7,881
Iran.....	915	11,948	31,469	11,331	10,022
Netherlands.....	26,905	29,154	31,456	14,863	16,134
India.....	27,655	29,221	29,352	14,856	16,740
Malaya and Singapore.....	19,863	28,644	28,120	14,985	10,194
Brazil.....	27,419	28,479	24,883	11,696	12,553
Switzerland.....	26,491	24,514	24,343	11,185	11,322
Kuwait.....	3	3	22,303	10,981	11,641
Mexico.....	31,888	34,201	21,007	13,200	11,717

¹Figures revised to exclude settlers' effects, tourist purchases, private donations and other special and non-commercial transactions.

²Countries ranked by value of imports in 1960.

³Prior to January 1, 1960, totals for Bahrain and Kuwait were included with Saudi Arabia.



The Richard L. Hearn Station in Toronto, the largest thermal-electric plant in Canada. The import and export of energy and sources of energy are licensed and controlled by the National Energy Board. In 1959, 4,580,619,000 kwh. of electric energy was exported to the United States out of a total of 104,613,564,000 kwh. generated.

Balance of International Payments. The flows of commodities into and out of Canada by train, truck, ship, aircraft and even pipeline, great as they are, account for only about half of Canada's international transactions. There are substantial earnings by Canada from the provision of services to non-residents, including the income on Canadian capital invested abroad, and there are even greater payments by Canada for similar services provided by non-residents. In addition to the international exchange of goods and services, there is a vast amount of investment, borrowing, and lending, between Canada and other countries.

Statements of the balance of payments reflect all these transactions. The current account shows exchanges of goods and services, the flow of real resources, and the capital account shows the transactions changing Canada's external assets and liabilities, the flow of financial resources.

Despite shifting economic climate, persistent and outstanding among the features of Canada's balance of payments in recent years are the deficits which have arisen from the excess of purchases of goods and services over sales of goods and services, and the capital inflows for private investment in industry which have been heavily supplemented at times by borrowing by provinces and municipalities. The capital inflows have been associated with growth and development and have, in turn, contributed to the current deficits by augmenting demands for imported goods and services. There have been

deficits with one exception each year since 1950, and they have ranged between about \$1,000,000,000 and \$1,500,000,000 in each of the last seven years. The greatest relative imbalances occurred in the latter part of 1956 and the first half of 1957 and again in 1959. Both were periods of intense economic activity. Over recent years the deficit has varied considerably in size but has continued to be far larger than earlier.

Variations in the current account deficit have reflected mainly changes in demands for goods, for the balance arising from merchandise trade has fluctuated sharply with varying conditions at home and abroad. But most of the current account deficit arises from the non-merchandise transactions, the deficits from which have been persistent and growing. Since 1959 non-merchandise transactions have given rise each year to a deficit of more than \$1,000,000,000.

Many factors have contributed to the growth of this highly significant element in Canada's international transactions. To no small extent an expansion in the volume and range of expenditures on services is a concomitant of high incomes and standards in the contemporary world. Rising personal incomes in Canada have opened widening opportunities for spending on non-resident services including travel. The changing population has led to rising remittances by those having family origins outside of Canada. Joint defence undertakings and contributions to under-developed areas have added to Canadian expenditures abroad. To the increasing non-merchandise transactions accompanying growing incomes in Canada and changing international responsibilities of the Canadian nation must be added the transactions which spring from the spreading network of international investments and from Canada's rising balance of international indebtedness.

The largest element in the deficit from non-merchandise transactions has been interest and dividend payments, reflecting part of the cost of financing the accumulated deficits of earlier years. Together with miscellaneous invest-



In the Philippines, athletes work out with Canadian-made barbells.

ment income, these transactions have in recent years resulted in net payments by Canada of \$500,000,000 annually. Some of the effects of the massive imports of non-resident capital have yet to be fully felt. Large parts of the income accruing to non-residents have been retained for investment in Canada, while many of the new developments have not yet matured to the point where income remittances could be expected. Growing international financial relationships have also been reflected in increasing payments by branch and subsidiary companies for administrative and other services supplied from abroad. Payments of this kind have been rising and are now well over \$100,000,000 annually.

The financing of recent large external deficits has been accomplished on the whole with little or no visible strain on the Canadian balance of payments. Over most of the period the capital inflows which served this purpose were of a long-term character, taking the form mainly of direct investment in branches and subsidiaries in Canada by United States and other non-resident business firms, particularly in petroleum, mining and other resource industries. Direct and portfolio equity investment has been buttressed at times by large increases in foreign-held funded debt in response to divergent interest rate structures in Canada and in the United States. New issues of Canadian securities sold abroad were particularly important from 1956 through mid-1960, with provincial governments and municipalities having extensive recourse to foreign capital markets. Movements of short-term capital have also occurred on a comparatively large scale, but the inflows and outflows have tended over time to offset each other.

Persistent inflows of capital had kept the Canadian dollar at a premium on the world's exchange markets for nearly a decade. In his Budget Speech in mid-1961 the Minister of Finance announced the Government's conclusion that a decline in the foreign exchange value of the Canadian dollar was appropriate to Canada's economic situation and outlined a series of steps the Government was prepared to take to this end. The Canadian dollar declined, and at the year-end the United States dollar was priced at \$1.0434 in Canada. In the post-war period it had traded as low as 94.22 cents.

International Investment. The substantial growth in the investment of foreign capital in Canada during the past decade has been the principal factor in increasing Canada's net international indebtedness from \$5,000,000,000 at the end of 1951 to about \$18,000,000,000 at the end of 1961, about \$1,000 for every man, woman and child in Canada. Canada's gross external liabilities amount to nearly \$28,000,000,000, of which nearly half represents direct foreign investment in Canadian enterprises controlled by non-residents. A substantial part of the remainder covers portfolio investment in Canadian corporations by non-residents. At the same time Canada's gross external assets total nearly \$10,000,000,000 of which more than \$4,000,000,000 is represented by government loans to overseas countries, subscriptions to international financial organizations and holdings of gold and foreign exchange.

Dependence on external sources for some types of capital, together with the special advantages often associated with this capital, have led Canada to a degree of foreign ownership and control of industry unique in economic history. By the end of 1959 foreign investment accounted for 63 p.c. of the ownership of the Canadian petroleum and natural gas industry and represented

control of 75 p.c. The mining industry was 59 p.c. foreign-owned and 61 p.c. foreign-controlled. Manufacturing other than petroleum refining was 51 p.c. foreign-owned and 57 p.c. foreign-controlled. The degree of foreign ownership and control varied considerably in different branches of manufacturing. Other areas of Canadian wealth such as utilities, merchandising, housing and social capital are, of course, Canadian-owned and controlled to a much larger extent than are the petroleum, mining or manufacturing industries.

A very substantial part of foreign capital in Canada now takes the form of equity investment and, as a result of the retention of earnings, foreign investments increase each year by some hundreds of millions of dollars more than the capital actually imported. Indeed, during the post-war years the earnings accruing to non-resident investors but voluntarily retained in Canada to finance expansion have amounted to well over \$4,000,000,000. In addition, actual transfers of interest and dividends have, in recent years, approached \$700,000,000 annually. The significant part of the corporate profits in the Canadian economy which accrues to non-residents is a measure of the important place of foreign capital in the development of this country.

Department of Trade and Commerce. Trade promotion is the prime function of the Department of Trade and Commerce, which provides businessmen with a wide variety of services that can assist in securing sales for their respective products at home and abroad. Specialists in Ottawa are supported by a corps of trade commissioners in 61 capitals and commercial centres in 44 countries. They are familiar with economic conditions in their respective territories and provide information on potential markets for Canadian commodities, such as foreign competition, import controls, tariff provisions, shipping facilities and labelling regulations.

Great interest was shown in a demonstration on the Canadian stand at the Engineering, Marine, Welding and Nuclear Energy Exhibition held in London in the spring of 1961.





A section of the Canadian display of wheat and flour at the EUROBA Bakers' Exhibition in Brussels, October 1961.

Trade commissioners can assist in securing reliable agents, and provide introductions for visiting businessmen. They return home periodically and, during tours through Canada, discuss specific problems with firms seeking their guidance. These tours also enable foreign service officers to familiarize themselves with the economic development of Canada.

Following an Export Trade Promotion Conference in Ottawa in December 1960, trade commissioners returned to their respective posts and explored market opportunities on behalf of the businessmen by whom they were interviewed during the three-week conference. Much new business was developed, and more than 700 new agents were appointed over a period of nine months.

Reports on conditions in their respective territories, market opportunities, tariff changes and specific industries of interest to Canadian firms are prepared by trade commissioners for publication in the departmental periodical, *Foreign Trade*, which also carries a wealth of other commercial intelligence of considerable value to exporters.

Commodity officers, in Ottawa, familiarize themselves with the many firms in a position to meet the requirements of consumers in other lands and relay inquiries received through trade commissioners to those best qualified to meet the demand. Commodity officers also encourage firms with no previous experience of external trade, and those with new products or special services, to explore the possibilities of markets in the United States and overseas. About 37 p.c. of Canada's exports in 1959 consisted of items classified as fully or chiefly manufactured, including newsprint and wheat flour, while 29 p.c. consisted of partially manufactured products, such as asbestos fibres. These figures indicate the ability of Canadian firms to meet competition in foreign markets and illustrate the desirability of maintaining a close relationship between industry and the commodity officers concerned.

The International Trade Relations Branch of the department is responsible for the review of trade relations with all countries, the preparation of material for trade and tariff negotiations, participation in conferences under the General Agreement on Tariffs and Trade, and the interpretation and clarification of foreign regulations for Canadian exporters. The Economics Branch analyses the general economic situation in Canada.

The Trade Publicity Branch is closely associated with other branches of the department in providing information of particular interest to businessmen, at home and abroad, in an effort to stimulate the demand for Canadian products. It prepares periodicals and a wide range of publications for use by trade commissioners, at trade fairs and in connection with trade missions. It is responsible for publicity of a trade promotional character and advertising in appropriate media.

The design, prefabrication and erection of Canadian displays at international trade fairs is undertaken by the Canadian Government Exhibition Commission. It is responsible for the attractive arrangement of products, with suitable backgrounds, to arouse the interest of prospective buyers. It also prepares exhibits for other government departments, and advises Canadian firms wishing to arrange their own displays in trade fairs.

The Export Credits Insurance Corporation, which reports to Parliament through the Minister of Trade and Commerce, insures Canadian exporters against losses arising from credit and political risks. These include insolvency or protracted default on the part of a buyer, exchange restrictions in the buyer's country, thereby preventing the transfer of funds to Canada, cancellation of an import licence or the imposition of restrictions on the import of goods not previously subject to restriction, the occurrence of war between the buyer's country and Canada or the outbreak of revolution, and additional transport or insurance charges occasioned by the interruption of a voyage or the diversion of a ship carrying Canadian commodities.

The Domestic Commerce Service is primarily concerned with the provision of assistance to industries interested in the domestic market. The Depreciation Certification Branch is responsible for the certification of assets used to produce new Canadian products.

The Industrial Development Branch is concerned with the establishment of new industries in Canada, the utilization of excess manufacturing capacity, and the development of new products, including those suitable for export. It maintains close liaison with provincial, municipal and other agencies concerned with industrial development. This branch also provides information on imports, new products, advice on Canadian regulations affecting new enterprises, and listings of new industries.

The Design Branch is concerned with fostering improved industrial designs. The Small Business Branch studies the problems of small business in Canada, and recommends measures that should be taken to meet them. It co-operates with other federal departments, provincial and municipal governments in providing assistance to small enterprises, including the provision of statistical, technical and other information on management, production and marketing. The Standards Branch calibrates and inspects commercial measuring devices in the field of general trade, and in the distribution of gas and electricity. It also regulates and inspects the labelling and marking of certain commodities.



Currency and Banking

Canadian money is based on the decimal system, with 100 cents equal to one dollar. Most dollars and their multiples are in the form of paper money, although there are gold coins in denominations of \$20, \$10 and \$5 and there are also silver one-dollar coins. Other coins issued by the Royal Canadian Mint are silver coins in denominations of 50 cents, 25 cents and 10 cents; pure nickel five-cent coins; and bronze (copper, tin and zinc) one-cent coins. A tender of payment of money in coins is a legal tender in the case of gold coins 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.

Foreign Exchange Rates as of January 15, 1962

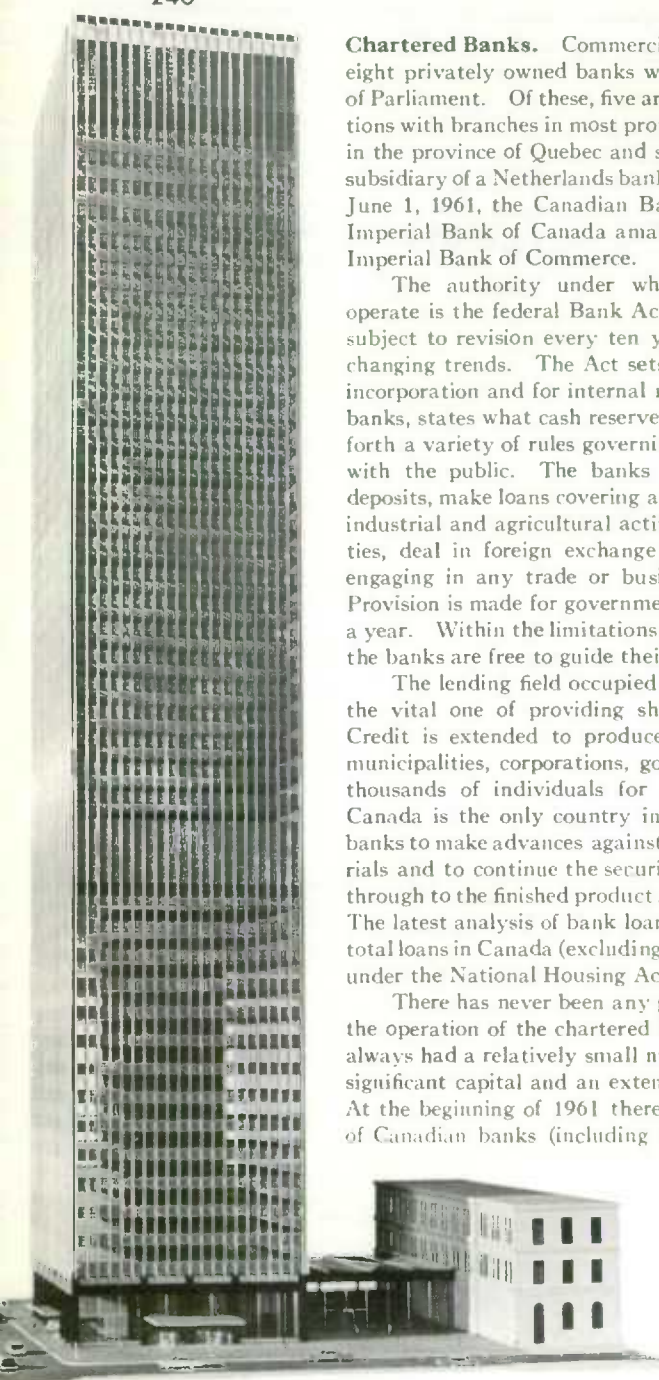
Country	Unit	Can. Dollar Equivalent	Units per Can. Dollar
Australia.....	Pound	2.3528	.4250
Belgium and Luxembourg.....	Franc	.02101	47.60
Britain.....	Pound	2.9410	.3400
France.....	New Franc	.2134	4.69
Germany.....	D Mark	.2619	3.82
Hong Kong.....	Dollar	.1838	5.44
India.....	Rupee	.2206	4.53
Iran.....	Rial	.01381	72.42
Italy.....	Lira	.001685	593.47
Japan.....	Yen	.002906	344.11
Malaya and Singapore.....	Straits Dollar	.3431	2.91
Mexico.....	Peso	.08368	11.95
Netherlands.....	Florin	.2903	3.44
New Zealand.....	Pound	2.9209	.3424
Norway.....	Krone	.1468	6.81
South Africa.....	Rand	1.4705	.6800
Sweden.....	Krona	.2024	4.94
Switzerland.....	Franc	.2422	4.13
United Arab Republic.....	Pound	3.0035	.3329
United States.....	Dollar	1.0459	.95608
Venezuela.....	Bolivar	.3125	3.20
West Indies Federation.....	Dollar	.6127	1.63
	Pound	2.9410	.3400

Chartered Banks. Commercial banking is conducted by eight privately owned banks which are chartered by Act of Parliament. Of these, five are large nation-wide institutions with branches in most provinces; two operate mainly in the province of Quebec and surrounding areas; one is a subsidiary of a Netherlands bank with three branches. On June 1, 1961, the Canadian Bank of Commerce and the Imperial Bank of Canada amalgamated as the Canadian Imperial Bank of Commerce.

The authority under which the chartered banks operate is the federal Bank Act, first passed in 1871 and subject to revision every ten years to keep it abreast of changing trends. The Act sets out the requirements for incorporation and for internal regulation of the chartered banks, states what cash reserves they must keep, and sets forth a variety of rules governing the conduct of business with the public. The banks are authorized to accept deposits, make loans covering a wide range of commercial, industrial and agricultural activities, buy and sell securities, deal in foreign exchange and are prohibited from engaging in any trade or business other than banking. Provision is made for government inspection at least once a year. Within the limitations imposed by the Bank Act, the banks are free to guide their own affairs.

The lending field occupied by the chartered banks is the vital one of providing short-term working capital. Credit is extended to producers, industry, institutions, municipalities, corporations, governments and to tens of thousands of individuals for a multitude of purposes. Canada is the only country in the world which permits banks to make advances against the security of raw materials and to continue the security on the same document through to the finished product and the marketing thereof. The latest analysis of bank loans on Dec. 31, 1960, shows total loans in Canada (excluding residential mortgage loans under the National Housing Act) of \$8,334,988,000.

There has never been any geographical restriction on the operation of the chartered banks. Thus Canada has always had a relatively small number of large banks with significant capital and an extensive network of branches. At the beginning of 1961 there were 5,201 branch offices of Canadian banks (including sub-agencies), an increase



The new 600-foot, \$22,000,000 Canadian Imperial Bank of Commerce in Montreal, to be occupied late in 1962, is the tallest bank in the Commonwealth. Elevators in this 43-storey skyscraper will use 17½ miles of cable.



