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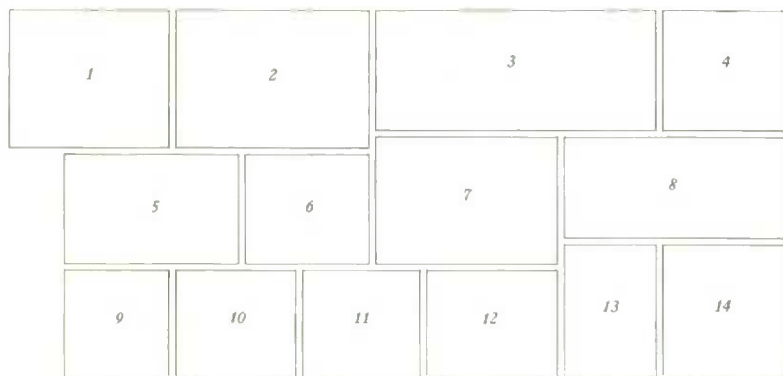
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Canada, second in size only to the U.S.S.R., is rich in diversities of climate, scenic beauty, material and human resources. It is blessed by nature with bountiful and accessible fishing-grounds; mineral resources so rich that Canada is one of the world's greatest ore producers, though its supplies are barely tapped; vast farmlands ideally suited to all forms of agriculture from peaches to wheat, from cattle to mink; lavish stretches of forest which yield the world's greatest supply of newsprint; underground store-houses of coal, natural gas and petroleum; horse-power for the harnessing, from thousands of rivers and streams; and a built-in transportation system which slices into half the continent.



KEY TO COVER PHOTOGRAPHS.

1. Skiing in the Rocky Mountains.
2. Farms and autumn-coloured hills surround the village of Saint-Sauveur-des-Monts, Quebec.
3. Typical of the vast prairie farms is this field near Hollow Lake, Alberta, where oats can be seen stacked in sheaves.
4. Molten copper is poured from the anode furnace to a casting wheel at Murdochville, Quebec.
5. An evening scene showing an elk drinking at the edge of the Bow River.
6. Steel pipes, 36 inches in diameter, are loaded on railway cars at the point of manufacture; they will be incorporated in Canada's thousands of miles of oil and gas pipelines.
7. A salmon seiner in operation near Campbell River, British Columbia.
8. A huge oil refinery at Dartmouth, Nova Scotia, seen at night.
9. A St. Lawrence Seaway freighter in the St. Lambert locks near Montreal, Quebec.
10. The British Columbia Electric Building in Vancouver, at night.
11. Drilling at an open pit mine.
12. Both the cowboy and the bucking bronco are completely off the ground at the world-famous Calgary Stampede.
13. The Centre Block of the Parliament Buildings in Ottawa, Canada's Capital.
14. Mount Rundle reflected in Vermilion Lake, Banff National Park.

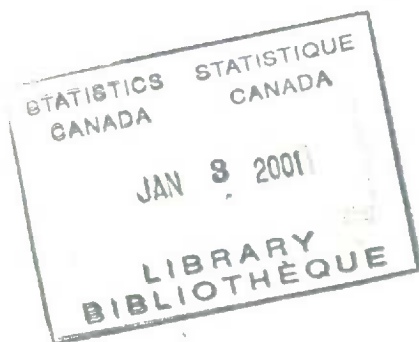


The maple leaf, symbol of Canada throughout the world, is most beautiful in the autumn of the year, when green changes to myriad hues of red, gold, yellow and bronze.



CANADA • 1964

*The Official Handbook of Present
Conditions and Recent Progress*



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Foreword

Canada 1964 is the 35th annual edition of the *Canada Handbook*. It is intended to provide a factual survey of the Canadian economy set in a statistical background and copiously illustrated with photographs depicting recent economic, social and cultural developments in Canada. Each topic is treated both historically and currently, and in this way it is hoped that the combination of text and illustration portrays both past and present developments in the environment of the Canadian people, their economy and its resources, their institutions and their way of life.

Special features of *Canada 1964* include a summary of Canadian research projects, a new history of mineral exploration in Canada, a description of the Department of Industry established in 1963, a study of cyclical fluctuations in Canadian industry between 1953 and 1962, 20 colour photographs of Canadian birds and animals, and full-page layouts on modern art for airports, new vocational schools in five provinces, housing for Canadians and other subjects.

Canada 1964 was produced by Mrs. Helen Marsh in the Canada Year Book, Handbook and Library Division of the Dominion Bureau of Statistics, under the direction of Dr. C. C. Lingard, Director of the Division.

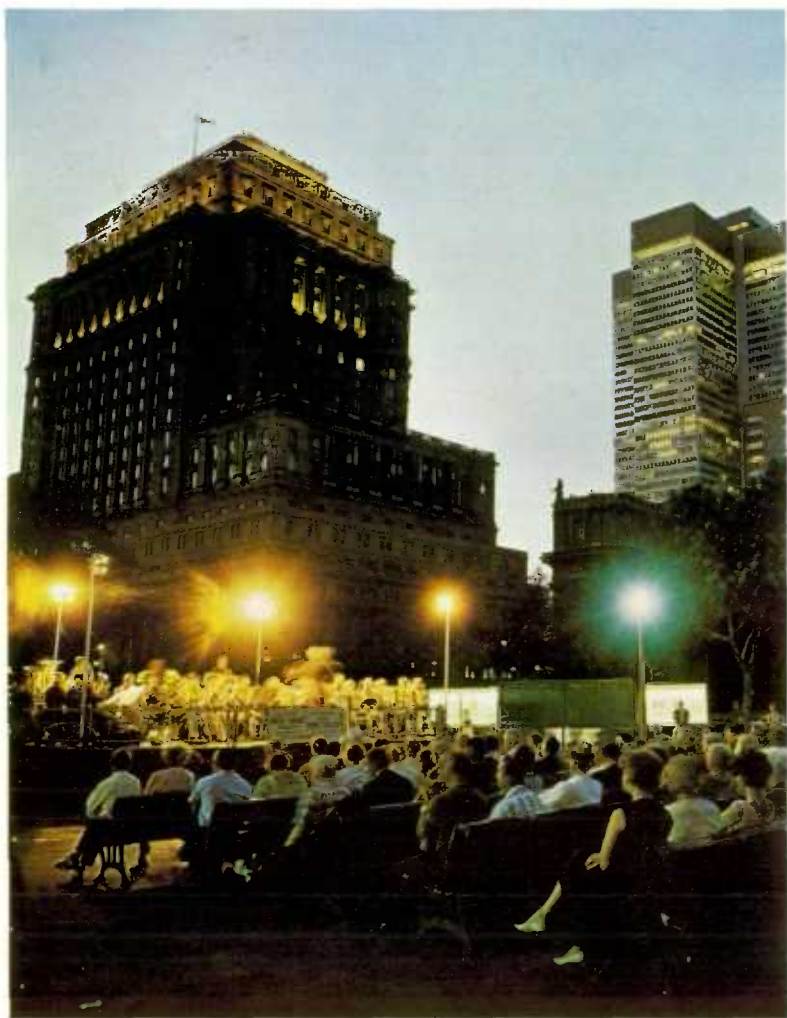
Walter E. Duffett.

Dominion Statistician.

Dominion Bureau of Statistics,
Ottawa, March 1, 1964

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In a small park in the heart of Canadian largest city, Montrealers pause in the evening to listen to an outdoor concert.

The Canadian People

Every ten years, Canada takes an intensive inventory of its people and finds the answers to many questions: how many are they, where do they live, how old are they, what are their places of birth, their mother tongues, their religions? How many have home freezers, automobiles, television sets?

On June 1, 1961, the tenth decennial Census of Canada was carried out and 18,238,247 people were counted. Of these, 9,218,893 were males and 9,019,354 were females.

One of the most striking revelations of the 1961 Census was the rapid rate of growth of the population—about 3 p.c. per annum for a total of 30 p.c. in the ten-year period 1951-61. Part of it is attributable to the high birth rates of the postwar years and part to the substantial volume of immigration; natural increase—the excess of births over deaths—contributed 75 p.c. of the population growth and net migration—the excess of immigration over emigration—the remainder.

Elements in Population Growth, Canada and Provinces, 1951-61

Province or Territory	Population 1951	Births	Deaths	Natural Increase	Immigration	Actual Increase	Net Migration	Population 1961
Canada	14,009,429	4,468,340	1,320,142	3,148,198	1,542,853	4,228,818	1,080,620	18,238,247
Nfld.	361,416	141,165	30,169	110,996	4,200	96,437	-14,559	457,853
P.E.I.	98,429	26,990	9,369	17,621	1,451	6,200	-11,421	104,629
N.S.	642,584	187,571	59,278	128,293	19,148	94,423	-33,870	737,007
N.B.	515,697	165,299	45,838	119,461	9,718	82,239	-37,222	597,936
Que.	4,055,681	1,348,440	350,140	998,300	325,329	1,203,530	205,230	5,259,211
Ont.	4,597,542	1,426,211	472,718	953,493	817,292	1,638,550	685,057	6,236,092
Man.	776,541	220,016	70,326	149,690	66,344	145,145	-4,545	921,686
Sask.	831,728	238,998	66,674	172,324	30,715	93,453	-78,871	925,181
Alta.	939,501	345,025	79,830	265,195	112,520	392,443	127,248	1,331,944
B.C.	1,165,210	355,736	131,945	223,791	155,052	463,872	240,081	1,629,082
Y.T. & N.W.T.	25,100	12,889	3,855	9,034	1,084	12,526	3,492	37,626

Only one in three of Canada's nearly 6,000,000 rural dwellers lives on a farm, like this one in Northern Alberta.



In the two years since the 1961 Census up to June 1963, the population of Canada increased by 658,000 or 3.6 p.c. The annual rate of growth declined to 1.8 p.c. from the 3 p.c. figure of the 1951-61 decade due to a gradual falling off in births since 1960 and to a marked decline in immigration from an annual average of 154,000 in the decade 1951-61 to about half this figure since June 1961.

**Population by Provinces June 1, 1963, with
Percentage Change 1961-1963**

Province	Population 1963	Percentage change 1961-1963
Canada	18,896,000	3.6
Newfoundland.....	481,000	5.0
Prince Edward Island.....	107,000	1.9
Nova Scotia.....	756,000	2.6
New Brunswick.....	614,000	2.7
Quebec.....	5,468,000	4.0
Ontario.....	6,448,000	3.4
Manitoba.....	950,000	3.0
Saskatchewan.....	933,000	0.9
Alberta.....	1,405,000	5.5
British Columbia.....	1,695,000	4.1
Yukon.....	15,000	7.1
Northwest Territories.....	24,000	4.3

Where Do Canadians Live?

Just over one third of Canada's people, or 6,448,000, lived in Ontario on June 1, 1963; 5,468,000, or 29 p.c., in Quebec; 3,288,000, or 17 p.c., in the Prairie Provinces; 1,958,000, or 10 p.c., in the Atlantic Provinces; 1,695,000, or 9 p.c., in British Columbia; and close to 40,000 in the Yukon and Northwest Territories.

At the turn of the century, almost two thirds of the people of Canada lived in rural areas, and only one third in urban. By 1961 this situation had reversed itself: 12,700,390 people—70 p.c. of the total population—now live in urban areas, or communities of more than 1,000 people. Close to two thirds of the urban population are in major urban centres of 100,000 population and over. About three fifths of the rural population live in small villages and settlements and two fifths on farms.

Rural and Urban Population, Canada and Provinces, 1961

Province or Territory	Total Population	Rural		Urban			
		Farm ¹	Non-farm	Total	100,000 and over	30,000 to 99,999	1,000 to 29,999
Canada	18,238,247	2,072,785	3,465,072	12,700,390	7,923,997	1,704,787	3,071,606
Nfld.....	457,853	9,077	216,756	232,020	—	85,192	146,828
P.E.I.....	104,629	34,514	36,206	33,909	—	—	33,909
N.S.....	737,007	56,832	279,663	400,512	276,284	—	124,228
N.B.....	597,936	62,265	257,658	278,013	—	135,911	142,102
Quec.....	5,259,211	564,826	787,981	3,906,404	2,637,872	384,628	883,904
Ont.....	6,236,092	505,699	906,864	4,823,529	2,958,955	934,870	929,704
Man.....	921,686	171,472	161,407	588,807	465,712	—	123,095
Sask.....	925,181	304,672	222,418	398,091	112,141	128,732	157,218
Alta.....	1,331,944	285,823	202,910	843,211	605,342	35,451	202,415
B.C.....	1,629,082	77,540	369,617	1,181,925	867,691	—	314,234
Yukon.....	14,628	47	9,550	5,031	—	—	5,031
N.W.T.....	22,998	18	14,042	8,938	—	—	8,938

¹ Exclusive of 71,469 persons living on farms in localities classed as "urban".



Of every 10 Canadians, one lives in a village of less than 10,000 population, like St. Lazare, Manitoba; two live in cities of between 10,000 and 100,000, like Prince Albert, Saskatchewan; four in cities of 100,000 and over (one in Montreal alone); and three in rural areas.



Population growth in the metropolitan areas of Canada continued at an expanding rate throughout the 1951-61 period. The 17 census metropolitan areas showed a population increase of 45 p.c. over this period, amounting to 60 p.c. of the total increase of 4,200,000 in Canada.

Population of Census Metropolitan Areas, 1951 and 1961

Census Metropolitan Area ¹	Population		Increase
	1951	1961	1951-61
1. Montreal.....	1,471,851	2,109,509	43.3
2. Toronto.....	1,210,353	1,824,481	50.7
3. Vancouver.....	561,960	790,165	40.6
4. Winnipeg.....	356,813	475,989	33.4
5. Ottawa.....	292,476	429,750	46.9
6. Hamilton.....	280,293	395,189	41.0
7. Quebec.....	276,242	357,568	29.4
8. Edmonton.....	176,782	337,568	91.0
9. Calgary.....	142,315	279,062	96.1
10. Windsor.....	163,618	193,365	18.2
11. Halifax.....	133,931	183,946	37.3
12. London.....	128,977	181,283	40.6
13. Kitchener.....	107,474	154,864	44.1
14. Victoria.....	113,207	154,152	36.2
15. Sudbury.....	73,826	110,694	49.9
16. Saint John, N.B.....	78,337	95,563	22.0
17. St. John's, Nfld.....	68,620	90,838	32.4

¹ Based on areas as defined for the 1961 Census. Where these differ from earlier years, the 1951 counts have been adjusted to the 1961 areas.

There were 4,554,736 households in Canada in 1962. 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 one in four households lives in an apartment or a flat. The average dwelling has 5.3 rooms, not including bathrooms, and the average monthly rent for a non-farm dwelling in 1961 was \$65. More than two thirds of Canadian houses are heated by furnaces, 56 p.c. using oil as fuel, 19 p.c. using gas and 24 p.c. using coal, coke or wood. In 1951 only 23 p.c. of dwellings were heated by oil and only 5 p.c. by gas.

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 93 p.c., washing machines in 86 p.c., telephones in 86 p.c., television sets in 87 p.c., electric floor polishers in 48 p.c. and clothes dryers in 19 p.c. Outside the house, 71 p.c. of households have a passenger car, —in fact, 9 p.c. have two or more. The popularity of the home freezer is attested to by the fact that more than one in six households owns one.

Canadians spend an average of \$905 per capita in retail trade. During 1963, the average housewife bought a 24-oz. loaf of bread for 26 cents, a pound of coffee for 75 cents, of tea for \$1.23, of flour for 10 cents, of butter for 58 cents and of lard for 22 cents. She paid 52 cents a dozen for eggs, 5 cents a pound for potatoes, 24 cents a quart for milk and 69 cents a dozen for oranges. Bacon was 96 cents a pound, cheese 74 cents, sirloin steak \$1.01 and stewing beef 68 cents.

How Old Are They?

A significant fact revealed by the census was the striking increase in the population of children under 15 years of age—an increase of 46 p.c. since 1951. The number of children between 10 and 14 years of age, who are or will soon be entering high school, increased at the remarkable rate of 64 p.c. Those between 15 and 19 years increased more rapidly than the total population, indicating a steady rise in new entries to the labour market over the next few years. Over two fifths of Canada's population in 1961 were under 20 years of age. By contrast, those in the age groups 20-24 and 25-29 were mainly persons born during the depression years of the 1930's when the birth rate was low and this group increased by only 8.7 p.c. and 6.9 p.c. respectively. This fact explains, to a large extent, the gradual decline in marriages in the past two or three years.



Canada's 2,288,900 children under four years of age represent more than one tenth of the total population.

"Middle-aged" children—between 5 and 14—total 4,111,000, or more than one fifth of the population. All children under 15 comprise more than one third of the population.



⬡ A definite trend toward apartment living has stimulated the construction of such luxury apartments as this one in Vancouver.



⬡ Redevelopment of slum areas into housing complexes goes on across Canada; this is Mulgrave Park in Halifax.

⬡ But the majority of Canadians still prefer to live in houses; this subdivision in Fort William, Ontario shows the advantages of putting services, such as power lines, underground.



The uneven rates of increase by age group, shown in the following table, reflect the influence of past events such as periods of prosperity or depression, higher or lower levels of immigration, and wars. For instance, in the older groups, those between 60 and 69 increased by only 14 p.c. between 1951 and 1961, while those over 70 years of age increased by close to 40 p.c. Those who were 20-29 years old at the 1921 Census, which recorded considerable losses during World War I, were in the age period 60-69 in 1961 and their numbers still reflected those losses.

Population by Age Groups, 1951, 1961 and 1963

Age Group	Population			Percentage Increase	
	1951	1961	1963 ¹	1951-61	1961-63
Total	14,009,429	18,238,247	18,896,000	30.2	3.6
Under 15.....	4,250,717	6,191,922	6,399,500	45.7	3.4
0-4.....	1,722,109	2,256,401	2,288,900	31.0	1.4
5-9.....	1,397,825	2,079,522	2,145,600	48.8	3.2
10-14.....	1,130,783	1,855,999	1,965,000	64.1	5.9
15-64.....	8,672,439	10,655,171	11,054,300	22.9	3.7
15-24.....	2,146,613	2,616,205	2,855,500	21.9	9.1
25-34.....	2,173,949	2,481,107	2,423,000	14.1	-2.3
35-44.....	1,867,700	2,389,885	2,457,300	28.0	2.8
45-54.....	1,407,335	1,878,504	1,960,700	33.5	4.4
55-64.....	1,076,842	1,289,470	1,357,800	19.8	5.3
65+.....	1,086,273	1,391,154	1,442,200	28.1	3.7
65-69.....	433,497	487,102	497,300	12.4	2.1
70 and over.....	652,776	904,052	944,900	38.5	4.5

¹ Estimated.

Between midnight New Year's Eve 1962 and the following New Year, some 470,345 mothers brought a total of 469,693 live-born infants into the world. This represents a live-birth rate of 25.3, that is, the addition of more than 25 persons for every 1,000 already in the population.

While this was the lowest rate for Canada since 1945, it is, nevertheless, one of the highest among countries of similar development. For example, rates for the British Isles and most of the European countries range from about 17 to 22 while those for one or two are lower—e.g. Sweden, 14.2, Belgium, 16.8 and Denmark, 16.9. New Zealand's rate, on the other hand, was slightly higher than Canada's at 26.3.

The average Canadian baby boy of 1962 weighed 7 pounds, 6 ounces, and the average baby girl about three ounces less, although actual birth weights ranged from less than a pound to 14½ pounds. The mother's average age was slightly over 28, and the father's 31½ years. Almost all the 1962 babies were born in large, well-equipped public hospitals, where complete obstetrical and pediatric care was provided to mother and child during their average stay of five to seven days.

Of the babies born in 1962 half were either a first or second child, while one of every three was a fourth or later child. Twins were born to one in every 91 mothers, and triplets to one in every 9,600 during the year. Four sets of quadruplets have been born in Canada in recent years—one set in 1962, two in 1960 and one in 1957; of the 16 infants, only one was stillborn.

The Canadian baby boy born in 1961 could expect to live 68.4 years, while the baby girl could look forward to an even longer life—74.2 years.



The number of older people increases every year. Today Canadians of 65 and over number 1,442,200 or 7.6 p.c. of the population.

Expectation of Life 1931, 1941, 1951 and 1961

Age	1931		1941		1951		1961	
	Males	Females	Males	Females	Males	Females	Males	Females
	Years	Years	Years	Years	Years	Years	Years	Years
At birth.....	60.00	62.10	62.96	66.30	66.33	70.83	68.35	74.17
1 year.....	64.69	65.71	66.14	68.73	68.33	72.33	69.50	74.98
2 years.....	64.46	65.42	65.62	68.16	67.56	71.55	68.63	74.11
3 ".....	63.84	64.75	64.88	67.38	66.68	70.66	67.71	73.18
4 ".....	63.11	63.99	64.07	66.56	65.79	69.74	66.78	72.23
5 ".....	62.30	63.17	63.22	65.69	64.86	68.80	65.83	71.27
10 ".....	57.96	58.72	58.70	61.08	60.15	64.02	61.02	66.41
15 ".....	53.41	54.15	54.06	56.36	55.39	59.19	56.20	61.51
20 ".....	49.05	49.76	49.57	51.76	50.76	54.41	51.51	56.65
30 ".....	40.55	41.38	40.73	42.81	41.60	44.94	42.24	46.98
40 ".....	31.98	33.02	31.87	33.99	32.45	35.63	32.96	37.45
50 ".....	23.72	24.79	23.49	25.46	23.88	26.80	24.25	28.33
60 ".....	16.29	17.15	16.06	17.62	16.49	18.64	16.73	19.90
70 ".....	10.06	10.63	9.94	10.93	10.41	11.62	10.67	12.58
80 ".....	5.61	5.92	5.54	6.03	5.84	6.38	6.14	6.90
90 ".....	2.97	3.24	2.93	3.13	3.10	3.24	3.16	3.39
100 ".....	1.53	1.77	1.46	1.64	1.60	1.59	1.49	1.56

Of the population 15 years of age and over, 70 p.c. of men and 77 p.c. of women are or have been married. This difference in percentages is due mainly to the older age of men at marriage. Indicative of the long life-span of women is the fact that there are nearly three times as many widows as widowers in Canada, 579,000 widows to almost 200,000 widowers. Canada's marriage rate, in terms of 1,000 total population, has been dropping steadily from a record 10.9 in 1946 to 7.0 in 1962. This compares with rates for the British Isles ranging from 5.5 for the Irish Republic to 7.7 for Scotland; Europe from 6.5 for Norway to 8.4 for Austria; Australia and New Zealand 7.4 and 7.9 respectively and 8.5 for the United States.

On the other hand, Canada has one of the lowest crude death rates in the world, when calculated per 1,000 total population. The 1962 rate of 7.7 was bettered only by Japan and U.S.S.R. (7.5) according to available figures. However it is difficult to compare death rates of different countries since the age and sex composition of the population and other factors affecting the mortality rate differ so widely from country to country. Rates for most of the European countries ranged from 7.9 for the Netherlands to 11.5 for France; those for countries of the British Isles from 10.6 to 11.9; those for New Zealand and Australia, 9.0 and 8.7, while the U.S.A. rate was 9.5.

Births, Marriages and Deaths, 1926-62

(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
Av. 1956-60...	469,555	27.6	132,047	7.8	136,669	8.0	332,886	19.6
1961 (final)	475,700	26.1	128,475	7.0	140,985	7.7	334,715	18.4
1962 ²	469,693	25.3	129,381	7.0	143,699	7.7	325,994	17.6

¹ Per thousand population.

² Estimated.

The Mormon Temple of Cardston, Alberta. Canadians are free to worship as they will; 96 p.c. of them belong to 11 denominations.



Who Are the People of Canada?

About 85 p.c. of Canada's population in 1961 were "natural-born" Canadians, and almost 95 p.c. of the people were Canadian citizens. Of the 2,844,000 persons who were born outside Canada, more than half—1,507,000—came to Canada since World War II, the majority from Britain, Germany, Italy and the Netherlands.

Distribution of the Population by Birthplace, 1901, 1921, 1941 and 1961

Birthplace	1901		1921		1941		1961	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
Total	5,371,315	100.0	8,787,949	100.0	11,506,655¹	100.0	18,238,247²	100.0
Canada.....	4,671,815 ³	87.0	6,832,224 ³	77.7	9,487,808 ³	82.5	15,393,984	84.4
Newfoundland.....	4	—	4	—	4	—	497,591	2.7
Prince Edward Island.....	105,629	2.0	101,513	1.2	108,423	0.9	130,123	0.7
Nova Scotia.....	442,898	8.2	506,823	5.8	568,797	4.9	783,848	4.3
New Brunswick.....	317,062	5.9	378,902	4.3	463,127	4.0	655,066	3.6
Quebec.....	1,620,482	30.2	2,265,540	25.8	3,155,549	27.4	4,916,024	27.0
Ontario.....	1,928,099	35.9	2,505,562	28.5	3,123,810	27.1	4,667,159	25.6
Manitoba.....	110,742	2.1	351,444	4.0	570,349	5.0	878,369	4.8
Saskatchewan.....	65,784	1.2	314,830	3.6	667,832	5.8	1,030,755	5.7
Alberta.....	5	—	211,643	2.4	479,098	4.2	965,425	5.3
British Columbia.....	60,776	1.1	167,169	1.9	335,554	2.9	843,596	4.6
Yukon and Northwest Territories.....	6,969	0.1	8,670	0.1	12,267	0.1	26,028	0.1
Britain.....	404,848 ⁴	7.5	1,025,119 ⁴	11.7	960,125	8.3	969,715	5.3
Other Commonwealth Countries.....	16,203	0.3	40,329	0.5	43,644	0.4	47,887	0.3
United States.....	127,899	2.4	374,022	4.3	312,473	2.7	283,908	1.6
European Countries.....	125,549	2.3	459,325	5.2	653,705	5.7	1,468,058	8.0
Austria.....	28,407	—	57,535	—	50,713	—	70,192	—
Belgium.....	2,280	—	13,276	—	14,773	—	28,253	—
Czechoslovakia.....	—	—	4,322	—	25,564	—	35,743	—
Denmark.....	2,075	—	7,192	—	13,974	—	30,869	—
Finland.....	—	—	12,156	—	24,387	—	29,467	—
France.....	7,944	—	19,247	—	13,795	—	36,103	—
Germany.....	27,300	—	25,266	—	28,479	—	189,131	—
Greece.....	213	—	3,769	—	5,871	—	38,017	—
Hungary.....	5	—	7,493	—	31,813	—	72,900	—
Italy.....	6,854	—	35,531	—	40,432	—	258,071	—
Netherlands.....	385	—	5,827	—	9,923	—	135,033	—
Poland.....	7	—	65,304	—	155,400	—	171,467	—
Republic of Ireland.....	8	—	8	—	8	—	30,889	—
U.S.S.R.....	31,231	—	112,412	—	124,402	—	186,653	—
Yugoslavia.....	—	—	1,946	—	17,416	—	50,826	—
Others.....	18,860	—	88,049	—	96,763	—	104,444	—
Asiatic Countries.....	23,580	0.4	53,636	0.6	44,443	0.4	57,761	0.3
China.....	17,043	—	36,924	—	29,095	—	36,724	—
Japan.....	4,674	—	11,650	—	9,462	—	6,797	—
Other.....	1,863	—	5,062	—	5,886	—	14,240	—
Other Countries.....	1,421	—	3,294	—	3,512	—	16,934	0.1

¹ Includes birthplace not stated.

² Includes Newfoundland.

³ Includes persons born in Canada whose province of birth not stated.

⁴ Included with other Commonwealth countries.

⁵ Included with Saskatchewan.

⁶ Included with Austria.

⁷ Included with Russia.

⁸ Included with Britain.



St. Joseph's Oratory in Montreal, where thousands of pilgrims come to worship every year. Originally it was a small chapel erected by Brother André (1845-1937) who served for 40 years as a porter at Notre Dame College, and whose reputation for piety and effecting apparently miraculous cures spread far and wide.

The principal religious denominations of Canada are shown in the following table. The Roman Catholic population at 8,343,000 accounted for around 45 p.c. of the total, with United Church at 3,664,000 for 20 p.c., and Anglicans at 2,409,000 for 13 p.c.

Population by Religious Denomination, 1951 and 1961

Denomination	Population		Percentage Distribution		Percentage Increase
	1951	1961	1951	1961	1951-61
Anglican Church of Canada.....	2,060,720	2,409,068	14.7	13.2	16.9
Baptist.....	519,585	593,553	3.7	3.3	14.2
Greek Orthodox.....	172,271	239,766	1.2	1.3	39.2
Jewish.....	204,836	254,368	1.5	1.4	24.2
Lutheran.....	444,923	662,744	3.2	3.6	49.0
Mennonite.....	125,938	152,452	0.9	0.8	21.1
Pentecostal.....	95,131	143,877	0.7	0.8	51.2
Presbyterian.....	781,747	818,558	5.6	4.5	4.7
Roman Catholic.....	6,069,496	8,342,826	43.3	45.7	37.5
Ukrainian (Greek) Catholic.....	191,051	189,653	1.4	1.0	- 0.7
United Church of Canada.....	2,867,271	3,664,098	20.5	20.1	27.8
Other.....	476,460	767,374	3.4	4.2	61.1
Total.....	14,009,429	18,238,247	100.0	100.0	30.2



Immigration and customs officers man this border crossing point between Canada and the United States.

In the 1961 Census about 80 p.c. of the population reported ability to speak English and 31 p.c. French. Only 12 p.c. or 2,231,000 were able to speak English and French. In all provinces, except Quebec, English was spoken by a high percentage of the population. In the latter province the percentage speaking English was 37 p.c. French was spoken by 87 p.c. of the population of the Province of Quebec and 38 p.c. of the population of New Brunswick. In all other provinces the percentage speaking French was less than 10.

No ethnic groups reported as much as one third of its number speaking English and French. The population of French origin recorded the highest proportion of bilingual persons at 30 p.c., the Jewish next at 18 p.c., followed by the Italian group with 11 p.c. Only 4 p.c. of the British Isles group spoke both English and French. These differences appear to be related in part to the geographical distribution of the basic English and French ethnic groups in Canada. Since over three quarters of the population of French origin were resident in the Province of Quebec, ability to speak French among ethnic groups largely found in other provinces of Canada was quite low. In the Province of Quebec itself, however, one third of the British Isles group, 36 p.c. of the German, 62 p.c. of the Italian, 37 p.c. of the Jewish, one third of the Netherlands group and between 30 and 40 p.c. of several smaller ethnic groups reported ability to speak French.

The mother tongues of the population, or the language first learned in childhood and still understood, were recorded at the 1961 Census. The

extent to which members of each ethnic group in the population have retained the mother tongue corresponding to their ethnic group depends to a large extent upon the proportion born in Canada and, among the Canadian born, the number of generations resident in this country. For several ethnic groups more than half of their number reported English as mother tongue. The Italian ethnic group of which over half of the total were postwar immigrants showed almost three quarters of their number reporting Italian as mother tongue. Among the European ethnic groups, other than British Isles and French groups, the Scandinavian group, with about 70 p.c., had the highest proportion reporting English as mother tongue.

Population by Mother Tongue, 1951 and 1961

Mother Tongue	1951	1961	Percentage increase 1951-1961
Canada	14,009,429	18,238,247	30.2
English.....	8,280,809	10,660,534	28.7
French.....	4,068,850	5,123,151	25.9
Chinese.....	28,289	49,099	73.6
Finnish.....	31,771	44,785	41.0
German.....	329,302	563,713	71.2
Indian and Eskimo.....	144,787	166,531	15.0
Italian.....	92,244	339,626	268.2
Japanese.....	17,589	17,856	1.5
Magyar.....	42,402	85,939	102.7
Netherlands.....	87,935	170,177	93.5
Polish.....	129,238	161,720	25.1
Russian.....	39,223	42,903	9.4
Scandinavian.....	106,848	116,714	9.2
Slovak.....	45,516	42,546	- 6.5
Ukrainian.....	352,323	361,496	2.6
Yiddish.....	103,593	82,448	-20.4
Other.....	108,710	209,009	92.3

On June 1, 1961, 2,844,263 Canadian residents had been born outside Canada. In 1962 a further 74,586 immigrants entered Canada and in 1963, 93,151. The greatest number came from Britain, the second largest group from Italy and the third from the United States. Other nations from which the bulk of Canada's immigration arrived are Germany, Greece, France, Portugal and the Netherlands.

As in previous years, the majority of newcomers settled in the provinces of Ontario, Quebec and British Columbia. In 1962, 49,216 took up residence in Ontario, 23,264 in Quebec and 9,254 in British Columbia.

Reflecting the diversity of ethnic origin of immigrants who are attracted to this country is the fact that almost every country is represented in Canada's immigration statistics. As in 1962, there was an appreciable increase in 1963 in the numbers of immigrants from many of those countries which in the past have had relatively few of their citizens apply for admittance to Canada. In 1962, new Canadian immigration regulations were enacted which stressed education, training and skills as the main conditions of admissibility, regardless of country of origin. Any person can now qualify for admission to Canada entirely on his own individual merit.

Less than half of the immigrants in 1963 were sponsored. Un-sponsored immigrants selected abroad on the basis of their occupations were assisted in finding employment on arrival by Immigration Officers specialized in this work. There was a noticeable increase in the numbers of professional and technical immigrants in 1963, up by about 20 p.c. over 1962, as these prerequisites continue to be in high demand by Canadian employers.

To assist those who, because of financial circumstances, might not be able to come to Canada, the government introduced an assisted passage loan plan in 1951. Since that time, 139,853 persons have taken advantage of the plan. Of the total amount of \$22,692,000 advanced over the years, \$20,083,000 has been repaid by those who received this assistance. In 1963, 11,451 were granted assisted passage loans.

Canadian immigration offices abroad are maintained in 21 countries: Austria, Belgium, Denmark, Egypt, England, Finland, France, Germany, Greece, Hong Kong, India, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Scotland, Sweden, Switzerland and the United States. In other countries the Department of External Affairs, through its missions abroad, (or British diplomatic or consular offices) takes care of Canadian immigration interests.

**Foreign Born by Country of Birth
and Period of Immigration, 1961 Census**

Country of Birth	Total	Before 1946	1946-1950	1951-1961
Britain.....	969,715	605,297	103,692	260,726
Other Commonwealth countries....	47,887	11,273	5,155	31,459
United States.....	283,908	213,879	13,644	56,385
European countries.....	1,468,058	480,728	175,665	811,665
Asiatic countries.....	57,761	23,133	4,584	30,044
Other countries.....	16,934	2,837	1,244	12,853
Total.....	2,844,263	1,337,147	303,984	1,203,132

By definition, a Canadian citizen is a person who was born in Canada or who was naturalized in this country. A child born outside of Canada to Canadian parents is also entitled to Canadian citizenship, as are British subjects who on January 1, 1947, had Canadian domicile, or who had lived in Canada for a period of 20 years or who were married to Canadian citizens.

An adult alien who wishes to become a Canadian citizen must file an application with a Citizenship Court and after the application has been "posted" for three months, he must satisfy the Court that he has been legally admitted to Canada for permanent residence and has maintained his place of domicile in Canada for at least five years; the last year of which must be residence in Canada. In addition, the Court must be satisfied that the applicant is of good character, that he has an adequate knowledge of either English or French or alternatively has lived in Canada for at least 20 years; that he has an appreciation of the responsibilities and privileges of citizenship and that he



The child is a Canadian by birth, and the parents, who were born in Munich, are now Canadians too.

intends to comply with the Oath of Allegiance and to establish permanent residence in Canada.

On the recommendation of the Citizenship Court and with the concurrence of the Minister of Citizenship and Immigration, a certificate is prepared and forwarded to the Court. The applicant is advised of when he is to appear in Court to renounce his previous citizenship or nationality. After taking the Oath of Allegiance, he becomes a Canadian citizen and is presented with his certificate.

Although the requirements are the same, a British subject or a Commonwealth citizen may file an application for citizenship directly with the Registrar of Canadian Citizenship.

A married woman must apply for Canadian citizenship on her own behalf. As children are not automatically granted citizenship along with their parents, an application on their behalf must be filed by their parents with the Registrar of Canadian Citizenship.

A Canadian citizen may apply for a certificate or a miniature certificate as proof of his citizenship.

In 1962, the Canadian Citizenship Registration Branch granted 72,080 citizenship certificates, of which approximately half were to immigrants from Hungary, the British Commonwealth and Germany.

Separate and distinct from the Department's Citizenship Registration Branch is its Citizenship Branch whose function is to promote greater understanding on the part of all Canadians of the privileges and responsibilities of citizenship. To achieve its objective, the Branch encourages groups, agencies and organizations to participate in programs and projects designed to promote mutual understanding and co-operation among ethnic groups. The Branch also works closely with immigrants and the Indians to facilitate their integration into the Canadian way of life.

The Native People

Two small—1.2 p.c. of the total population—but important ethnic groups in Canada are the native populations of Indians and Eskimos. Their languages and ways of life are quite distinct and in only four centres—Aklavik and Inuvik near the mouth of the Mackenzie River, Churchill on the west coast of Hudson Bay, and Great Whale River on the east coast of Hudson Bay—do they share the same community. Most of the Indians live on reserves, some of them in the most densely settled areas of Canada, while the Eskimos live in the north above the treeline.

Responsibility for their health, welfare and education has been accepted by the Federal Government and much progress has been made in recent years toward the goal of making life secure and rewarding. Where feasible, a policy of integration—particularly at the school-age level—is being followed.

Indians. Organized into 557 bands which vary in size from fewer than 10 members to more than 7,000, Canada's 200,000 Indians live on or have access to 2,241 reserves which occupy almost 6,000,000 acres. With the activities of nearly 75 p.c. of the Indian population focussed on reserves, economic development programs have been introduced to exploit the various resources and economic potential available. The largest single cash crop of Indians is still fur, and the federal and provincial governments co-operate in extensive fur management programs. Also, commercial fishing, which is relatively new to most inland Indians, is becoming a major source of income in the northern areas.



Indians still do traditional dances at annual pageants and festivals.



A Cree Indian trapper stretching a polar bear skin in northern Ontario near Hudson Bay.

In agricultural areas, Indian farmers avail themselves of various programs of assistance and guidance conducted on reserves by the Indian Affairs Branch. Wherever reserves are near the larger centres of population, Indians find work in factories, businesses and offices.

A job-placement program was inaugurated in 1957 by the Indian Affairs Branch to help Indians to find employment. To implement this program, which complements the work of the National Employment Service, the Branch stations 14 placement specialists at various centres across Canada. These specialists provide job counselling for the young Indian students, see to it that they have suitable living accommodation, and usually keep in touch with them through social groups. Many of these young people, after leaving school, are given on-the-job training or are trained in technical institutions.

In the field of adult education, the Indian Affairs Branch carries out an active program to assist older Indians living on reserves. It provides training in literacy, conducts up-grading courses, and arranges for the teaching of various occupational skills.

Canada's Indians are becoming increasingly conscious of the fact that education is the key to their future. In 1962 the Indian school population rose to 50,549, an increase of 2,337 over the previous year and double that of a decade ago.

An indication that Indians are placing greater emphasis on participation in Canada's social and economic life is the fact that there is a steady increase

in the numbers attending non-Indian schools. Last year this figure was up by 2,692 over the previous year. The Indian enrolment in non-Indian schools was 18,549, or about 36 p.c. of the total Indian school population. Of vital importance to the integrating of Indians in non-Indian schools are 157 "joint school" agreements entered into by the Indian Affairs Branch of the Department of Citizenship and Immigration and local school boards which enable Indians from nearby reserves to attend local schools.

Eskimos. Canada's 12,000 Eskimos live in the Northwest Territories, northern Quebec and Labrador. Formerly a nomadic people, fishing and hunting for their livelihood, they are settling more and more in northern centres with schools, planned communities and employment opportunities.

An important feature of the northern economy in recent years has been the introduction of co-operatives.

More than 500 Eskimos are now members of co-operatives, representing about one out of every five Eskimo families in the north. During 1963, 19 co-operatives were active with a total business turnover of close to \$1,000,000. Of this amount, more than \$250,000 were derived from the sale of Eskimo sculpture, prints and handicrafts, and the balance from char and salmon fisheries, the operation of retail stores and tourist camps, logging at Port Nouveau Quebec, (George River) and Fort Chimo, boat building, and marketing furs.

An Eskimo constable attached to the RCMP at Alexandria Fiord, works on one of the pre-fabricated buildings erected for the post.



Eskimo children returning to boarding-school at Inuvik, N.W.T., after their summer vacation. Their parents live a nomadic life mainly in remote hunting camps too far away for the children to receive an education at home.



Housing co-operatives are helping to fill a pressing need for homes to accommodate bigger Eskimo families. The prefabricated houses are shipped north and paid for through a program of grants and loans on terms that the Eskimo buyer can afford. All members of the co-operative work together on one house until it is finished; then they move on to build another until each member-family has accommodation.

A milestone in development was reached in 1963 when the first Eskimo Co-operative Conference met at Frobisher Bay with delegates attending from 18 co-operatives all across the Arctic.

Vocational training is providing many Eskimos, among others, with skills needed in the north—electronics, mining, motor mechanics, carpentry and domestic science. The Eskimo people are much interested in the education of their children and federal schools are now serving most northern communities.

About two thirds of Eskimo school-age children are now registered in schools; travelling libraries bring a wide selection of books; visual aids include films and slides. A hot mid-day meal is provided for the 2,400 youngsters who now attend regular classes.

In increasing numbers Eskimo children are moving into school residences at Yellowknife and Fort Simpson to continue their studies in higher grades.

When the Eskimo people in the Keewatin and Franklin Districts were asked to suggest a name for the proposed new territory in the Eastern Arctic, they chose Nunassiatq, "The Beautiful Land".



Ski-ing in the Rockies in Banff National Park.

The Land

Dominating the Canadian map is a massive central upland of Precambrian rock, known as the Canadian Shield, which covers most of Quebec, Ontario, the Northwest Territories and the northern halves of Manitoba and Saskatchewan. This 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 are so remote that the only access to them is by air; to reach others, it has been necessary to construct means of transportation, such as the 193-mile railway built from Lac Jeannine to Port Cartier in Quebec.

Where Ontario and Quebec fringe the St. Lawrence River and in the southern tip of Ontario is the area known as the St. Lawrence Lowlands, where commercial agriculture is highly developed and, although it is Canada's smallest agricultural region, it accounts for almost half Canada's farm income.

West of the Canadian Shield and stretching from the U.S. border to the Arctic Ocean through southern Manitoba and Saskatchewan, most of

Alberta and part of the Northwest Territories lie the Interior Plains. The southern reaches of these plains constitute the rich prairie farmlands that stimulated the opening of the west and the eventual establishment of Canada as one of the world's great grain producers.

Beyond the Interior Plains, the Cordilleran Region embraces the mountainous areas of Alberta, British Columbia and the Yukon. Four parallel ranges of mountains running north and south are separated by lovely valleys famous for their orchards and their stock farms.

In the east, the Atlantic Provinces and southeast Quebec form the northern section of the Appalachian Region, an ancient mountain system which extends from Alabama in the southwest to Newfoundland in the northeast. The river terraces and valleys are ideal for mixed farming, potatoes and fruit, especially apples.

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.

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 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.

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.

With nearly 40,000 square miles of lakes, rivers and streams, Manitoba is a fisherman's paradise.





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BIRDS AND ANIMALS OF CANADA



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1. The Gannet breeds in the Gulf of St. Lawrence off southeastern Newfoundland and winters along the Atlantic seaboard from Virginia to Cuba. It grows to a length of 40 inches with a 4-inch bill, and feeds on fish caught by diving, sometimes from as high as 150 feet.
2. The Wild Duck Mallard ranges over the entire North American continent and is found in Europe, North Africa, Asia, India and Borneo.
3. The Belted Kingfisher, which grows to a length of 12-15 inches, with a wingspan of 20-24 inches, but weighs only 6 ounces, summers in Canada from the Yukon to Newfoundland.
4. The dignified Great Grey Owl, which grows to a length of 33 inches and a wingspan of 60 inches, ranges from the Yukon to Ontario.
5. Common Puffins breed along the Atlantic coast of Canada and winter along the Atlantic coast of the United States. They nest in large colonies and feed on fish caught by diving, crustaceans and mollusks.
6. The Common Loon, best known for its haunting cry, inhabits all of North America and grows to a length of 32 inches. A powerful swimmer and diver, it has been known to reach a depth of 200 feet below the surface.
7. The Red-throated Loon grows to a length of 27 inches and breeds across the North American continent and also in Arctic Europe and Asia.
8. The Willow Ptarmigan is a native Canadian, summering from the Yukon to Baffin Island and wintering in wooded forests near Canada's southern border.
9. The cheeky Canada Jay, or whiskey-jack, nests from the Yukon to Labrador, and as far south as New Mexico.



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10. The Kittiwake Gull frequents the open ocean and is seldom seen from shore. It breeds in Arctic America, as well as Scandinavia and Northern Russia.

11. The Great Blue Heron reaches a length of 60 inches and summers across Canada from Nova Scotia to southeastern British Columbia.

12. The friendly, inquisitive Raccoon is found in forested areas from the St. Lawrence to British Columbia.

13. This Red Fox pup will grow to a length of $3\frac{1}{2}$ feet, including a 16-inch tail. It is found in wooded and farm areas throughout Canada and possesses a remarkable sense of smell, excellent hearing and good sight.

14. The Mule Deer is a Westerner, ranging from Manitoba to eastern British Columbia. It grows to a height of $3\frac{1}{2}$ feet and has a short black-tipped tail.

15. The Woodland Caribou ranges from Yukon to Labrador and Newfoundland, and differs from the caribou of the Arctic tundra in colour, being very much lighter.

16. The Rocky Mountain Goat in winter coat.

17. The Rocky Mountain Goat ranges along the Rocky Mountains from Alaska to Idaho.

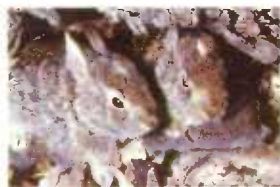
18. The Cottontail Rabbit is found throughout the southern half of North America, in Canada only in southern Ontario and southwest Saskatchewan. It has a fluffy white tail about 2 inches in size.

19. The awkward Moose grows to a height of 7 feet, a length of 9 feet and weighs up to 1,800 pounds. Antlers on the male often spread 6 feet. Moose range from the Yukon to Newfoundland.

20. Rocky Mountain Bighorn Sheep inhabit the Rockies from Alaska to Idaho; they grow to a height of $3\frac{1}{2}$ feet and the horns along the curve often reach a length of 4 feet. They are characterized by a poor sense of smell which is compensated for by remarkable powers of sight.



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A rare photograph of a weather phenomenon, the Chinook arch, seen over Calgary, Alberta. This cloud formation brings a warm southwest wind to southern Alberta and British Columbia, raising the temperature with astonishing rapidity. The wind was named the Chinook when it was first observed blowing over Fort Astoria, on the Columbia River, from a neighbouring Chinook (Indian) camp.

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.

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
Frobisher Bay, N.W.T.....	15.8	-15.8	45.7	76	-49	13.53	..	273

Canada's History

The history of Canada links up with that of the world and cannot be studied save in connection with that of at least three mighty nations: Britain, France and the United States. Its earliest settlement and its industrial and social development today are closely related to international politics and trade.

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. Possessing 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 shipbuilding, 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.

Maisonneuve Square in Montreal, and the monument to Paul de Chomedey, Sieur de Maisonneuve, who founded the city in 1642 as a religious enterprise under the auspices of the Sulpician Order. An association was formed, "The Gentlemen Associated for the Conversion of Savages at Montreal", which had as its object the establishment of a hospital and mission-station for the Indians. The association was granted the Island of Montreal in the St. Lawrence River, and the first settlement was called Ville-Marie de Montreal.





During the 60 years between 1860 and 1920, thousands of immigrants streamed out to Western Canada. Here is a historic photograph of some of them on the station platform at Winnipeg.

The first white man known to have reached these shores was a Genoese named John Cabot who claimed the country for England in 1497. A few years later a French explorer—Jacques Cartier—planted a cross at Gaspé, claiming the country for France. But it was not until the 17th century that the indomitable explorer Samuel de Champlain traced much of the St. Lawrence waterway and, realizing the potential value of the fur trade, began to think in terms of permanent settlement. He established a community at Port Royal in what is now Nova Scotia in 1605; he founded Quebec in 1608 and, further upstream, Three Rivers, in 1634. Newfoundland and the Atlantic seaboard were occupied by the British.

From 1627 to 1663 the French colony was controlled by the Company of New France. This body, organized on the basis of 100 shares of 3,000 livres each, was run by a Board of 12 directors, of whom six had to be residents of Paris. It was given New France in feudal tenure and a monopoly of the trade in furs.

In 1663 a period of royal government began when the colony came under King Louis XIV's direct administration. It was governed like a province of France, with a governor, an intendant (or administrator) and a sovereign council. Later a Bishop of Quebec was named. Local government developed at this time through the establishment of seigniories along the banks of the St. Lawrence River. Holdings were divided among tenants who paid rent, usually in produce, were fined when the farm changed hands, and were eligible for military service.

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 weathered the storms. A century under the French paternalistic feudal system of agricultural settlement along the St. Lawrence had enabled the

The town of Placentia in Newfoundland was founded in 1662. The tercentenary of this event was observed in 1962 with a costumed pageant re-enacting the landing of the original French settlers.



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. 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,



The old sanctuary of Notre Dame du Cap at Cap de la Madeleine, Quebec, was built in 1714. Recently a new sanctuary has been built nearby.

A grist mill, opened in 1860,
is now a tourist attraction at
Manotick, Ontario.



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 postwar slump, 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 \$40,401,000,000 in 1962; personal income from \$9,719,000,000 to \$30,794,000,000.

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.

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 259,613,000 barrels in 1963. Natural gas has also been exploited extensively and 1,070,900,800 Mcf. were produced in 1963. Oil and gas pipe-

This marker commemorates the first voyage of Simon Fraser, in 1808, down the mighty river which bears his name.





An old windmill in County Charlevoix, Quebec.

lines were installed to carry these fuels approximately 43,000 miles east and west and to the United States.

A vast inflow of non-resident capital has contributed greatly to Canada's postwar economic expansion. Net international indebtedness rose from \$4,300,000,000 at the end of 1950 to nearly \$19,000,000,000 at the end of 1962. Most of this foreign investment was direct and was concentrated in the resources and manufacturing industries. It accounted for 60 p.c. ownership and 69 p.c. control of the petroleum and natural gas industries; 62 p.c. ownership and 59 p.c. control of the mining industry; 54 p.c. ownership and 59 p.c. control of manufacturing at the end of 1961.

Gross value of manufactured products has increased from \$13,817,526,000 in 1950 to \$24,243,000,000 in 1961, although the number of employees has increased only from 1,183,297 to 1,265,032, due to progress in automation and a significant trend toward the production of durable goods. Leading industries, by value, are pulp and paper, smelting and refining, petroleum 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 Canadian Pacific railways introduced new, more efficient rolling-stock and maintenance equipment, and retired all their steam engines, replacing them with diesel locomotives.

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 1947 and 1962 the net generating capacity of thermal stations increased from 350,000 kw. to 5,700,000 kw., as compared with an increase of hydro-electric

capacity from 10,491,000 kw. to 27,100,000 kw. Canada's first nuclear power station was opened at Rolphton, Ontario, in 1962 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 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. Under the Technical and Vocational Training Assistance Act, the Federal Government contributes 75 p.c. of the costs of capital expenditure on trade and technical schools and 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 fifth in international trade among the nations of the world, after the United States, Britain, the Federal Republic of Germany and France. Its citizens enjoy one of the highest standards of living in the world, as well as a comprehensive program of social security.