The use of trailers which can be set up quickly to provide banking services on a temporary basis until permanent quarters can be established has become quite commonplace.

of 149 in the past year. Foreign offices are maintained by most of the chartered banks in the principal money marts of the world and other offices are established in many foreign cities, mainly in the United States, the United Kingdom, the West Indies and South America. The banks, therefore, are in a particularly favourable position to assist in the trade of the country by providing information and assistance concerning markets, trade regulations, tax situations, foreign exchange, financial arrangements, and so on.

The functions of a central bank in Canada are performed by the Bank of Canada, a government-owned agency established in 1934 for the purpose of regulating credit and currency in the best interests of the economic life of the country. Control of the money supply of the country, of which deposits at the chartered banks are a very large part, rests on the requirement that the chartered banks must keep a minimum amount of cash reserves in relation to their deposit liabilities. These reserves consist of Bank of Canada notes (the ordinary circulating paper money of the country) and of deposits at the Bank of Canada. The central bank may also buy and sell securities on the open market with a view to influencing the chartered banks' cash reserves and to maintaining orderly markets for government securities. The Bank is managed by a Board of Directors appointed by the Government.

The Industrial Development Bank, established in 1944, is a subsidiary of the Bank of Canada but operates as a separate entity. Its function is to supplement the activities of the chartered banks and other lending agencies by supplying the medium- and long-term capital needs of small enterprises; it does not engage in the business of deposit banking.

In addition to the chartered banks, there are several other types of savings banks in Canada: trust and loan companies; the Post Office Savings Bank in which deposits are a direct obligation of the Government of Canada; provincial savings banks in Newfoundland, Ontario and Alberta where the depositor becomes a direct creditor of the province; two savings banks in the province of Quebec established under federal legislation; and credit unions.

Statistics of the Chartered Banks of Canada, Nov. 30, 1961

Bank	Total Assets	Personal Savings Deposits	Total Deposit Liabilities	Loans and Discounts ¹	Liabilities to Shareholders
	\$'000	\$'000	\$'000	\$'000	\$'000
Royal Bank of Canada...	4,954,610	1,644,623	4,501,789	2,069,997	306,384
Canadian Imperial Bank of Commerce.....	4,601,034	1,925,748	4,237,035	2,116,131	255,780
Bank of Montreal.....	3,885,227	1,681,947	3,590,820	1,807,905	207,876
Bank of Nova Scotia.....	2,248,972	806,781	2,102,806	1,305,883	117,695
Toronto-Dominion Bank...	2,091,691	875,227	1,936,811	1,045,753	113,042
Banque Canadienne Nationale.....	823,762	442,226	773,391	395,084	44,926
Provincial Bank of Canada.....	418,775	190,900	396,377	203,318	19,113
Mercantile Bank of Canada.....	105,632	1,437	99,264	72,291	5,002
Totals.....	19,129,703	7,568,889	17,638,293	9,016,362	1,069,818

¹ Includes mortgages and hypothecs insured under the National Housing Act, 1954.

Credit Unions. Credit unions provide an important service to individuals in that they provide an easy method of saving and also make available small loans at low interest. In 1960 there were 4,667 credit unions in Canada—more than half of them in the province of Quebec—with a membership representing 14 p.c. of the total population. A marked trend is the growth of occupational credit unions which now represent 35 p.c. of the total; rural credit unions comprise 35 p.c. of the total, a considerable drop from 59 p.c. in 1949. During 1960 membership increased by 8 p.c., savings by 13 p.c., loans by 19 p.c. and total assets by 12 p.c. Average assets per member amounted to \$511.

There are 27 provincial central credit unions in all ten provinces. These act as credit unions for credit unions, in that they accept deposits of surplus funds from credit unions and provide a source of funds for them to borrow when necessary. Some restrict their membership to credit unions; others



Postal savings banks, established in 1867, serve 302,672 customers in 1,500 post offices throughout Canada. Starting in 1962, these facilities will be extended to all Post Office points where there are no chartered banks.



This bank teller is a Mohawk Indian of the Six Nations. Women are increasingly finding careers in banking and in 1961 Canada's first two women bank managers were appointed.

also admit co-operatives as members. In 1960 the membership in the 27 centrals consisted of 5,144 credit unions and co-operatives, and total assets amounted to \$176,000,000, an increase of 13 p.c. over the previous year. Loans granted by centrals in 1960 totalled nearly \$75,000,000.

The Canadian Co-operative Credit Society, organized in 1953, serves as a central savings and credit organization at a national level for the co-operative movement in Canada. It accepts surplus funds on deposit from member associations and borrows money from them and from banks. Funds can be invested in bonds, debentures and other securities approved by the Superintendent of Insurance. In 1960 it made loans totalling \$6,726,000. As of December 31, 1960, its total assets amounted to \$144,792.

Growth of Credit Unions—Canada, 1920-60

Year	Provinces	Credit Unions Chartered	Members	Members as a Percentage of Total Population	Assets
	No.	No.	No.	p.c.	\$'000,000
1920 ¹	1	113	31,752	—	6
1925 ¹	1	122	33,279	—	8
1930 ²	2	179	45,767	—	11
1935 ²	3	277	52,045	—	10
1940	9	1,167	201,137	1.8	25
1945	9	2,219	590,794	4.9	146
1950 ⁴	10	2,965	1,036,175	7.5	312
1955	10	4,100	1,731,328	11.1	653
1959 ³	10	4,570	2,360,047	13.3	1,158
1960 ⁴	10	4,667	2,544,300	13.9	1,299

¹ Quebec only.

² Quebec and Ontario.

³ Quebec, Ontario and Nova Scotia.

⁴ Newfoundland included for the first time.

⁵ Revised for Ontario.

⁶ Estimated for Ontario.

Insurance

Insurance companies in Canada are supervised by the federal and provincial governments. The federal Department of Insurance is mainly concerned with the solvency of companies; the provincial departments are mainly concerned with statutory conditions of policy forms and licensing of agents, brokers and adjusters. Uniformity of the provincial laws governing insurance is continually under discussion by the Association of Superintendents of Insurance of the Provinces of Canada.

More than 90 p.c. of the insurance business is transacted by companies registered with the federal department. These companies make full annual returns on their business and must maintain deposits with the Registrar General or with Canadian trust companies. For British and foreign companies these deposits must be at least equal to their liabilities in Canada. Provincial departments of insurance exercise a similar control over provincial companies which are not registered by the federal department.

At the end of 1960 there were 98 companies (36 Canadian, 15 British and 47 foreign) and 45 fraternal benefit societies registered for life insurance and 379 companies (109 Canadian, 87 British and 183 foreign) registered for fire and casualty insurance.

During 1960 life insurance premiums totalled \$790,274,000 and death, disability and maturity claims amounted to \$265,640,000, while the amount of life insurance in force exceeded \$47,941,600,000. The excess of premiums over claims and expenses is added to the policyholders' funds, which are required to pay future benefits. The investment of these funds has been an important factor in the economy of Canada in helping to finance the building of homes and highways, pipelines and public utilities.

Fire insurance premiums totalled \$238,686,000 in 1960 and claims amounted to \$121,054,000. Casualty insurance premiums amounted to \$673,921,000 and claims were almost \$389,942,000. Casualty insurance covers a wide variety of hazards, from personal and automobile accidents to sickness, theft, forgery, damage to property, damage from such natural causes as earthquakes, hail, wind and flood and even explosions and sprinkler leakage.

The new headquarters building of the Fédération des Caisses Populaires Desjardin in Lévis, Quebec. Credit unions in Canada had their start in Quebec and that province accounts for 52 p.c. of the membership and 59 p.c. of the assets of all Canada's credit unions.





Turbo-props—symbols of the jet age. Trans-Canada Air Lines is the first airline in the world to operate with jet or jet-prop planes only; other airlines are adding jet-props every year. Canada has moved into an age of faster transport, lower fares and greatly expanded and modernized airport facilities.

Transportation

The transportation services of any country are taken for granted until some contingency arises which causes their interruption. The breakdown of a snowplough, a few hours of visibility zero, an accident or a strike brings out in startling clarity our tremendous dependence on the orderly, systematic movement of people and things from one place to another at an appointed time.

Fortunately, in Canada such interruptions in transportation services are rare. By air and rail and ship, by truck and bus and car, even by pipelines hundreds of miles long, the vast and often remote areas of Canada are kept supplied with their needs and with the means of sending out the products of their industry, whether it be milk to the next town or newsprint all around the world.

To ensure that the agencies of transportation operate with maximum efficiency, dependability and economy, the Federal Government exercises a considerable degree of control. Three bodies in particular—the Board of Transport Commissioners for Canada, the Air Transport Board and the Canadian Maritime Commission—exercise regulatory functions over all forms of public transportation, and also telephones and telegraphs.

The Board of Transport Commissioners has jurisdiction, under more than a score of Acts of Parliament, including the Railway Act, the Transport Act and the Pipe Lines Act, over transportation by railway and by inland water; over communication by telephone and telegraph; and over the transmission of oil and natural gas by interprovincial or international pipelines.

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 four telephone companies and over 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. Since the end of World War II there has been a succession of applications for authority to make general freight rate increases and general telephone rate increases.

An interior view of the merchandise services terminal at Vancouver which provides integrated handling facilities for all classes of goods shipped by all-rail haul, piggy-back, highway, combined truck and rail haul, and air services. Shown is the under-floor towveyor, a chain 1,132 feet long that runs in a recessed channel under the floor with a hook-up device every 12 feet on which rubber-tired carts can be hitched and moved around. This terminal covers 38,000 square feet and has 120 points of entry; it accommodates 30 trailers, 48 pick-up and delivery trucks and 40 box cars.





A seemingly endless train, loaded with 10,000 tons of iron ore, winds its way 360 miles from mine to port. The provision of rail and transportation into remote and often difficult country is an important concomitant of mining development.

The Air Transport Board issues regulations 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.

The Canadian Maritime Commission was constituted for the purpose of examining into, keeping records of, and advising the Minister of Transport on matters pertaining to Canadian shipping and shipbuilding services.

Railways

Two great transcontinental railway systems operate almost all of the railway facilities in Canada—the Canadian National Railway System, a government-owned body, and the Canadian Pacific Railway Company, a joint stock corporation. These systems, though highly competitive, still co-operate in many fields where duplication of service is not profitable. Both systems, in addition to their wide-flung railway and express operations and their extensive maintenance services, conduct other transport facilities—fleets of inland and coastal vessels and ferries, ocean-going steamships, nation-wide telegraph services providing communication between all principal points of Canada with connections to all parts of the world, highway transport services, year-round and resort hotels, and extensive passenger and freight air services over domestic and international routes.

Revenues pertaining to railway operations of the two lines in Canada during 1960 totalled \$1,001,773,679, down 6.1 p.c. from \$1,066,994,641 in 1959. During the same period, railway expenses declined 5.0 p.c. to \$978,359,096 from \$1,029,587,310. Revenue per passenger mile increased slightly to an average of 3.09 cents from 3.06, while revenue per ton-mile of freight averaged 1.51 cents in 1960, in contrast to 1.58 a year earlier.



The control console in the retarder tower at the modern \$15,000,000 freight marshalling yard at Moncton, N.B., which is equipped with such aids as an electronic brain, integrated data processing, closed circuit television, radar, two-way radio, teletype and tape recorders to speed the sorting of freight cars.

During 1960 both railways continued to improve their equipment and services. A landmark in railroading history was achieved when both companies completed the switchover from steam to diesel locomotives for freight, passenger and yard service.

Both lines expanded and extended the "piggy-back" service, by which flatcars carry loaded trailers from one point to another, where they are once more hooked up to motors and return to the highways. Loadings of highway trailers increased 14.5 p.c. in 1960 over 1959 and averaged about 3,000 a week at the end of the year.

To tempt the dwindling passenger trade, both railways offer special services. Included in these are the "Go Now—Pay Later" time-payment plans; credit cards offering credit for railway or airline accommodation, telegraph, express, hotel and car rental services; and plans for a reduction in rates for groups travelling together and all-inclusive rates covering transportation, berths, meals and tips. "Railiners"—self-propelled diesel cars—are used effectively on short runs. Cafeteria service on trains has proved popular and is being extended.

Telex, the service which enables rapid printed communication between subscribers and which is operated jointly by the two railways, was extended. In 1961 the number of Telex subscribers had grown to more than 3,000.



Trans-shipment of dry, granular or powdered commodities from airslide railway car to tanker truck is effected by siphon. At present, flour and sugar are moved by this method, eliminating the costs of bagging and the problems of breakage, wear and leakage.

Late in the year a wire photo facsimile service was introduced on an experimental basis between Montreal and Toronto. This system, which is jointly operated by the two major railways, instantly transmits and reproduces an exact copy of typed or handwritten letters, drawings and documents.

The micro-wave television network, also a joint operation, was completed between Rimouski and New Carlisle, Quebec during the year and extended to Moncton, N.B., early in 1961.

Shipping

Bounded on three sides by salt water and, along nearly half the fourth, by a deep-water inland lake and river system, Canada has always had a vital interest in shipping. Apart from foreign shipping, there is a tremendous fleet of smaller ships plying the coastal trade. In the interior, there are lakes and rivers which provide the only form of ground transportation to many remote, but important, areas. These bodies of water are frozen for many months of the year; water transportation in these areas, then, while statistically unimportant, is invested with an urgency less apparent where the water is open all year.

Canadian aids to navigation include adequate marking of dangerous areas by lighthouses and other marine signals, an efficient pilotage service,



To construct this unique lighthouse at the mouth of the Saguenay River, the caisson was built on land, floated into position, sunk and filled with rocks and concrete. The superstructure was then built.

ice forecasting and icebreaking services, and radio-signal and direction-finding stations. Comprehensive federal legislation and regulations ensure a high standard of safety for navigation in Canadian waters.

Cargoes unloaded from foreign countries were up 13 p.c. to 39,094,315 tons from 34,554,388 in 1959. The largest increases were in crude petroleum, up 2,800,000 tons to 6,951,074 from 4,125,395; iron ore, up 2,300,000 tons to 5,504,110 from 2,306,040, and bauxite, up to 2,793,139 tons from 2,085,256.

Except for the coastal trade, the waterways of Canada—the rivers, lakes and canals—are open on equal terms to the shipping of all nations, although most of the inland trade is carried in ships of Canadian registry. During 1960, 153,500 vessels engaged in international or coastwise shipping arrived at Canadian ports, compared with 143,953 vessels in 1959 and 130,944 in 1958. The total tonnage of all cargo loaded and unloaded at Canadian ports in international shipping amounted to 89,648,401 tons in 1960 compared with 85,009,691 tons in 1959. Of this tonnage, a total of 25,943,007 or 29 p.c. was carried in vessels of Canadian registry.

Cargoes loaded for and unloaded from the United States totalled 46,253,632 tons and constituted 51.6 p.c. of Canada's total waterborne foreign trade. Of this traffic Canadian vessels carried 55.8 p.c. In trade with other countries, however, Canadian vessels carried only 154,541 tons of a total of 43,394,769. Most of the remainder was carried in vessels of the United Kingdom, Norway, Liberia, Panama, Germany, Greece, Sweden and Japan.

Cargoes loaded at Canadian ports for foreign countries in 1960 totalled 50,554,086 tons, compared with 50,455,303 tons in 1959. Export shipments from the Atlantic and lower St. Lawrence River ports declined 4.8 p.c. to 29,733,323 tons from 31,242,709 in 1959. At Great Lakes and upper St. Lawrence River ports export shipments showed a slight rise to 8,707,697 tons from 8,662,554, while shipments from Pacific coast ports increased 14.8 p.c. to 12,113,066 tons from 10,550,040. The major commodities exported by ship in 1960 included: iron ore, 18,789,166 tons; wheat, 6,887,080 tons; gypsum, 4,241,836 tons; lumber, 2,871,185 tons and newsprint, 2,857,267 tons.

Canals

The major canals in Canada are those of the St. Lawrence-Great Lakes waterway—the three new canals of the St. Lawrence Seaway, with their seven locks, providing navigation for vessels of 25-foot draught from Montreal to Lake Ontario; the Welland Ship Canal by-passing the Niagara River between Lake Ontario and Lake Erie with its eight locks; and the Sault Ste. Marie Canal and lock between Lake Huron and Lake Superior. These 16 locks overcome a drop of 580 feet from the head of the lakes to Montreal. The St. Lawrence Seaway was opened to navigation on April 25, 1959, and a new phase in the history of this waterway began. From Montreal to Lake Ontario the former bottleneck of narrow shallow canals and of slow passage through 22 locks has been overcome, giving faster and safer movement for larger vessels. The new locks and linking channels now accommodate all but the largest ocean-going vessels and the upper St. Lawrence and Great Lakes are open to 80 p.c. of the world's saltwater fleet. During 1960 the volume of freight carried through the St. Lawrence section (Montreal to Lake Ontario) totalled 20,752,161 tons, compared with 13,499,698 in 1956, the peak year prior to the opening of the Seaway.

Subsidiary Canadian canals or branches include the St. Peters Canal between Bras d'Or Lakes and the Atlantic Ocean in Nova Scotia; the St. Ours and Chambly Canals on the Richelieu River, Quebec; the Ste. Anne, Carillon and Grenville Canals on the Ottawa River; the Rideau Canal between the Ottawa River and Lake Ontario; and the Trent and Murray Canals between Lake Ontario and Georgian Bay in Ontario. The commercial value of these canals is not great but they are maintained to control water levels and permit the passage of small vessels and pleasure craft. The Canso Canal, completed in 1957, permits shipping to pass through the causeway connecting Cape Breton Island with the Nova Scotia mainland. During 1960, 52,946,883 tons of freight passed through all Canadian canals in 29,629 vessels.

A deep-sea freighter going up the Fraser River toward New Westminster, B.C., passes over the Deas Island tunnel which is part of the Fraser Delta Throughway.



Harbours

A considerable part of the goods carried in Canada, both in domestic and international trade, use water facilities for some portion of their journey. The interchange of movement from land to water routes and vice versa is handled at many ports on the sea coasts and along the St. Lawrence-Great Lakes waterway all of which are well equipped with the necessary docks and wharves, warehouses, equipment for the handling of bulk freight, harbour railways, grain elevators, coal bunkers, oil storage tanks and dry docks.