Alexander Graham Bell, inventor of the telephone, is honoured in the Bell Museum of Baddeck, Nova Scotia, the town where he died in 1922. It is also the site of the first airplane flight in the British Empire, the culmination of experiments carried out by Bell and his associates.





An unusual aerial view of the Parliament Buildings, Ottawa, taken from the back, or river side, of Parliament Hill. The circular Parliamentary Library is clearly shown, as is the Peace Tower and, behind it, the East Block. The West Block, not shown, faces it across the lawn where the ceremony of the Changing of the Guard takes place every summer. The Centre Block contains the House of Commons, the Senate, the Press Gallery, Parliamentary Café, meeting rooms and offices.

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



At the opening of the Federal-Provincial Conference held in December, 1963, the 10 provincial premiers posed with the Governor General and the Prime Minister. From left to right, sitting, are Premier Lesage, Quebec; Prime Minister Pearson; Governor General Vanier; Premier Roberts, Ontario. Standing behind them are Premier Smallwood, Newfoundland; Premier Manning, Alberta; Premier Bennett, British Columbia; Premier Robichaud, New Brunswick; Premier Stanfield, Nova Scotia; Premier Roblin, Manitoba; Premier Shaw, Prince Edward Island; Premier Lloyd, Saskatchewan.

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 and 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, licences, 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.

Canada has played a leading part among the British people in the evolutionary development from colonial communities to sovereign nations, united by a common allegiance to the Crown, freely associated as members of the Commonwealth of Nations, and possessing equality of status with Britain in both domestic and foreign affairs. 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 Newfoundland Constabulary polices St. John's metropolitan area, while rural law enforcement is handled by the R.C.M.P. The Constabulary retains many of the characteristics of the British pattern along which the force was developed, with constables unarmed except for wooden batons.





The newest unit of the Canadian Coast Guard, the CCGC *Relay*, was christened at Kingston on July 12, 1963. The 95-foot search and rescue cutter serves on the Great Lakes in summer and on the East Coast in winter.

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	Gen. Georges P. Vanier...	Sept. 15, 1959

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.

One of many federal buildings in cities across Canada, in which federal offices, such as the post office, income tax and customs, are centralized.



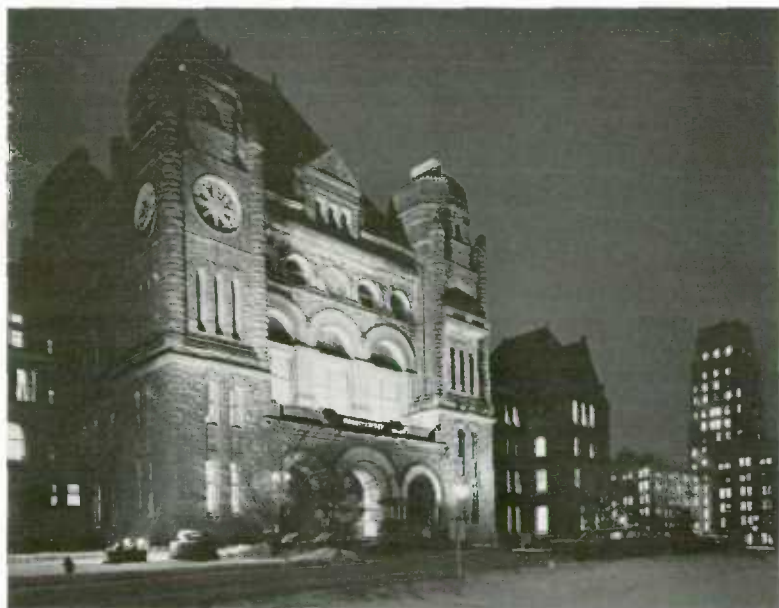
Electors include all Canadian citizens or British subjects, male or female, of the age of 21 or over, who have been resident in Canada for 12 months prior to polling day, with certain exceptions, such as persons confined in penal institutions or mental hospitals, federally appointed judges and returning officers for electoral districts.

Seats in the House are distributed geographically as follows:

Newfoundland.....	7	Saskatchewan.....	17
Prince Edward Island.....	4	Alberta.....	17
Nova Scotia.....	12	British Columbia.....	22
New Brunswick.....	10	Yukon Territory.....	1
Quebec.....	75	Northwest Territories.....	1
Ontario.....	85	TOTAL.....	265
Manitoba.....	14		

Party standing in Canada's 26th Parliament, as of Feb. 18, 1964, was as follows: Liberals, 129; Progressive Conservatives, 95; Social Credit Party, 11; Social Credit Rally, 13; New Democratic Party, 17. Four of the 265 members were women. Following the election, which took place on April 8, 1963, the Quebec members of the Social Credit Party, led by Real Caouette,

A night view of the Victorian style Parliament Buildings in Toronto, Ontario.





The Parliament Buildings in Victoria, British Columbia, have recently been embellished by the addition of a new fountain.

held a convention, at which Mr. Caouette was named leader of "Le Ralliement des Creditistes", or the Social Credit Rally. Twelve members of the House joined him in dissociating themselves from the national Social Credit Party led by R. N. Thompson.

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 or receive appointment to the Senate by the Governor General upon the nomination of the Prime Minister. Almost all Cabinet Ministers are also heads of executive departments of the government, for the work of which they are responsible to the House of Commons.

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.

The members of the Ministry, as of Feb. 3, 1964, are listed below according to precedence:

Rt. Hon. Lester Bowles Pearson	Prime Minister
Hon. Paul Joseph James Martin	Secretary of State for External Affairs
Hon. John Whitney Pickersgill	Minister of Transport
Hon. Paul Theodore Hellyer	Minister of National Defence
Hon. Walter Lockhart Gordon	Minister of Finance and Receiver General
Hon. Mitchell Sharp	Minister of Trade and Commerce
Hon. George James McIlraith	President of the Queen's Privy Council for Canada
Hon. William Moore Benidickson	Minister of Mines and Technical Surveys
Hon. Arthur Laing	Minister of Northern Affairs and National Resources
Hon. Maurice Lamontagne	Secretary of State of Canada
Hon. John Richard Garland	Minister of National Revenue
Hon. Lucien Carlin	Associate Minister of National Defence
Hon. Allan Joseph MacEachen	Minister of Labour
Hon. Jean-Paul Deschatelets	Minister of Public Works
Hon. Hédard Robichaud	Minister of Fisheries
Hon. J. Watson MacNaught	Solicitor General
Hon. Roger Teillet	Minister of Veterans Affairs
Hon. Judy LaMarsh	Minister of National Health and Welfare
Hon. Charles Mills Drury	Minister of Industry and Minister of Defence Production
Hon. Guy Favreau	Minister of Justice and Attorney General
Hon. John Robert Nicholson	Postmaster General
Hon. Harry Hays	Minister of Agriculture
Hon. René Tremblay	Minister of Citizenship and Immigration
Hon. John Joseph Connolly	Minister without Portfolio
Hon. Maurice Sauvé	Minister of Forestry
Hon. Yvon Dupuis	Minister without Portfolio

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



A volunteer fireman in Aylmer, Quebec, checks a garage under construction during Fire Prevention Week. Firemen often check houses for fire hazards and perform other preventive services. In January 1964 the National Research Council published the National Fire Code of Canada in the form of a local municipal fire prevention by-law which could be adopted by a local government.

of the day. In 1905, the importance of the work of the Leader of the Opposition was recognized by the provision of a special salary to be paid him in addition to his indemnity as a member of the House.

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 Feb. 1, 1964, was as follows: Progressive Conservatives, 34; Liberals, 59; Independent, 2; Independent Liberal, 1; vacant, 6.

While the Ministers of the Crown carry the political responsibilities of their respective departments, the federal civil service forms the staffs of the 20 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 January 1, 1964, there were 334,028 federal employees.



A large proportion of expenditure by the Federal Government consists of veterans' pensions, health and social welfare payments. Cheques to pensioners, mothers of children under 16, all people over 70 and others are delivered by postmen paid by the Federal Government.

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, 1964, were as follows:

Newfoundland.....	Hon. J. R. Smallwood.....	Liberal
Prince Edward Island.....	Hon. Walter R. Shaw.....	Progressive Conservative
Nova Scotia.....	Hon. R. L. Stanfield.....	Progressive Conservative
New Brunswick.....	Hon. Louis J. Robichaud.....	Liberal
Quebec.....	Hon. Jean Lesage.....	Liberal
Ontario.....	Hon. John P. Robarts.....	Progressive Conservative
Manitoba.....	Hon. Dufferin Roblin.....	Progressive Conservative
Saskatchewan.....	Hon. W. S. Lloyd.....	New Democratic Party
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 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. Administration of the Northwest Territories and the Yukon Territory, of Eskimo affairs and of the resources of both territories is the responsibility of the Northern Administration Branch of the Department of Northern Affairs and National Resources.

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

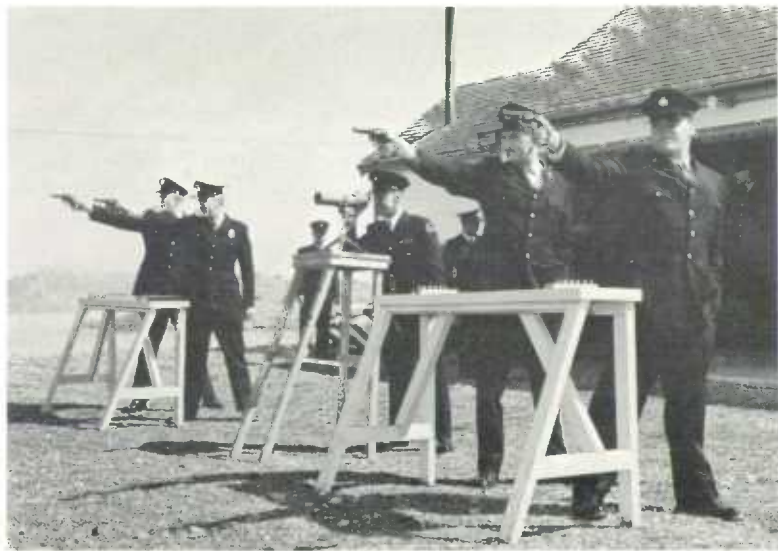
exclusively to make laws respecting municipal institutions, the provincial legislature of each province has divided its territory into varying geographical areas known generally as municipalities and more particularly as counties, cities, towns, villages, townships, rural municipalities, or municipal 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.

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 courts and the establishment of procedure in civil matters.

The Ontario Police College opened at Aylmer, Ontario, in 1963 is unique on this continent in that it is the only police college run by a province or a state, providing training for all police officers within the province. The province bears the entire cost of the college's operation with the exception of a \$10 registration fee charged municipalities.





The 15th Ministerial Meeting of NATO was held at Ottawa in May 1963, in the newly reconstructed West Block of the Parliament Buildings.

External Affairs

The Nuclear Test Ban Treaty, which Canada signed on August 8, 1963, represents a significant milestone in the world effort to create an atmosphere of patience and sanity in the field of international relations. Canada continues to play its full part in the search for peace and international well-being by strong support for the United Nations, active participation in Commonwealth affairs and in the North Atlantic Treaty Organization. In the struggle for greater social and economic well-being, Canada contributes to technical assistance and capital development programs, both through the United Nations and in the Commonwealth-centred "Colombo Plan". At the same time, in the belief that trade, not aid, will create long run conditions for a better life in the developing countries, and that international exchange will also increase the prosperity of already industrialized nations, Canada supports all initiatives to open the door to wider and freer international commerce.

Posts Abroad

At the end of October 1963, Canada was represented abroad by the following diplomatic and consular posts:

Embassies (44)

Argentina ¹	France	Peru ⁸
Austria	Germany	Poland
Belgium ²	Greece	Portugal
Brazil	Guatemala	South Africa
Cameroun ³	Haiti	Spain ⁹
Chile	Indonesia	Sweden
Colombia	Iran	Switzerland ¹⁰
Congo (Leopoldville)	Ireland	Turkey
Costa Rica ⁴	Israel ⁵	U.S.S.R.
Cuba	Italy	United Arab Republic ¹¹
Czechoslovakia	Japan	U.S.A.
Denmark	Lebanon ⁶	Uruguay
Dominican Republic	Mexico	Venezuela
Ecuador	Netherlands	Yugoslavia
Finland	Norway ⁷	

Offices of High Commissioners (12)

Australia
Britain
Ceylon
Ghana¹²
India
Jamaica
Malaya¹³
New Zealand
Nigeria¹⁴
Pakistan
Tanganyika¹⁵
Trinidad and Tobago

Consulates General (11)

Germany:
Hamburg
Iceland:
Reykjavik (Honorary)
Italy:
Milan
Philippines:
Manila
United States:
Boston
Chicago
Los Angeles
New Orleans
New York
San Francisco
Seattle

Consulates (4)

Duesseldorf

United States:
Philadelphia
Detroit

São Paulo

Military Mission (1)

Berlin

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. ² Luxembourg. ³ Central African Republic, Chad, Congo (Brazzaville), and Gabon. ⁴ Nicaragua, Honduras and Panama. ⁵ Cyprus. ⁶ Iraq.
⁷ Iceland. ⁸ Bolivia. ⁹ Morocco. ¹⁰ Tunisia. ¹¹ Sudan. ¹² Guinea.
Ivory Coast, Togo, Upper Volta, ¹³ Burma, Thailand. ¹⁴ Sierra Leone, Dahomey,
Niger, Senegal. ¹⁵ Uganda.

The Commonwealth

Canada's foreign policy contains four main elements—maintaining close and friendly relations with its southern neighbour on the North American continent; continuing support for an effective United Nations; support for a strong North Atlantic Treaty Organization; and the extension and development of a strong Commonwealth of Nations. Of the three international groupings just mentioned, the latter is incapable of simple definition but its roots stretch far back into history. At the end of 1963 the Commonwealth



The Canadian High Commissioner to Uganda presents his letter of introduction to the Prime Minister.

was composed of 18 independent countries—Britain, Canada, Australia, New Zealand, India, Pakistan, Ceylon, Ghana, Malaysia, Nigeria, Cyprus, Sierra Leone, Tanganyika, Jamaica, Trinidad and Tobago, Uganda, Zanzibar and Kenya. Flexibility and diversity are hallmarks of the Commonwealth association. An examination of the constitutions of the 18 members shows that eight of them are monarchies recognizing Her Majesty Queen Elizabeth II as head of state; two countries (Malaysia and Zanzibar) have their own monarchs; and eight countries (India, Pakistan, Ghana, Cyprus, Tanganyika, Nigeria, Uganda and Kenya) are republics. Not only does the Commonwealth offer Canada a close relationship with a group of nations which, despite their geographic, economic, racial, cultural and political diversities, find common ground in shared traditions and ideals, but the Commonwealth has a particular value since this unique association engenders a feeling of goodwill and sense of responsibility. Within the Commonwealth family of nations there is constant consultation and co-operation in many undertakings. Canada's overseas economic aid for developing countries continues to be directed in the main to Commonwealth territories through the Colombo Plan, the Canada-West Indies Aid Program and the Special Commonwealth Africa Aid Program (SCAAP). Other forms of mutual assistance, such as military training and academic awards, are also supplied through Commonwealth channels.

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 Atlantic Treaty Organization. Canada's main defence commitments are in support of the NATO Alliance. Canada provides substantial forces in NATO Europe and the Atlantic area and, through its participation in NORAD, contributes forces for the defence of the Canada-United States region of

NATO. NATO is much more than a military alliance and Canada takes an active part in the work and deliberations of the North Atlantic Council which provides the forum where Canada and its NATO partners can exchange full and frank information, opinions and intentions on the political, economic, cultural and scientific developments of today.

As a member of the NATO Alliance, Canada continues to participate in a Mutual Aid Program with total contributions since 1950 amounting to approximately \$1,760,000,000. The purpose of this program is to render mutual assistance to its allies by the provision of military equipment, air-crew training and logistic support for materiel as well as through contributions to NATO budgets.

The Organization for European Economic Co-operation and Development co-ordinates foreign aid programs and provides a forum for the discussion of trade policy and domestic economic policy.

The United Nations

Firm support for the United Nations is an essential element of Canadian foreign policy. Canada has contributed over the years to the mediation efforts of the Organization in Kashmir, Indonesia and Palestine, and supported 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 to a United Nations request for support for its operations in the Congo by supplying military and civilian specialists and by pledging political

Members of a detachment of 57th Canadian Signal Unit at a Congo water hole. They are providing communications between the 3rd Queen's Own Nigerian Regiment at Kongolo and United Nations Headquarters in Leopoldville.





Shortly after Prime Minister Pearson attained office, he and the late President John F. Kennedy met at Hyannis Port for a series of informal talks.

and financial support. In 1962, Canada provided aircraft, pilots and maintenance crews to assist the United Nations Temporary Executive Authority (UNTEA) in the exercise of its peace-keeping functions in West New Guinea and, more recently, has supplied an air unit for the United Nations Yemen Observation Mission (UNYOM).

Canada also continues to support the humanitarian United Nations programs for refugees. Since the Second World War, Canada has received approximately 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. In the United Nations and as a member of the Eighteen-Nation Disarmament Committee, Canada has emphasized the dangers involved in the testing of nuclear weapons and stressed the necessity of concluding an international agreement to halt such tests permanently. Consequently, Canada was one of the first of the non-nuclear states to sign on August 8, 1963, the Moscow Treaty banning tests in the atmosphere, in outer space and under water.

Canada also participates directly in the work of the United Nations through its membership in various United Nations bodies. During 1963, Canada was a member of the Commission on Narcotic Drugs, the Social Commission, the Economic Commission for Latin America, the Executive Committee of the office of the United Nations High Commissioner for Refugees and the Governing Council of the Special Fund to provide systematic and sustained assistance in fields essential to the integrated technical, economic and social development of less developed countries. Canada also participated in the work of the Human Rights Commission, the International Law Commission and the Committee on the Peaceful Uses of Outer Space. 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 is the sixth largest contributor to the United Nations regular budget. In 1963, Canada's share of the gross regular budget of \$93,900,000 was approximately \$2,500,000 (3.12 p.c.) and its assessment for United Nations peace-keeping operations in the Middle East and in the Congo was about \$1,300,000. In addition, Canada makes voluntary contributions to

special United Nations programs such as the Expanded Program of Technical Assistance (EPTA), the Special Fund, the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Relief and Works Agency in the Middle East (UNRWA). Canada's total assessment and contributions to the United Nations and its related bodies, the International Atomic Energy Agency (IAEA) and the United Nations Association in Canada totalled approximately \$150,000,000 during the period 1945-62 and in 1963 about \$20,000,000.

Canada has consistently taken an active interest in United Nations financial questions, particularly those related to peace-keeping operations, which threaten to undermine the Organization's effectiveness. In this regard Canada played an active role as a member of the Working Group of 21 which is responsible for studying special methods of financing peace-keeping operations.

Canada and the United States

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

A Canadian nurse demonstrates the operation of a radiotherapy unit to students in Rangoon, Burma.





Plaza Canada in Buenos Aires was conceived by the Argentina-Canada Cultural Institute and named in July 1961. Canadian maple trees grow in the Plaza and a painting by a Canadian artist hangs in Buenos Aires' City Hall.

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 their boundaries.

Canada and the United States are both active members of 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 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.

Canada and Latin America

Canada has completed the establishment of formal diplomatic relations with all the Republics of Latin America and now has 14 resident diplomatic missions in the region. Its relations with these countries have increased appreciably during the past few years, politically, culturally, commercially and diplomatically. It belongs to three inter-American organizations linked with the Organization of American States: the Pan American Institute of Geography and History, the Inter-American Statistical Institute and the Pan American Radio Office. Canada has also been developing closer economic ties with Latin America. Since 1961 it has been a member of the United Nations Economic Commission for Latin America and has sent observer groups to Ministerial meetings of the Inter-American Economic and Social

Council, which is an organ of the Organization of American States. Trade missions of Canadian businessmen and government officials to Latin American countries have been promoted. Of particular importance, the Canadian Government has directly facilitated Canadian exports to Latin America through the long-term credits it has provided for the export of capital goods under the Export Credits Insurance Act. These credits now total more than \$100,000,000.

Canada has also participated increasingly in international conferences concerned with Latin American affairs. In 1963, Canadian representatives attended the Inter-American Conference of Ministers of Labour on the Alliance for Progress at Bogota, Colombia as observers; the Tenth Session of the Economic Commission for Latin America at Mar del Plata, Argentina; the Ninth Pan American Highway Congress at Washington, D.C.; meetings of the Pan American Institute of Geography and History at Mexico City; and the Directing Council of the Pan American Health Organization as observers.

Canada and the Middle East

Canada has from the beginning participated fully in UN activities in the Middle East which has since the War been a focus of tension and conflict. This has made necessary an important UN peace-keeping role. In 1963 Canadian officers continued to serve with the United Nations Truce Supervisory Organization located along Israel's borders with the neighbouring Arab States. Canada was closely associated with the original formation of the United Nations Emergency Force and Canadian forces in Sinai and Gaza continued in 1963 to be an important component of UNEF. Canada also participated in the United Nations Observation Mission in Yemen which was given the task in June, 1963, of observing and verifying UAR and Saudi Arabian actions to carry out disengagement undertakings. Another facet of UN activity in the Middle East is the United Nations Relief and Works Agency for Palestine Refugees (UNRWA). Canada's contribution in 1963 to UNRWA's essential work for these refugees was \$1,000,000.

Canada and Africa

Relations with Africa have become increasingly important to Canada as many new countries have become independent and have begun to take an active part in international affairs. The Heads of 32 independent African states met at Addis-Ababa in May, 1963, and formed an organization of African Unity which has set up machinery for close co-operation between all the independent African states in political, defence, social and economic affairs. The African countries hold an influential position at the United Nations where they are particularly concerned with the solution of the remaining colonial problems. Canada maintains diplomatic missions in Ghana, Nigeria, Cameroun, Congo (Leopoldville), South Africa, Tanganyika and the UAR and has diplomatic relations by accreditations from these missions with most of the African states. Canada has made an important contribution to the United Nations Force in the Congo, providing a contingent of over 300 communications troops as well as a number of administrative and staff personnel.



The first group of young Canadian university graduates to leave Canada for service abroad, under the auspices of the Canadian University Service Overseas, embarked for a flight to the Congo in September, 1962.

Canada and the Far East

Canada has had extensive contacts, both official and private, with the Far East over many years. It maintains resident diplomatic missions in Indonesia, Japan, and Malaysia (also accredited to Burma and Thailand), and a Consulate-General in the Philippines. There is an important Trade Commissioner's Office in Hong Kong. In addition to normal diplomatic relations with the countries of the area and to assistance under the Colombo Plan, Canada has, since 1954, had extensive peace-keeping commitments in Cambodia, Laos and Vietnam, where Canadian civilian and military officers serve with the International Supervisory and Control Commissions created by the Geneva Conferences of 1954 and 1961-62.

Canadian External Aid Programs

In recognition of the pressing needs of the economically under-developed areas of the world, Canada participates in a number of programs of assistance. In the past, the major part of such assistance has been extended under Canada's bilateral grant aid programs in the form of Canadian goods and services.

The oldest and largest of these bilateral grant-aid programs is the Colombo Plan in South and Southeast Asia, under which Canada has, since 1951, made available some \$423,000,000 in assistance, most of this amount going to the fellow Commonwealth countries of India, Pakistan, Ceylon and Malaya with significant amounts of technical assistance being provided to the French-speaking states of Southeast Asia. Canadian aid, however, has not been limited to South and Southeast Asia and in recent years new programs have been introduced. In 1958, when the West Indies Federation

was being formed, Canada introduced a \$10,000,000 five-year program for the area which is being continued as a Commonwealth Caribbean Program for the former units of the Federation, as well as British Guiana and British Honduras, at a level of \$2,100,000 in 1963-64. By the end of the last decade the tide of African national independence movements was running strong and a program called SCAAP—the Special Commonwealth Africa Aid Program—was launched on Commonwealth initiative. Canada agreed that its contribution would be \$10,500,000 over a three-year period, commencing in 1961, and the main recipients of Canadian aid have been Nigeria, Ghana, Sierra Leone, Tanganyika, Uganda and Kenya. At about the same time, Canada also introduced a program designed for educational assistance to the independent French-speaking states of Africa at an annual level of \$300,000. Two other programs complete the present roster—the Commonwealth Technical Assistance Program, under which small amounts are made available for other Commonwealth Territories, and the Commonwealth Scholarship Plan under which scholarships are provided for up to 250 Commonwealth students to study in Canada each year.

Capital project assistance, which includes the construction of power stations, transmission lines and industrial plants, the supply of machinery and equipment and the carrying out of surveys and feasibility studies, accounts for nearly half of Canada's aid expenditures; commodity assistance, or the supply of raw materials and foodstuffs, forms only a slightly lower proportion of the total effort; while technical assistance, which includes the cost of sending individual Canadian teachers or advisers abroad and bringing students to Canada, accounts for about 5 p.c.

These proportions, however, are not similar in individual programs. Commodity assistance, for example, has been concentrated on the more

A Canadian science teacher with his class in Jamaica, serving under the Canada-West Indies Program.



advanced countries of the Colombo Plan. Countries such as India and Pakistan have already achieved a certain degree of industrial development and urgently require foreign raw materials to feed existing industry as well as project assistance for the creation of new industries. The African countries, on the other hand, have not yet generally reached this stage of development and their urgent requirement is for technical assistance, including educational assistance, to help them create a pool of skilled manpower without which industrial development cannot take place. Technical assistance, therefore, has formed a much higher proportion (about 60 p.c.) of the Canadian aid effort in Africa and such capital assistance as has been provided has been largely limited to the construction of schools or the carrying out of basic surveys of resources.

Under these bilateral grant-aid 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 is taken in Canada as to the projects which will be undertaken.

In addition to the bilateral programs described above, Canada contributes to multilateral economic and technical assistance programs of the United Nations and its specialized agencies, including the United Nations Special Fund, the United Nations Expanded Program of Technical Assistance, the United Nations Children's Fund. Canada also extends loans and advances to other international organizations such as the International Bank for Reconstruction and Development and the International Development Association. Under the Export Credits Insurance Act, Canada also is in a position to extend commercial credits for development purposes in the under-developed countries.



The Kundah Hydroelectricity Development in the State of Madras, India, is a Canadian Colombo Plan project.



"Whom then do I call educated: first, those who control circumstances instead of being mastered by them; those who meet all occasions manfully and act in accordance with intelligent thinking; those who are honourable in all dealings, who treat good-naturedly persons and things that are disagreeable; and furthermore those who hold their pleasures under control and are not overcome by misfortune; finally, those who are not spoiled by success."

Isocrates.

Education

Education, in the broad sense, is being recognized more and more as providing the key to a fuller life. This is perhaps most manifestly conspicuous in the struggle now being waged against illiteracy in the under-developed countries of the world. But in countries such as Canada, where a system of free and compulsory schooling has brought the level of illiteracy down to about 2 or 3 p.c., the problem still remains of providing educational opportunities for all persons at all levels and of a type suitable for life in the complex world of today.

This effort to meet the educational demands of modern society is revealed in many ways: in the greatly increased enrolments in high school and university as larger proportions of young persons and parents recognize the value of a thorough education; in the increasing diversification of adult education programs, refresher courses, language courses for recent immigrants, etc., which indicate the growing realization that education is a continuing experience; in the increasing attention devoted to educational research, as reflected in the formation of such bodies as the Canadian Council for Research in Education; in the holding of large conferences where educationists and laymen meet to discuss education problems; in the increased publicity devoted to education,

with many large newspapers now appointing education editors or columnists who specialize in articles on education; and, above all, in the increased number of Royal Commissions and other official bodies appointed to enquire into the state of education in general or some aspect of it.

Elementary and Secondary Education

Education in Canada is a provincial responsibility with each provincial government having a Department of Education or its equivalent. About 95 p.c. of Canadian children attend schools built and operated by local municipalities but regulated in such matters as curriculum, certification of teaching staff, laws governing attendance, and so on, by the provincial Department of Education. Such children pay no school fees, the cost of their education being borne partly out of local or municipal taxes and partly from the revenues of the provincial government. The remaining 5 p.c. of school-age children are attending either private schools, where annual fees may range from \$50 to \$2,000, or schools operated by departments of the Federal Government. The latter are, specifically, all children living in the Territories, outside provincial boundaries; Indian children in the provinces; and children attending schools for servicemen's families overseas and in some of the military establishments in Canada.

Increasing proportions of young people are remaining in school beyond the legal school-leaving age to obtain high school diplomas and to proceed to university or other post-secondary educational institutions. This is shown by comparing the ratio of high school enrolment to total population of high school age for a series of years. In 1962-63 the number enrolled in secondary education was 68.9 p.c. of the total population aged 14 to 18, which may be considered as roughly corresponding to the high school age group. The corresponding percentage for earlier years was 65.7 in 1961-62, 60.9 in 1960-61, 58.0 in 1959-60, and only 41.6 in the school year 1951-52. Clearly the schools are



Eskimo and Indian children try to identify objects from a book at the Federal School in Inuvik, N.W.T.

Many children of Chinese-Canadian parentage attend Chinese school for several hours a day following English schooling.



retaining an increasing proportion of teen-age youth year after year. Census statistics corroborate the evidence. In the 1961 Census 58.5 p.c. of persons 15 to 19 years of age were reported as having attended school during the past year in comparison with only 40.4 p.c. in 1951.

Higher Education

Enrolment in Canada's colleges and universities continues to increase at a remarkable rate, due in part to the unusually large population just reaching college age and in part to the increasing importance and prestige attached to a university education. The enrolment of 141,388 full-time students in 1962-63 was a record high and an increase of 9.7 p.c. over the comparable total of 128,894 for the preceding academic year. Of this number it is estimated that some 50,500 (or 36 p.c.) were entering university for the first time in 1962-63. There is every indication that this rise in enrolment will continue at an increasing rate during the next few years. The Canadian Universities Foundation has predicted that full-time attendance at Canadian institutions of higher learning may reach 312,000 by 1970.

In addition to full-time university-grade enrolment, Canada's colleges and universities in 1962-63 accommodated over 48,000 pre-matriculation students, that is, students enrolled in courses for which matriculation is not required. Most of these were attending institutions in the Province of Quebec. A further 44,067 part-time students were enrolled in university-grade courses, and another 7,522 students in university-level correspondence courses.

Women students formed 27 p.c. of the full-time university-grade enrolment, 36 p.c. of the enrolment in pre-matriculation courses, and 38 p.c. of the part-time university-grade enrolment.

Most university faculties recorded increased enrolments in 1962-63. Exceptions were forestry, secretarial science, and engineering where the enrolments were from 5.2 p.c. to 1.8 p.c. smaller. Unusually large enrolment increases were recorded for some of the smaller faculties, such as music, physio-

therapy and occupational therapy, physical and health education, optometry, and nursing.

To accommodate this rapidly increasing enrolment new colleges and universities are being formed, while established ones are expanding. For example, a new French-language university was created in Moncton, the Université de Moncton. The former small French-language universities in that province, St. Joseph at St. Joseph and Moncton, Sacré-Coeur at Bathurst and Saint-Louis at Edmundston are to hold in abeyance their degree-granting powers and become affiliated colleges of the Université de Moncton. At the same time, plans are progressing for the establishment of a branch of the University of New Brunswick in Saint John. In Quebec, several of the classical colleges extended their programs of study to the level of the baccalaureat. In Ontario, plans are going ahead for the opening in a year or two of two new universities, Trent in Peterborough and Brock in the Niagara peninsula, while two new colleges of education for the training of secondary school teachers are also expected to open their doors within two years, one in London and one in Kingston. In the west, several new junior colleges have been formed or are in the planning stage. On July 1, 1963, Victoria College, Victoria, formerly affiliated to the University of British Columbia, became the independent University of Victoria. Other institutions to receive a university charter are Simon Fraser University, to be located in Burnaby, B.C., and Notre Dame University of Nelson, the first church-related institution to be given degree-granting powers in Western Canada.

Enrolment in universities at the graduate level has been keeping pace with or slightly exceeding that at the undergraduate level. Even greater pressure may be expected in the near future for facilities at the graduate level than at the undergraduate, because of the imminent need for staff to handle the increasing university enrolment, as well as the growing demand for top-level professional personnel in industry and government. Schools of graduate studies



A Quebec girl learns weaving at a school of domestic arts.

Good nutrition is earned by school children while conducting animal-feeding experiments in school.



associated with existing universities are being expanded and some new ones are being formed. The recent opening in Toronto of a new institution, Massey College, fully designed and equipped exclusively for graduate study, illustrates the new emphasis being placed on research and studies beyond the bachelor's level.

To facilitate the training of potential university professors and assistants in numbers sufficient to meet the increasing needs, the Council of the School of Graduate Studies of the University of Toronto has approved a plan to introduce the Master of Philosophy degree (Phil. M.) in 1964. The Phil. M. degree would permit students with an honours B.A. to qualify for teaching after two years' study and the presentation of a dissertation characterized by high calibre scholarship rather than exhaustive research embodying new knowledge, as is required in the preparation of a Ph. D. thesis.

Vocational Education

There are basically three types of institutions offering vocational education in Canada: trade schools, vocational high schools, and institutes of technology. Each of these performs a different function.

Trade courses, which include apprenticeship training, usually require two or more years of high school but not necessarily high school graduation. Most of these courses are given in provincial trade schools and students may enroll full-time prior to employment or they may enroll as part-time or full-time students under a system of apprenticeship. The main characteristic of apprenticeship training is the indenture or contract between the apprentice and the employers, registered with the provincial Department of Labour. The training itself is given mainly on the job with concurrent attendance in class either on a part-time basis or during the day for periods ranging from four to twelve weeks a year. Trade schools have one basic aim—to prepare their students for a specific occupation. Courses are provided for the building trades, the mechanical and metal-working trades, the electrical trades, automotive trades, and a few others such as barbering, hairdressing, drafting, printing and stationary engineering.

Students in vocational high schools, on the other hand, receive a broader training, combining vocational education with some cultural or academic

subjects. Students proceed to vocational high schools after completion of elementary school, and attend full-time for the whole school year. They are not committed to any particular occupation as are the students in trade schools and after successful completion of a four-year course they graduate with a high school diploma. The heaviest enrolment in these schools is in commercial subjects such as typing, bookkeeping and business law; but many students are enrolled in technical subjects such as motor mechanics and building trades. In some vocational high schools courses in agriculture and home economics are also offered.

The institutes of technology offer specialized instruction in many subjects such as electronics, metallurgy, industrial laboratory technology, etc. Students graduate, after two- or three-year courses, as trained technicians qualified to assist engineers, scientists, and other professionals. High school graduation is a prerequisite for these courses. Some institutes of technology operate a department which offers courses at the trade level.

In 1962-63 some 11,900 students were enrolled in 31 publicly-controlled institutions offering post-secondary technical courses. Since this is a relatively new education field in Canada and since a number of new institutes of technology are presently under construction, it is expected that the enrolment will sharply increase in the next few years and thus more technicians will become available.

In all, close to 165,000 students were enrolled in 1960-61 in publicly-operated vocational schools of the three types mentioned above. Yet much vocational education is conducted under private auspices. In 1960-61, some 23,000 were reported in part-time or full-time attendance at 239 private trade schools, while 40,000 were attending 248 private business schools. In addition, some 40,000 Canadians were enrolled in correspondence courses obtained from private trade or business schools.

The figures quoted above fail to tell the full extent of vocational education. The amount of on-the-job training is not known, but must be considerable. Also, many larger firms provide in-service training for their own employees, either through direct instruction or by correspondence.

Some professional organizations make provision for refresher courses in their own fields. Finally, in the Armed Services, many servicemen and cadets avail themselves of exceptional opportunities to acquire trade or technical skills which they use later in civilian life.

Adult Education

Adult education courses are designed for persons, beyond the age of compulsory schooling and not attending school full-time, who wish to broaden themselves intellectually, occupationally or culturally. They include part-time evening courses, full-time short courses, correspondence courses, hobby classes, informal lectures, and discussion groups. In addition to classes and courses which register enrolment, public lectures, film showings, dramatic and musical performances provide adult education opportunities in many parts of the country.

Interest in adult education activities is increasing, the total reported enrolment having increased from 522,207 in 1957-58 to 886,152 in 1960-61, or by 69.7 p.c. over the three-year period. However, it is estimated that



Emphasis on the importance of vocational training and heavy financial support from the Federal Government have resulted in rapid extension of facilities and programs across Canada. Among the outstanding new buildings are (top to bottom) the Parkway Vocational School in Toronto, the Manitoba Institute of Technology, the Northern Alberta Institute of Technology in Edmonton, the College of Trades and Technical Training in St. John's, Newfoundland, and the Bathurst Trade School in New Brunswick.



these figures represent only about 60 p.c. of the total, since some part-time courses and other activities are not reported.

One need for adult education is revealed by the 1961 Census, which showed that almost half of the population 15 years of age and over not attending school (or 5,166,346 persons) had no schooling, or had elementary education only. The age distribution shows that 74.5 p.c. of these persons were under 60 years of age, and 11.3 p.c. were under 25 years of age. Nevertheless, surveys have shown that these are not the persons, by and large, who avail themselves of opportunities for adult education. It would appear that persons who have already acquired a fairly sound education are more inclined to continue learning in adult years. Perhaps the very act of acquiring an education itself creates the stimulus or state of mind needed for further education.

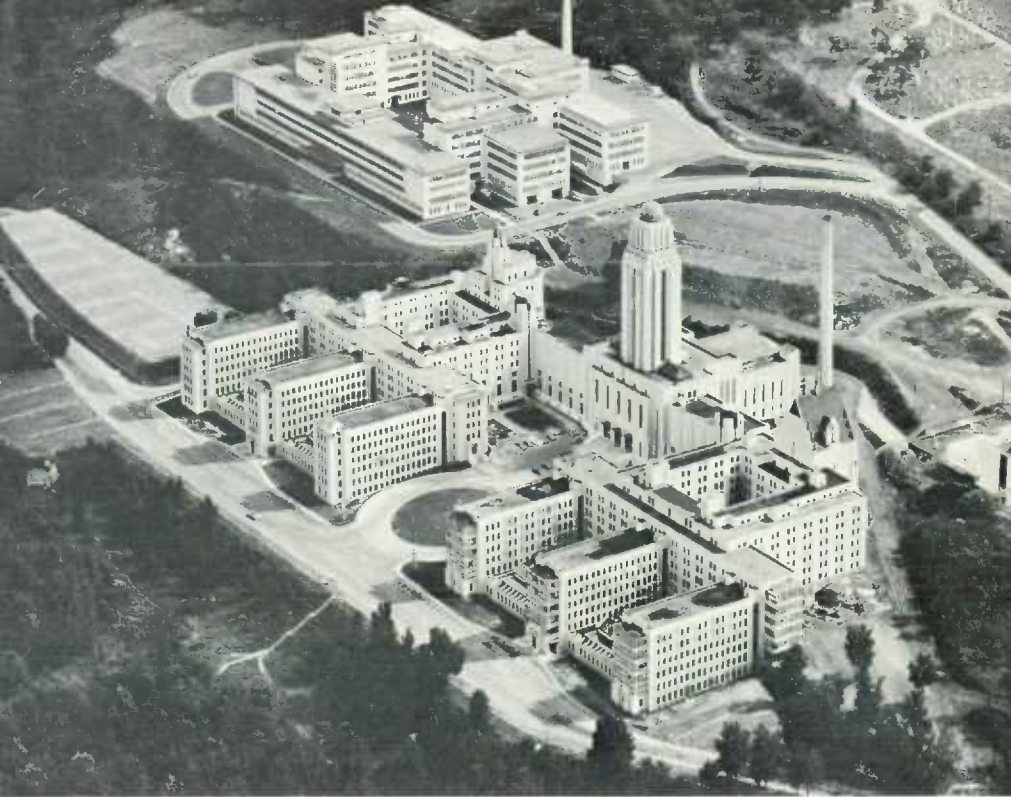
Rapid expansion of vocational courses for adults has resulted from the passage of the new Technical and Vocational Assistance Training Act in December, 1960. Administered by the federal Department of Labour, this Act offers substantial financial assistance to provincial governments engaged in the operation of apprenticeship training programs, supervisory training and development, classes for the disabled, and vocational training of all kinds, whether in manufacturing, agriculture, fishing, forestry, or any other primary or secondary industry. The assistance provided by the Federal Government under this Act also includes a capital assistance program to provide more facilities for full-time and part-time vocational training.

Other types of government-assisted adult education programs include night school and correspondence courses in a wide variety of fields; fundamental or literacy classes, chiefly for Indians and Eskimos, and, in Manitoba and Saskatchewan, for the Métis, that is, persons of mixed Indian and white extraction; correspondence courses for members of the active Armed Services, retired military personnel, inmates of institutions, and civil servants; and language and citizenship classes for immigrants.

Most universities are concerned with the promotion of part-time courses for adults, in addition to other activities such as evening lecture series, discussion groups, and film showings. Enrolment in part-time university credit

Boys learn brick-laying in a trade school.





A striking view of the University of Montreal.

courses almost doubled from 38,176 in 1958 to 75,176 in 1961. The Universities of St. Francis Xavier and Sacré-Coeur promote undertakings designed to raise living standards among the farming and fishing communities of the Maritime Provinces, with emphasis on co-operative organization. The University of Saskatchewan conducts courses in community development techniques and also carries on field projects in remote areas of the province in co-operation with the Provincial Government. St. Patrick's College in Ottawa and the University of Manitoba similarly offer professional training courses in community development.

Boards of Education in most of the larger cities provide opportunities for part-time courses for adults—academic, vocational, and cultural or hobby courses. The trend now in several cities is to establish a permanent centre for adult education, often in a school building no longer needed for children, in the central part of the city. These centres offer both part-time and full-time courses for adults.

International Aspects of Education

A visitor to any Canadian university campus today could hardly fail to notice students of many nationalities and from all parts of the world mingling

with Canadian students. This has been a growing trend in recent years; in 1961-62 about 7,900 students from outside Canada were enrolled in Canadian institutions of higher learning, or about one sixteenth of the total enrolment. Many of these students, except those from the United States, came to Canada under the aegis of various student aid programs, and their reasons for coming were many and varied. The fact remains that their presence has created a more international, more cosmopolitan atmosphere in Canadian university life.

University authorities are confronted with new problems as the result of this influx of students with non-Anglo-Saxon or non-French backgrounds. Language barriers often impose severe handicaps on foreign students. Universities also feel some responsibility, not only for the academic progress of these students, but also for their social integration into the life of the institution and the community of which it forms a part. The extent to which they are successful varies widely, but the great majority of foreign students report that they have no serious difficulties in such matters as understanding the language, obtaining accommodation, or making friends.

The movement of university students into Canada from other countries is almost balanced by the movement of Canadians abroad for further study. The outward flow of Canadian students is mainly to the United States, but fairly large numbers also enroll in the better known British and European universities. While non-Canadian students enrolling in Canadian universities are fairly proportionately divided between undergraduates and graduate students, the outward movement of Canadian students is mostly at the graduate level. This situation may change as the developing countries build more of their own universities, and as the number of graduate schools in this country increases.

Educational links between Canada and other countries are not confined to university students, however. There has always been some transfer of university staff across national boundaries, and, for many years, a system of teacher exchanges at the elementary-secondary level has operated on a limited



The Jewish Public Library in Montreal is a source of research material for students of Jewish history and culture and a treasure-house of valuable books, manuscripts and pieces of art.

scale. This has taken the form of one-year exchanges between individual teachers in comparable positions, and the exchanges have generally been confined to English-speaking countries.

In recent years the efforts of UNESCO and other international agencies to combat illiteracy in under-developed countries has resulted in a growing number of Canadian teachers and education administrators accepting temporary appointments abroad—generally in the newly independent nations of Africa and the Far East—to assist in the teaching of children, in the training of native-born teachers, or in the organization of a viable education system. These appointments are proving beneficial, not only to the receiving country, but to Canada, since the returning teachers and administrators, through their broadened experience, can be expected to provide more effective teaching or administering in the education field.

Statistics of Canadian Education

Type of School or Course	Total for Canada		
	Schools	Full-Time Teachers	Enrolment
	No.	No.	No.
Full-Time Courses (1961-62)			
Elementary and Secondary Education:			
Public and separate schools ¹	24,791	162,135	4,189,758
National Defence schools (overseas).....	22	378	7,937
Indian schools ²	416	1,303	33,033
Schools for the blind.....	6	103	738
Schools for the deaf.....	12	295	2,261
Private schools.....	1,245	9,334	179,381
Higher Education:			
University grade.....	360	10,540	128,894
Teacher Training:			
Teachers' colleges.....	126	1,796	20,435
Faculties of education.....	28 ³	555 ³	10,722 ³
Vocational Education:			
Trade courses (apprenticeship).....	...	...	10,207
Trade courses (pre-employment).....	...	...	...
High schools ⁴	4	4	127,195 ⁴
Institutes of technology.....	29	926	11,178
Private business schools.....	254	1,093	18,612
Private trade schools.....	256	767	13,560
Totals.....	27,517	188,670	...
Part-Time Courses for Adults (1960-61)			
Publicly-operated:			
Academic.....	...	...	97,533
Vocational.....	...	...	220,318
Other (social, cultural, etc.).....	...	...	318,215
Universities and Colleges:			
Academic, for credit toward a degree.....	32	...	75,176
Other (extension, etc.).....	39	...	119,255
Teacher training institutions.....	...	...	36,232
Private business schools.....	113	...	25,607
Private trade schools.....	69	...	54,048
Public libraries.....	35	...	4,470

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

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

³ Included under "Higher Education".

⁴ Included under "Public and separate schools".

... Not available.

Libraries

Canadian libraries are organized to serve the general public, through networks of municipal, regional and provincial public library services in each province; students are provided with academic libraries in schools and universities; and special occupational groups are served by government, professional, business and technical libraries.

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 1962 *Canadiana* listed 11,155 separate items in library cataloguing form and was used extensively in Canada and abroad.

The National Union Catalogue includes about 5,000,000 entries, listing volumes in 203 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 1962-63 20,357 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. The National Library building is now under construction.

A school library is an important part of most schools.





A summer camp for crippled children. Camping is an important part of childhood in Canada, and there are many camps for children handicapped physically, mentally or economically.

Health

In the field of health services, 1963 was mainly a year of consolidation and extension of the programs planned and initiated in earlier years, although there were some new developments.

The Royal Commission on Health Services neared completion of its study of existing services and future needs. Its report and recommendations were expected in early 1964.

The implementation of the Medical Care Insurance Act in Saskatchewan on July 23, 1962, introduced into Canada the first plan compulsorily covering the entire population of a province for comprehensive medical care services. The plan is administered by a public commission which collects the revenues (from premiums, corporation and personal income taxes, and a portion of a retail sales tax) and makes disbursements. Doctors practise on a fee-for-service basis and may, if they wish, receive payments through voluntary agencies or directly from patients. Alberta and Ontario during 1963 prepared legislation designed to extend the coverage and scope of plans offered by private and non-profit medical care insurance agencies on a voluntary basis. In both provinces, government involvement was to be confined to setting out optimum levels of premiums and of comprehensive benefits for approved and licensed voluntary agencies, and providing subsidization from general revenues of premiums for those residents who could not afford the cost of the premiums. The Alberta plan came into force in October 1963. In Ontario a bill, "An Act Respecting Medical Services Insurance", was given second reading (i.e.,

approval in principle) on April 25 and referred to a Public Committee for study. The committee began public hearings later in the year.

Apart from Saskatchewan, insurance across Canada for medical care continued in 1963 to be based on voluntary enrolment in plans, some under sponsorship of the organized medical profession, co-operatives and similar associations and others under commercial auspices. These voluntary plans covered almost half the population. More than 98 p.c. of the population continued to be covered under the nation-wide Hospital Insurance and Diagnostic Services program operated by the provinces with federal financial, technical and consultive support.

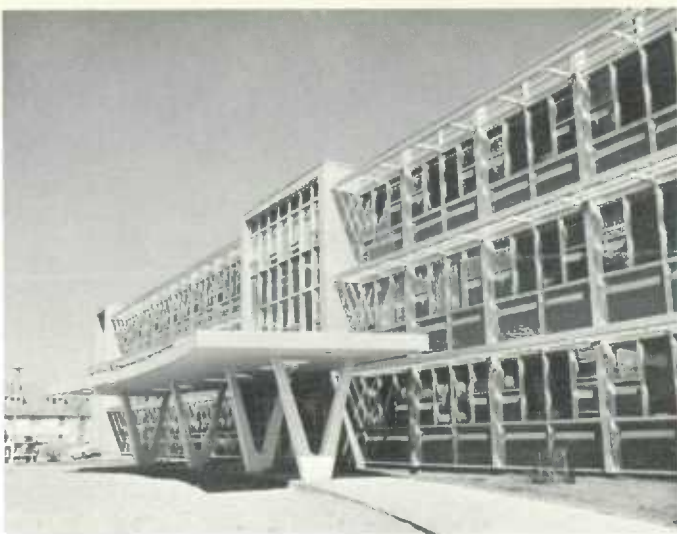
Early in 1963, the Restrictive Trade Practices Commission, reporting on the manufacture, distribution and sale of drugs in Canada, recommended, among other things, that patents with respect to drugs be abolished, this being stated to be the only practicable method that would lead to reductions in the prices of drugs in Canada.

Public health services have been strengthened. The tragic discovery early in 1962 that a number of babies were born with deformed limbs, presumably because their mothers had taken thalidomide early in pregnancy, focussed attention on the legislation controlling the introduction of new drugs. Three amendments were made to the Food and Drug Act to tighten control over the manufacture and distribution of drugs, and the federal Medical Rehabilitation Grant was increased to provide funds for the care and treatment of children whose deformities were attributable to thalidomide. The poliomyelitis immunization program was continued in 1963 using both the inactivated (Salk) vaccine and the live oral polio virus (Sabin) vaccine. Interest in mental illness and mental retardation continued to grow and new approaches to these major problems were being explored. Rehabilitation services for disabled and chronically ill persons continued to develop.

Health Services

In the administration of health services in Canada, the various health professions, hospitals and other institutions, government departments concerned with health, voluntary agencies, teaching and research institutions all have important roles. Provincial governments bear the main responsibility, with the municipalities often exercising considerable authority over health matters delegated to them by provincial legislation. The Federal Government has jurisdiction over a number of health matters of a national character and provides financial and technical assistance to provincial health and hospital services.

The Department of National Health and Welfare is the chief federal agency in health matters. Long established responsibilities include the administration of food and drug legislation (including narcotic control), quarantine, immigration and sick mariners services, and health care for Indians and Eskimos and other special groups. In matters of health planning, research and development of services, the Department assists the provinces in a consultant and co-ordinating capacity. Financial assistance in support of health and hospital services is provided through the National Health Grants Program and the nation-wide hospital insurance scheme.



Construction of hospital and related buildings continues at a very high level across Canada. Three examples are the new general hospital at Peace River, Alberta; the magnificent new nurses' training school and residence attached to the General Hospital in St. John's, Newfoundland (right); and the New Brunswick provincial hospital and school for retarded children shown under construction and expected to open during 1964.





Wherever skiers congregate, devoted volunteers may be seen, skilled in first aid and ready with special equipment to give help when needed.

The Departments of Veterans Affairs and of National Defence administer health care programs. 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 vocational rehabilitation of disabled persons, while the Department of Agriculture has certain health responsibilities connected with food production.