Eight of the principal harbours are administered by the National Harbours Board, a Crown corporation responsible to Parliament for their efficient operation. Nine other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are 335 public harbours, all of which are under the supervision of the Department of Transport. The harbours administered by the National Harbours Board are: Halifax and Saint John on the Atlantic seaboard; Chicoutimi on the Saguenay River, and Quebec, Three Rivers and Montreal on the St. Lawrence River in Quebec; Churchill on Hudson Bay; and Vancouver on the Pacific coast. Most of these ports also have dock and handling facilities owned by private companies.

An overall construction program of the National Harbours Board and other administering agencies keeps Canadian harbour facilities in line with requirements. In 1960 this included aids for Seaway channels, new and improved wharves and transit sheds, and additions and improvements to grain elevators and other existing facilities.

The harbour of Montreal, one of the world's largest inland seaports, is 58 feet above sea level.





One of the newest additions to the Great Lakes fleet, the *Red Wing*, with a length of 730 feet and a beam of 75 feet, is the largest ship that can be accommodated through the locks on the St. Lawrence Seaway.

The freight movement through a large port includes that loaded and unloaded from sea-going vessels, the cargo handled by coastal vessels which is as large or larger, in-transit movement, and the movement from one point to another within the harbour.

Foreign and Coastwise Trade through Ports Handling over 2,000,000 Tons in 1960

Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal.....	3,800,382	5,868,010	3,545,404	4,674,112	17,887,908
Vancouver.....	5,986,803	914,512	2,797,487	3,356,564	13,055,366
Sept Îles.....	10,383,696	165,999	707,436	248,961	11,506,092
Port Arthur.....	2,988,572	96,413	5,081,596	160,556	8,327,137
Hamilton.....	229,355	7,003,276	334,107	583,285	8,150,023
Halifax.....	2,407,542	3,225,538	1,554,938	415,944	7,603,962
Sault Ste. Marie.....	383,769	3,402,381	142,650	774,537	4,703,337
Toronto.....	291,282	2,095,822	523,829	1,648,141	4,559,074
Saint John.....	1,096,277	2,249,272	689,654	418,705	4,453,908
Quebec.....	859,171	772,170	185,910	2,412,920	4,230,171
Fort William.....	611,515	346,497	2,323,909	497,354	3,779,275
New Westminster.....	1,132,659	162,404	1,169,410	1,277,493	3,741,966
Port Alfred.....	441,179	2,650,820	122,087	417,976	3,632,062
Sydney.....	185,303	336,141	1,414,412	1,385,827	3,321,683
Sarnia.....	91,509	1,026,641	1,676,904	500,247	3,295,301
Bell Island.....	2,532,928	20,000	614,747	34,003	3,201,678
Three Rivers.....	566,815	426,647	147,268	1,611,685	2,752,415
Sorel.....	798,457	372,491	177,614	1,371,474	2,720,036
Port Colborne.....	1,118,229	295,505	373,797	816,351	2,603,882
Hantsport.....	2,189,015	9	—	960	2,189,984

Certain of these ports, such as Sept Îles, Bell Island, Port Alfred and Hantsport serve large industrial establishments rather than large aggregations of population and their cargoes are therefore limited mainly to the movement of such heavy bulk raw materials as iron ore at Sept Îles and Bell Island, bauxite at Port Alfred and gypsum at Hantsport.

Civil Aviation

The great increase in the number of larger and faster jet aircraft operated by both domestic and international airlines and using Canadian airports and facilities has resulted in continuous careful study and planning to ensure that appropriate services and control are provided in the development and operation of airports, air traffic control, communications and navigational facilities, meteorological services and adequate and proper regulatory procedures in all areas.

Airports taken over for operation by the Department of Transport during the year 1960-61 were Edmonton and Halifax International, Williams

Lake, Cambridge Bay and Inuvik. Plans were developed for the extension and strengthening of runways, taxiways and parking ramps at Moncton, Quebec, Montreal, Toronto, Winnipeg, Calgary, Abbotsford, Vancouver and Victoria, and new runways for jet operations were planned for Montreal and Calgary. Almost 500 airport licences were in force in March, 1961. Airport operation revenues totalled \$11,384,755, compared with \$9,377,040 in 1959-60. This increase resulted from the introduction of the air route facilities fee, the introduction of larger aircraft, concessions in the new terminals, and the operation of parking lots.



The helicopter has been called the "workhorse of the air" and this one proved its versatility by moving, in four days, 50 tons of fill, pre-assembled steel framework and two complete sections of a building, 13 tons of lumber and roofing materials, a 300-foot transmitter and on 1,800-pound steel radio tower base to a mountain top which was the relocation site of a radio station and to which there were no roads. The 107-foot radio tower base shown here was mounted as the helicopter hovered.



The \$20,000,000 engineering, maintenance and overhaul base at Montreal International Airport, the first and largest of its kind designed solely to handle turbine aircraft. The overhaul hangar boasts the largest single cantilever roof in the world; to its right is a double cantilever maintenance hangar.

Throughout the year a number of training courses are given or arranged by the Department of Transport in pilot training, air traffic control, meteorology, radio operation and inspection, and ice observation. Of the 4,014 private pilots licensed, 3,031 were trained under the Department of Transport's assistance plan. Seventy schools and 40 flying clubs took part in this program.

Of the 565 commercial air carrier operating services in Canada in 1961, 331 were Canadian and 224 were foreign and Commonwealth. There were 5,429 registered aircraft, an increase of 515 over the previous year. The greatest increase was in the private category, with a registration of 3,358 compared with 2,869 in 1960. As of March 31, 1961, there were 19,257 licensed pilots in Canada.

During the year 1960, Canadian commercial air carriers transported a record number of revenue passengers, a total of 4,726,849, and carried 237,986,139 lbs. of revenue goods, including 34,633,139 lbs. of mail. They flew a total of 23,273,042 revenue miles in 688,675 hours.

Six scheduled carriers, those holding a Class 1 licence to provide transportation between designated points in accordance with a schedule, were responsible for the major part of these operations. They transported, in 1960, 87.9 p.c. of all revenue passengers flown and 51.8 p.c. of the revenue goods. In unit toll service, they flew 2,652,134,265 revenue passenger-miles or 99.3 p.c. of the total and 46,763,201 revenue goods ton-miles or 95.4 p.c. of the total. On the international routes only which are serviced by the two largest scheduled carriers, Trans-Canada Air Lines and Canadian Pacific Air Lines, the revenue passenger-miles performed amounted to 1,022,032,097 and the revenue goods ton-miles numbered 15,308,474.

Foreign air carriers holding licences to operate in Canada transported 724,301 revenue passengers and 16,706,880 lbs. of revenue goods in 1960. These figures represent the traffic carried to and from Canadian ports only and exclude passengers and goods in transit through Canada.



At the Department of Transport's Air Services School at Ottawa Airport, air traffic control students receive basic training on a unit that simulates actual aircraft movement and control tower operations. In its first year of operation, 1960-61, the school graduated 355 students as radio operators, air traffic controllers and meteorological technicians.

In addition to the airlines operating scheduled services, a number of smaller airlines operate non-schedule services, many of them to sections of Canada that are inaccessible by other means of transportation. They also supply such specialized services as recreational flying, aerial photography and surveying, aerial pest control and aerial advertising. Among the private pilots are a growing number of farmers who ride the range, spread fertilizer and insecticides and even do their shopping by air.

Operations of Canadian Air Carriers, All Services, 1959 and 1960

	Scheduled carriers	Non- scheduled carriers	Total 1960 ¹	Total 1959
	\$	\$	\$	\$
Operating revenues:				
Unit toll transportation:				
Passengers.....	166,026,451	2,774,400	168,800,851	152,317,247
Express.....	3,400,599	149,061	3,549,660	3,630,738
Freight.....	9,830,069	1,066,707	10,896,776	9,201,872
Excess baggage.....	1,744,386	80,126	1,824,512	1,716,602
Mail.....	13,089,277	696,228	13,785,505	13,437,772
Total unit toll transportation.....	194,090,782	4,766,522	198,857,304	180,304,231
Bulk transportation (charter and contract).....	6,763,097	22,063,728	28,826,825	29,003,250
Specialty and non-flying services.....	2,641,476	7,104,290	9,745,766	11,116,077
Total operating revenues.....	203,495,355	33,934,540	237,429,895	220,423,558
Operating expenses—total.....	207,337,538	31,868,453	239,205,991	219,487,993
Operating income (loss).....	—3,842,183	2,066,087	—1,776,096	935,565
Net income after income taxes.....	—7,278,261	1,179,626	—6,098,635	—2,484,178
	No.	No.	No.	No.
Revenue passengers carried.....	4,155,016	571,833	4,726,849	4,681,264
	Lbs.	Lbs.	Lbs.	Lbs.
Revenue goods carried:				
Cargo (freight and express).....	84,343,622	112,551,284	196,894,906	196,176,343
Excess baggage.....	6,138,882	319,212	6,458,094	6,812,019
Mail.....	32,830,815	1,802,324	34,633,139	32,894,779
Totals.....	123,313,319	114,672,820	237,986,139	235,883,141

¹ Preliminary.

Highways and Roads

The total expenditure by all levels of government on highways, rural roads and urban streets amounted to \$1,021,000,000 in 1959, representing a per capita expenditure of \$59. As in previous years the chief spending agencies were the provincial governments which accounted for 67.4 p.c. of the total expenditure in 1959, including assistance to municipalities. Federal government expenditures accounted for 10.5 p.c. and municipal and other agencies for the remainder.

Of the total \$1,021,000,000 spent in 1959, \$829,000,000 represented expenditures on highways and rural roads and \$192,000,000 on urban streets. Construction and maintenance expenses accounted for 70 p.c. and 25 p.c. respectively of highway and rural road expenditures and 60 p.c. and 36 p.c. of the amount spent on urban streets.

Total surfaced mileage of highways and rural roads rose to 269,000 miles in 1959, an increase of over 100 p.c. from the 131,000 reported in 1945. Paved roads accounted for 46,000 miles of the total with the remainder being gravel surfaced. Urban street mileage increased to 38,000 miles in the same year with just over 34,000 miles of them surfaced.

Many current major construction projects are concerned with improving the flow of urban traffic in the face of an ever increasing motor vehicle population. To ease traffic congestion, the major metropolitan areas are building limited access thoroughways such as the Metropolitan Boulevard running east and west across Montreal Island, the Ottawa Queensway and the Frederick G. Gardiner Expressway and Don Valley Parkway in Toronto. Some sections of these highways are already open to traffic.

Construction of provincial and interprovincial highways has also proceeded apace. In 1960 Quebec became the tenth province to agree to

Now it's piggy-back piggy-back, when new cars loaded on trailers are loaded on flatcars.



participate in the Trans-Canada Highway program. In all other provinces the Trans-Canada Highway was open to traffic in that year with the exception of one stretch in British Columbia. Target date for the completion of the whole project is now December 31, 1963.

During 1959 the Montreal-Laurentian Autoroute was completed and opened as a toll facility. This new 70 m.p.h. throughway, the first toll highway in Canada, has vastly improved access to the playground north of Montreal. Other recent interesting developments were the opening in 1960 of two new international toll bridges linking Canada to the United States of America. Although 1,000 miles apart both bridges had their Canadian terminals in Ontario with one joining Prescott, Ontario to Ogdensburg, New York and the other Rainy River, Ontario to Baudette, Minnesota.

Motor Vehicles. For the fifteenth consecutive year motor vehicle registrations continued to increase, reaching a record 5,256,341 in 1960 compared with 5,017,686 in 1959. Of the total, 4,104,415 were passenger car registrations (10 for every 43 Canadians); 1,117,450 were commercial vehicles (including 1,038,567 trucks, 17,562 buses and 61,321 other types); and 34,476 were motorcycles. Registrations by provinces and territories were: Newfoundland, 61,952; Prince Edward Island, 30,147; Nova Scotia, 187,065; New Brunswick, 138,469; Quebec, 1,096,053; Ontario, 2,062,484; Manitoba, 285,689; Saskatchewan, 335,148; Alberta, 486,370; British Columbia, 564,351; and the Yukon and Northwest Territories, 8,613.



The tremendous increase in road and highway traffic has led to the construction of complicated interchanges outside major cities across Canada.

Provincial revenues from motor vehicle registrations and licences also reached a new high at \$172,238,859, an increase of \$10,164,404 over 1959. Motive fuel tax revenues rose to \$396,099,721 derived from the sale of 3,139,200,000 gallons, most of which was consumed by motor vehicles on public roads.

During 1960, 447,771 new passenger cars were sold valued at \$1,289,073,000 as well as 75,417 commercial vehicles valued at \$285,754,000. Sales of imported British and European passenger cars rose for the sixth year in succession to a new high of 125,967 vehicles valued at \$251,905,000 increasing their share of the market to 28 p.c. To meet this competition North American manufacturers have in recent years produced the compact car which is an attempt to combine big car comfort with small car economy and maneuverability.

Although the number of motor vehicle traffic accidents increased by 2.2 p.c. to 247,829 in 1960 from 242,429 in 1959, it should be considered in relation to the increase in the numbers of motor vehicles and the amount of vehicle traffic. On the basis of total accidents per 1,000,000 vehicle miles, a decrease was recorded between 1959 and 1960 from 5.9 to 5.7. This decrease should give encouragement and a sense of achievement to the many groups and organizations formed to reduce accidents on the public roads.

Motor Transport. The spectacular growth of trucking in the years since World War II has resulted in its becoming a very important factor in the formulation of national transportation policies.

Surveys are conducted by means of random samples of vehicles selected from provincial registration files. Statistics are produced for four classes of vehicles; for hire, private intercity, private urban and private farm. Vehicles which do not perform normal transportation services such as cranes, tow trucks, road building equipment, etc., are excluded.

In 1959 an estimated 888,475 trucks and road tractors travelled 6,432,090,000 miles for an average distance of 7,200 miles each and carried 463,767,000 tons of goods to perform 15,937,533,000 ton-miles. Trucks for hire accounted for 54,495 or approximately 6 p.c. of the total trucks in 1959. They travelled 1,380,390,000 miles, carried 145,413,000 tons of goods and performed 10,553,130,000 ton-miles, or two thirds of the total ton-miles performed by all trucks. Revenue earned by these trucks was \$679,600,000, an average of \$12,500 per vehicle and 6.4 cents per ton-mile.



Even collecting tolls is becoming automatic. When a token is tossed into this toll machine, the traffic light ahead changes from red to green and the driver proceeds.



Uniformed hostesses have proved an attraction to bus-travellers. To meet the heavy competition in passenger travel, many buses are now equipped with air-conditioning, washrooms, public address systems, reclining seats and tinted windows.

Scheduled and chartered intercity buses carried 68,580,093 passengers in 1960 compared with 65,506,233 in the previous year. Vehicle miles travelled also increased to 97,306,010 from 95,397,121 in 1959 and operating revenues rose to \$51,076,097 from \$49,131,642. The average fare per passenger (excluding chartered service) was 68 cents, unchanged from the preceding year, again indicating that short-distance travel was the mainstay of operation.

Urban Transit Services. In 1960 urban transit systems carried 1,029,000,000 passengers as compared with 1,057,000,000 in 1959, continuing the downward trend in evidence since 1949. The continued mushrooming of subdivisions around the major urban centres and the increasing rate of ownership and use of private automobiles have both created serious problems for urban transit systems, for services have now to be provided over larger areas to carry fewer passengers. As the demand to make services more flexible has increased, most systems have come to rely on the motor bus for transporting passengers while trolley coaches and street cars have lost favour to the extent that the latter are now operated only in Toronto.

Growing traffic congestion in down-town areas has led to suggestions that people should be encouraged to use urban transit systems by paying bigger parking premiums and by granting buses certain privileges in traffic. One way to ease traffic congestion while providing a fast and efficient transit service is by the use of a subway. Toronto with one line in operation and another being built, is the only city in Canada with a subway. However, plans are also progressing for a subway in Montreal. Transit systems operating in the larger urban areas are usually municipally owned but in the smaller centres private ownership is more prevalent.

Pipelines

Pipelines are now a major element in Canada's vast transportation network. Since 1950, when pipelines were a negligible factor in intercity freight traffic, growth has been so rapid that oil and gas pipelines now account for about one-fifth of intercity freight ton-miles.

Until 1950 Canada was a country with large potential reserves of oil and gas landlocked in the centre of a vast continent. The nation was dependent upon imports of coal and oil for the populous areas of the west coast and the lower Great Lakes-St. Lawrence River system. Since then the world's longest oil and gas pipelines, nearly 2,000 miles in length, have been built to link the Western Canadian oil and gas fields of Alberta and Saskatchewan to major cities as far east as Montreal. In addition, two major pipelines, several hundred miles in length, cross the Rocky Mountains and supply the lower mainland of British Columbia and Pacific northwest United States. In 1961 a new 1,100-mile pipeline was completed from Alberta to California, of which 400 miles was in Alberta and British Columbia.

In the 10-year period since 1950, over \$1,300,000,000 has been spent for about 12,800 miles of oil and gas pipeline facilities. Revenues of these pipelines totalled about \$185,000,000 in 1960.

Oil Pipeline Transport

The oil pipeline transport industry moves crude oil from the oil fields in Alberta, Saskatchewan and Manitoba to the major refineries located across Canada from Vancouver to Toronto. It operates about 8,300 miles of pipeline and ancillary facilities worth almost \$500,000,000. In 1960 the industry carried 316,000,000 barrels or an average of 861,000 barrels per day and the traffic was almost 18,000,000,000 ton-miles. One major new pipeline, Western Pacific Pipelines Limited, was constructed during the year to move oil 505 miles from northeastern British Columbia to Kamloops, British Columbia and then by Trans Mountain Oil Pipeline to Vancouver.



Expansion of capacity of natural gas pipelines is achieved by installation of compressor equipment. This 9,000 hp. unit is one of 13 in operation on the main line carrying gas from the prolific fields of Western Canada to Ontario, Quebec and the United States.

Gas Pipeline Transport

The gas pipeline transport industry encompasses those pipelines which are engaged in the transportation of gas from gas fields or processing plants to local distribution systems. The industry has over \$750,000,000 invested in pipeline property and equipment and about 4,400 miles of pipeline. In 1961 the industry is expected to carry more than 400,000,000,000 cubic feet of gas, an increase of 40 p.c. from the previous year. Total traffic will be over 9,000,000,000 ton-miles. In 1960 the industry carried 300,000,000,000 cubic feet for an average transport cost of 0.8 cents per ton-mile. In that year the gas was carried an average distance of 966 miles and illustrates the tremendous distances involved in this industry. The average throughput per mile of pipe in 1960 was 190,000 Mcf. per day and was in the order of 200,000 Mcf. per day in 1961.