The provinces administer a broad range of public health services, either directly or in co-operation with the municipalities, as well as new functions in the field of hospital insurance. The main categories of provincial and local health services comprise general public health services, primarily of a preventive nature; services for specific diseases or disabilities, combining prevention, treatment and rehabilitation services; and services related to general medical and hospital care.

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 developing 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 health measures to meet them.

Public Health Services. To ensure the protection and care of community health, organized services deal with 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 programs dealing

with the health of man in his physical and social environment, special training is required in such fields as sanitary engineering, industrial hygiene and public health nursing. In recent years, new environmental problems have emerged in the form of air pollution, water pollution, and radiation hazards, which require extensive public health research and safeguards.

Tuberculosis. Heartening progress has been made in the fight against tuberculosis. Services include free hospitalization and drug treatment, follow-up of arrested tuberculosis cases, and special case-finding programs for the early detection of new infection. The number of beds set up in all institutions has declined from a peak of 18,977 in 1953 to 12,603 at the end of 1961. The annual death rate dropped from 12.5 to 4.2 per 100,000 population over the same period.

Mental Illness. The wide field of mental illness constitutes the largest health problem in Canada. In 1961 total operating cost of mental hospitals was over \$132,000,000. In addition, the costs of treatment provided by mental health clinics and after-care centres, day and night hospitals, training schools and workshops for the mentally retarded, alcoholism clinics together with the amounts spent on research and training of personnel, add many more millions to the total cost.

Bolder and more vigorous experiments are being introduced. Patient treatment has been improved through use of new drugs and various group therapies provided by better trained staff. More use is being made of open wards which permit patients to move at will through other areas of the hospital and the hospital grounds; some patients may be permitted to leave the grounds without supervision. Many institutions encourage use of weekend privileges and holidays with families and relatives. Valuable assistance in the development of recreational activities for patients has been provided through the voluntary 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 patients. Services have improved also for retarded children and adults through the treatment and training facilities organized by branches of the Canadian Association for Retarded Children.

Services for the Chronically Ill and Disabled. Public health and rehabilitation agencies are broadening their activities to control chronic diseases and to restore disabled persons to usefulness. In most provinces, home care services are being developed through home nursing, physiotherapy, and homemakers' services and co-ordinated home care programs. Provincial agencies are also concerned with improving out-of-hospital services for long-term patients in nursing homes and homes for the aged.

Outpatient clinics for conditions more prevalent in the older age groups such as glaucoma, diabetes, arthritis, cardiovascular diseases and mental illness are being extended by the general hospitals. Diagnostic and treatment services for conditions primarily found in children including congenital anomalies, speech and hearing disorders, vision defects, cystic fibrosis and hemophilia are available in the larger cities. Both public and voluntary agencies are promoting health education on alcoholism and smoking, and

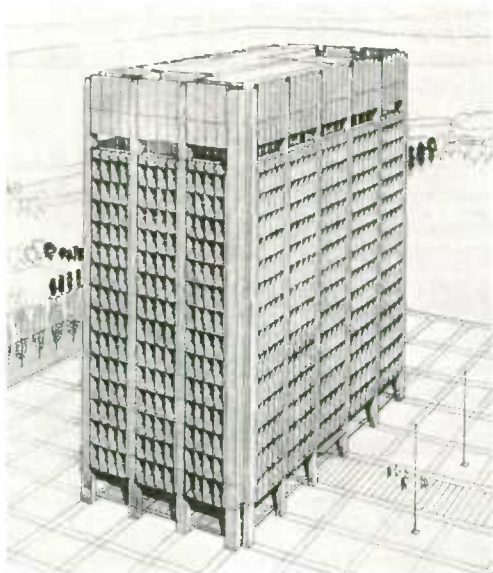
is made for six months in any case, and indefinitely for a person who has had 25 years residence since age 21.

Recipients of old age security who are in need may receive supplementary aid under provincial general assistance programs.

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 appears on pp. 89-91.

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. On Dec. 1, 1963, enabling legislation was passed providing for payment of up to \$75 a month in old age assistance; its implementation will follow amendment of provincial regulations.

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 not exceed \$1,380 for a single blind person, \$1,860 for an unmarried



The architect's drawing of the new 18-storey administration building for the Department of National Health and Welfare. A landmark, visible from almost any point in Ottawa and Hull, it is expected to be opened during 1964.

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Twilight Lodge in Red Deer, Alberta, is one of more than 50 establishments to provide older residents with comfort, housing and companionship. They are dispersed throughout the province so that residents can be close to their former homes. In addition to the central lodge, which has double and single bedrooms, five lounges, a dining room, a handicraft room, laundry, etc., and which houses 50 people, there are also self-contained units for elderly couples and single women. There is no means tests, although rents are low. Each lodge, which costs more than \$200,000, is administered by a local foundation.

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 provinces; the Federal Government reimburses the provinces for one half the payments for old age assistance and disability allowances and for three quarters of those for blindness allowances.

Supplementary payments are available under the provincial general 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.

National Welfare Grants

The National Welfare Grants program, consisting of general welfare and professional training grants and welfare research grants, was initiated by the Federal Government in 1962, and is administered by the Department of National Health and Welfare. The general welfare grants provide funds for demonstration and other projects to improve welfare administration, to develop provincial consultative and co-ordinating services, and to strengthen and extend public and voluntary welfare services. Funds are also available for bursaries for graduate study at Canadian Schools of Social Work, for scholarships and fellowships, for short-term staff training programs, and for teaching and field instruction grants to Canadian Schools of Social Work. Grants are on a matching basis with the provinces, except for research grants, grants to Schools of Social Work for teaching and field instruction, and grants for scholarships and fellowships.



First aid classes are available to young and old.

Fitness and Recreation

All provinces and most of the larger municipalities operate active fitness and recreation programs, both through the organization of community services and through the school systems.

The Federal Fitness and Amateur Sport Act of 1961 provides federal aid and stimulus to fitness and recreation activity through three main channels: grants to national organizations, grants to the provinces for province-wide and community projects, and activities carried on directly by the Department of National Health and Welfare, which administers the program, with the aid of a National Advisory Council and a federal-provincial committee of officials. Training of staff for physical education and recreation is emphasized through grants for fellowships and other forms of aid for graduate and undergraduate students, training courses for voluntary leaders, courses in coaching, and a program of technical education. Grants are also made to encourage amateur sport and assist Canadian participation in international competition.

International Welfare

Canada plays an active role in a number of international agencies concerned with social welfare and social development. Prominent among such organizations is the United Nations Social Commission, in which Canada currently holds membership with representation provided by the Department of National Health and Welfare. Canada is also a member of the Executive Board of the United Nations Children's Fund (UNICEF), and the Department also provides representation on this body. Other international



An elderly guest relaxing outside the Provincial Geriatric Centre at Melfort, Saskatchewan.



The trend in new "Y" buildings is to combine men's and women's associations under one roof.

organizations in whose work the Department participates are the International Labour Office, with special regard to social security matters, and the International Social Security Association. Also, on behalf of the External Aid Office, the Department of National Health and Welfare arranges programs in social welfare and related fields for trainees coming to Canada under the auspices of the United Nations and bilateral technical assistance programs, and assists with the recruitment of Canadian advisers to developing countries. Among Canadian voluntary agencies there is also widespread interest and activity in fostering social welfare internationally.

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; their emphasis today is largely on case-work 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. Homemaker services, recreation, day care centres, services for special groups such as the aged, immigrants, youth groups and former prisoners are among those 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 a variety of 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 13,000 adoptions are completed in Canada annually.

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

Home care services for patients who can benefit from treatment in their own homes are carried out in Montreal, Toronto and Moose Jaw with the co-operation of physicians, hospitals and voluntary agencies.



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. 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. These 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.

Nature study comes, literally, to life at summer camp.





A night view of the War Memorial at Confederation Square, Ottawa.

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 under provincial jurisdiction. 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

Of a population of 18,238,247 at the 1961 Census, 1,056,586 males were war veterans. Of these 188,239 had served in World War I or in campaigns prior to 1914, 833,680 had served in World War II, 35,649 had served in Korea, 32,117 did not specify where they had served and approximately 33,000 had served in more than one war.

Canada provides under the Veterans Charter, benefits for veterans and their dependants, for the widows and orphans of servicemen who died as a result of war service, and for those of deceased veterans who meet certain eligibility requirements.

The benefits affecting the largest number of people are disability and dependants pensions, war veterans allowances, treatment, land settlement and home construction. The statistical highlights of the principal benefits, still available under the Veterans Charter, are shown in the statement below, as at September 30, 1963:

	Veterans and Dependants	Liability or Cost
	No.	\$
Disability and Dependants Pensions.....	180,803	169,649,901
War Veterans Allowances.....	81,767	83,937,547
Patient days (Sept. 30, 1962, to Sept. 30, 1963).....	2,532,592	64,125,498 ¹
Assisted under Veterans' Land Act (cumulative).....	92,990	564,896,595
Trainees, Children of War Dead (cumulative).....	3,207	3,293,829
Unclaimed Re-establishment Credit.....	60,224	9,059,188
Veterans Insurance.....	30,060	94,822,518

¹ Before recoveries.

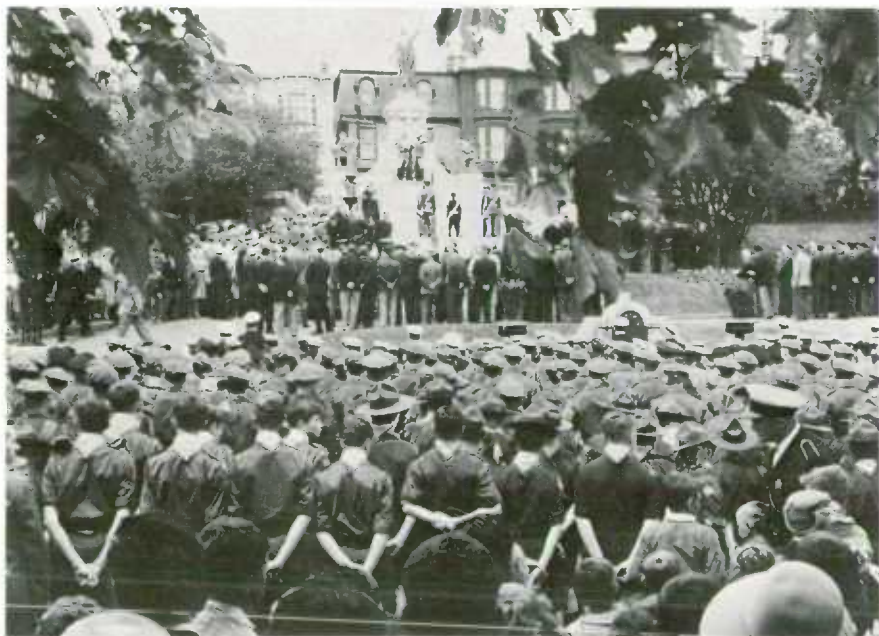
The new 66-bed Veterans Pavilion, attached to the St. John's General Hospital, St. John's, Newfoundland, was opened for patients in February 1963, and the offices of the Senior Treatment Medical Officer and the Canadian Pension Commission were moved there. By the end of the year, plans for the improvement and extension of the medical services at Shaughnessy Hospital, Vancouver, were in the final stages, and tenders had been received for the construction of a new Veterans Home in Saskatoon, to replace the old airport hospital which has been used for this purpose since the end of World War II.

Under an amendment to the Veterans' Land Act, passed in April 1962, the Veterans Land Administration made available low-cost group life assurance for established veterans still indebted under their VLA contracts. Offered in July, approximately 2,000 such veterans had taken advantage of this protection by the end of December 1963.

The Korea Book of Remembrance, listing the names of the 516 Canadians who gave their lives in the United Nations operations to restore peace in Korea, was dedicated on November 11, 1962 by the Governor General, and was placed on display temporarily in the Memorial Chamber in the Parliament Buildings, Ottawa.

On October 23, 1963, the world premiere of the film, "Fields of Sacrifice", produced for the Department of Veterans Affairs by the National Film Board, was held in Ottawa. Premiere showings were subsequently held in the provincial capitals of Canada, the French version, "Champs d'Honneur", being shown in Quebec City on November 20.

While most Canadians are celebrating Dominion Day on July 1st each year, Newfoundland is observing Remembrance Day in memory of the tragic decimation of the Newfoundland Regiment in the Battle of Beaumont Hamel on July 1st, 1916.





The phenomenal increase in the number of women in the labour force is due mainly to the number of married women who re-entered or remained at work after marriage. There are more married than single women in the labour force today.

Canadians at Work

The Canadian population has increased from 12,292,000 at June 1, 1946 to 18,570,000 at June 1, 1962. During the same period, the population of working age, that is, persons 14 years of age and over, rose from 8,779,000 to 12,224,000. As the population grew so did the total labour force, but at a slightly lower rate. In 1946, the total labour force averaged 4,829,000, representing 55.0 p.c. of the population of working age. By 1962, it had risen to 6,608,000, but the participation rate had declined slightly to 54.1 p.c.

The rate of growth of the labour force has not been the same for women as for men. Since 1946 there has been a gradual decline in male labour force participation. Although the number of men in the labour force increased by more than 1,000,000, the percentage of men of working age in the labour force dropped to 79.3 in 1962 from 85.1 in 1946. This decline can be attributed to reduced participation by male youths and older men. In 1946, about three fifths of the men 14-19 years of age and almost half of the men 65 years of age and older were in the labour force. By 1962 their proportions were reduced to about two fifths and one quarter, respectively.

Men in the Labour Force, 1946 and 1962

Age Group	1946			1962		
	Number	Distribution	Participation Rate ¹	Number	Distribution	Participation Rate ¹
	'000	p.c.		'000	p.c.	
Total 14 years and over.....	3,746	100.0	85.1	4,820	100.0	79.3
14-19.....	376	10.0	60.5	365	7.6	39.6
20-24.....	434	11.6	88.9	525	10.9	89.0
25-44.....	1,652	44.1	97.1	2,277	47.2	97.7
45-64.....	1,079	28.8	93.4	1,474	30.6	91.7
65+.....	205	5.5	47.5	179	3.7	28.4

¹ The labour force participation rate for any group is the percentage of the total population in that group in the labour force.

A striking feature of the postwar period has been the marked increase in the number of women in the Canadian labour force. In the three years immediately following the war, the number of women in the labour force declined slightly. Thereafter, it grew at an increasing rate, particularly from 1953. The average annual rate of increase in the labour force between 1953 and 1962 was 4.5 p.c. for women as compared to 1.5 p.c. for men. In a total labour force averaging 6,608,000 in 1962, there were 1,789,000 women; of these, 866,000 were married.

Women in the Labour Force, 1946 and 1962

Age Group	1946			1962		
	Number	Distribution	Participation Rate ¹	Number	Distribution	Participation Rate ¹
	'000	p.c.		'000	p.c.	
Total 14 years and over.....	1,082	100.0	24.7	1,789	100.0	29.1
14-19.....	237	21.9	37.7	278	15.5	31.0
20-24.....	260	24.0	48.0	308	17.2	49.7
25-44.....	401	37.1	23.2	702	39.2	29.7
45-64.....	163	15.1	15.3	464	25.9	29.4
65+.....	21	1.9	5.0	38	2.1	5.5

¹ The labour force participation rate for any group is the percentage of the total population in that group in the labour force.

The increase in the female work force during this period consisted largely of women who either re-entered or remained in the labour force after marriage. While only 12.1 p.c. of all married women were in the labour force in 1953, by 1962 their participation rate had reached 21.6 p.c. By contrast, the rate for single women declined from 53.4 p.c. to 50.5 p.c. during the same period, and there are now more married than single women in the labour force. In 1962 the proportions were 48.4 p.c. married, 41.7 p.c. single and 9.9 p.c. "other", which includes women who were widowed, divorced or legally separated.

One in three of Canada's workers lives in Ontario. This man is checking thickness as sheet foam is sliced from the original polyether block.



One in four of Canada's workers lives in Quebec. These women are engaged in yarn finishing operations.

One in five of Canada's workers lives in the Prairies. These men are building a road through the "bog" in northern Manitoba.





One in ten of Canada's workers lives in British Columbia. These fishermen are brailing salmon from a fishing net.

Distribution of Employment by Region, 1953 and 1962

Region	1953		1962	
	'000	p.c.	'000	p.c.
Canada	5,235	100.0	6,217	100.0
Atlantic.....	478	9.1	536	8.6
Quebec.....	1,480	28.3	1,703	27.4
Ontario.....	1,907	36.4	2,308	37.1
Prairies.....	938	17.9	1,111	17.9
B.C.....	432	8.3	558	9.0

There were no appreciable changes between 1953 and 1962 in the regional distribution of the employed. Almost two out of every three employed persons live in Ontario and Quebec. Agricultural employment continues to be concentrated in the prairies region, Ontario and Quebec. In the Atlantic region and British Columbia it constitutes only about 10 p.c. of the total.

Between 1953 and 1962 employment declined by 24 p.c. in agriculture and by 12 p.c. in other primary industries which include forestry, fishing and mining. All other industry groups experienced increases in employment ranging between 10 p.c. in transportation and 64 p.c. in service. There was little change in employment during the period for the goods-producing sector, but in the service-producing sector employment rose by 39 p.c.

Employment by Industry, 1953 and 1962

	1953	1962	Percentage Change
	'000	'000	
All Industries	5,235	6,217	+19
Goods-Producing Industries	2,788	2,824	+ 1
Agriculture	858	653	-24
Other Primary Industries	200	177	-12
Manufacturing	1,384	1,567	+13
Construction	347	429	+24
Service-Producing Industries	2,446	3,393	+39
Transportation and Other Utilities	481	527	+10
Trade	816	1,002	+23
Finance	165	248	+50
Service	984	1,615	+64

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.



One in ten of Canada's workers lives in the Atlantic provinces. This young lathe worker lives in Nova Scotia.



An Indian student at Sir John Franklin School in Yellowknife, N.W.T., is taking a vocational course in mechanics.

Coverage is compulsory in that 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 1963 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 period December 1, 1962 to May 18, 1963 about 40 p.c. of the benefit periods established were identified as "seasonal benefit periods".

Estimates of the Insured Population under the Unemployment Insurance Act, August 1962–August 1963

	Total	Employed	Claimants
	No.	No.	No.
1962—August 31.....	4,022,000	3,823,300	198,700
September 28.....	3,998,000	3,800,200	197,800
October 31.....	4,009,000	3,764,900	244,100
November 30.....	4,110,000	3,735,800	374,200
December 31.....	4,223,000	3,631,000	592,000
1963—January 31.....	4,259,000	3,555,900	703,100
February 28.....	4,264,000	3,543,500	720,500
March 29.....	4,242,000	3,556,700	685,300
April 30.....	4,173,000	3,607,100	565,900
May 31.....	3,996,000	3,725,100	270,900
June 28.....	4,068,000	3,847,700	220,300
July 31.....	4,078,000	3,859,000	219,000
August 30.....	4,065,000	3,872,500	192,500

During the 12 months ending September 1963 a total of 2,095,000 initial and renewal claims for benefit were filed at local offices. On the average, 414,500 persons were on claim at the end of each month during this period. Benefit payments amounted to \$401,100,000. For the 12 months ending September 1962 comparable data were 2,243,000 claims filed, 417,600 claimants and payments amounting to \$410,900,000.

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.

Making cream cheese at a dairy school in Quebec.



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, 1963, the 200 local National Employment Service offices effected 1,200,000 placements in vacancies listed with National Employment Service by employers. Included in this total were 63,400 placements which involved movement of workers to employment in other than their area of residence. In the same period 221,000 counselling interviews were accorded workers entering or re-entering the employment market.

Weekly Average Hours and Wages. Since 1945, hours of work of hourly-rated wage-earners have declined, generally by less than 5 p.c., except in construction where shortages of materials and labour limited activity in the early postwar years. The length of the standard work week was reduced during this period. However, the comparatively small differences between 1962 and 1963 were more closely related to changing amounts of short-time and overtime. Average weekly wages have more than doubled since the war; the largest percentage gains were recorded in construction, manufacturing and mining. Substantial increases have occurred in all industries and areas among the provinces. The varying industrial composition of the reported employment has an important effect on levels and trends of earnings.

Average Weekly Hours and Wages of Hourly-Rated Wage-Earners in Specified Provinces and Industries, 1946, 1962 and 1963

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 1963 ¹ from		Change in Average Wages in 1963 ¹ from	
	1946	1962	1963	1946	1962	1963	1946	1962	1946	1962
	No.	No.	No.	\$	\$	\$	p.c.	p.c.	p.c.	p.c.
Industry										
Mining.....	42.7	42.0	42.1	37.53	91.53	93.81	- 1.4	0.2	150.0	2.5
Manufacturing.....	42.7	40.9	40.9	30.15	76.58	79.11	- 4.2	—	162.4	3.3
Durable goods.....	42.8	41.3	41.4	33.00	83.91	86.80	- 3.3	0.2	163.0	3.4
Non-durable goods.....	41.8	40.5	40.4	26.92	69.72	71.78	- 3.4	- 0.3	166.6	3.0
Construction.....	38.4	40.7	40.9	29.53	83.76	87.43	6.5	0.5	196.1	4.4
Services ²	43.1	38.4	37.9	20.08	41.91	42.97	-12.1	- 1.3	114.0	2.5
Provinces—										
 Manufacturing										
Newfoundland.....	..	40.8	41.0	..	68.11	67.77	..	0.5	..	-0.5
Prince Edward Island..	45.8	42.1	40.1	20.93	49.76	49.66	-12.5	- 4.8	137.3	-0.2
Nova Scotia.....	43.4	40.9	40.9	29.86	66.77	68.55	- 5.8	—	129.6	2.7
New Brunswick.....	45.2	41.5	41.2	29.19	66.99	67.52	- 8.9	- 0.7	131.3	0.8
Quebec.....	44.6	41.7	41.6	28.95	70.55	72.41	- 6.7	- 0.2	150.1	2.6
Ontario.....	41.8	40.9	41.0	35.53	80.55	83.48	- 1.9	0.2	135.0	3.6
Manitoba.....	42.1	39.8	40.1	33.60	69.86	72.19	- 4.8	0.8	114.9	3.3
Saskatchewan.....	41.9	39.0	38.8	29.54	77.97	78.76	- 7.4	- 0.5	166.6	1.0
Alberta.....	42.1	40.0	39.7	30.52	79.36	80.17	- 5.7	- 0.8	162.7	1.0
British Columbia.....	40.3	37.8	38.1	34.30	85.95	89.71	- 5.5	0.8	161.5	4.4

¹ Estimated on the basis of statistics available for 8 months of 1962.

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

.. Signifies not available.

Labour Legislation

There is in Canada a large body of labour law establishing minimum terms and conditions of employment and regulating relations between employers and trade unions. Most such laws are within the provincial field of responsibility, but federal labour laws apply to an important group of inter-provincial industries, mainly transportation and communication.

Laws dealing with wages and wage security are important to many employees. All provinces are now active in the minimum wage field and, with one exception, set minimum rates for workers of both sexes. In Nova Scotia, the minimum wage law applies only to women. In Ontario and Prince Edward Island, minimum rates for men were fixed for the first time in 1963. The Ontario rates were applied initially to the highly industrialized Toronto-Hamilton-Oshawa area but will be extended to other parts of the province. In Prince Edward Island, a new minimum wage order was made, applying to most male workers in the province. Minimum rates vary from a general rate of 35 cents an hour for women and 50 cents an hour for men in Newfoundland to \$1 an hour for workers of both sexes in factories, shops, hotels, hospitals and other workplaces in British Columbia. Rates in excess of \$1 an hour have been set for certain skilled occupations in British Columbia, Ontario, Quebec and New Brunswick. In a number of provinces a lower rate than the general minimum applies during a probationary period of employment.

In recent years wage payment and collection laws have been tightened in a number of provinces, particularly in Saskatchewan and British Columbia. These laws, which vary as to the type of protection provided, deal with such matters as the manner and frequency of payment of wages, the furnishing of bonds or other security for the payment of wages by certain employers, and provision for the collection of unpaid wages.

Boys learning motor mechanics in a Nova Scotia trade school.





This welder in Bathurst, New Brunswick, is one of about 15,000 people engaged in shipbuilding.

Equal pay Acts in eight provinces, and a federal law applying to industries subject to regulation by Parliament, establish the principle of equal pay for men and women for substantially similar work, and provide a procedure under which a woman may make a complaint that her employer is not observing the principle in his establishment in respect of her rate of pay. If, on investigation, a complaint is found to be justified by the facts, the employer will be required to remedy the matter.

Minimum wages and maximum hours of work are set for specified industries in defined areas under the Quebec Collective Agreement Act and under industrial standards or similar laws in seven provinces. Under this legislation, standards agreed upon by the major part of the industry may be applied by government order to the whole industry.

Five provinces have laws of general application regulating hours of work. Government regulation of hours of work takes two different forms. The laws of Alberta, British Columbia and Ontario set a maximum number of hours per day and per week (8 hours in a day and 44 or 48 in a week) beyond which an employee must not work. The Manitoba and Saskatchewan Acts regulate hours through the requirement that an overtime rate of one and one-half times the regular rate must be paid if work is continued beyond specified daily and weekly hours [in Manitoba, 8 and 48 hours (men) and 8 and 44 hours (women); in Saskatchewan, 8 and 44 hours]. In some provinces working hours of certain classes of employees are regulated under other statutes.

Workers are entitled to an annual vacation with pay after a specified period of service under eight provincial laws and a federal law. For employees in undertakings subject to the jurisdiction of Parliament the vacation provided is one week after one year of service and two weeks after two years. 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 must be granted 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 setting minimum standards to be observed in industrial workplaces so as to secure the safety and health of employees has been revised in recent years and new safeguards provided to protect workers from the hazards of modern industrial processes and equipment. A new Loggers' Safety Act and revised regulations designed to protect workers engaged in compressed air and caisson work in Ontario were among the safety measures adopted in 1963. In New Brunswick, an Industrial Safety Council, representing labour, management and government, was established in 1962 to promote and co-ordinate industrial safety activities in the province.