Gas Utilities. Although not classified as part of the pipeline transport industry, gas distribution utilities form an integral part of a vast pipeline system which brings gas from the producing fields into the homes, shops and factories consuming this energy.

The gas utilities industry receives gas from the gas pipeline transport industry or directly from fields and processing plants and delivers it through distribution networks to over 1,000,000 ultimate customers in almost all of Canada's major cities west of Montreal. In 1961 this industry delivered about 380,000,000 Mcf., an increase of 17 p.c. from the previous year. The residential sales account for about 30 p.c. of the market, industrial 55 p.c., and commercial 15 p.c. Alberta is the largest consuming province, taking nearly 40 p.c. of the national market, followed by Ontario which consumes 35 p.c. This industry operates about 26,000 miles of pipeline of which 8,000 are distribution mains smaller than 3" in diameter.



Flexible, towable containers, with capacities ranging from 15 to 320 tons, are used extensively for carrying petroleum products. During the summer of 1961, the Department of Transport tested these units in the Arctic where difficulties often exist in bringing oil into shore because of shallow water.



Part of a shipment of 14,000 oil drums, covering nearly four acres of the loading wharf at Montreal East, prior to being loaded on the S.S. C. D. Howe for delivery to the far-flung outposts skirting the Arctic Ocean.

Pipeline Transport

Year	Pipeline Systems	Pipeline Mileage		Net Receipts	Salaries and Wages	Total Assets
		gathering	trunk			
Oil Pipelines				'000	\$'000	\$'000
1955	26	887	4,192	285,111 bbls.	6,196	408,405
1956	30	1,405	4,646	373,542 "	7,930	447,801
1957	32	1,778	5,095	416,898 "	9,541	498,008
1958	32	2,000	5,147	401,751 "	9,322	510,756
1959	37	2,382	5,426	449,068 "	9,351	515,682
1960	39	2,775	5,661	470,669 "	9,639	..
Gas Pipelines						
1959	13	298	4,110	222,601 Mcf.	6,525	734,108
1960	16	306	4,365	301,409 "	7,147	788,296
	Systems	Pipeline Mileage	Sales		Salaries and Wages	Total Assets
			Natural Gas	Manufactured and Other Gases		
			'000 Mcf.	'000 Mcf.	\$'000	\$'000
Gas Utilities						
1959	86	24,811	283,230	2,248	44,609	810,242



At the opening of the largest single microwave project in Canada near Whitehorse, Y.T. in July 1961, Prime Minister John G. Diefenbaker spoke by telephone to U.S. President John F. Kennedy in Washington. The \$25,000,000 system provides multi-channel telephone-telegraph communication along its 1,200-mile route from Grande Prairie, Alberta, where it is linked to the Alberta Government Telephones, to the Alaska border, where it connects with the U.S. Signal Corps network.

Communications

Communications media in Canada are at present in process of intensive development to meet the needs of the country. Widespread networks of telephone, telegraph, television and radio services are linked together to provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change. The familiar challenges of the country—its size, its topography, its climate, its small population—have been met with such success that today Canada possesses communication facilities and service unequalled elsewhere in the world. Further advances are in the making.

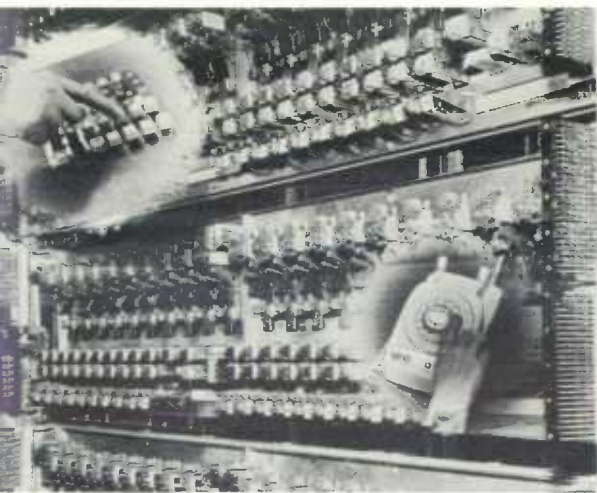
Telecommunications

Many telephone systems provide service across the nation; they number more than 2,500 and range in size from large shareholder-owned companies to small co-operative systems in rural districts. The privately-owned Bell Telephone Company of Canada operates throughout the greater part of Ontario and Quebec as well as in parts of Labrador and the Northwest Territories. It serves 63 p.c. of telephones in the country. The British Columbia Telephone Company, also shareholder-owned, serves 9 p.c. of the total. Four private companies cover the Atlantic Provinces and three provincially-owned systems serve the Prairie Provinces. Canada's eight largest systems are associated in the Trans-Canada Telephone System, which co-ordinates long-distance communication services on a nation-wide basis.

Canadian use of telephone service runs at a high level. During the past ten years the number of telephones has increased from 2,917,092 to 5,728,167—an average of one for every 3.1 persons. For the last eight years, Canadians have also earned the distinction of leading the rest of the world in the number of telephone conversations per capita. The estimated number of calls on all systems in 1960 was 9,579,860,970, representing an average of 1,672 calls per telephone and 537 calls per person. Long distance calls accounted for 215,274,970 of the total, most of them to points in Canada or between Canada and the United States. Long distance service makes possible the interconnection of practically all telephones in Canada, the United States and most other parts of the world. In Canada itself, long distance telephone service is provided by the separate systems within the territories they serve and, on a national scale, by the Trans-Canada Telephone System.

Improvement and extension of local and long distance services continue to absorb the bulk of invested money and labour. At the same time, with the development of the nation and its northward-reaching tendencies, Canadian telephone companies are being called upon to supply communications to many new and important centres of development. Within the past few years, wide reaches of the Canadian northland have been spanned by microwave, tropospheric scatter and high frequency radio systems as well as landlines.

A new fringe radio service is now provided in some areas for customers who are just out of range of the normal wire network. A radio unit is installed on the customer's premises, permitting two-way calling between subscribers in the fringe area and those served by the regular telephone network.



Direct distance dialing is now available to telephone subscribers in Montreal, Toronto and Vancouver, as well as in many smaller communities.

Automatic message accounting machines make detailed records of every customer-dialed long distance call on perforated tape, from which charges are calculated and billed.





A winter view of the microwave station at Creston, B.C.

About 88 p.c. of all telephones in Canada are now dial operated. In addition to dialing their local calls, many customers can also dial long distance calls, using Direct Distance Dialing. Plans call for the eventual extension of this service to overseas telephone traffic. This will be facilitated by the progressive introduction of All Number Calling throughout Canada and the United States. With All Number Calling, all telephone numbers will consist of seven numerals. The new numbers will provide the additional exchange prefixes needed for expanding service and future growth, as well as being compatible with the numbering systems in virtually all overseas countries.

The world's longest single microwave radio relay network, which spans Canada from coast-to-coast, was completed by the Trans-Canada Telephone System in 1958 and has already become an integral part of the nation's communications system. Capable in its ultimate form of carrying more than 2,400 long distance conversations and two television programs at the same time, the original system has already been expanded to enable telephone companies throughout Canada to keep abreast of the increased demand for their long distance services. Expansion of its television transmission capacity will provide for Canada's second national television network. During the summer of 1961 the nucleus of this second network was formed when Montreal, Ottawa and Toronto were linked together. Coast-to-coast operation is scheduled to begin in 1963, when the necessary facilities will have been added to the Trans-Canada Telephone System's microwave chain.

Numerous flexible services are provided by Canadian telephone companies for business and industry. Special conference circuits can be quickly arranged. Direct lines between plants, warehouses, retail outlets and many other business and industrial locations allow rapid exchange and processing of information in various forms. Telephoto and facsimile services make it possible for graphic material to be transmitted and reproduced exactly at a distant point. Radio installations link the traveller with the regular

telephone network, giving mobile service to such users as highway departments, trucking and construction firms, fire and ambulance services, police departments and oil pipeline companies. Successful experiments carried out in Canada in 1961 indicate that in the near future air travellers will be able to place calls over the long distance network while in flight.

Nation-wide teletype and leased-wire telegraph services are available through the facilities of the member companies of the Trans-Canada Telephone System. The two major railways provide similar services as well as message telegraph service throughout Canada.

Today, there is an ever-growing need in business and industry to process large volumes of information. Electronic devices, including computers and other business machines, can analyze and process this mass of data faster and more accurately than humans. Canadian telephone companies are developing services to meet the demands for rapid and efficient transmission of data. Data transmission devices will soon permit business machines to "talk" to each other with no more formality than that involved in placing a local or long distance telephone call.

The Canadian Overseas Telecommunication Corporation, a Crown agency, is responsible for most overseas communications. Working in conjunction with other international telephone agencies, COTC maintains channels of communication to a number of European countries by way of undersea cable and shortwave radio. The world's first transatlantic telephone cable, completed in 1956, is shared by the COTC with British and United States telephone systems. It was supplemented in 1961 by a Canadian-British cable, the initial step in a long-term plan to bring about a world-wide Commonwealth cable system. At present, transpacific telephone traffic is handled through a radio link between Vancouver, Australia and Japan; a cable system is being planned.

Ship-to-shore communications on the East Coast, the St. Lawrence River and the Great Lakes is handled by the Federal Government. On the Pacific Coast the British Columbia Telephone Company operates one of the most extensive radio telephone networks in the world. The radio beams of its northern stations reach out to the Arctic Circle.

A new communications cable, part of the Commonwealth network, is landed at Grosses Roches, Quebec, after the successful completion of a blasting project to provide a weather-safe cable lead-in. Canadians sent 2,663,600 cables in 1960.





Postal Service



One of the major physical changes in the Canada Post Office during 1961 has been the centralizing of its previously scattered Headquarters Branches at Confederation Heights, on the outskirts of Ottawa. The cluster of four postal buildings house the Administration, Financial, Purchasing and Stores, and Workshops Branches separately. Under this new arrangement, it is anticipated the administration of an ever-expanding postal service will be greatly facilitated.

Once again, the volume of mail handled and revenue realized by the Department attained an all time high. During 1960-61, postal revenue reached \$202,003,000; ten years ago, postal revenue for the first time reached \$100,000,000.



New letter carrier delivery was inaugurated at eleven cities across Canada,—the largest number of new establishments made in any one year under normal conditions. To keep pace with the continual growth of cities presently enjoying such service, over 250 new walks were provided. These inaugurations and extensions brought the total number of calls receiving letter carrier delivery to nearly 3,000,000.

There was excellent public response to an experimental system whereby a second attempt at delivery of parcel



Canadian postal stamps are versatile in subject matter. In this series the portraits of the first 11 of Canada's 13 prime ministers since Confederation are arranged chronologically from left to right. With the dates during which the incumbent held office, they are:

Rt. Hon. Sir John Alexander Macdonald; 1867-73; 1878-91.

Hon. Alexander Mackenzie; 1873-78.

Hon. Sir John Joseph Caldwell Abbott; 1891-92.



post mail was made for a nominal fee. As a result, the plan was extended to include other items which a letter carrier is unable to deliver in the regular manner because of no one being at home.

A noticeable increase in the volume of "Change of Address Announcement" cards with a corresponding reduction in redirection handling has been noted since the two cent prepayment, previously required on these cards, was eliminated.

The continual need for faster and more economical methods of handling the tremendous volumes of mail processed daily, especially through major offices, has made it necessary to rely more and more on mechanical equipment. Tentative plans call for the experimental introduction at one office of a segregating, facing and cancelling machine. This machine is capable of automatically stacking, facing-up and cancelling letters preparatory to case sortation. This will expedite one of the most important and time-consuming of all mailhandling operations. As an added convenience for patrons, the present manually-operated stamp vending machines, of which the Department has 2,100, have been complemented by a pilot order of 300 electrically operated machines for inside locations. Patrons have found these new machines easier to operate.



Rt. Hon. Sir John Sparrow David Thompson; 1892-94.

Hon. Sir Mackenzie Bowell; 1894-96.

Hon. Sir Charles Tupper; 1896.

Rt. Hon. Sir Wilfrid Laurier; 1896-1911.

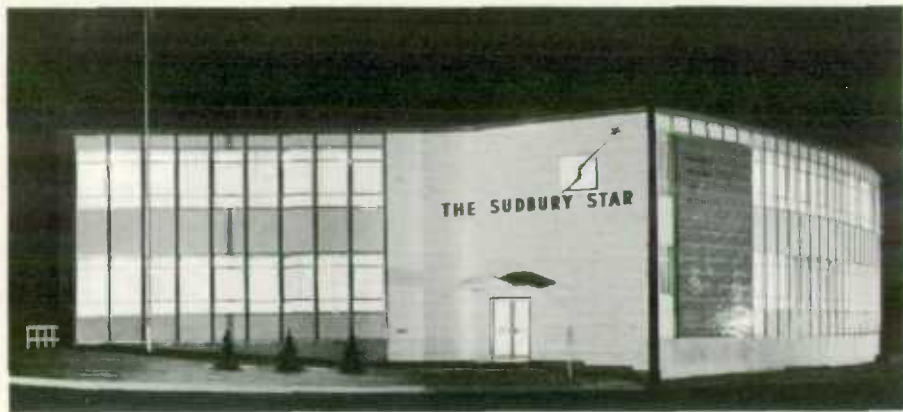
Rt. Hon. Sir Robert Laird Borden; 1911-20.

Rt. Hon. Sir Arthur Meighen; 1920-21, 1926.

Rt. Hon. William Lyon Mackenzie King; 1921-26, 1926-30, 1935-48.

Rt. Hon. Richard Bedford Bennett; 1930-35.





The new plant of the *Sudbury Star* was opened in 1961, with modern equipment, including that in the engraving room, shown on the right. In 1961 combined circulation of Canada's dailies exceeded 4,000,000; Canadians pay an estimated \$70,000,000 a year for their daily newspaper.



The Press

Canadian newspapers are not, generally speaking, politically partisan. Almost all are independent and pride themselves on providing objective, factual reporting. Even the views expressed on the editorial pages are, in the main, based on the decisions of the editorial staff rather than on rigid adherence to a superimposed policy. Most of the daily papers have one or more columnists who are free to express their personal views in their own columns and letters to the editors expressing the most individualistic reactions to public affairs are printed with no other censorship than that imposed by the laws of libel.

Every publishing day, more than 4,000,000 daily newspapers are printed by 116 publishers, about three-quarters of them in the afternoon and the remainder in the morning. Of these 116 dailies, 98 are in English, 12 in French and 6 in other languages. Twelve of them have circulations in excess of 100,000 and account for more than half of all papers sold. The dailies are published in urban areas and have some distribution in rural areas, but the latter depend for local news on weekly or monthly newspapers that cater to their particular interests.

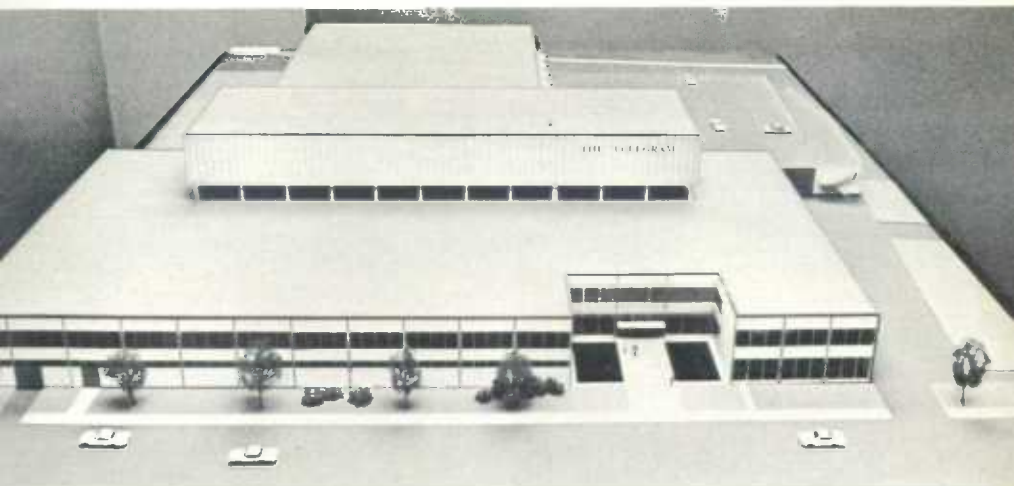
There is a sizeable foreign-language press; 96 periodicals are published in more than a score of languages. Of these periodicals, in addition to the six dailies, there are 54 weeklies.

Behind the newspapers lie two great news-gathering organizations, the Canadian Press and the United Press International. The CP, a co-operative venture formed in 1917, is owned and operated by the Canadian newspapers. It collects and delivers news and photographs of interest to newspapers and radio stations throughout the nation, and transmits items of world-wide interest through reciprocal arrangements with Reuters, the British agency, and the Associated Press, the United States co-operative.

The other service, United Press International serves directly North America, South America, Europe and Australia with news from Canada as well as 185 subscribers including 58 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.

Daily newspapers alone contribute about 75 p.c. of the revenue received from Canadian periodical publications, totalling about \$302,000,000 yearly, of which amount \$223,000,000 is realized from advertising and \$79,000,000 from sales. Printed and bound books were produced to the value of \$40,000,000 although less than half of that was classed as reading matter—the remainder being catalogues and other advertising material. Recorded imports of books and other printed matter greatly exceeded exports, the former amounting to \$100,873,000 in 1960, and the latter \$5,089,000. Newspapers, magazines and books consumed \$66,400,000 worth of newsprint and \$28,000,000 worth of book paper in 1960. The publishing and printing industries employed nearly 31,000 people whose salaries and wages amounted to \$135,000,000.

The architect's model of the new *Toronto Telegram* building now under construction and expected to be opened in the autumn of 1963. One of its unique features is a "heat-recapturing" system, by which the heat produced by mechanical and electrical equipment will be used to heat the rest of the building.