Compensation for disablement caused by a work accident or industrial disease is provided under a workmen's compensation law in each province applying to a wide range of industries and occupations. 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 in the various Acts ranges from \$4,000 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 paid fixed monthly amounts. Compensation and medical aid are paid from an accident fund to



Men cutting ice at Kirkland Lake, Ontario, are part of the self-employed segment of the labour force.

which employers are required to contribute and which provides a system of mutual insurance. Federal laws provide compensation for certain seamen and for employees of the federal public service.

All provinces have apprenticeship laws providing for an organized procedure of on-the-job and school training in designated skilled trades. Provision is also made in most provinces for the issue of certificates of qualification to tradesmen in certain trades on a voluntary basis. In some provinces it is compulsory for certain classes of tradesmen to hold a certificate of competency.

Federal and provincial labour relations Acts assert the right of workers to join trade unions, place an obligation on an employer to recognize and deal with a representative trade union, and set out the rules of conduct that apply to the trade union, the employees and the employer in the collective bargaining relationship.

The worker's right to organize is effectively protected by provisions which prohibit an employer from discriminating against an employee for union activity or from interfering in trade union affairs. The procedures for enforcing compliance with these provisions have been revised in Ontario and Quebec in recent years to make the labour relations board of the province the tribunal for dealing with complaints.

The main function of the labour relations boards which operate in each province and in the federal field of jurisdiction is to determine whether a trade union has the support of the majority of employees it claims to represent and whether the proposed unit of employees is appropriate for collective bargaining. Once the board has satisfied itself on these points and has

Linemen trainees of the New Brunswick Electric Power Commission are playing a game of aerial handball to teach them freedom of movement while relying on the safety of their belts and spurs. The instructor on the ground keeps the ball in play.



Operating a 20-ton-capacity
guy derrick in large construc-
tion projects is a highly skilled
job.



certified a union as the exclusive bargaining agent of the employees, there is an obligation on the employer and the trade union to negotiate with a view to concluding a collective agreement.

The terms agreed upon in negotiation are set down in a collective agreement which is binding on both parties and upon the employees in the bargaining unit for a period of at least a year and sometimes two or three years. While the agreement is in force, disputes are required to be settled by a grievance procedure culminating in arbitration, and a work stoppage is prohibited.

If during negotiations the parties are unable to conclude a collective agreement, they must make further efforts with the assistance of a government conciliation officer, and, if the difference still remains unresolved, it may be referred to a tripartite conciliation board. Not until all the procedures prescribed for reaching a settlement have been complied with are the parties free to engage in a strike or lockout.

In some provinces certain classes of employees engaged in essential services, such as firemen, policemen or hospital employees, are subject to special provisions for dispute settlement. For these employees, if agreement cannot be reached on wages and other working conditions, the issues are determined by final and binding arbitration.

Over the past ten years a number of steps have been taken in Canada to express a public policy against discrimination on grounds of race, colour, religion or national origin. In six provinces and in the federal field of jurisdiction, fair employment practices Acts prohibit discrimination in employment or in trade union membership on these grounds and provide a means of redress to any person discriminated against contrary to the legislation. The same six provinces also have Acts providing that places to which the public is customarily admitted must be open to all without regard to race, colour, religion or national origin, and in Quebec discrimination by owners or keepers of hotels, restaurants or camping grounds is prohibited. In Nova Scotia and Ontario, discrimination is also forbidden in the rental of apartments.

In 1962 all the Ontario anti-discrimination legislation was combined in a Human Rights Code, and the Ontario Human Rights Commission was given the responsibility of administering the Code and of promoting the observance of the human rights program. In 1963 the Nova Scotia Legislature passed a Human Rights Act, consolidating, with some amendments, the province's Fair Employment Practices Act, Equal Pay Act and Fair Accommodation Practices Act.

Legislation providing for a scheme of portable pensions for workers was passed in Ontario in 1963. The only previous legislative provision for retirement pensions was a plan, under the Quebec Collective Agreement Act, for construction workers in the Montreal area.

Labour Organizations

A total of 1,449,200 workers belonged to labour organizations active in Canada at the beginning of 1963; this represents an increase of almost two p.c. over the previous year's membership. Seventy-five p.c. of the organized workers were members of unions affiliated with the Canadian Labour Congress. Of the unions within the CLC, a major group belonged also to the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) in the United States. Another eight p.c. of union membership in Canada was in unions affiliated with the Confederation of National Trade Unions, while 16 p.c. of the total was represented by unaffiliated international, national or local unions. About two p.c. of the total union membership in Canada belonged to unions having no affiliation with a central labour body in Canada but linked with the AFL-CIO.

The 1963 union membership total represents a net increase of 26,000 during the past year. Sixteen unions operating in Canada reported increases of 1,000 members or more. The Steelworkers, with an increase of 8,000, recorded the largest increase for any single union; another substantial gain in membership—4,300—was reported by the Auto Workers. A number of



These tobacco growers are part of the one eighth of the labour force engaged in agriculture.



Some of the 85 trade unionists enrolled in the first seven-week course of the Labour College of Canada, inaugurated in 1963. Courses include economics, political science, sociology, history and trade unionism and were given at the University of Montreal.

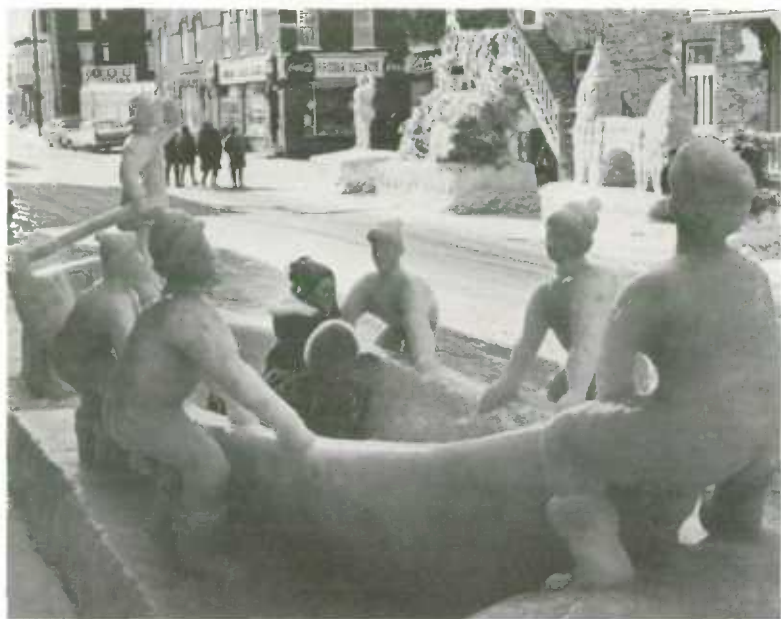
unions experienced a falling-off in membership during the year. The 1963 membership of the Mine, Mill and Smelter Workers was down by 8,000 from 1962, the Teamsters' membership was smaller by 3,500 and the Seafarers reported 2,400 fewer members than in the previous year. Four other unions experienced decreases of 1,000 or more members during the year.

Of the 1,449,200 union members reported in 1963, 1,031,700 belonged to international unions which have branches both in Canada and the United States, and in most cases belong to central labour bodies in both countries. Of the 110 international unions active in Canada in January 1963, 87 unions with 882,200 members were affiliated with the CLC and the AFL-CIO; three unions with 12,600 members were affiliated with the CLC only, and 10 unions with 30,500 members were affiliated only with the AFL-CIO. The remaining 10 international unions, accounting for some 106,300 members, were without any affiliation.

National unions active in Canada numbered 51, with 350,900 members at January 1963. Affiliated with the CLC were 18 of these unions, with 163,200 members, while the 13 federations within the Confederation of National Trade Unions had a membership of 104,500. The remaining 20 national unions with a combined membership of 83,200 were without affiliation.

International and national unions had almost 1,382,600 members in a total of 161 unions at the beginning of 1963. The Canadian membership in these unions ranged in size from less than 10 to the 90,000 members reported by the United Steelworkers of America. The International Union, United Automobile, Aerospace and Agricultural Implement Workers of America, with an increase of 4,300 members to a total of 61,100 takes over as second in size from the United Brotherhood of Carpenters and Joiners of America with 60,200 members. Among national unions, the National Union of Public Employees with 52,900 members continues to rank first in size for the fifth consecutive year, ahead of the 35,200-member Canadian Brotherhood of Railway, Transport and General Workers.

The grand total of 1,449,200 members reported by labour organizations in 1963 was equal to about 30 p.c. of the estimated total number of non-agricultural paid workers in Canada.



Ice sculpture is a general feature of winter carnivals. This one depicts the team of brawny paddlers competing in the race over ice and water in the St. Lawrence River before Quebec.

Canadians at Play

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 2,109,509, and the second largest is Toronto, with a population of 1,824,481. Vancouver, with 790,165 people, Winnipeg, with 475,989, Ottawa, with 429,750, and Hamilton, with 395,189, 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 at Ste-Agathe-des-Monts in the Laurentian Mountains north of 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.

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 Macdonald Brier Curling Championships in Brandon, Manitoba; 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 Spring 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 Annapolis Apple Blossom Festival in Nova Scotia, the Tulip Festival in Ottawa or the Victoria Spring Garden Festival. Members of the Victoria, B.C., Welsh Community hold their Annual Gymanfu Ganu (Song Festival), and the Vancouver International Festival opens in Vancouver. In 1963, Whitehorse, Y.T., held a Northern International Drama Festival. In 1963 the city of Alberni, B.C., celebrated its 50th anniversary.

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. Horse shows and local stampedes continue throughout the summer and autumn. 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. The four-day Flin Flon Trout Festival opens in Manitoba and 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. In Ottawa, June marks the beginning of the

At another winter carnival, this time in Timagami, Ontario, ski-doo races provide plenty of excitement.



colourful ceremony of the Changing of the Guard on Parliament Hill which is performed each morning until the end of August.

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. Canadian National Highland Games Championships are held in Toronto in August. At St. Ann's, Nova Scotia, the Gaelic College of Celtic Arts and Crafts conducts a summer school and festival. Another annual gathering, but of a different ethnic group, is the Banff Indian Days held amid the grandeur of the Rockies. At Port Dalhousie, Ontario, the world's largest rowing regatta—The Royal Canadian Henley—is held and at Welland, Ontario, the Welland Rose Festival lasts three days. At the 30th Annual Lake Couchiching Conference at Geneva Park, Ontario, international experts in current events headline a week of discussions. The most succulent July celebration is the Lobster Carnival at Summerside, Prince Edward Island. A Pion-Era, presented at Saskatoon, features exhibits of machinery and household equipment used by pioneers.

In July 1963, the Pacific International Regatta was held in Vancouver and the town of Smithers, B.C., on the Skeena River, celebrated its Golden Jubilee.

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 and Newcastle, N.B., is

Log-rolling, along with tree-chopping and water-boiling, are competitive events on sports days programs. Endeavouring to manoeuvre each other into the water, these log-rollers are performing at All Sooke Day at Sooke, B.C.





A rainbow captured over Niagara Falls, one of Canada's most popular tourist centres.

the site of the Miramichi Song Festival. 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. In 1963 the Montreal Festivals of the Arts, the St. Maurice Valley Festival and the Rivière du Loup Festival opened. In Ontario, the Glengarry Highland Games are held at Maxville and, at Brantford, the Annual Six Nations Indian Pageant. The Annual Music 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 1963, the second annual figure-skating school opened at Banff, as did the Banff Summer Festival of drama, opera, ballet, choral and orchestral music. Square-dancing jamborees and salmon derbies are held in many centres in British Columbia.

During August, annual exhibitions are held in towns and cities from coast to coast. In British Columbia, there is an International Regatta at Kelowna, Loggers Sports Day at Squamish and the Pacific National Exhibition opens in Vancouver. In the Yukon, Dawson City celebrates Discovery Day.

In September, fall fairs are the order of the day. In Nova Scotia, the 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 culminates in the tremendous celebrations of the Grey Cup Game. During the fall, horse



A miniature English village in southern Ontario is a tourist attraction that evokes nostalgia among British immigrants.

shows are held in many centres, the largest and best known show being that at the Royal Winter Fair in Toronto in November.

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 lifeguards 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.

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.

National park names and areas are as follows:—

<u>Park</u>	<u>Area</u> sq. miles
SCENIC, RECREATIONAL AND ANIMAL	
Wood Buffalo, Alta. and N.W.T.	17,300.0
Jasper, Alta.	4,200.0
Banff, Alta.	2,564.0
Prince Albert, Sask.	1,496.0
Riding Mountain, Man.	1,148.0
Kootenay, B.C.	543.0
Glacier, B.C.	521.0
Yoho, B.C.	507.0
Cape Breton Highlands, N.S.	367.0
Waterton Lakes, Alta.	203.0
Terra Nova, Nfld.	153.0
Mount Revelstoke, B.C.	100.0
Fundy, N.B.	79.5
Elk Island, Alta.	75.0
Prince Edward Island, P.E.I.	7.0
Point Pelee, Ont.	6.0
Georgian Bay Islands, Ont.	5.4
St. Lawrence Islands, Ont. (acres)	260.0
HISTORIC	
Fortress of Louisbourg, N.S.	339.5
Signal Hill, Nfld.	243.4

<u>Park</u>	<u>Area</u> acres
HISTORIC—continued	
Fort Amherst, P.E.I.	222.0
Fort Lennox, Que.	210.0
Fort Beauséjour, N.B.	81.3
Fort Prince of Wales, Man.	50.0
Halifax Citadel, N.S.	36.9
Fort Battleford, Sask.	36.7
Fort Anne, N.S.	31.0
Port Royal, N.S.	20.5
Grand Pré, N.S.	14.0
Cartier-Brébeuf, Que.	14.0
Alexander Graham Bell Museum, Baddeck, N.S.	14.0
Lower Fort Garry, Man.	13.0
Woodside, Ont.	12.0
Fort Langley, B.C.	9.0
Fort Wellington, Ont.	8.5
Fort Malden, Ont.	8.0
Fort Chambly, Que.	2.5
Batoche Rectory, Sask.	1.3
Sir Wilfrid Laurier's Birthplace, St. Lin, Que.	1.0

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, campgrounds 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.

Canadians everywhere love camping and picnicking. This peaceful scene is at one of New Brunswick's 55 campsites.





The unique Stratford Theatre, where the Stratford Festival celebrated its tenth anniversary in 1963, attracts visitors from all over the world.

The Arts

Canada has never before been more aware of its need of the arts and of the needs of its artists. Many cities throughout the country now have new and reclaimed theatres, new concert halls and new art centres and more are in the planning stages. One of the finest of such projects is Montreal's Place des Arts, which is planned to include, in addition to the magnificent 3,000-seat concert hall opened on September 21, 1963, a 1,250-seat theatre and a small 500-seat auditorium. This project is financed jointly by the province, the city and private donors.

Official recognition and assistance have followed this growing awareness of the arts. At the federal level, the Canada Council devotes to the arts about half the income from an endowment fund of \$50,000,000 provided by the Government in 1957, thus making possible the performances and tours of ballets and operas, assisting individual artists and supporting festivals, symphony orchestras, theatres, art galleries, art magazines and many other enterprises. The Provincial Government of Quebec, long a patron of the arts, provides substantial financial help in the form of grants to organizations and scholarships and prizes for individuals, and recently the Government of Ontario established a Council for the Arts. Most of the other provinces and many municipalities support to some extent artistic enterprises within their borders.

Festivals

The Stratford Festival, Canada's best-known theatrical enterprise on both the national and international planes, celebrated its tenth anniversary in 1963. The original circus tent has been replaced by a permanent theatre which retains the original shape and platform stage, but offers to audiences and actors greater comfort, amenities and technical facilities. Now the Festival will bring some of the same advantages to its second house, the Avon Theatre, which has provided only modest housing for its musical plays for several years. A campaign to meet the \$750,000 purchase and renovation costs was launched in 1963.

The Shakespearean plays chosen for the anniversary season were neither the best nor the most familiar of the author's works. *Troilus and Cressida*, directed by Michael Langham, had Martha Henry and Peter Donat as the young lovers, with William Hutt giving a memorable performance as Pandarus. Jean Gascon gave inventive direction to *The Comedy of Errors* in a style that drew appropriately upon the *commedia dell'arte*. Mr. Langham directed the third play, *Timon of Athens*, which starred John Colicos in one of the most difficult of Shakespearean roles. The popular *Cyrano de Bergerac* was revived this year with Mr. Colicos in the title role.

The triumvirate of Glenn Gould, Oscar Shumsky and Leonard Rose ensured that music would play a significant part in the Festival. The actual anniversary date of the Festival, July 14th, was in fact celebrated by a concert, not a play. Elmer Iseler's Festival Singers, formed at Stratford in 1955, gave an outstanding performance of Purcell's *Dido and Aeneas*, with Adele Addison and John Boyden, a Stratford protégé, as soloists. For the devotees of Gilbert and Sullivan, the Festival this year provided *The Mikado*, with Eric House returning to play Ko-Ko. The 1963 art exhibition was organized by Alan Jarvis who, in over 100 works by 80 artists, presented a comprehensive survey of Canadian landscape painting from 1900 to the present day.

The Sixth Vancouver International Festival opened its 3½-week season at the end of May this year, several weeks earlier than usual. All productions but one had a link with Britain as a unifying theme. The two operas, Verdi's *Macbeth* and Nicolai's *Merry Wives of Windsor* drew upon Shakespeare for their source, while *Floradora* revived the English musical theatre of the Gay Nineties. The plays were Bernard Shaw's *Saint Joan*, Oscar Wilde's *The Importance of Being Earnest* and J. M. Barrie's *Peter Pan*. *The Best of Spring Thaw* gave Vancouver its first look at this thoroughly Canadian institution from Toronto.

The Montreal Festivals Society offered its 28th season in 1963 and continued its policy of recent years by presenting mainly local artists and local companies. Massenet's *Werther* gave tenor Richard Verreau an opportunity to display his talents in a particularly suitable role, with Fernande Chiocchio as his Charlotte. La Compagnie Canadienne du Théâtre-Club presented the classic comedy, *Turcaret*, by Alain-René Lesage, with Monique Lepage and Jean Dalmain in leading roles. In La Poudrière on St. Helen's Island, the Montreal International Theatre gave Peter Ustinov's *Romanoff and Juliet*. Among the concert events was a Bach program by the McGill



The beautiful location of the Banff School of Fine Arts, shown circled here, is about equidistant from the town of Banff and the Banff Springs Hotel. In the foreground is the Sulphur Mountain gondola lift. Founded in 1933 by the University of Alberta, the school offers courses in theatre, painting, ballet, music, handicrafts, decorative arts, playwriting and short-story, radio and television writing.

Chamber Orchestra under Alexander Brott and several jazz evenings featuring Coleman Hawkins and Duke Ellington as well as many Montreal musicians.

Theatre

In 1963 two new regional theatres came into being. On July 1—Canada's 96th birthday—the Neptune Theatre opened its doors in Halifax. Artistic Director Leon Major directed Anouilh's *Antigone* and *Mary, Mary*; *Major Barbara* was directed by Mavor Moore and *The Fourposter* by George McCowan. In October the company toured in Nova Scotia and New Brunswick, returning to Halifax in November to open two new productions. The Theatre itself is an attractively renovated cinema. Its 525 seats accommodate the audience in comfort and style and Halifax can take pride in having one of the best small theatres in the country.

In October, the Queen Elizabeth Playhouse, another attractive small theatre attached to Vancouver's concert hall, saw the first performances of the Playhouse Theatre Company, organized by the Vancouver Theatre Centre. Unlike the Halifax company, this group will not operate on a year-round basis but its six-week seasons in the fall of 1963 and the spring of 1964 will give Vancouver its first regular and fully professional theatre. Brendan Behan's *The Hostage*, directed by Malcolm Black, was succeeded by *Private Lives*, whose director was Jean Roberts, and the musical comedy *The Boy*

Friend. With this promising start, the Vancouver Theatre Centre has revived hopes that this city, which has given Canada so many talented performers and directors, can support its own resident theatre company on a continuing basis.

The Manitoba Theatre Centre fulfilled one of the ambitions of its energetic Director, John Hirsch, with its first production of 1963. Mr. Hirsch, who first showed that professional theatre could flourish outside the larger metropolitan centres, believes that ultimately regional theatres will be able to exchange productions and he pointed the way by bringing *The Red Barn's Mrs. Warren's Profession* from the Central Library Theatre in Toronto to the stage in Winnipeg. In October MTC sponsored a tour by Les Jeunes Comédiens, a group of French-speaking students from the National Theatre School who played to student audiences in several western cities. Performing in French such pieces as Molière's *Le Mariage Forcé*, the students delighted their contemporaries with the verve of their acting style and brought to their English-speaking audiences a new appreciation of the values of the other great cultural heritage which Canadians share. The tour itself was supported by grants from the Province of Quebec and the Province of Manitoba. The Manitoba Theatre Centre also continued a scheme initiated last year for Winnipeg high schools. A group including National Theatre School graduates Martha Henry and Donnelly Rhodes gave scenes from Shakespeare and again won an enthusiastic response from school audiences.

A similar program was initiated this year by the Crest Theatre in Toronto. The Hour Company, led by Barbara Chilcott and otherwise composed of National Theatre School graduates, was formed with the co-operation of secondary school teachers and with special financial assistance from the Canada Council and the Junior League. For the first time a true repertory system was adopted and the 1963-64 season opened with a basic company appearing in three plays: *Juno and the Paycock*, *Of Mice and Men* and *Born Yesterday*. General critical approval marked this new stage in the development of the Crest, now in its eleventh season.

The inaugural presentation of the Playhouse Theatre Company at the Queen Elizabeth Playhouse in Vancouver, on October 2, 1963, was a production of Brendan Behan's *The Hostage*.





The Mikado was one of the Stratford Festival productions in the summer of 1963. Following its six-week run in Stratford, it was videotaped for telecasting in CBC's "Festival" series.

The O'Keefe Centre and the magnificently refurbished Royal Alexandra continue to play host mainly to American road companies and have established Toronto firmly on the North American circuit. Canadian productions, apart from those at the Crest, are thriving on a more intimate scale. The Red Barn scored a great success with the musical, *The Fantasticks*, in the tiny Central Library Theatre and the Theatre in the Dell offered interesting programs such as Chekhov's *Summer in the Country* and Albee's *The Zoo Story* to its dining patrons. George Luscombe's Workshop Productions perform in less attractive basement quarters and carried on the spirit of group theatre with a new play by Jack Winter, *Before Compiègne*.

Montreal remains the most diverse and lively centre for native talent in the theatre. Le Théâtre du Nouveau Monde, under Jean Gascon and Jean-Louis Roux, is still without a permanent home but the nearby community of Repentigny has given it a summer playhouse which resembles from the outside an Indian stockade. Here the company whose reputation is founded on Molière opened with a riotous version of *Arsenic and Old Lace* with Guy Hoffmann directing. On its return to the Orpheum in October, the TNM chose another translation, Sean O'Casey's *Shadow of a Gunman*, to open its fall season.

At the Stella Theatre, Le Rideau Vert under Yvette Brind'amour offers Montrealers a new production every month for nine months of the year and maintains a consistently high quality of performance. In the 1962-63 season, *L'Auberge des morts subites*, a satire by the internationally-known popular singer, Félix Leclerc, was produced by a specially formed company, Théâtre-Québec. After initial success at the Théâtre du Gesù and a tour of several cities in the province, the company returned to Montreal for an extended run at the old Théâtre National where it promised to become almost a permanent resident. L'Egrégore, a company dedicated to the avant-garde, made a new theatre when it moved to new quarters on Dorchester Street. Here, on the only Elizabethan-style stage in the province, L'Egrégore re-opened in November with Ionesco's *Le Roi se meurt*.

The Canadian Players, the touring company which grew out of the Stratford Festival and which visits most Canadian provinces, as well as several of the United States, introduced a new style of production in 1963. The western company was reduced to four, but these were some of Canada's best known English-speaking actors, all Stratford veterans. Frances Hyland, Amelia Hall, William Hutt and Eric Christmas played *Masterpieces of Comedy*. This production was carried over into the 1963-64 season with Zoe Caldwell, the Australian actress. This group concentrated on Eastern Canada in the new season and added *Private Lives* to its program. Meanwhile the Canadian Players' second company produced *Henry IV, Part One* and *An Enemy of the People*, opening at the Royal Alexandra in Toronto in October.

The Dominion Drama Festival has been a force in Canadian theatre for many years. At its final 1963 festival, the Calvert trophy, with a \$1,000 prize donated by the Canadian Association of Broadcasters, was awarded to a Sherbrooke company for its presentation of *En Attendant Godot*. The prizes for the best plays in English and in French, apart from the over-all winner, went to the London Little Theatre for *One-Way Pendulum* and to La Jeune Comédie, for an original play by Claude Jasmin, *Le Veau Dort*; the latter also won the Sir Barry Jackson trophy for the best Canadian play. The best actor award was shared by the two players in *En Attendant Godot*, Pierre Gobeil and Luc Morissette. Mr. Gobeil also received the \$3,000 prize awarded by the Government of the Province of Quebec and the director of the play, Father Roger Thihault, was named best director. The leading actress in the Festival, Daphne McCoy, received the Nella Jeffries Trophy for her performance as Emily in *Our Town*, presented by Toronto's Broadview Barn Players.

The National Theatre School graduated its first class in 1963 and the fact that so many of its students found places in companies across the country is evidence of the success of the School in finding out and developing young talent. This unique institution in which French-speaking and English-speaking students are trained in their own theatrical traditions works for eight months of the year in Montreal with two months in the summer spent at Stratford. Acting and production students thus have an opportunity to observe the best professional theatre Canada has to offer and at Stratford design students actually work on costumes and décors for the plays. The School is supported by grants from the Canada Council and the Provinces of Quebec, Ontario and Saskatchewan.