Canada, The Nation

The discovery and settlement of Canada are closely related to the development of international trade. In Europe in the 15th and 16th centuries, the first imports of silks and spices and other exotic items began to appear, brought back by explorers and adventurers from the Near and the Far East. Con-

vinced that there must be a western passage to India and China, intrepid sailors steered their tiny ships into the setting sun, finally to find anchorage off some point on the eastern coast of North America. North and south they ranged, trying to broach a sea passage to the Pacific Ocean. As they circumnavigated Atlantic islands and probed the riverways of this new country, they gradually realized that this seemingly barren and forbidding land was one which had been bountifully blessed with riches of great variety,

The most valuable fishing grounds in the world lie off the east coast of Canada where the ocean bed forms a shallow continental shelf extending far out to sea before suddenly dropping down into the ocean depths. Transportation is provided by lake and river systems, of which the largest carries ocean vessels 2,000 miles inland. With half the world's fresh water, Canada has plentiful low-cost electric power as well as water for irrigation in the dry belts of the prairies. The native animals provided the first export of the New World in the form of rich and varied furs, and from the forests which were their habitat came timber for ship-building, later sawn lumber for construction and, today, the raw material for the world's greatest supply of newsprint and second greatest source of pulp. The river valleys and the dry beds of vast and ancient seas nourish livestock and produce bountiful crops of grains and fruits and vegetables. Deep below these lands lie great pools of natural gas and petroleum and subterranean fields of coal. The Precambrian Shield, the world's oldest rock formation which is exposed over more than half the country, is a treasure-house of mineral wealth.

Four hundred years ago the secrets of Canada's natural resources were unknown and even today a full realization of its riches is not complete. The sequence of the discovery and exploitation of these resources is the economic history of Canada.

The first of Canada's riches to be discovered and exploited were the fisheries on the Atlantic banks and the Gulf of St. Lawrence. From early in the 16th century European fishermen made the voyage to the banks and shores of North America to fish the sea that Cabot reported as "swarming with fish, which can be taken not only with the net but in baskets let down with a stone". They were neither explorers nor settlers but they did resort



Maple leaves in autumn glory; Canada's national symbol.

to harbours to dry-cure their fish, a process adopted to save salt. There they met Indian trappers and began to trade iron and steel axes, knives, guns, needles, nails and cooking pots for furs (particularly beaver for felt hats).

So fast did the fur trade grow that European traders were vying with each other for charters of monopoly, and the natural sequel was the settling of colonists to defend them. In 1670 Charles II granted a charter to The Governor and Company of Adventurers of England Trading into Hudson's Bay and gave it a monopoly of trade through Hudson Strait and possession of the lands to be reached through the Strait. The company established trading posts on the shores of Hudson Bay and further inland. Competition with other traders was violent, resulting at times in open warfare. In 1821 the Hudson's Bay Company merged with its largest rival, the North West Company, and in 1870 it surrendered its territorial rights to Canada for £300,000, one-twentieth of the lands in the "fertile belt" in Western Canada and the sites of its posts. The Hudson's Bay Company remains today an important factor in Canadian trade, although it is now a retail organization with outlets both large and small, many of them in the northern areas of Canada.

During the 17th and 18th centuries, the pursuit of the fur trade brought settlers up the St. Lawrence and Ottawa Rivers and their tributaries, and an uncertain start was made in agriculture along the river valleys. The land had to be cleared, acre by acre, by hand, and the severity of the winters discouraged the settlers from raising livestock. In addition, economic and political rivalries among European powers involved the colonists in wars and the results of wars. For some it meant their expulsion from their settlements and all that they had laboriously established. For others it meant interruption of trade and transportation.

The Acadians—French settlers in Nova Scotia and Prince Edward Island—were deported from Canada, 6,000 to the United States and about 3,500 to France. But the French settlers on the banks of the St. Lawrence

The *Royal William*, 182-foot wooden paddle-wheel steamer launched at Quebec in 1831. When she was sent to Boston in 1833, she became the first British steamship ever to enter an American port. The same year she sailed from Pictou, N.S. to Gravesend, England in 25 days, later was sold to Spain and converted to a warship. This painting depicts her departure from Pictou.





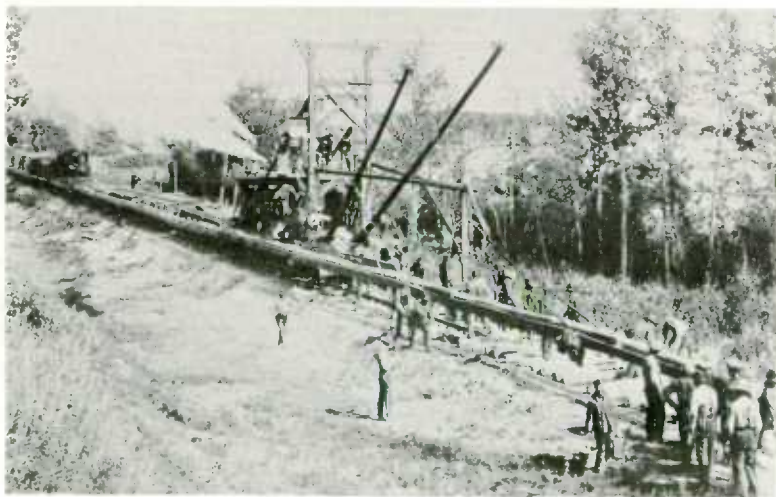
In the years between the discovery of gold in British Columbia in 1858 and the Klondike gold rush of 1896, thousands of prospectors sought riches in river beds.

weathered the storms. A century under the French paternalistic feudal system of agricultural settlement along the St. Lawrence had enabled the settlers to put down roots in the Canadian soil and, when French Canada fell to the British in 1760, the 60,000 French Canadians of the St. Lawrence Valley became British citizens without having to surrender their homes, their language, their religion or their way of life. They formed the nucleus of today's one-third of the Canadian population who boast French ancestry and who, with the people of British origin, furnish an interesting example of harmonious coexistence and of unity in diversity within a modern state.

Over the years, the resources of the forests had been developed: lumbering for export and shipbuilding became important industries.

In 1763 the Treaty of Paris put an end to the Seven Years War which had been waged in North America as in Europe. With the passing of all French North America east of the Mississippi into British hands, a period of consolidation and expansion began. The population was augmented in 1783 by the wave of refugee Loyalists—perhaps 40,000 of them—who sought life anew in Canada following the successful revolution of the thirteen American colonies against Great Britain. Free lands and supplies were offered to them as well as to immigrants from Britain; new roads were built and new methods of farming introduced. Trade and industry grew; flour, potash and staves were exported in exchange for manufactured goods.

Transportation was still mainly by water; gradually the canoe gave way to the batteau and Durham boat, the lake schooner and the steamer.



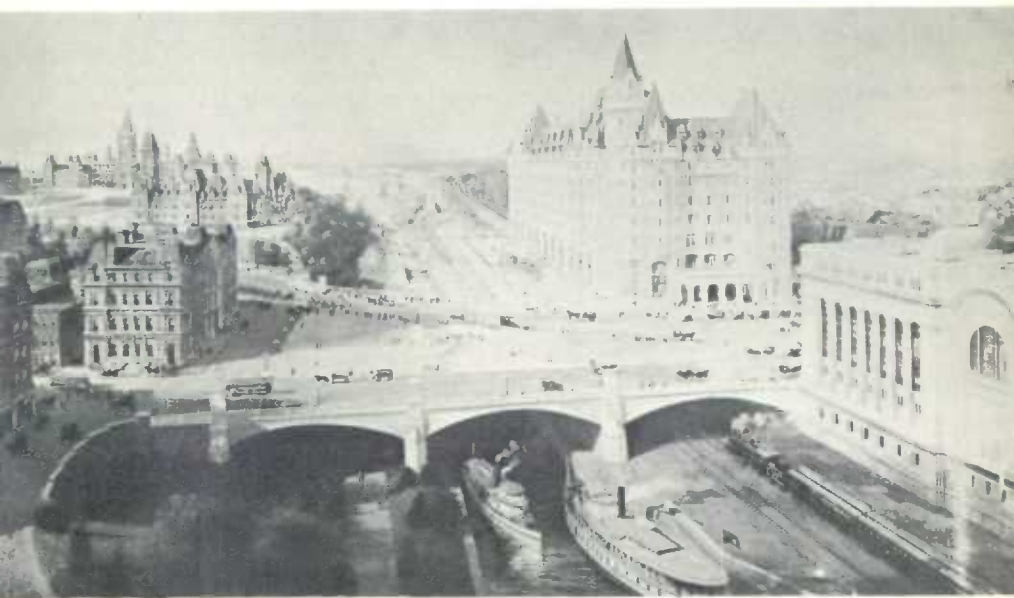
Building the transcontinental railway—lifeline of political unity.

The first steam vessel arrived at Quebec in 1809 and the first steamship was launched on Lake Ontario in 1816.

Between 1825 and 1849 canals had been built along the St. Lawrence waterway and during the 1850's construction of railways resulted, by 1860, in 1,800 miles of railway operated by 16 companies. By 1885 a transcontinental railway linked the Atlantic and the Pacific coasts. Improved transportation had a profound effect on the country's economy: in the last half of the 19th century, manufactures became increasingly important. Foundries, knitting mills and factories producing agricultural implements, hardware, textiles, soap, rubber goods, tobacco and paper sprang up and, near them, hydro-electric power plants. The westward flow of people and transportation opened up the prairies to large-scale grain-growing, led to the discovery of gold in British Columbia, which was the first hint of the mineral wealth hidden in the rocks and, on the West Coast, fishing, mining and lumbering assumed significant proportions.

As Canada moved into the 20th century, farmers, ranchers and miners and those who provide services to new communities poured into the country: between 1901 and 1911 the population increased by nearly 35 p.c. to a total of 7,206,643. Investment capital also flowed into the development of industry and national and international trade expanded year by year. The search for ores intensified and nickel, silver, gold, copper, lead, zinc and coal mines opened at many points throughout Canada. Agriculture became more specialized, as did the processing and marketing of food.

This period of rapid expansion came to a halt with the outbreak of World War I in 1914 while the economy adjusted to war demands which necessitated acceleration of industrial diversification with particularly striking effects on the refining of non-ferrous metals, the expansion of the steel industry and the shipbuilding and aircraft industries. After a brief post-war slump,



Ottawa half a century ago, showing the principal forms of transportation: railway, steamer, street-car and horse-power, with the occasional example of the new miracle, the horseless carriage.

there followed the boom of the '20's, supported by the speculative activity of the New York market and by profound technological changes. The development of the automotive industry brought the tractor into the wheat-field, the airplane into northern exploration, the truck into competition with the railways and the passenger car into the tourist trade. Service stations, garages, roads and hotels multiplied. Hydro-electric power plants were constructed or expanded to provide the power to turn the wheels of an ever-growing industry.

The world-wide depression of the 1930's halted industrial progress in Canada as in other countries but, when war broke out in 1939, Canadian industry again responded to a flood of military orders and expanded and diversified at a dramatic rate. Canada, along with the United States, became "the arsenal of democracy". Productive capacity underwent intensive expansion, particularly in the heavy industries producing automobiles, aircraft, ships and steel. There was spectacular development in such fields as aluminum, electrical apparatus, toolmaking and chemicals. Imports were curtailed and there was increased domestic production of such consumer goods as textiles, shoes, apparel and many other products. By the end of the war, well over 1,000,000 workers—more than 25 p.c. of the labour force—were employed in manufacturing industries.

Since World War II Canada has experienced a phenomenal development in mining, manufacturing, transportation, and electric power. Gross national product increased from \$11,850,000,000 in 1946 to \$35,959,000,000 in 1960; personal income from \$9,719,000,000 to \$27,442,000,000.

The most spectacular mining developments occurred in the northern areas of Canada, where the use of the helicopter and of new technical equipment for prospecting have opened up vast new sources of iron, nickel, copper, zinc, asbestos, tungsten and uranium.

The phenomenal development of new industries based on oil and gas has altered the face of once-quiet prairie farmlands. In the plant in the foreground, ethane from Alberta's natural gas is converted to solid plastic polythene. Behind it is a large oil refinery.



Lynn Lake in northern Manitoba, where close to 35,000,000 lbs. per year of nickel, cobalt, copper, ammonium sulphate and anhydrous ammonia are produced.



Since the discovery of the Leduc oil field in Alberta in 1947, a tremendous new industry has developed. Production of petroleum reached a record level of 192,308,250 barrels in 1960. Natural gas has also been exploited extensively and 504,452,000 Mcf. were produced in 1960. Oil and gas pipelines were installed to carry these fuels 38,450 miles east and west and to the United States.

A vast inflow of non-resident capital has contributed greatly to Canada's post-war economic expansion. Net international indebtedness rose from \$4,300,000,000 at the end of 1950 to nearly \$17,000,000,000 at the end of 1960. Most of this foreign investment was concentrated in the resources and manufacturing industries. It accounts for 63 p.c. ownership and 75 p.c. control of the petroleum and natural gas industries; 59 p.c. ownership and 61 p.c. control of the mining industry; 51 p.c. ownership and 57 p.c. control of manufacturing.

Gross value of manufactured products has increased from \$13,817,526,000 in 1950 to \$23,312,000,000 in 1959, although the number of employees has increased only from 1,183,297 to 1,304,000, due to progress in automation and a significant trend toward the production of durable goods. Leading industries, by value, are pulp and paper, petroleum products, non-ferrous metal smelting and refining, slaughtering and meat packing, and motor vehicles.

In agriculture the trend is toward consolidation of farms into large units, increased mechanization and intensive specialization of such crops as apples, potatoes, poultry and dairy products. In recent years the number of farms and farm workers has declined but production per man-hour has shown a remarkable increase.

The most important development in the field of transportation was the construction of the St. Lawrence Seaway and power projects. Formally opened in 1959 by Queen Elizabeth and President Eisenhower, this Canadian American project enables ocean-going vessels to sail right into the Lakehead twin cities of Port Arthur and Fort William and provides Canada with an additional 1,200,000 hp. of electric power. Both the Canadian National and



The Iroquois Lock, most westerly of seven new locks built for the St. Lawrence Seaway, enables ships to pass between the power pool or Lake St. Lawrence, at the top, and the Thousand Islands section of the St. Lawrence River, at the bottom, leading upstream to Lake Ontario. On the right is the Iroquois Dam which controls the level of Lake Ontario.

the Canadian Pacific railways introduced new, more efficient rolling-stock and maintenance equipment, and retired all their steam engines, replacing them with diesel locomotives.

Between 1947 and 1958 motor trucks increased their carriage of freight from 11,587,000 tons to 31,948,000 tons, but in the same period the number of passengers carried by bus fell from 281,651,000 to 68,856,000. The phenomenal increase in passenger cars from 1,371,467 in 1947 to 4,104,415 in 1960 accounts for this to some extent; the proportion of private cars has risen from one for every eight Canadians to one for every four.

There has been a tremendous increase in air transit. Passenger miles have increased almost ten-fold from 257,945,385 in 1947 to 2,598,436,027 in 1959, and the number of commercial aircraft from 1,837 in 1947 to 4,914 in 1960. The largest air service, with 92 aircraft, retired its last piston engine aircraft in 1961 in favour of turbine power.

Hydro-electric power has been developed intensively and has more than doubled in the last decade alone. More thermal-electric capacity is being developed as sources of hydro-electric power become more remote. Between 1950 and 1959 the net generating capacity of thermal stations increased by 296 p.c., as compared with 99 p.c. for hydro stations. Canada's first nuclear power station was opened at Rolphton, Ontario in 1961 as a demonstration plant and large nuclear power plants are planned for the future.

In 1957 a Royal Commission on the Use of Sources of Energy was appointed to study the national and international implications of the generation of energy by such natural resources as coal, oil, natural gas, water and uranium. In July, 1959, one of its recommendations was put into effect with the establishment of a National Energy Board to license and control the import and export of energy and sources of energy.

In recent years, much thought has been given both to the development and to the conservation of Canada's resources, both human and material. The conservation of renewable resources, such as soil, water, forests, wildlife,

fish and recreational facilities, was the subject of the "Resources for Tomorrow" Conference held in Montreal in October, 1961.

To assist in opening up resource areas of promise, the Federal Government has initiated a program called "Roads to Resources". On a 50-50 cost sharing basis, the federal and provincial governments are investing \$145,000,000 in building more than 4,000 miles of roads to otherwise inaccessible store-houses of natural wealth. While mining, forestry, fishing and the tourist industry are the principal resources these roads will benefit, the main emphasis in the choice of routes is on the development of an area as a whole, so that each road should reflect some lasting benefit to the economy, rather than tie development to a single resource that may become worked out within a fairly brief term of years. In the Yukon and Northwest Territories, the Federal Government has undertaken full responsibility for the construction of development roads.

In the field of human resources, two notable programs were initiated. The Canada Council was established in 1957 "to foster and promote the study and enjoyment of, and the production of works in, the arts, humanities and social sciences" and \$100,000,000 was made available, half for capital grants to universities and the income from the other half for scholarships, studentships and bursaries to individuals and organizations. In 1960 a new Technical and Vocational Training Assistance Act was passed, providing for the Federal Government to contribute 75 p.c. of the costs of capital expenditure on trade and technical schools as well as 75 p.c. of the costs of training unemployed persons.

Today Canada, with 0.6 p.c. of the world's population, produces more newsprint, nickel, asbestos and zinc than any other nation; is second in world output of hydro-electric power, pulp, uranium, platinum, aluminum, gold and oats; third in production of sawn lumber and silver. It stands fourth in international trade among the nations of the world, after the United States, the United Kingdom and the Federal Republic of Germany. Its citizens enjoy one of the highest standards of living in the world as well as a comprehensive program of social security.

The work of pushing back the frontiers continues ceaselessly. The surveyor and his assistant play a vital role in helping build roads into Canada's northern bushland, otherwise inaccessible to trucks carrying seismic and drilling equipment.





The Supreme Court of Canada in session.

Government

Canada is an independent nation, with a democratic parliamentary system of government. Queen Elizabeth II, who stands as a symbol of free association among the nations of the Commonwealth, is, as Queen of Canada, the head of the Canadian State. Parliament consists of the Queen, the Senate and the House of Commons. Senators are appointed on a regional basis for life, and members of the House of Commons are elected by the people of Canada for maximum terms of five years. The executive power is exercised by the Cabinet, chosen by the Prime Minister from among his parliamentary supporters. He and his Cabinet colleagues are collectively responsible to the House of Commons and can remain in office only so long as they command the confidence of that House.

Canadian government has evolved from the earliest form—company rule—through despotic royal rule, military rule and civilian rule by law in the 17th and 18th centuries to representative government by royal appointment and, finally, to the present form of elected representative government responsible to the electors at large.