Music

One of the most marked developments in Canadian musical life in recent years has been the greater interest shown in young musicians and young audiences. Competitive festivals, represented by the Federation of Canadian Music Festivals and more recently Les Festivals de Musique du Québec, have engaged thousands of children and young people across the country. But more specialized efforts are now being made and their results will only become apparent as participants find their way into the musical mainstream.

Les Jeunesses Musicales du Canada, patterned after European organizations, was founded in 1949 by Gilles Lefebvre. The JMC arranges lecture recitals by Canadian and foreign artists for audiences under the age of 30. While still largely concentrated in the Province of Quebec, the movement now has both French-speaking and English-speaking members in many centres across the country. In addition to giving concert experience to many young Canadians, the JMC by its annual music competitions has singled out several exceptionally talented artists. The competitions are held at the JMC's summer camp at Mount Orford in the fine concert hall built by the Province of Quebec. Like the Banff School of Fine Arts, which for many years has provided summer courses not only for musicians and singers, but for painters and dancers, Mount Orford helps to train both professional artists and amateurs who will make the arts part of the fabric of Canadian life.

The National Youth Orchestra, founded in 1960, has with astonishing speed made an important place for itself and critics are running out of superlatives with which to describe its performance and dedication. Led by Toronto Symphony Orchestra conductor Walter Susskind, first-class instructors from Canada and the United States gave students from all parts of the country six weeks of intensive training in Toronto and Stratford in the summer of 1963. Public concerts in both cities were followed by a western tour to Winnipeg, Saskatoon, Calgary, Edmonton, Vancouver and Victoria. Many young musicians from NYO have already moved on to professional orchestras.

The Canadian Music Centre, jointly financed by the Canada Council and the Composers, Authors and Publishers Association of Canada, also embarked in 1963 on an imaginative program for young people. Fifteen composers were invited to Toronto to work with school orchestras and music teachers, the aim of the project being to persuade the composers to write for students, to accustom the students to the demands of contemporary music and to interest teachers in using new works, and particularly Canadian works, in school music programs.

The recently formed New Brunswick Symphony Orchestra in concert.





The 200-voice mass choir and the 50-piece orchestra of the Music Department of the Prairie Bible Institute, a missionary training centre at Three Hills, Alberta, are distinguished for their sacred concerts presented annually at Calgary's and Edmonton's Jubilee Auditoriums and elsewhere.

The major professional and semi-professional orchestras met varying fortunes in 1963. The Toronto Symphony Orchestra and conductor Walter Susskind performed at Carnegie Hall in New York in December. This concert, which featured soprano Lois Marshall and composer Harry Somers' *Movement for Orchestra*, was one of an International Orchestra Series. The Montreal Symphony under Zubin Mehta finally found suitable accommodation in La Grande Salle of the Place des Arts and now plays to a larger audience. The orchestra also continued its second subscription series in Ottawa and planned two students' concerts in addition. The Winnipeg Symphony toured more widely during its 1962-63 season visiting centres in Manitoba, Ontario, Saskatchewan and North Dakota. Under an exchange arrangement, Victor Feldbrill conducted in several cities of the Ukraine, including Lvov and Odessa, and Yuri Lutsiv, conductor of the Lvov Symphony, led the orchestras in Winnipeg, Calgary and Victoria. In Vancouver a disagreement between the musicians' union and the board of directors prevented the symphony from opening its 1963-64 season as planned but hope remained for an amicable settlement. At the other end of the country the Halifax Symphony visited Newfoundland once more. Two chamber groups also undertook adventurous tours, with the Baroque Trio of Montreal visiting Saskatchewan and Vancouver's Cassenti Players travelling to northern centres in Alberta and the Northwest Territories as well as several western cities. Chamber music fostered by the universities met with a setback when the Canadian String Quartet at the University of Toronto was disbanded, but Dr. Boyd Neel's Hart House Orchestra has proved more durable and this year celebrated its tenth anniversary. In Montreal, the



In 1963 the 60-member Royal Winnipeg Ballet made its first overseas tour. In Kingston, Jamaica, a ballerina entertains an audience of 20,000 at a sunset performance in the Kingston stadium.

McGill Chamber Orchestra under Dr. Alexander Brott again supplemented its regular series with concerts at the Montreal Museum of Fine Arts. In Toronto an interesting experiment in programming entered its second year. Ten Centuries Concerts, a series organized by local composers, musicians and writers, has given local audiences a chance to hear little-known music and

the 1963-64 season will also include dramatic readings, mime and modern dance.

Ballet

Eldest of Canada's three professional ballet companies, the Royal Winnipeg made its first excursion beyond the borders of Canada and the United States in 1963. In January Director Arnold Spohr took the company to Jamaica where its four scheduled performances in Kingston were sold out. The demand was such that six more performances were arranged, one of them before 17,000 school children in the National Stadium. The visit was arranged as a contribution to the Jamaican independence celebrations. Following this exciting occasion, the company of 23 dancers with its 12-piece orchestra toured Western Canada and the United States. The 1963-64 season opened in Winnipeg and introduced into the repertoire two ballets by the English choreographer, Peter Darrell; his *Mayerling* was given its world première in November. The company also toured Eastern Canada in the fall and filmed for CBC television the de Mille ballet, *The Bitter Weir*.

For the National Ballet of Canada's Toronto performances early in the year, its director Celia Franca invited back to Canada one of our most distinguished dancers, Melissa Hayden, internationally known as prima ballerina of George Balanchine's New York City Ballet. The occasion not only allowed Toronto audiences to give Miss Hayden a warm welcome home but provided her with the opportunity to dance two of the great classical roles, Odette/Odile in *Swan Lake* and Swanhilda in *Coppelia*. From the repertoire of her own company, more oriented towards the modern, the National Ballet borrowed Balanchine's *Serenade* for the first time. Other works new to the company were Anthony Tudor's *Judgment of Paris* and two excerpts brought by the Russian-trained soloist, Galina Samitsova. The 40 dancers and 24-piece orchestra opened the 1963-64 season with a four-week tour of the United States.

The youngest of the three companies, Les Grands Ballets Canadiens, staged the first full-length ballet choreographed in Canada. *Cendrillon* was a creation of the company's Artistic Director, Ludmilla Chiriaeff. The

20 dancers were joined by students from Mme. Chiriaeff's school for a sumptuous production which delighted hundreds of Montreal children over the Christmas season. The subsequent spring tour took the company to many centres in Western Canada and the United States. In the fall Les Grands Ballets became the first ballet company to perform in La Grande Salle of the Place des Arts. Eric Hyrst returned to dance in a new work which he created for the occasion and Rosella Hightower was also a guest for this and later performances in Toronto and other Ontario centres.

Canada Council scholarships took leading Canadian choreographers and dancers abroad and they offered something in return to the schools and companies with which they worked and studied. While in New York, free-lance Brian MacDonald choreographed two new ballets for the Robert Joffrey company, *Capers* and *Time Out of Mind*, which on a subsequent tour to the Soviet Union proved immensely popular. A leading role in the latter ballet was danced by Margaret Mercier, the prima ballerina on leave from Les Grands Ballets Canadiens who stayed on to study in Russia. David and Anna-Marie Holmes performed another MacDonald ballet, *Prothalamion*, with the Kirov in Leningrad, where they were also students. The young couple were the first foreign dancers to perform with the Kirov. During a fruitful year of travel and observation, Brian MacDonald also arranged to introduce new works with the Royal Swedish and Royal Norwegian Ballets. The National Ballet's Grant Strate spent part of his sabbatical in New York where his *House of Atreus*, performed by the Juilliard School of Music Dance Ensemble, won critical approval. This work served as a sketch for a major work on the Electra theme which will be produced by the National Ballet. Galina Samtsova, on leave from the National Ballet but not on a scholarship, won the Gold Star for the best female dancer in the first Paris International Dance Festival.



On January 13 the National Ballet of Canada performed the première of its most modern ballet to date—*House of Atreus* by choreographer Grant Strate, composer Harry Somers and artist Harold Town, who designed the sets and costumes. These are two costumes from the ballet which is based on the ancient Greek story of Electra.



Opera

Canada today trains more operatic talent than it can at present employ, for professional opera is still young in this country and the vast sums which would be needed to maintain even one company for a full season in one city are not yet available. Though many young singers must still therefore seek their fortunes in Europe and the United States, opportunities now exist to perform for Canadian audiences where there were virtually none ten years ago.

In five years on the road the Canadian Opera Company has made an important contribution to the training of Canadian singers while bringing to many cities, large and small, compact but well-wrought productions of operatic masterworks. In the spring of 1963 the company gave 42 performances of *Così Fan Tutte* in Eastern Canada and the same production visited the west late in 1963.

The company can provide opera on a grand scale only to the Toronto public and in September the O'Keefe Centre for three weeks housed one of the most lavish and ambitious programs that General Director Herman Geiger-Torel has yet offered. *Der Rosenkavalier*, *Aida*, *La Bohème* and *Don Giovanni* were supplemented by a revival of *Hansel and Gretel*, which had proved particularly popular with the children in 1962.

The Vancouver Opera Association is also providing three weeks of opera annually but performances are spread out over the season. In March 1963, *Faust* was given five performances and was followed in April by *Aida*. The triumph of the year was however the fall production of *Norma*, in which the great Australian soprano Joan Sutherland sang the leading role for the first time. It was also announced in the fall that the VOA would stage the opera program for the 1964 Vancouver International Festival. This organization, together with the Montreal Festivals, has of recent years been numbered among the few important producers of opera in Canada.

A unique experimental program was introduced in Montreal in September by Jacqueline Richard. La Boutique d'Opéra numbers some 40 members, including students and professional singers. Their first performances were of *The Stronger*, by the American composer Hugo Weisgall, and Menotti's *The Medium*. Two chamber operas by Mozart, *Der Schauspieldirektor* and *L'Oca del Cairo* were presented in October. Besides giving young singers valuable experience La Boutique thus gave the Montreal public an opportunity to hear some of the least-known works in the operatic repertoire.

The National Gallery of Canada

In 1963 the National Gallery celebrated its 50th birthday with an exhibition called *Seldom Seen*, comprised of paintings from its large collection.

During 1963 five Canadian painters were honoured with one-man shows at the Gallery: Lawren Harris, John Lyman, Homer Watson, Marc-Aurèle Fortin and Jean-Paul Riopelle, at 39 the youngest artist ever to be so honoured.

Other exhibitions featuring Canadian works, in addition to many brought from other parts of the world, were the Canadian Group of Painters; the Fifth Biennial of Canadian Painting which opened in September 1963, having been

first shown at the Commonwealth Institute, London, England, for the summer; Canadian sculptors of the Arctic, in which 100 pieces of Eskimo sculpture in soapstone and ivory were on display; and the Royal Canadian Academy of Arts 1964, shown in January and February, 1964.

During the summer, for the second time, an outdoor exhibition of sculpture was displayed on the Gallery's front terrace.

Canadian painters shown abroad, in addition to those represented in the Fifth Biennial of Canadian Painting, included four Canadian artists—Thomas La Pierre of Toronto, Jean McEwen of Montreal, Margaret Peterson of Victoria and sculptor Richard J. Turner of Vancouver—whose collection of 23 works was sent as Canada's contribution to the VIIth São Paulo Bienal, a showcase for avant-garde painting throughout the world. Two Canadians were also represented in the circulating exhibition, International Print Makers in Paris.

In May 1963, more than 100 delegates from Canada, the United States and other countries attended the UNESCO Festival and Seminar of films held at the Gallery. Following this, a series of five regional festivals of films on art were arranged to be shown in Quebec; the first opened in Montreal on November 20, 1963.

The 3,000-seat Concert Hall of the Place des Arts, Montreal, opened in September 1963. To decorate the interior artists Robert Lapalme and Alfred Pellán, sculptors Anne Kahone, Louis Archambault and Hulum Hebert, weaver Micheline Beauchemin and ceramist Jordi Bonet were commissioned, as was Iunnukpuk, an Eskimo stone carver. The Concert Hall is the first structure of a multi-unit centre for the performing arts that will include a theatre, a small auditorium for chamber music, affiliated enterprises, restaurants, prestige shops and extensive underground parking.





A symbolic representation of the range and speed of Direct Distance Dialing has been incorporated into this 8-by-16-foot ceramic mural for the Bell Telephone Building in Quebec City, by artist Jordi Bonet. In the centre is a switchboard, to the right the sea, to the left the sky and forests. More and more industries are turning to artists to beautify their new buildings.

Writing

In some ways 1963 was a vintage year for Canadian writing and publishing. Notable happenings included the publication of a number of *de luxe* books, an exceptional crop of biographical works about eminent Canadians, a surprising enlargement of paperback publication, impressive activity in the

field of university press work, a remarkable increase in literary criticism in all the mass media and active promotion of books and reading habits by several national agencies.

Jean Palardy's *Les anciens meubles du Canada français* and its parallel English edition, *The Early Furniture of French Canada*, comprises 400 pages, with more than 600 illustrations. Another work in the same genre is Theodore Heinrich's *Art Treasures of the ROM*, a beautifully illustrated book describing a choice selection of artifacts from the vast collections of the Royal Ontario Museum. *The Ancestral Roof*, by Marion MacRae and Anthony Adamson, subtitled *The Domestic Architecture of Upper Canada and Canada West*, is a social and cultural history of the 1783-1867 period, enlivened by anecdote about early houses, their builders and their owners. Another book in the *de luxe* group was Harry Symon's *Playthings of Yesterday*, the story of the development of toys in Canada from very early times, illustrated with scores of fascinating photographs. The National Gallery of Canada produced *The Development of Canadian Art* and its companion work *L'évolution de l'art au Canada*, a major work by Dr. Robert H. Hubbard.

Biographies of six notable figures in Canadian parliamentary life were published in 1963:—*Renegade in Power*, by Peter Newman, a journalist's assessment of Rt. Hon. John Diefenbaker; *The Fall and Rise of Mackenzie*

King, by Fred MacGregor, an intimate recital of the years from 1911 to 1919; *The Lonely Heights*, by Blair Neatby, the second volume of the official biography of Rt. Hon. W. L. Mackenzie King; *R. B. Bennett*, by Ernest Watkins, the first full-length assessment of the former Canadian Prime Minister; *And Fortune Fled*, by Roger Graham, the second volume of the definitive work on the life of Rt. Hon. Arthur Meighen; and *Brown of the Globe*, by J. M. S. Carcless, the second volume dealing with the life of a noted statesman and Confederation journalist. Ramsay Cook's *John W. Diefenderfer and the Free Press* is a revealing study of Canadian journalism and politics, particularly in relation to Western Canada during the first half of the present century. The year's notable work in autobiography was *What's Past is Prologue*, the memoirs of Rt. Hon. Vincent Massey, public servant and philanthropist and Canada's first native-born Governor General. Two other important biographical works, relating to the Canadian scene prior to the present century, were John Morgan Gray's *Lord Selkirk of Red River* and George F. G. Stanley's *Louis Riel*. Two books about the life and times of Maurice Duplessis, the colourful and powerful former premier of the Province of Quebec, were *The Chief*, by Leslie Roberts and *The Union Nationale*, by Herbert Quinn. A reference work of lasting value published in 1963 was the revised *Dictionary of Canadian Biography*, edited by W. Stewart Wallace.

In 1963 a trend was clearly seen toward paperback editions throughout the Canadian publishing industry and a large number of new and reprint books in bright paper covers made their appearance. Some of the more notable among these were:—*A Curtain of Prejudice* (Graham and Rolland); *Cornelius Kriehoff* (M. Barbeau); *Tom Thomson* (R. H. Hubbard); *Alfred Pellan* (D. Buchanan); *David Milne* (Alan Jarvis); *The Yellow Briar* (P. Slater); *Swamp Angel* (E. Wilson); *Turvey* (Earle Birney); *Grain* (R. J. C. Stead); *The Nymph and the Lamp* (T. H. Raddall); *Masks of Poetry* (A. J. M. Smith); *Lord Durham's Report* (ed. G. M. Craig); *Confederation Debates* (ed. P. B. White); *Laurier* (J. W. Diefenderfer); *Champlain* (Morris Bishop).

A notable growth in the importance of university presses has been a feature of the Canadian publishing industry in recent years and in 1963 an unusually large number of books by Canadians was released by the presses of the Universities of Toronto, Montreal and Ottawa and of Laval.

The 1963 winners of the Governor General's awards were in the English language competitions, *Twelve Letters to a Small Town* and *The Killdeer and Other Plays*, by James Reaney, in the poetry and drama group; *Running to Paradise*, by Kildare Dobbs, in the fiction category; and *The Gutenberg Galaxy*, by Marshall McLuhan, in the general prose competition. The French-language winners were *Les insolites* and *Les violons d'automne*, by Jacques Languirand, in the categories of poetry and drama; Jacques Ferron's *Contes du Pays incertain* in the fiction competition; and *Une littérature qui se fait*, by Gilles Marcotte, in the miscellaneous listing.

In so far as writing in French is concerned, most of the major prizes awarded during the year went to authors whose work is already well known. The poet Alain Grandbois, author of *Îles de la nuit*, was the recipient not only of the France-Canada Award, but also of the new Molson Prize of the Canada Council for his work in general. *Ode au Saint-Laurent*, by the young poet

Gatien Lapointe, merited two awards for its author—the Prix du Maurier and third prize in the *Concours littéraire et scientifique* of the Province of Quebec. The Grand Jury des Lettres conferred a major award on Gilles Hénault, author of *Sémaphore*, in the field of poetry, and another on the literary critic Gilles Marcott for his study entitled *Une littérature qui se fait*. Jean Simard, novelist and essayist, received the Prix Duvernay. In the realm of fiction, the much-coveted prize of the Cercle du Livre de France went to a first work, *Amadou*, by Louise Maheux-Forcier.

Radio and Television

Canadian television has grown at a fantastic rate considering the vast distances and scattered population that have had to be overcome in order to bring TV to virtually every section of the country. From a meager 650,000 television households in 1954, there has been a growth to 4,195,000 TV homes in 1963. Television sets may be found in 87 p.c. of households, while radios are reported in 96 p.c.

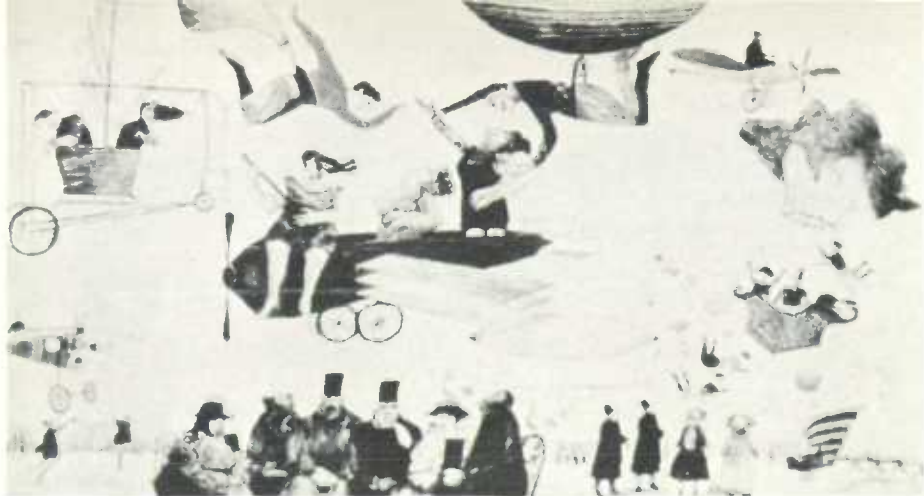
Board of Broadcast Governors. In 1958 a fundamental change occurred in the structure of Canadian broadcasting with the creation of the Board of Broadcast Governors and the transfer to it of the regulatory authority which had been held by the CBC since 1936. The Board is composed of three full-time members appointed for a period of seven years, and 12 part-time members appointed for a period of five years, and reports to Parliament through the Minister of National Revenue. It regulates the establishment and authorization of networks and stations, the activities of the CBC and privately-owned stations alike, and the relationship between them. BBG regulations require television stations to carry in their programs 55 p.c. Canadian content.

The Canadian Broadcasting Corporation. The CBC, which has presented programs of various kinds designed to bring various parts of the country and its people together over the years, took a significant step in the 1963-64 television season with the production of a special bilingual variety series, the first simultaneously on both English and French CBC-TV networks. The first show's two titles *A Show From Two Cities—Deux villes se rencontrent* (Montreal and Toronto), symbolized the aim of the series to bring the best of Canadian variety talent to both French- and English-speaking viewers.

Another innovation in 1963 was the extension of French-language programming from the CBC French Network on radio station CJBC in Toronto. On October 1, 1964, CJBK will become fully French, with the exception of an adult educational series *The Learning Stage*, which continues Monday to Friday.

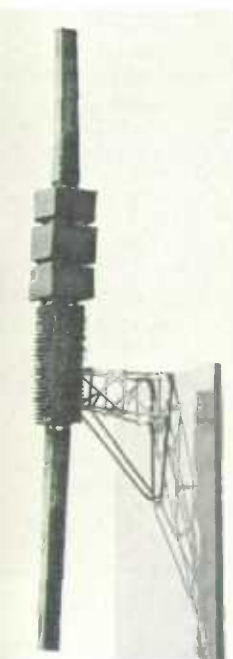
Three major international events in which the Canadian Broadcasting Corporation played a prominent part in 1963 were the three-day NATO Spring Ministerial Conference held in Ottawa, the 5th Commonwealth Broadcasting Conference in Montreal, and the opening of the Commonwealth Pacific Cable on December 2nd.

About 500 reporters, commentators and photographers covered the NATO Conference, using some 300 miles of audio tape, 90 miles of video

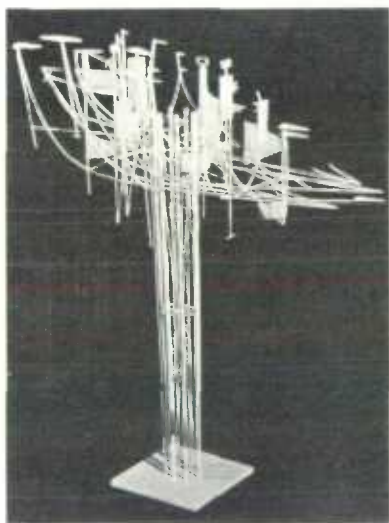


Louis di Niverville's mural for the nursery at Toronto.

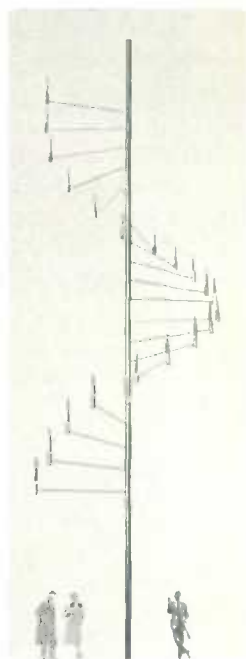
During 1963, the Department of Transport purchased \$250,000 worth of modern art from 19 Canadian artists who have produced sculptures, murals, ceramic walls and piles of stone used by the Eskimo to mark routes through the Arctic. These works were incorporated in the three new multi-million dollar international airports at Edmonton, Winnipeg and Toronto, which were opened late in 1963 and early in 1964.



Walter Yarwood's 28-foot-high totemic sculpture for Winnipeg.



Louis Archambault's sculpture for Toronto.



Norman Slater's design for a 60-foot high natural-gas beacon at Edmonton.



Alfred Pellon's 32-foot mural for Winnipeg.

tape, and about 20,000 feet of 16mm film. In addition to its own short-wave broadcasts, the CBC International Service filled requests from several European broadcasting systems and recorded 60 special reports which were sent to Europe via transatlantic cable for rebroadcast.

The 5th Commonwealth Broadcasting Conference was held in Montreal from May 27 through June 15, 1963. It was the first occasion on which Canada, represented by the CBC, acted as the host country to delegates from publicly-owned broadcasting organizations within the Commonwealth. The Conference featured private discussions on matters of mutual concern among chief executives of the organizations involved; discussions covered a wide field of engineering topics of programming matters.

The Corporation's continuing interest in international television is expressed through active participation in *Intertel*. *Intertel* is an international television federation formed by TV organizations in four major English-speaking countries of the world. Its aim is to produce high-quality television programs for the purpose of promoting a wider knowledge of contemporary world affairs and a better mutual understanding of world problems. Members of *Intertel* are: The Canadian Broadcasting Corporation, Associated Rediffusion Ltd., England, the Australian Broadcasting Commission, the National Educational Television and Radio Centre, and Westinghouse Broadcasting Company, both of the United States. To date the CBC has contributed three programs to *Intertel* namely, *Don't Label Me*, a program about Dr. Cheddi Jagan, Prime Minister of British Guiana; *Forty Million Shoes*, a report on social and political conditions in Brazil; and *One More River*, a look at the integration problem in the southern United States.

The high quality of CBC programming was marked by the sale of programs such as the Festival production of the Gilbert and Sullivan operetta, *The Gondoliers*, to Britain and to the Irish TV Network. In the field of television dramas, CBC exports have included, in the past, the sale of the film series, *RCMP* to Australia; *GM Presents* and *The Unforeseen* to Australia and to Britain; and *Playdate* to Britain. Among the more recent programs sold was *The Troubled Heart* to the United States; *HMS Pinafore* and 26



Since 1958 the program *Chez Hélène* has been teaching French to pre-school children, with the help of Suzie, the puppet-mouse and Grandpa l'Heureux.

This Eskimo announcer of the CBC Northern Service broadcasts shortwave programs in Eskimo and answers letters from Eskimo listeners. The Northern Service provides programs for only 75,000 people spread over a vast expanse of 1,500,000 square miles.



dramas from the General Motors Presents series to the New Zealand Broadcasting Corporation. A Close-Up program on birth control was sold to an educational network in the United States.