The modern Canadian federal state was established by the British North America Act of 1867, which united the three British North American provinces

of Canada, New Brunswick and Nova Scotia into one country, divided into four provinces: Ontario, Quebec, New Brunswick and Nova Scotia. British Columbia entered the Union in 1871 and Prince Edward Island in 1873. The provinces of Manitoba (1870), Saskatchewan and Alberta (1905) were created out of portions of the territories formerly held by the Hudson's Bay Company and admitted to the Union in 1870, and Newfoundland entered the Union in 1949. Canada now consists of ten provinces and the remaining northern territories, not included in any province, now known as the Yukon Territory and the Northwest Territories.

While the British North America Act is popularly regarded as the Constitution of Canada, it is not an exhaustive statement of the laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other statutes of the United Kingdom Parliament (e.g., the Statute of Westminster, 1931), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the demise of the Crown, the Governor General, the Senate, the House of Commons, electoral districts, elections, Royal Style of Titles, and also statutes of provincial legislatures relating to provincial government and provincial legislative assemblies. Other written instruments, such as the Royal Proclamation of 1763, early instructions to governors, letters patent creating the offices of governors and governors general, and orders-in-council passed since the British North America Act, also form part of the Canadian constitutional system.

The B.N.A. Act divided legislative and executive authority between Canada on the one hand and the several provinces on the other. The Parliament of Canada was assigned authority over control of the armed forces, the regulation of trade and commerce, banking, credit, currency and bankruptcy, criminal law, postal services, the fisheries, patents and copyrights, the census and statistics, the raising of money by taxation and, in the field of communication, such matters as navigation and shipping, railways, canals, and telegraphs. In addition, the Federal Government was endowed with a residual authority in matters beyond those specifically assigned to the provincial legislatures and including the power to make laws for the peace, order and good government of Canada.

The provinces, on the other hand, were granted powers embracing mainly such matters of local or private concern as property and civil rights, education, civil law, provincial company charters, municipal government, hospitals, licenses, the management and sale of public lands, and direct taxation within the province for provincial purposes.

Judicial authority was not similarly divided, provincial and federal courts having jurisdiction with respect to both federal and provincial laws.

The preservation of both the English and the French languages was safeguarded by the provision that either language may be used in the debates of the Parliament of Canada and of the Legislature of Quebec and in any federal court in Canada; and that both languages shall be used in the respective records and journals and in the published Acts of the Parliament of Canada and of the Legislature of Quebec.

As a member of the British Commonwealth of Nations, defined in 1926 Canada is one of 13 "autonomous communities 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



U.S. President John F. Kennedy addressed a joint assembly of the House of Commons and the Senate on an official visit to Ottawa in May of 1961.

Crown, and freely associated as members of the British Commonwealth of Nations". Canada makes its own treaties, appoints its own ambassadors and other representatives abroad, levies its own taxes, makes its own laws which are executed by a government dependent on the will of a majority of the people, maintains its own military, naval and air forces, and is an independent member of the United Nations.

The Parliament of Canada

Federal legislative authority is vested in the Parliament of Canada, consisting of the Queen, the Senate and the House of Commons. Both the House of Commons and the Senate must pass all legislative Bills before they receive Royal Assent through the Governor General. Both bodies may originate legislation, but only the House of Commons may introduce Bills for the expenditure of public money or the imposition of any tax.

The Queen. Her Majesty Queen Elizabeth II is Queen of Canada. She is also head of the Commonwealth and symbolizes the association of the member countries. In 1952 it was decided by the Commonwealth prime ministers meeting in London to establish new forms of title for each country. Since 1953 the title of the Queen, so far as Canada is concerned, 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".

Sovereigns of Canada since Confederation in 1867 are as follows:

<i>Sovereign</i>	<i>Dynasty</i>	<i>Year of Birth</i>	<i>Date of Accession</i>
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 personal representative of the Queen in Canada is the Governor General, appointed by Her Majesty on the advice of her Canadian Prime Minister for a term of approximately five years. He exercises the executive authority of the Queen in relation to the Government of Canada. On the recommendation of his responsible advisers, he summons, prorogues and dissolves Parliament, assents to Bills and exercises other executive functions.

Governors General of Canada since Confederation are as follows:

<i>Name</i>	<i>Date of Taking Office</i>	<i>Name</i>	<i>Date of Taking Office</i>
Viscount Monck.....	July 1, 1867	The Duke of Devonshire..	Nov. 11, 1916
Lord Lisgar.....	Feb. 2, 1869	Lord Byng of Vimy.....	Aug. 11, 1921
The Earl of Dufferin.....	June 25, 1872	Viscount Willingdon.....	Oct. 2, 1926
The Marquis of Lorne.....	Nov. 25, 1878	The Earl of Bessborough..	Apr. 4, 1931
The Marquis of Lansdowne	Oct. 23, 1883	Lord Tweedsmuir.....	Nov. 2, 1935
Lord Stanley of Preston...	June 11, 1888	The Earl of Athlone.....	June 21, 1940
The Earl of Aberdeen.....	Sept. 18, 1893	Viscount Alexander of	
The Earl of Minto.....	Nov. 12, 1898	Tunis.....	Apr. 12, 1946
Earl Grey.....	Dec. 10, 1904	The Rt. Hon. Vincent	
H.R.H. The Duke of		Massey.....	Feb. 28, 1952
Connaught.....	Oct. 13, 1911	Maj.-Gen. Georges P.	
		Vanier.....	Sept. 15, 1959



New badge of the Department of Transport's Canadian Marine Service displays the Royal Crown surmounting a red maple leaf and two golden dolphins in a frame of rope.

The C.M.S. *Alexander Henry* carries out lighthouse supply, buoy tending and icebreaking operations in the Great Lakes. The Canadian Government operates 444 ships carrying out civilian services; these include supply ships, icebreakers, patrol ships, weather ships, research and survey ships, floating cranes, tugs, barges and launches.





The Speaker and some of the members of Canada's Senate are seen through the intricately carved stonework portal to the upper chamber.

The Privy Council. The Queen's Privy Council for Canada is composed of nearly 100 members appointed for life by the Governor General on the advice of the Prime Minister. The Council consists chiefly of present and former Ministers of the Crown, but occasionally membership in the Privy Council is conferred on a distinguished visitor: H.R.H. The Duke of Windsor, Sir Winston Churchill, Earl Alexander of Tunis and H.R.H. The Prince Philip, Duke of Edinburgh are all members of Canada's Privy Council. The Council does not meet as a functioning body and its constitutional responsibilities as adviser to the Crown are performed exclusively by the Ministers who constitute the Cabinet of the day.

The House of Commons. Members of the House of Commons are elected in a general election usually held subsequent to the normal dissolution of Parliament by the Governor General on the advice of the Prime Minister at any time up to the end of five years after the last election. Occasionally a general election may be called subsequent to a grant of dissolution following defeat of a government measure or passage of a vote of want of confidence by the House in the government of the day.

Electors include all Canadian citizens or British subjects, male or female, of the age of 21 or over, who have been resident in Canada for 12 months prior to polling day, with certain exceptions, such as persons confined in penal institutions or mental hospitals, federally appointed judges and returning officers for electoral districts.

Seats in the House are distributed geographically as follows:

Newfoundland.....	7	Alberta.....	17
Prince Edward Island.....	4	British Columbia.....	22
Nova Scotia.....	12	Yukon Territory.....	1
New Brunswick.....	10	Mackenzie District, Northwest Territories.....	1
Quebec.....	75		
Ontario.....	85		
Manitoba.....	14		
Saskatchewan.....	17		
		TOTAL.....	265

Party standing in Canada's 24th Parliament, as of Jan. 1, 1962, was as follows: Progressive Conservatives, 203; Liberals, 50; Co-operative Commonwealth Federation, 8; New Democratic Party, 1; vacant, 3. Four of the 262 members were women.

The New Party, sponsored by the Co-operative Commonwealth Federation and the Canadian Labour Congress, was represented at the polls for the first time and won its first seat at a by-election on Oct. 31, 1960.

The leader of the party winning the most seats in the general election is called upon by the Governor General, as representative of the Queen, to form a government. He becomes the Prime Minister and generally chooses party colleagues from among the elected members to form the Cabinet. If he wishes to have in his Cabinet someone who is not a member of the House of Commons, that person must secure a seat in the House within a short time through a by-election. The Prime Minister and all his ministers in charge of departments of government sit in the House of Commons, although a minister without portfolio may be a member either of the House or of the Senate.

The Cabinet is responsible for determining all important policies of government and securing the passage of such legislation, financial measures and administrative provisions as their supporters may approve. The Ministers of the Crown, as the members of the Cabinet are called, are chosen generally to represent all regions of the country and its principal cultural, religious and social interests.

Inuvik, N.W.T., Canada's first Arctic town built on piles driven into the permafrost, was officially opened on July 21, 1961, by Prime Minister Diefenbaker. In honour of this occasion a sculpture symbolic of the co-operation of the three races in this community—white, Indian and Eskimo—was erected by the government of the Northwest Territories. Inuvik boasts a large residential school, churches, a hospital, a radio station, a hotel, stores and dwellings, and a centre for Arctic research is being built.

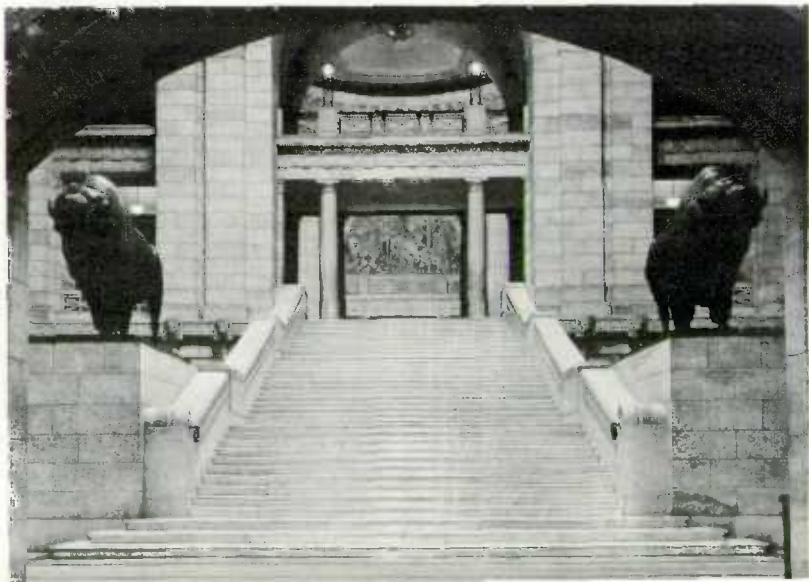


The members of the Ministry, as at Jan. 1, 1962, are listed below according to precedence.

Rt. Hon. John George Diefenbaker.....	Prime Minister
Hon. Howard Charles Green.....	Secretary of State for External Affairs
Hon. Donald Methuen Fleming.....	Minister of Finance and Receiver General
Hon. George Hees.....	Minister of Trade and Commerce
Hon. Léon Balcer.....	Minister of Transport
Hon. Gordon Churchill.....	Minister of Veterans Affairs
Hon. Edmund Davie Fulton.....	Minister of Justice and Attorney General
Hon. George Clyde Nowlan.....	Minister of National Revenue
Hon. Douglas Scott Harkness.....	Minister of National Defence
Hon. Ellen Louks Fairclough.....	Minister of Citizenship and Immigration
Hon. J. Angus MacLean.....	Minister of Fisheries
Hon. Michael Starr.....	Minister of Labour
Hon. William McLean Hamilton.....	Postmaster General
Hon. William J. Browne.....	Solicitor General
Hon. J. Waldo Monteith.....	Minister of National Health and Welfare
Hon. Francis Alvin G. Hamilton.....	Minister of Agriculture
Hon. Raymond O'Hurley.....	Minister of Defence Production
Hon. David J. Walker.....	Minister of Public Works
Hon. Pierre Sévigny.....	Associate Minister of National Defence
Hon. Hugh John Flemming.....	Minister of Forestry
Hon. Noël Dorion.....	Secretary of State and President of the Privy Council
Hon. Walter Dinsdale.....	Minister of Northern Affairs and National Resources
Hon. George Ernest Halpenny.....	Minister without Portfolio
Hon. Jacques Flynn.....	Minister of Mines and Technical Surveys

The Opposition. The choice of the Canadian electorate not only determines who shall govern Canada but, by deciding which party receives the second largest number of seats in the House of Commons, it designates which of the major parties becomes the Official Opposition. The function of the Opposition is to offer intelligent and constructive criticism of the government of the day. In 1927 the importance of the work of the Leader of the Opposition was recognized in the provision of a special salary to be paid him in addition to his indemnity as a member of the House.

The interior of Manitoba's Legislative Building, showing the grand staircase flanked by sculptured buffalo.





The Horse Guard of the Lieutenant-Governor of Ontario.

The Senate. The Senate, sometimes referred to as "the sober second thought of Parliament", in that all legislation originating in the House of Commons must be read three times, debated and passed in the Senate before receiving Royal Assent, is composed of 102 members appointed for life by the Governor General, on the nomination of the Prime Minister. Senators are chosen to represent all geographical areas of Canada, as follows:

Ontario.....	24	Western Provinces.....	24
Quebec.....	24	Manitoba.....	6
Atlantic Provinces.....	30	British Columbia.....	6
Nova Scotia.....	10	Alberta.....	6
New Brunswick.....	10	Saskatchewan.....	6
Prince Edward Island.....	4		
Newfoundland.....	6	TOTAL.....	102

The Yukon Territory and the Northwest Territories at present lack representation in the Senate.

Party standing, as of Jan. 1, 1962, was as follows: Progressive Conservatives, 25; Liberals, 68; Independent, 2; Independent Liberal, 1; vacant, 6.

While the Ministers of the Crown carry the political responsibilities of their respective departments, the federal service forms the staffs of the twenty departments and of various boards, commissions, corporations, bureaus and other agencies of the government. The day-to-day administration of a department is handled by a permanent head, usually known as deputy minister. As of September 30, 1961, there were 349,138 federal employees.

Provincial Government

Similar political institutions and constitutional usages operate in the government of the ten provinces as in that of the nation as a whole. In each province the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council, usually for a term of five years. The powers of the Lieutenant-Governor in the provincial sphere are essentially the same as those of the Governor General in the federal sphere.

The Legislature of each of the provinces comprises, in addition to the Lieutenant-Governor, a Legislative Assembly elected for a term of five years and, for Quebec only, a Legislative Council of 24 members appointed for life by the Lieutenant-Governor in Council. The franchise in provincial elections is granted, generally speaking, to every adult 21 years of age or over, although

in Saskatchewan, Alberta and British Columbia the age is 18, 19 and 19, respectively. The conventions of cabinet government operate in the Legislative Assembly of each of the provinces as in the House of Commons at Ottawa. Provincial premiers and administrations as at Jan. 1, 1962, were as follows:—

Newfoundland.....	Hon. J. R. Smallwood.....	Liberal
Prince Edward Island.....	Hon. Walter R. Shaw.....	Conservative
Nova Scotia.....	Hon. R. L. Stanfield.....	Progressive Conservative
New Brunswick.....	Hon. Louis B. Robichaud.....	Liberal
Quebec.....	Hon. Jean Lesage.....	Liberal
Ontario.....	Hon. Leslie M. Frost.....	Progressive Conservative
Manitoba.....	Hon. Dufferin Roblin.....	Progressive Conservative
Saskatchewan.....	Hon. W. S. Lloyd.....	Co-operative Commonwealth Federation
Alberta.....	Hon. Ernest C. Manning.....	Social Credit
British Columbia.....	Hon. W. A. C. Bennett.....	Social Credit

Territorial Government

The vast and sparsely populated regions of northern Canada lying outside the ten provinces and comprising Yukon Territory and the Northwest Territories have attained both elected representation in the House of Commons and a measure of local self-government. The local government of Yukon Territory is composed of a Commissioner, appointed by the Federal Government, and a locally elected Legislative Council of seven members, meeting at Whitehorse. The government of the Northwest Territories is vested in a Commissioner (who is the Deputy Minister of the Department of Northern Affairs and National Resources) assisted by a Council of nine members of whom four are elected by popular franchise in the Territories and five are appointed by the Federal Government from among federal officials. The Council meets annually in the Territories and at least once each year at Ottawa which is the seat of government. It is advised by the Eskimo Affairs Committee, a policy-making body to which, in 1959, for the first time, two Eskimos were added as members.

Local Government

As local government at the municipal level falls under the jurisdiction of the provinces, there are ten distinct systems of municipal government in Canada, as well as many variations within each system. The variations are attributable to differences in historical development and in area and population density of the 4,300 incorporated municipalities. Possessing the power exclusively to make laws respecting municipal institutions, the provincial legislature of each province has divided its territory into varying geographical areas known generally as municipalities and more particularly as counties, cities, towns, villages, townships, rural municipalities, or municipal districts. Municipalities are incorporated by provincial legislation and have various powers and responsibilities suited to their classification. A municipality is governed by an elected council whose head may be called the mayor, reeve, warden or overseer, and the other citizens who are its members may be known as controllers, aldermen or councillors. The responsibilities of the municipalities are generally those most closely associated with the citizen's everyday life, his well-being and his protection.

Believed to be Canada's only mounted women traffic police, Ottawa's "meter-moids" carry out an important, but thankless, task.



The Judiciary

Canadian courts of law are independent bodies. Each province has its police, division, county and supreme courts, with right of appeal being available throughout provincial courts and to the federal Supreme Court of Canada. At the federal level there is also the Exchequer Court, in which proceedings instituted by or against the Crown may be launched and from which appeals may be made to the Supreme Court. All judges, except police magistrates and judges of the courts of probate in Nova Scotia and New Brunswick, are appointed by the Governor General in Council and their salaries, allowances and pensions are fixed and paid by the Parliament of Canada. They cease to hold office on attaining the age of 75 years.

Legislation concerning criminal law and the procedure in criminal matters is under the jurisdiction of the Parliament of Canada. The provinces administer justice within their own boundaries, including the organization of civil and criminal codes and the establishment of procedure in civil matters.



At Reef's Harbour, a Newfoundland outport, court is held on the wharf by the magistrate for the district of Bonne Bay; by boat, aircraft and snowmobile he visits the tiny fishing communities that make up his judicial district, holding court wherever possible.

External Affairs

Canada's relations with other countries, as those of independent states generally, are governed by national interests, both immediate and long term. These interests are largely concerned with the development of friendly and useful relations with people of other countries, the development of foreign trade, and the protection of national security. Canada's external relations are carried on bilaterally through Canadian missions abroad, and also multilaterally through the many international organizations of which Canada is a member. For these purposes, Canada maintains diplomatic, trade and consular representatives in a large number of countries, and has established offices accredited to the principal international organizations in whose work it participates.

Posts Abroad

At the end of August, 1961, Canada was represented abroad by the following diplomatic and consular posts:

	Embassies (41)	Legations (1)
Argentina ¹	Greece	Czechoslovakia
Austria	Guatemala	
Belgium ²	Haiti	
Brazil	Indonesia	
Chile	Iran	
Colombia	Ireland	
Costa Rica ³	Israel ⁴	
Cuba	Italy	
Denmark	Japan	
Dominican Republic	Lebanon ⁵	
Ecuador	Mexico	
Finland	Netherlands	
France	Norway ⁶	
Germany	Peru ⁷	
	Poland	
	Portugal	
	South Africa	
	Spain	
	Sweden	
	Switzerland ⁸	
	Turkey	
	U.S.S.R.	
	United Arab Republic ⁹	
	U.S.A.	
	Uruguay	
	Venezuela	
	Yugoslavia	

Offices of High Commissioners (11)	Consulates General (11)	Consulates (3)
Australia	Congo:	Philadelphia
Ceylon	Leopoldville	Detroit
Ghana		Portland (Vice-Consulate, Honorary)
India	Germany:	
Malaya ¹⁰	Hamburg	
New Zealand		
Nigeria ¹¹	Philippines:	
Pakistan	Manila	
United Kingdom		
	Iceland: (Consulate-General, Honorary)	
	Reykjavik	

International Supervisory Commissions (3)

Cambodia Laos Vietnam

Permanent Missions to International Organizations (8)

Brussels: (Canadian Ambassador to Belgium, accredited):
 European Economic Community European Atomic Energy Community
 European Coal and Steel Community

Geneva: New York:
 United Nations United Nations

Paris:

North Atlantic Council Organization for European Economic Co-operation and Development
 United Nations Educational, Scientific and Cultural Organization.

Heads of Post holding Additional Accreditation to:

- | | |
|---|----------------------------|
| ¹ Paraguay | ⁷ Bolivia |
| ² Luxembourg | ⁸ Tunisia |
| ³ Nicaragua, Honduras and Panama | ⁹ Sudan |
| ⁴ Cyprus | ¹⁰ Burma |
| ⁵ Iraq | ¹¹ Sierra Leone |
| ⁶ Iceland | |



Three members of a Nigerian Trade and Economic Mission to Canada present Prime Minister Diefenbaker with a leopard skin.

The Commonwealth

There are certain international organizations and institutions of particular interest to Canada. One of the longest-standing associations is that within the Commonwealth. It affords Canada a valuable close relationship with a group of significant nations which, despite their geographic, economic, racial, cultural and political diversity, find common ground in shared traditions and ideals. Constant consultation, co-operation in many joint undertakings and frequent friendly exchanges of views are maintained among the increasing number of sovereign members of the Commonwealth. In March, 1961, the Commonwealth Prime Ministers met in London, and in September a meeting of the Commonwealth Economic Consultative Council was held in Accra. Cyprus, Sierra Leone and Tanganyika were welcomed as new Commonwealth members in March, April and December respectively, while South Africa, in accordance with its declaration at the Conference of Commonwealth Prime Ministers in March, withdrew from membership on May 31. Membership in the Commonwealth is not readily defined and confers no legal rights; however, its particular value stems from a sense of goodwill towards, and responsibility to other Commonwealth countries. The bulk of Canadian economic assistance to underdeveloped areas has been directed to Commonwealth countries through the Colombo Plan, the Canada-West Indies Aid Program, and the Special Commonwealth Aid to Africa Program.



Prime Minister John Diefenbaker, Minister of Citizenship and Immigration Ellen Fairclough and Secretary of State for External Affairs Howard Green admire the plaque presented to Canada by the U.N. High Commission for Refugees in recognition of the acceptance by Canada of tubercular refugees. As part of its contribution to World Refugee Year, begun in July 1959, Canada undertook to pay the cost of transportation of 100 tubercular refugees and their families living in camps in Germany, Austria and Italy, to provide hospital care for the patient and to maintain the dependants until they could become self-supporting. By Jan. 1, 1962, 325 tubercular patients and 501 members of their families had been brought to Canada.

The United Nations

Firm support for the United Nations is an essential element of Canadian foreign policy. Canada particularly supports United Nations peace-keeping operations, and has contributed over the years to the work of the Organization in its mediation efforts in Kashmir, Indonesia and Palestine, and in the collective United Nations action that stopped aggression in Korea. In the 1956 Middle East crisis, Canada played a significant role and continues to participate in the United Nations Emergency Force. In 1960, Canada responded promptly to a United Nations request for support for its operations in the Congo by supplying military and civilian specialists and by pledging political and financial support. Canada is also a member of the three-nation (Canada-India-Poland) International Commission for Supervision and Control in Vietnam, Laos and Cambodia to supervise the cease-fire agreement of 1954.

Canada also continues to support the humanitarian United Nations programs for refugees. Since the Second World War, Canada has received approximately 240,000, or about one-quarter, of the European refugees who have been resettled overseas.

In the field of disarmament, Canada holds the view that the United Nations should play an active role. Since the interruption of negotiations in the Ten-Nation Committee on Disarmament, in June 1960, Canada has

pressed vigorously in the United Nations for measures to bring about the earliest possible resumption of negotiations leading to complete disarmament under effective international control. Canada has consistently emphasized the dangers involved in the testing of nuclear weapons and stressed the necessity of concluding as soon as possible a satisfactory international agreement to halt such tests permanently.

Canada also participates directly in the work of the United Nations through its membership in various United Nations bodies. During 1961, Canada was a member of the Governing Council of the Special Fund, the Commission on International Commodity Trade, the Commission on Narcotic Drugs, the Social Commission, and the Executive Committee of the Office of the United Nations High Commissioner for Refugees. Canada maintains Permanent Missions to the United Nations in New York and Geneva, in order to follow events in both the Headquarters and the European Office.

Canada's total financial contribution to the United Nations has increased. In 1961, the Canadian assessed share of the regular budget of the United Nations was 3.1 p.c., which, with assessments for the budgets of the United Nations Specialized Agencies, totalled more than \$3,890,000. Contributions to such United Nations programs as the United Nations Children's Fund (UNICEF), the United Nations Relief and Works Agency (UNRWA), the United Nations Expanded Program of Technical Assistance (EPTA), the program of the United Nations High Commissioner for Refugees (UNHCR), and the Special United Nations Fund for Economic Development (SUNFED) totalled more than \$7,575,000. Canada also continues to provide training facilities for United Nations fellowship holders, and to send Canadian experts abroad under United Nations auspices.

NATO

Canada's defence policy, which is an integral part of its foreign policy, is designed to ensure national security and the preservation of world peace through collective arrangements within the United Nations and the North

Representatives of 73 countries signed a new treaty on narcotics control, replacing multilateral instruments, on March 30, 1961 at the United Nations. Here the Canadian representative signs the Final Act for Canada.





The entrance to the Office of the Canadian High Commissioner in Colombo, Ceylon, decorated for Independence Day.

Atlantic Treaty Organization. The primary objective of NATO is to provide a strong military deterrent and defence against any aggression within the North Atlantic area. Canada's main defence commitment continues to be directed toward the support of the NATO Alliance. Canada participates actively in the work and deliberations of the North Atlantic Council, and, in addition, provides substantial forces for the collective defence of the Canada-United States region of NATO and for the defence and deterrent forces of NATO in Europe and in the Atlantic area.

As a member of the NATO Alliance, Canada continues to participate in a Mutual Aid Program with total contributions since 1950 amounting to approximately \$1,730,000,000. The purpose of this program is to render mutual assistance to our allies by the provision of military equipment, air-crew training and logistic support for material as well as through contributions to NATO budgets.

An important step toward an Atlantic trade community was taken in October 1961 with the establishment of the Organization for Economic Co-operation and Development comprised of the 15 member countries of NATO, with the addition of others such as Austria, Switzerland and Sweden. Its major functions are the co-ordination of foreign aid disbursed by the industrial nations in OECD and the provision of a forum for the discussion of trade policy and domestic economic policy.

Canada-United States Relations

Obviously Canadian relations with the United States constitute a very important element in Canada's external relations. Reflected in the day-to-day relations between the two countries are not only co-operation and mutual

respect based upon each country's recognition of the sovereignty of the other but also the interdependence of their common futures. The facts of geography and easy communications have encouraged the growth of close and friendly relations, and Canada and the United States have chosen to develop and maintain a close partnership in their common defence of democratic government and individual liberties, in economic, trade and cultural relations, in scientific research and in the resolution of problems concerning waters along the boundary.

Canada and the United States are both active members of such multi-lateral organizations as the United Nations and its specialized agencies, NATO, GATT and OECD. There are also many bilateral bodies in which the two countries co-operate. These include the Canada-United States Committee on Trade and Economic Affairs, the Permanent Joint Board on Defence, the International Joint Commission, the Great Lakes Fisheries Commission, and many other similar governmental groups. These are in addition to the numerous private organizations and professional associations fostering good relations and resolving problems between the two neighbours.

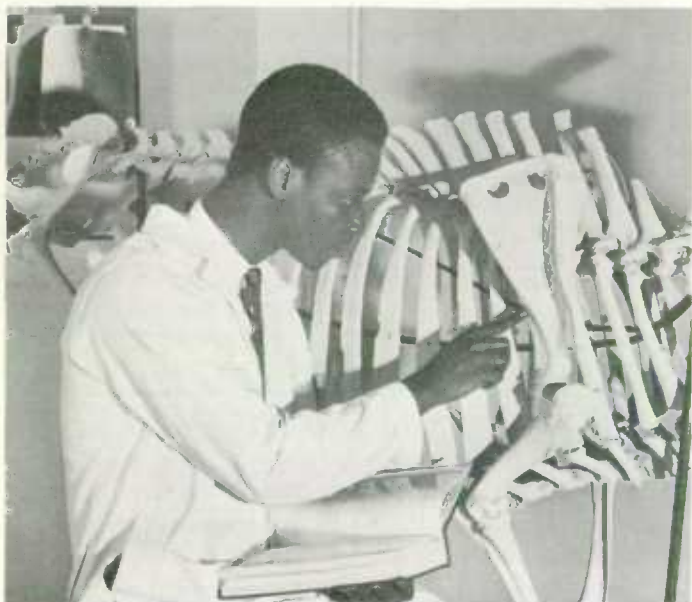
Canadian External Aid Programs

In recognition of the pressing needs of the economically underdeveloped areas of the world, Canada participates in a number of bilateral aid programs.

The first of these to be undertaken was the Colombo Plan for Economic Development of South and South-East Asia, the tenth anniversary of which was celebrated throughout member countries in July 1961. Member countries are Australia, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Federation of Malaya, Nepal, North Borneo, New Zealand, Pakistan, Philippines, Sarawak, Singapore, Thailand, United Kingdom, United States of

Royal Canadian Ordnance Corps soldiers staged donkey races, enlisting Palestinian refugee children as jockeys, at the United Nations Emergency Force Ordnance Company fun-fair at Camp Rafah, Egypt.





A student from Ghana studies anatomy at the Ontario Veterinary College at Guelph, Ontario, under the Commonwealth Technical Assistance Plan.

America and South Vietnam. Total Canadian Colombo Plan funds appropriated since inception amounted in 1961-62 to \$381,670,000. Up to the end of June 1961, training and observation programs had been arranged in Canada for 1,622 Asians in various fields, both academic and practical, and 186 Canadian advisers were sent to assist the governments of the countries of the Colombo Plan area on various aspects of their economic development plans. The greater portion of the funds is used for capital projects, such as the construction of hydro-electric power generation plants and irrigation dams, the erection of transmission lines, the establishment of an atomic reactor in India and a cement plant in Pakistan, as well as the development of fisheries in Ceylon and Malaya; agricultural equipment and machinery and crop-spraying aircraft have been provided to various countries; other projects include the supply of aircraft for civil aviation, telecommunication equipment and so on. Gifts of commodities form a large part of the Canadian contribution and include shipments of non-ferrous metals, wood pulp, asbestos, fertilizer and staple foodstuffs. Other donations have been in the form of education equipment and visual aids as well as hospital equipment, and a special program was undertaken in 1959 to supply medical books to 88 medical colleges in the Colombo Plan area at a total cost of \$220,000.

The Canada-West Indies Aid Program was established in 1958, when Canada undertook to provide, subject to appropriation of funds by Parliament, \$10,000,000 to the Federation of the West Indies over a five-year period. Besides providing technical assistance under this program, Canada has donated two passenger-cargo ships for inter-island service. Designed by a Canadian firm of naval architects to West Indies specifications and constructed in Canadian shipyards, the "Federal Maple" and the "Federal Palm" were commissioned in July 1961. Work began in 1961 on the con-

struction of a dock at St. Vincent at a cost of \$1,000,000, and pending projects include equipment for various ports, aid to the University College and the carrying out of a soil survey.

One of the most recent programs undertaken by Canada is the Special Commonwealth Aid to Africa Program which was announced by the Prime Minister in September 1960. It makes provision, subject to the consent of Parliament, for assistance to the Commonwealth countries and territories of Africa of \$10,500,000 over a three-year period beginning in April 1961. Canada has agreed to provide an aerial mapping survey to Nigeria at a cost of approximately \$1,300,000. Other capital projects are under consideration, and it is expected that a large portion of the funds will be devoted to education assistance. In August 1961, a contingent of 26 Canadian teachers went to Africa to carry out various teaching and advisory assignments, (11 to Nigeria, 10 to Ghana, two to Kenya and one each to Gambia, Sierra Leone and Tanganyika). It is expected that a considerable number of African students will be studying in Canada under SCAAP during the first year of its operation.

The Commonwealth Technical Assistance Program, originally in the amount of \$500,000, was announced at the Commonwealth Trade and Economic Conference in Montreal in 1958; it was designed to provide technical assistance to Ghana and Nigeria and other Commonwealth countries and territories not eligible for Colombo Plan aid. It has now been largely superseded by the new Special Commonwealth Aid to Africa Program, and the amount appropriated in 1961-62 was reduced to \$120,000 for technical assistance to British Honduras, British Guiana and Hong Kong only.

Subject to the approval of Parliament, Canada will provide a sum of \$300,000 for the fiscal year 1961-62 for a new program of educational assistance to the French-Speaking States of Africa. With the co-operation of the educational authorities of the province of Quebec, this program became effective late in 1961.

Under these bilateral assistance programs, recipient countries propose appropriate projects having a high priority in their economic development programs to which available aid funds might be devoted. After careful consideration and investigation of the proposals of each country, a decision

At the Fifth Meeting of the Canada-United States Interparliamentary Group held in Washington in June 1961, the Canadian Speakers of the Senate and of the House of Commons flank the Chairman and the principal speaker, the U.S. Secretary of State, at the opening session.



is taken in Canada as to the projects which will be undertaken. The investigation of such projects, and other matters concerning the direction and administration of Canada's bilateral assistance programs, is the responsibility of the External Aid Office, which reports to the Secretary of State for External Affairs.

Canada also participates in the Commonwealth Scholarship and Fellowship Plan—a cultural exchange rather than a technical assistance program—which originated out of the Oxford Conference held in England in July 1959. For the year 1960-61, Canada made available to this program the sum of \$500,000 for the first year of operation, as a consequence of which approximately 100 scholars began their first year of study in Canada. It is expected that an additional 100 will have arrived by the end of 1961. The majority of these Commonwealth scholars who come to Canada under this plan will ultimately return to their home countries to teach, largely at the university level. Canada does not finance the sending of Canadian scholars abroad under this plan.

In addition to the programs described above, Canada contributes to economic and technical assistance programs of the United Nations and its Specialized Agencies, including the United Nations Expanded Program of Technical Assistance, the United Nations Children's Fund, the United Nations Special Fund, the International Bank for Reconstruction and Development, the International Monetary Fund, the International Development Association and the International Atomic Energy Agency.





Ottawa, showing the extensive rebuilding of the downtown area that has taken place in recent years, and, dominating its surroundings, "The Hill", with the Parliament Buildings, the Peace Tower and the grassy sward, scene each summer of the daily ceremony of the Changing of the Guard. In Ottawa, federal and federal-provincial financial policies are discussed and agreed upon; to Ottawa come billions of tax-payers' dollars.

Government Finance

A survey of Canadian government finance requires an examination of the revenue, expenditure and debt of federal, provincial and municipal governments and a study of the various intergovernmental financial arrangements and agreements worked out from time to time since Confederation.

The British North America Act outlined the basic relationships between the federal and provincial governments and gave each province the right to establish its own forms of municipal government to meet local needs and circumstances.

Over the years, developments unforeseen by the Fathers of Confederation have necessitated major changes in the early revenue and expenditure patterns to meet growing and changing demands. Until World War I the revenues of the federal and provincial governments were largely obtained from mutually exclusive tax sources, but wartime financing forced the Federal Government to enter tax fields used largely or exclusively until then by the provinces. This overlapping continued during the 'thirties.

In 1942 the first of four five-year "tax rental" agreements was signed by the federal and the provincial governments. Under these agreements the provinces which signed withdrew (for the five-year period specified) from the fields of personal and corporation taxes and (from 1947 on) from the field of



Continuing its policy of decentralizing government offices in Ottawa, the Federal Government built its new \$5,550,000 Post Office headquarters in suburban Confederation Heights. The Sir Alexander Campbell Building, named after Canada's first postmaster-general, was opened on Sept. 15, 1961.

succession duties, in exchange for a "tax rental fee" The 1957 arrangements also contained a separate equalization formula to raise the revenue of those provinces having low per capita yields from the above-mentioned taxes.

In 1962 "tax collection agreements" replaced "tax rental agreements" for a new five-year period. The Federal Government no longer rents tax fields from the provinces. However, if a province wishes to impose a personal or corporation income tax and if it defines income in the same manner as for federal income tax purposes, then the Federal Government has offered to act as collector of the provincial tax. The succession duty field continues to be shared more or less equally. Equalization payments are made to several provinces. A new formula takes into account not only the provincial yields from personal and corporate income taxes and succession duties, but also the revenue received by the provinces from natural resources, e.g. oil royalties and timber dues. Atlantic Provinces Adjustment grants totalling \$35,000,000 per annum are continuing to be distributed among Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick.

In addition, there are a number of other important financial agreements between the federal and provincial governments. "Conditional grants" are of increasing importance. These grants are contingent upon the provinces providing certain services at specified standards. For example, under the Hospital Insurance and Diagnostic Services Act, the Federal Government pays the provincial governments an amount equivalent to approximately half the provincial expenditures on provincially-operated hospital insurance schemes. The provinces finance their share of the costs by various means, for example, by personal premiums, sales tax, levies on municipalities.

Federal payments to the provinces under this Act amounted to \$150,000,000 in 1959-60. The Federal Government similarly shares the cost of providing unemployment assistance, blind pensions and disabled persons allowances.

A similar development has occurred in the provincial-municipal relationship. Provincial grants-in-aid and shared-cost contributions now provide a significant portion of total gross municipal revenue. Some provincial governments are now paying nearly half the cost of operation of local schools by way of substantial grants-in-aid. They also contribute toward local roads and health and welfare services. Some provinces also provide "unconditional" grants to their municipalities to be spent as they see fit.

Revenues have not kept pace with ever-increasing government expenditures; there have been great increases in public debt over the years. Another significant factor accounting for the increases in public debt is that governments help finance government enterprise expansion (e.g. C.N.R. and provincial power commissions) directly by loans and indirectly by guarantees of the bonds issued by these enterprises.

Finances of the Government of Canada

The Government of Canada levies direct and indirect taxes, of which the income tax, individual and corporation, yields the largest return. Excise taxes (including a general sales tax), excise duties and customs duties also produce a very substantial sum. Succession duties and some other taxes

Resolute Bay is the main base for northern resupply operations. Food, mail, spare parts, new equipment and replacement personnel are airlifted into Arctic posts twice a year by the RCAF's Air Transport Command. The largest item of expenditure in the federal budget is for defence services; 27 cents of every tax dollar are spent on national defence.





Her Majesty Queen Elizabeth is shown the control panel at the Canada-India Reactor, built at Trombay, India, as a joint project of Canada and India under the Colombo Plan.

yield relatively minor amounts, and certain non-tax revenues accrue each year from financial transactions outside the tax fields. A 3-p.c. sales tax, a 3-p.c. individual income tax with a maximum of \$90, and a 3-p.c. corporation income tax are levied in addition to the regular taxes from these sources as contributions to the Old Age Security Fund, from which pensions are paid to persons over seventy years of age. Transactions of the Old Age Security Fund are included in "net general revenue" and "net general expenditure" but are not included in "budgetary" revenue and expenditure on page 310.

The income tax has been the chief source of revenue of the Federal Government since before World War II. Rates of tax on individual incomes were increased considerably and other forms of income tax were introduced to help finance the War but after hostilities ceased a succession of reductions in rates and increases in exemption allowances relieved some of the burden for the taxpayer. Taxes on corporation incomes were also reduced and the excess profits tax was abolished. However, the expansion of personal income, the growth of the labour force and the growth of industry generally in the post-war years have offset the effect of the reduction in rates and the revenue from income taxes continues to grow each year.

For personal income tax purposes, the 1961 exemptions from income in respect of marital status and dependants are: \$1,000 basic exemption with additional exemptions of \$1,000 for persons taxed as married and \$500 for persons 65 years of age or over; maximum exemptions for dependants of \$250 each are allowed, or \$500 if the dependant is not eligible for family allowance. The rates for 1961 again range from 14 p.c. on the first \$1,000 of taxable income to 80 p.c. on income in excess of \$400,000, including the Old Age Security Tax of 3 p.c. up to \$90.

The largest item of expenditure of the Government of Canada is defence services. Other expenditures of major significance are made for health and social welfare, veterans' pensions and other benefits, transportation and natural resources. Payment of debt charges and tax agreement payments to the provinces are also major items. The outlay for defence, health and welfare, veterans' benefits, debt charges and payments to provinces has, during and since World War II, caused much of the great growth in federal expenditure.

Revenue and Expenditure of the Federal Government, Year Ended March 31, 1960

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—			
Income—		Defence services and mutual aid	1,544,201
Corporations.....	1,234,216	Veterans' pensions and other benefits.....	293,106
Individuals.....	1,752,194	General government.....	251,571
Interest, dividends, and other income going abroad.....	73,353	Protection of persons and property.....	76,185
General sales.....	1,002,658	Transportation and communications.....	376,278
Excise duties and special excise taxes—		Health.....	226,789
Alcoholic beverages.....	192,634	Social welfare.....	1,261,940
Tobacco.....	331,069	Recreational and cultural services.....	25,808
Automobiles.....	64,281	Education.....	69,479
Other commodities and services.....	32,677	Natural resources and primary industries.....	286,410
Customs import duties.....	525,722	Trade and industrial development.....	9,499
Succession duties.....	88,431	National Capital area planning and development.....	15,200
Other.....	1,373	Debt charges (excluding debt retirement).....	657,066
Total Taxes.....	5,298,608	Payments to government enterprises.....	154,252
		Payments to provincial and municipal governments—	
Privileges, licences and permits..	26,145	Federal-provincial taxation agreements.....	461,341
Sales and services.....	46,843	Other.....	81,132
Fines and penalties.....	1,462	Other expenditure—	
Exchange fund profits.....	25,513	International co-operation and assistance.....	79,654
Receipts from government enterprises.....	88,366	Postal service.....	191,806
Bullion and coinage.....	5,617	Other.....	126,627
Postal service.....	193,660	Non-expense and surplus payments.....	499
Other revenue.....	9,022		
Non-revenue and surplus receipts.....	40,610		
Total Net General Revenue.....	5,735,846	Total Net General Expenditure.....	6,188,843

Work on the \$184,000,000 South Saskatchewan River dam—a federal-provincial project—continues through the winter with the use of \$12,000 heater units like the one shown here. Behind the men preparing a form for cement work is a blower unit capable of producing 25,000 cubic feet of heated air a minute. Introduced into the tunnel, it allows the cement to set properly. Plastic shelters are freely used on the job and a plastic weather screen can be seen at the end of the tunnel.





The Ontario Hospital at London, one of 17 hospitals for the mentally ill maintained by the province of Ontario.

Finances of the Federal Government, Years Ended March 31, 1868-1961

NOTE.—These figures are derived from the Public Accounts of Canada and differ from those in the preceding table. Revenue and expenditure in this table are on a gross basis and net debt here represents the excess of gross debt over net active assets.

Year	Total Budgetary Revenue	Per Capita Revenue ¹	Total Budgetary Expenditure	Per Capita Expenditure ¹	Net Debt at End of Year	Net Debt per Capita ²
	\$	\$	\$	\$	\$	\$
1868.....	13,687,928	3.95	13,716,422	3.96	75,757,135	21.58
1871.....	19,375,037	5.34	18,871,812	5.21	77,706,518	21.06
1881.....	29,635,298	6.96	32,579,489	7.66	155,395,780	35.93
1891.....	38,579,311	8.07	38,855,130	8.13	237,809,031	49.21
1901.....	52,516,333	9.91	55,502,530	10.47	268,480,004	49.99
1911.....	117,884,328	16.87	121,657,834	17.40	340,042,052	47.18
1921.....	436,888,930	51.06	528,899,290	61.82	2,340,878,984	266.37
1931.....	357,720,435	35.04	441,568,413	43.26	2,261,611,937	217.97
1941.....	872,169,645	76.63	1,249,601,446	109.80	3,648,691,449	317.08
1951.....	3,112,535,948	226.99	2,901,241,698	211.58	11,433,314,948	816.14
1952.....	3,980,908,652	284.17	3,732,875,250	266.46	11,185,281,546	773.59
1953.....	4,360,822,789	301.60	4,337,275,512	299.97	11,161,734,269	751.88
1954.....	4,396,319,583	296.15	4,350,522,378	293.06	11,115,937,064	727.15
1955.....	4,123,513,300	269.74	4,275,362,888	279.67	11,263,080,154	717.49
1956.....	4,400,046,639	280.29	4,433,127,636	282.40	11,280,368,964	701.47
1957.....	5,106,540,880	317.55	4,849,035,298	301.54	11,007,651,158	663.55
1958.....	5,048,788,279	304.35	5,087,411,011	306.67	11,046,273,890	647.95
1959.....	4,754,722,689	278.90	5,364,039,533	314.64	11,678,389,860	669.56
1960.....	5,289,751,209	303.28	5,702,861,053	326.96	12,089,194,003	678.63
1961.....	5,617,639,754	315.35	5,958,060,846	334.46	12,437,115,095	684.56

¹ Based on estimated population as at June 1 of the immediately preceding year.

² Based on estimated population as at June 1 of same year.

Revenue and expenditure of the Government of Canada reached an all-time high in the year ended March 31, 1961. The net debt reached a peak of \$13,421,000,000 at March 31, 1946.

Inflation in the general price level and population growth through the years have reduced the significance of the size of the Government of Canada debt, and the great expansion of the Canadian economy allows the country to support the present debt on a sound financial basis. On March 31, 1939, the net debt amounted to 60.2 p.c. of the gross national product; by 1946 this had risen to 113.3 p.c. but by March 31, 1961 the net debt amounted to approximately 35 p.c. of the gross national product.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at March 31, 1961, amounted to almost \$16,068,000,000. The portion of the unmatured funded debt payable in Canada was 99.2 p.c., the portion payable in London amounted to 0.2 p.c. and in New York 0.6 p.c.

Provincial Finance

Net general revenue of provincial governments is expected to be over \$2,700,000,000 in 1961-62 and net general expenditure nearly \$3,100,000,000. Several provinces announced increases in the rates of tax imposed on gasoline and diesel fuel sales (Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Alberta and British Columbia). These taxes now range from 14 cents to 23 cents per gallon; Nova Scotia increased the rate of the general sales tax



A model of Toronto's new city hall, designed by the famous Finnish architect, Viljo Revell. Construction began in 1961.

These giant pipes will become part of a 30-inch feeder water main.



from 3 p.c. to 5 p.c.; Ontario introduced a 3 p.c. general sales tax on September 1, 1961. Eight provinces now impose general sales taxes ranging from 3 p.c. to 5 p.c. In Quebec the corporation income tax was increased from 10 p.c. to 12 p.c. and the exemptions allowed in calculating personal income for taxation purposes were lowered, resulting in higher estimated revenues from these sources.

The largest increases in expenditure in the last two or three years have occurred in health (mainly due to the introduction of provincial hospital insurance schemes), and in education (mainly due to larger grants being paid to local school boards).

**Net General Revenue and Expenditure of Provincial Governments,
Year Ended March 31, 1962¹**

Province	Revenue	Expenditure	Province	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.	65,030	72,125	Man.	120,600	135,575
P.E.I.	17,505	18,085	Sask.	156,665	156,500
N.S.	101,560	114,300	Alta.	259,600	272,050
N.B.	84,810	86,940	B.C.	333,055	345,900
Que.	698,880	804,935			
Ont.	910,935	1,090,090	Totals	2,748,640	3,096,500

¹ Estimated.

In Regina, Saskatchewan, justice is dispensed inside this dignified new court house.



**Analysis of Net General Revenue and Expenditure
of Provincial Governments, Year Ended March 31, 1962¹**

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes:		Transportation and communi-	
Income—corporations.....	310,515	cations (chiefly roads).....	740,080
individuals.....	77,500	Health.....	611,780
Sales—general.....	281,040	Social welfare.....	255,090
motor fuel and fuel oil..	440,805	Education.....	752,955
other.....	56,985	Natural resources and primary	
Succession duties.....	58,506	industries.....	201,840
Other.....	174,399	Debt charges (exclusive of debt	
Total taxes.....	1,399,750	retirement).....	80,235
		Contributions to municipalities	
Federal-provincial tax-sharing ar-		(unconditional).....	74,820
rangements.....	493,450	Other expenditure.....	379,700
Government of Canada:		Total net general expendi-	
Subsidies.....	54,049	ture exclusive of debt	
Share of income tax on power		retirement.....	3,096,500
utilities.....	5,776		
Liquor profits.....	189,855		
Other revenue.....	605,760		
Total net general revenue.....	2,748,640		

¹ Estimated.

Direct and indirect debt of provincial and territorial governments, less sinking funds, amounted to \$6,408,000,000 at March 31, 1960, an increase of \$549,000,000 over the previous year. Direct debt at March 31, 1960, was \$3,327,000,000 or \$187 per capita and indirect (guaranteed) debt was \$3,081,000,000 or \$173 per capita.

Municipal Finance

By authority of the British North America Act, 1867, municipal government in Canada is placed under the control of the provincial legislatures. Thus the powers of municipal governments are those given to them by the statutes of their respective provincial governments, except for the Yukon and Northwest Territories where some municipal powers have been assigned to certain localities by the Federal Government and the territorial councils.

The responsibilities delegated to municipalities, although varying from province to province, are largely those of raising revenue locally, of borrowing, and of providing the following services: roads and streets; sanitation; protection to persons and property such as policing, fire fighting, courts and local jails; certain health and welfare services; and some recreation and community services. In most provinces, the municipalities are also responsible for levying and collecting the local taxation for school purposes but exercise little or no control over school administration or finance. In most of Quebec and in some minor localities in some other provinces, the school authorities

levy and collect local taxes. In Newfoundland (except for local school tax area authorities which levy and collect school taxes in two municipalities) school boards, which are largely denominational, receive most of their funds from the provincial government.

The major revenue source available to municipalities, yielding over two-thirds of the total, is the real property tax. It is supplemented in varying degrees by taxation of personal property, business and other taxes, fines, licences and permits, public utility contributions and provincial grants and subsidies.

The issuance of municipal debt is limited by provincial legislation or regulations. More and more, provinces are aiding municipalities and schools in their capital projects by various methods, such as outright grants, loans, sharing of debt charges and assumption of debt.

For the calendar year 1959 gross current revenue and expenditure of all municipal governments in Canada approximated \$1,765,000,000. For 1960 it is estimated to be in the neighbourhood of \$1,900,000,000.

As at December 31, 1959, total direct debt of municipal governments, including activities carried on under their authority or by bodies which are co-existent with the municipalities, amounted to approximately \$4,400,000,000. It is probable that this amount was close to \$4,800,000,000 by the end of 1960.

Even bears and funny birds may become public charges in those municipalities where zoos are maintained for the education and entertainment of their citizens.



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Abbreviations

bbl.—barrel
bu.—bushel
cu. ft.—cubic feet
cwt.—hundredweight
ft. b.m.—feet board measure
gal.—gallon
hp.—horse-power
kw.—kilowatt

lb.—pound
M—thousand
Mcf.—1,000 cubic feet (gas)
mm—millimetre
oz. t.—ounces troy
p.c.—per cent
sq. mi.—square miles
kwh.—kilowatt hour

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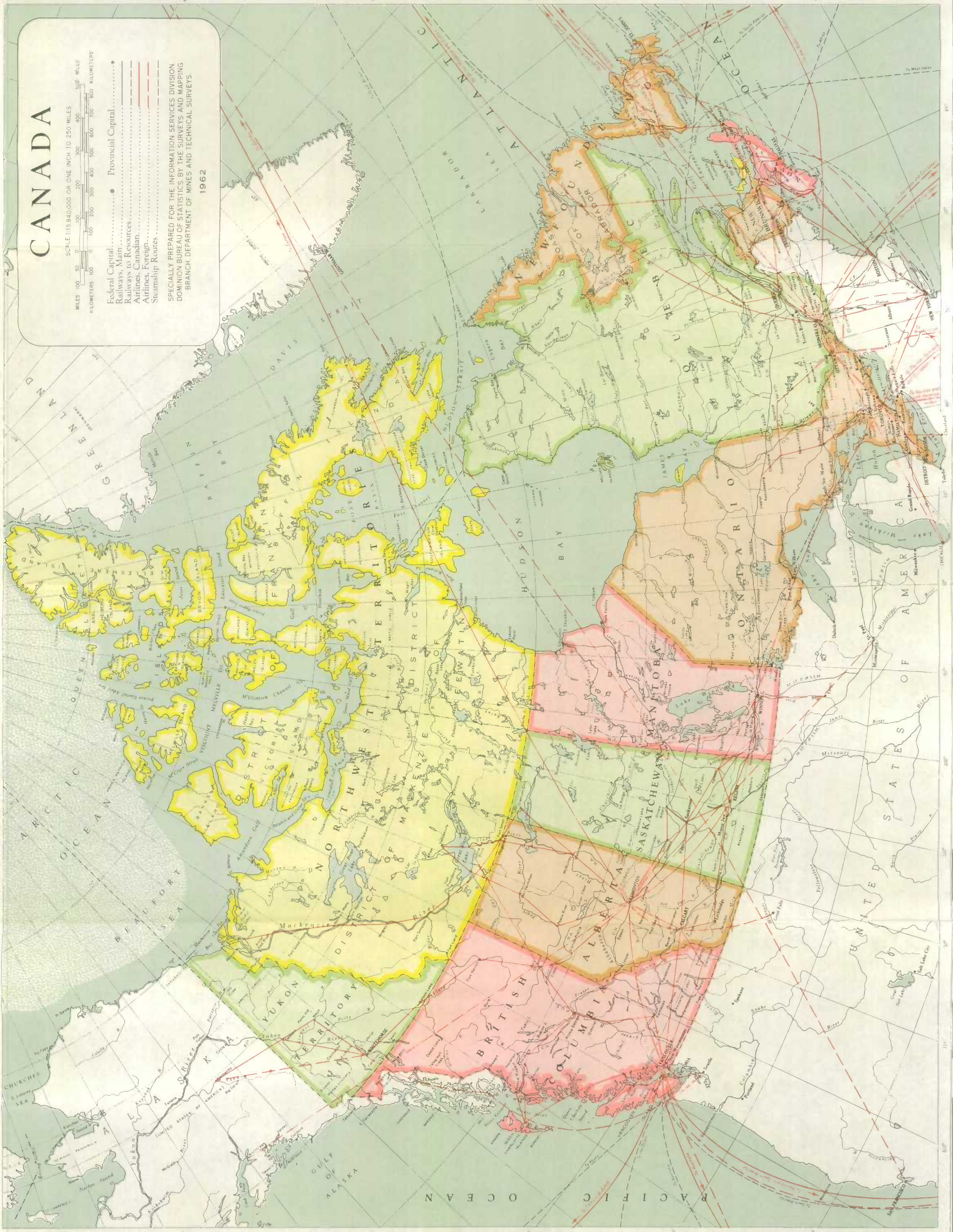
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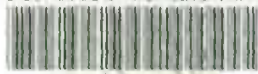
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