French-language program exchanges have been most active, particularly with Belgium and Switzerland. A number of dramatic productions figure prominently in exchange with European countries. Through the offices of the European Broadcasting Union, CBC's French network production of Offenbach's light opera, *La Vie parisienne*, will be shown in most European countries, while the English network production of *Stravinsky At Eighty* is also being made available to EBU members.

As well as CBC export trade in television programs, radio exports have included the Couchiching Conference programs to the United States. *The God That Failed*, a special program on the personal disillusionment of well-known people with the communist way of life, was sold in the United States and in Australia.

The CBC has had negotiations for other program sales with such countries as Jamaica, Trinidad, and the United Arab Republic.

In 1963, a new approach to CBC-TV public affairs programming, designed to give more intensive and in-depth coverage to a wide variety of subjects, was applied to *Horizon*. This new hour-long program dealt with subjects of current interest, as well as vital developments in the worlds of science and the arts. Overcrowding in universities, Picasso the artist, and a look at new knowledge of the space age and its implications, were among the subjects presented. Alternating with *Horizon* were two half-hour programs, *Let's Face It* from Montreal featuring comments by world-famous people on current events and ideas—especially "why the news happened the way it did"; and *Question Mark* from Toronto which probes some of the fundamental questions about the way we live and presents opinions.

Other programs in this category were, *Explorations*, *Viewpoint*, *U.N. Review*, *Inquiry*, and *The Nation's Business*.

The CBC's radio drama department took a new approach in its programming schedule. This department held a writing contest for young Canadians in which they submitted material, the best of which was chosen and presented in a series of 12 special radio programs.

A new prime-time series of CBC-produced serial dramas made its debut this season initiating a new concept in Canadian TV drama. One of the series, *The Wings of Night*, was an adaptation of Thomas Raddall's best-selling novel, set in Nova Scotia. The story unfolded in eight half-hour episodes.

The Private Stations. Canada's 395 private radio and television stations provide more than 2,000,000 hours of programming every year. Many of the newest of the independent television stations program over 5,800 hours annually and many of the radio stations program 24 hours a day, 365 days a year.

Of the 395 private stations, 219 are AM stations, 36 FM stations, 6 shortwave stations and 134 television stations.

The privately owned radio and television stations showed an investment value in 1961 of almost \$100,000,000.

Most of Canada's privately owned radio and television 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 l'Association Canadienne de la Radio et de la Télévision de langue Française with a membership of 44 French language stations from Quebec, Ontario, the Maritimes and the Prairies. Private stations, through the CAB, 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 CAB's Ottawa studios, this program permits Members of Parliament of all parties to make five-minute radio reports to their constituents throughout the Parliamentary session. When Parliament is not in session, this program carries reports from members of the Parliamentary Press Gallery on events in the nation's capital.



London, German Shepherd star of CTV's *The Littlest Hobo*, and his three stand-ins.

A 2½-hour performance of Verdi's opera, *Othello*, was produced and telecast by CBC in 1963. Richard Cassilly sang the title role with Louis Quilica as Iago and Ilona Kombrink as Desdemona.



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 CAB is the major sponsor of the annual Dominion Drama Festival.

Individual private stations have won national and international awards 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, given only when outstanding new technical contributions have been made, has gone to stations in all areas of Canada.

The private sector of the Canadian broadcasting industry has also been interested in expanding broadcasting research. A research project is being contemplated by the CAB at the university level. Private broadcasters were also instrumental in setting up the Radio Sales Bureau and the Television Sales Bureau to produce valid 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. Since 1960, 32 new private radio stations and 42 new private television stations have gone on the air.

Canadian Television Network (CTV). CTV, which began operations late in 1961, has 10 affiliate stations and 10 satellite outlets from Halifax to Victoria, and reaches 73 p.c. of the population. CTV is a unique network in that it is the only licensed network in the world and is partially owned by its affiliates, rather than vice-versa. While it is primarily an entertainment medium, it also produces several shows of comment and discussion; its 25-hour week is composed of programs that are 64 p.c. Canadian in content.

Films

There are almost 70 private and eight government film-making agencies in Canada, mainly producing short films, trailers, newsclips and newsreel stories. Much of their work is produced for television. About half the films were made in English, two fifths in French and the remaining tenth in languages other than English or French.

In 1961, Canadian laboratories printed 64,352,000 feet of 16mm film and 22,640,000 feet of 35mm film in black and white, a staggering total of more than 16,000 miles of film. In addition, 8,205,000 feet of 16mm film and 116,561 feet of 35mm film—1,576 miles—were printed in colour.

The National Film Board in its role as government film agency produces and distributes films for theatrical, television and 16mm community showings. In addition to original films made for these purposes, the Board also produces news-stories, newsclips, trailers, filmstrips, and still photographs.

During the fiscal year 1962-63, the Board produced 410 motion picture items, including 91 original films, 100 revisions, 73 foreign-language versions, 53 news-stories, and 93 other motion picture items. The Board also produced 43 filmstrips and 26 picture stories.

Among the new developments during the year ending March 31, 1963, were the production of two feature-length documentary films and the impressive multi-screen demonstration seen by thousands at the Canadian National Exhibition in Toronto. The two films deal with aspects of the settlement of various parts of Canada. The first, *Drylanders*, is a chronicle of the life of a family of western pioneers and the second, *Pour la suite du monde*, deals with the inhabitants of Île-aux-Coudres, an island discovered by Cartier in 1535. Much of the film shows the traditional technique of whale-hunting.

In Canada, there were 277,100 16mm community showings recorded by the Board, an increase of 2,100 over the preceding year. The total reported audience reached through these showings was in excess of 16,800,000. This type of distribution is based on a nation-wide system of film circuits, film councils and libraries supported by organizations and individuals engaged in community activities. Students in schools and universities comprised about half of the reported audience. Abroad, through libraries in Canadian posts, under exchange agreements and through foreign agencies in more than 70 countries, 250,900 showings to a total audience of 26,700,000 were reported.

Theatrical booking of NFB films totalled 6,056 in 1962-63, an increase of 12 p.c. over 1961-62. An even bigger increase was registered in television showings, from 5,667 to 7,410. This is an average of 20 screenings of NFB productions on television every day of the year.

During the year, the National Film Board won 35 awards at international film festivals in Italy, Argentina, France, Belgium, Scotland, Germany, Britain, the United States and Canada; three awards were made for filmstrips and two for NFB promotional material.

A considerable audience is reached through the sale of 16mm prints. The Board sold 3,684 prints of its own product in Canada, and 4,747 prints abroad. Board filmstrip sales in Canada were in excess of 28,600 prints, and 4,460 filmstrips were sold abroad.

A scene from *Drylanders*, the National Film Board's first English feature-length documentary film, which deals with the life of a family of Western Canadian pioneers.



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.

Pour la suite du monde is the National Film Board's first full-length French documentary film, and deals with life on Ile-aux-Coudres, an island in the St. Lawrence first discovered in 1535.



Scientific Research

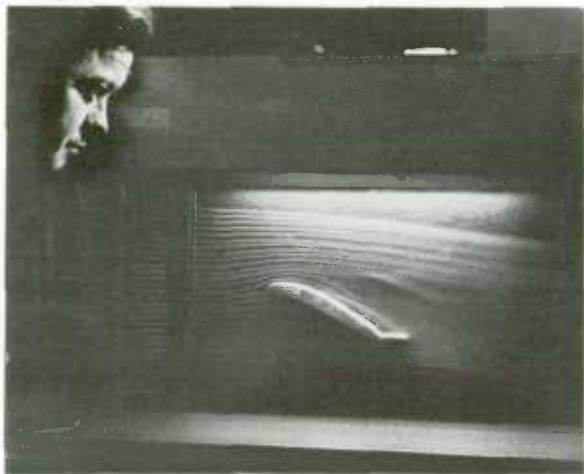
The unique problems of Canada as a country, particularly its large area coupled with a small and unevenly distributed population, have led to a typically Canadian organization of research: in this field, all Canada may be divided into four parts—the Federal Government, provincial governments, the universities, and industry.

Federal Government Research. Federal departments that administer the development of natural resources have the longest history of scientific research. These are the Departments of Agriculture, Fisheries, Forestry, Mines and Technical Surveys, and Northern Affairs and National Resources. Major research activities are now also carried out in the Departments of National Defence and of National Health and Welfare. Other federal organizations, which do not come under any one department but report to a committee of the Privy Council, are Atomic Energy of Canada Limited and the National Research Council. A Medical Research Council, fully responsible for the support of medical research but functioning under the general administration of the National Research Council, was established recently.

The newly created Department of Industry, while not directly involved in scientific research, has nevertheless a big stake in this field, since one of the Department's main functions is "to promote the development and use of modern industrial technology in Canada and to improve the effectiveness of participation by the Government in industrial research".

Provincial Government Research. Five of the ten provincial governments have research councils which concentrate mainly on applied research directed toward development of their natural resources and local industry. Two other provinces are establishing such councils.

The fact that not all provinces have full-fledged research organizations does in no way indicate lack of interest. Most provincial governments can call on university laboratories; many maintain research groups in individual departments; and all co-operate with federal departments in some of their research efforts.



An instructor in aerodynamics uses a smoke chamber to show how air passes over the wing of a plane at different speeds and altitudes.



One of the camps from which Canadian scientists are participating in the International Upper Mantle Project—a three-year (January 1962 to December 1964) program of study into the earth's interior. In addition to making studies of the pull of gravity, the behaviour of shock waves from earthquakes and explosions, magnetism and heat flow, Canadian geologists are making direct probes into the earth. Operation Muskox, the drilling program in the Northwest Territories, will provide cores of sub-surface material from almost a mile below the earth's surface.

University Research. Some idea of the increase in research undertaken by Canadian universities may be obtained from a comparison of the situation in 1919 with that of 1961. In 1919, only two universities—Toronto and McGill—offered graduate courses beyond the Master's degree; in 1961, Ontario had five universities, Quebec three, and six other provinces had one university each, offering graduate courses leading to the Ph.D. degree.

Research conducted by university professors and reported in professional journals is truly encyclopedic and reflects both a high degree of specialization and an extraordinary variety of interests.

Outside financial support for university research comes primarily from four sources: agencies and departments of the Federal Government, including the National Research Council and Defence Research Board; industry, which supports both basic and applied research; private foundations; and provincial governments. These grants amount to approximately \$21,000,000 annually, of which \$14,000,000 is derived from federal sources.

More support will be required because science departments are expanding and new universities are being established. In the Maritimes, a new French-language university—l'Université de Moncton—was created in Moncton, N.B. In Ontario there are four new universities: Laurentian at Sudbury, York at Toronto, Brock at St. Catharines, and Trent at Peterborough. British Columbia has three new universities: the University of Victoria, Notre Dame University of Nelson, and Simon Fraser University, to be located at Burnaby.



A 28-foot-long, 17-inch-diameter Canadian Black Brant upper atmosphere research rocket cracks off from its launching pad.

Industrial Research. The emergence of Canada as a highly industrialized society and the need to serve an increasingly discriminating domestic market as well as to meet increasingly stiff competition from abroad have made Canadian firms highly research-conscious. Many companies, especially the larger ones, now have substantial research establishments of their own. In particular, this welcome change reduces the research-dependence of Canadian companies that used to rely exclusively on the laboratories of their parent companies abroad.

The Federal Government encourages the research efforts of Canadian industries by tax rebates for research expenditures, by industrial research assistance programs, and by an industrial engineering program of the National Research Council's Technical Information Service, to help secondary and processing industries in the solution of production problems.

A highly original form of government-industry "symbiosis" may be found in the Sherwood Park Research Community near Toronto, where the Ontario Research Foundation will share its new laboratory site with the research facilities of several Ontario industries.

Canadian Research Projects

Because of Canada's unusual geographical position, with coastlines on three oceans, one of them over the continental shelf, and with vast northern areas including that of the magnetic pole, there are many fields of research for which Canada is uniquely fitted.

New Ways with Old Resources. Canada today is known throughout the world for the wealth and variety of its wildlife. It maintains most or all of the existing stocks of woodland caribou, California bighorn sheep, wolves, grizzly bears, trumpeter swans and wolverines, to mention only a few. And these animals exist not only because of the vastness of their habitat but also because of man's effort to preserve them.

The Canadian Wildlife Service, for instance, conducts scientific research into wildlife problems in the Northwest Territories, Yukon Territory and the National Parks.

Federal wildlife experts recently undertook what may be considered the most highly mechanized "roundup" of the most unusual "herd of cattle", when it was decided to move 3,000 buffalo from the meadowlands of the Great Slave River to Wood Buffalo National Park. The 100-mile drive was carried out—by helicopter—to combat an epidemic of anthrax disease which had decimated the herd; it was found that mud, slush, water and undergrowth

helped to wipe the animals clean of anthrax spores by the time they reached their new habitat. If additional investigations confirm that the disease has been definitely checked, sports hunting may be resumed to harvest the annual increase in the buffalo herds.

Another example of combining the old and the new in Canadian resource exploration is the story of the first commercial helium ever to be manufactured outside the United States.

Drilling for oil and gas near Swift Current, Sask., workmen first brought in a well in 1958. However, because the gas was incombustible, with a 96 p.c. nitrogen content, it was cemented up. Then industrial chemists made the exciting discovery that the gas contained 1.9 p.c. helium. The next step was to develop ways and means of capitalizing on the discovery. With helium reserves estimated to be good for at least 20 years, marketing prospects were thoroughly studied and a new company was formed in partnership with British and French interests.

When helium was discovered in Saskatchewan, estimated world demands outside the United States, where helium sales and exports are closely controlled by rigid conservation laws, was less than 4,000,000 cubic feet per year. Availability of Canadian helium has already doubled this volume within a year and is expected to add 12,000,000 cubic feet annually in three years, as new markets develop.

The Continental Shelf Project. The submerged plateau extending from the northern coast of North America is a major part of the great continental shelf that surrounds the Arctic Ocean. The topography of the floor of the submerged part of this continental margin has not yet been thoroughly explored; in fact, the entire region is currently the subject of intensive study.

An aerial view of the extensive Montreal Road laboratories of the National Research Council at Ottawa.



The investigation should ultimately yield detailed and accurate information on the physical and chemical composition and dynamic characteristics of the Arctic oceanic waters; the topography and structure of the shelf and the nature of its sediments as well as its underlying rocks and possible mineral resources; the behaviour of glaciers, sea ice and climate in the recent geological past; and much other information.

Stress is being laid at present on a systematic aeromagnetic survey and gravity survey of every region concerned; some of these studies have already revealed magnetic anomalies in the earth's crust but it is not yet known whether these anomalies stem from forces within the earth or from forces of the earth's magnetic field in space.

Magnetism. Since Canada plays the role of the host country to the Magnetic Pole, it is not surprising that Canadian scientists in many disciplines pay particular attention to the earth's magnetism. The Geological Survey, for instance, has used airborne magnetometers to make maps that may serve not only to study geological structures in general but also to locate mineral deposits. Similar airborne surveys were conducted by the mining industry.

The study of the magnetic properties of rocks is important in determining the history of the earth's magnetism, which in turn may throw light on such fascinating theories as wandering of the earth's poles and drifting of the continents. Several Canadian universities are collaborating with the Geological Survey in this work, which may lead to a complete re-interpretation of the geological past.

Canadian oceanographers are using scuba-diving equipment to carry out research by inspection and study of sea-bottom formations and marine life and by checking the correct functioning of under-water scientific instruments.



A technician uses a high shear viscometer, designed and built at the central research laboratory of a leading chemical industry, to measure the basic flow properties of polythene.



Northern Lights. Technically known as *aurora borealis*, this marvellous spectacle of nature is also related to the earth's magnetic field; this fact has been known for a century or more, but the electrical nature of the atmosphere—where Northern Lights are produced—began to be explored only in the past decades. In fact, until the arrival of the Space Age, measurements of the upper atmosphere could be taken only by indirect means such as the reflection of radio waves from the ionosphere, spectroscopy of the aurora and the night sky, and the absorption of cosmic radio noise. Now, however, the new rocket technique makes it possible to take direct measurements in the interesting region from 30 miles up. Since Northern Canada is the only place in the world where accessible land stations extend into and across the auroral belt, it is only natural that Canadian scientists are in the forefront of these rocket experiments. A 17-inch diameter rocket now being made in Canada will carry about 150 lb. of delicate instruments to a height of about 150 miles. A series of rockets known as *Black Brant* is being developed by Canadian industry jointly with government branches. These rockets have no military significance whatsoever, and they are freely available for scientific experiments in any country. Data obtained by this new technique are not only of academic interest but of great practical importance, especially in connection with the fading and blackouts of radio communications.

Oceanography. Since the coastline of Canada is one of the longest of any country in the world, Canadian scientists are carrying out a vigorous oceanographic research program.

Indicative of the growing importance of oceanography is the recent formation of the Marine Sciences Branch of the Department of Mines and Technical Surveys, which operates a new laboratory for oceanography at



A glass-blowing lathe, which automatically turns and mechanically blows glass, in use at the National Research Council laboratory in Halifax.

Bedford, N.S. The Branch also co-operates with Dalhousie University in Atlantic oceanography and with the University of British Columbia in Pacific oceanography.

Oceanographic measurements are made on cruises by specially equipped ships and include the determination of ocean currents, water temperature and salinity, plankton content, and sea bottom topography by electronic depth sounders.

In connection with the Continental Shelf Project, initial oceanographic measurements within the region of the Arctic islands have been completed. Similar research is being done in the waters of the Great Lakes by the Great Lakes Institute of the University of Toronto.

Meteorology. A good deal of meteorological research is being done in Canada not only because the Arctic air mass affects the weather in a large portion of the world but also because of the "jet stream", a high-altitude high-velocity wind which crosses Canada. Principal research agencies in this field are the Meteorological Branch of the Department of Transport and the Department of Meteorology, McGill University. Special programs involve the use of radar to study stormy weather conditions, in particular hail-producing storms in Alberta. The use of small rockets for weather forecasting is also being practised by Canadian scientists; by this new technique synoptic weather measurements all over the world can be extended up to a height of about 50 miles.

Geology. The Canadian Shield, embracing about one-half of the total area of Canada, is not only one of the most intricate but also one of the richest geological formations on earth. It is not surprising therefore that the geological sciences have a long tradition in Canada. But one must be on guard against the concept that geology is merely the handmaiden of mineral exploration; in fact, some of the most striking advances in this field are being made along purely fundamental lines. For instance, the dating of rocks by

radioactive methods is becoming especially important, because of the great area of the Canadian Shield where there are no fossil-bearing rocks that can be dated by other methods.

The origin of a number of ancient "craters" recently discovered in northern Quebec, Ontario and Saskatchewan is not only the subject of intense study but has even caused sharp disagreement among scientists: while one group is favouring the conclusion that these "craters" were caused by huge meteorites plunging to earth millions of years ago, other scientists say that these "craters" were probably caused by the escape of huge amounts of gas from the interior of the earth.

Special Construction and Transportation Research Problems. Soil mechanics is a branch of geology with particularly pronounced Canadian aspects. Two features of the Canadian terrain have recently become the subject of concerted research programs, especially since they must be properly understood before a solution can be found to many pressing transportation and construction problems in the North. One type is the permanently frozen ground, called "permafrost"; the other type is organic terrain called "muskeg". These conditions affect not only overland transportation but also aviation since they may interfere with runway construction.

To help open up the North, Canadian aviation research has for a long time played a leading role in the development of aircraft with short take-off and landing characteristics; the Canadian-designed "Otter", "Beaver", and "Caribou" aircraft are internationally known as being particularly well suited to "wilderness" flying. Canadian research engineers are now well on their way towards reaching the next goal: the designing of a reliable and economical vertical take-off and landing aircraft, thus foreshadowing the possibility of doing away with runways altogether.

Many industries maintain their own research laboratories, such as this one belonging to a leading food industry.





Here research into communications equipment suitable for Canadian conditions is being carried out in an electrical industry's research and development centre.

Special construction problems in Canada arise from the severity of the winter in many regions, but recent achievements in various fields of building research have allowed Canadian builders to extend the construction season beyond all previous expectation.

Snow and Ice Research. Construction and transportation problems caused by snow and ice in Canada are so varied and so numerous that an account of research on these topics alone would fill volumes. One such volume, for instance, would deal with the recent Conference on Snow Clearing in Canada, where mechanical, chemical and thermal means of snow removal were under discussion. Each major Canadian city as well as highways and railways were represented with reports on snow clearing methods.

Ice in the form of glaciers is an important source of water for many rivers in Western Canada. Based on the field work of expeditions from various government departments, universities, and Arctic Institutes, a complete inventory of Canadian glaciers is being prepared by the Geographical Branch of the Department of Mines and Technical Surveys.

A *special* snow-cover survey was started recently to determine the amount of snow accumulating on roofs rather than on the ground. This survey has already led to a better understanding of the effects of wind, shelter, and shape of roof on snow loads in the various climatic regions of Canada. The findings are to be incorporated in specifications for the National Building Code, a unique document intended to insure structural safety of all types of buildings in all parts of Canada.

A *general* snow-cover survey is a continuing Canadian research project which serves, among other things, for the accurate prediction of springtime run-off and has therefore an important bearing on one of Canada's most valuable natural resources—water. In Canada, water resource development and flood control programs are proceeding at a very rapid rate. During the next decade it is estimated that at least \$3,000,000,000 will be spent on these programs and on conservation systems and irrigation projects.

International Research Projects

In addition to the above mentioned Canadian scientific research projects and achievements, many of the benefits of which are shared beyond Canada's borders, there is a strong Canadian component in the following international research projects.

Six research projects for international co-operation are particularly pertinent to Canada: accurate measurements of river flow under ice cover; techniques for construction of observation wells in permafrost; participation in evaluation programs of polar orbit satellites; intensive study of the nature of fresh-water ice; an inquiry into the physical causes of ice formation and dissipation to permit prediction and control of ice; and establishment of water resources centres at Canadian universities, with the possibility of international exchange of hydrologic personnel.

International Year of the Quiet Sun. Following the tremendous success of the International Geophysical Year (IGY), which was planned to coincide with *maximum* sunspot activity, it soon became obvious that the full fruits of this epoch-making scientific enterprise can be realized only if comparable data can be obtained for a period of very low solar activity. A further full-scale international program has therefore been initiated to coincide with the next period of *minimum* sunspot activity.

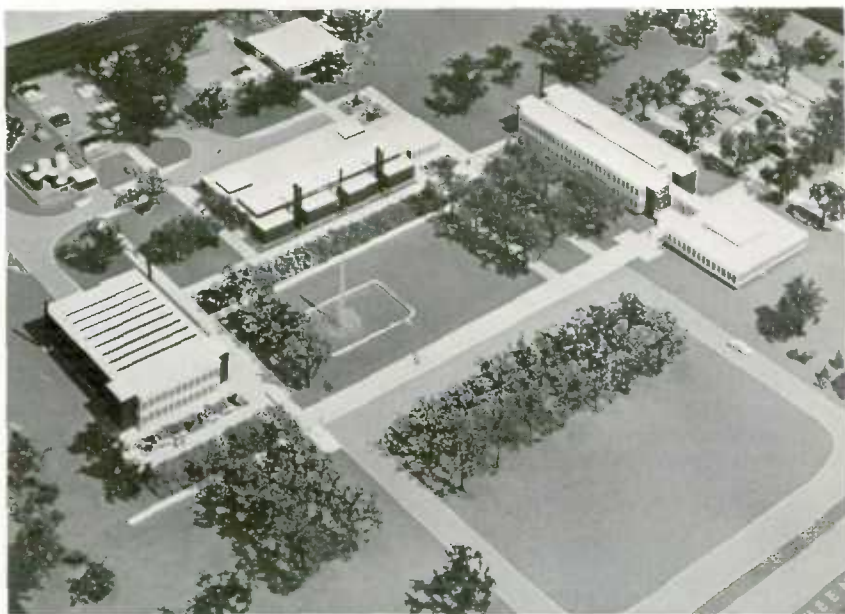
The International Year of the Quiet Sun (IQSY) is actually a misnomer, since it will cover a full two-year period, from 1 January 1964 to 31 December 1965. The observational work, to be carried out at many hundreds of stations, will involve the voluntary co-operation of scientific academies and institutions of more than 60 nations. In many facets of this work, such as cosmic-ray studies and the World Magnetic Survey, Canadian scientists are, once again, playing a significant role.

Members of the Summer School of Indian Archaeology from the University of Western Ontario, London, digging at the Forget Indian Village site near Wyebridge.





New research buildings are springing up all across Canada. Three recently completed are Ontario Hydro's W. P. Dobson Research Laboratory in Etobicoke, near Toronto, the University of Alberta's Nuclear Research Building at Edmonton, and British American Oil's new research and development centre 20 miles west of Toronto.





The operating theatre is the arena where the final results of much medical research are put into practice.

Medical Research

Medical research in Canada is mainly carried out in the universities and their affiliated hospitals and institutes. The necessary funds are provided to a large extent by grants awarded to investigators in the various disciplines in the broad field of medicine by both government agencies and private granting bodies.

The government agencies operate on a federal level as well as on a provincial level, each having its particular field of interest in the support of medical research.

In 1938 the National Research Council established an Associate Committee on Medical Research which undertook the support of medical research on a small scale. After World War II this committee was replaced by a Division of Medical Research whose budget increased gradually from \$200,000 in 1947 to approximately \$2,300,000 in 1960. This Division was disbanded in 1960 when the Medical Research Council was established. The Council's budget for the year 1963 amounts to \$5,100,000, a sum used for the support of research through grants-in-aid and the provision of personnel support. The grants-in-aid are made in both preclinical and clinical sciences.

The personnel support consists of three categories, i.e., medical research fellowships to provide training in research, and medical research scholarships and medical research associateships to support investigators and thus contribute toward establishing a group of senior research workers in the universities.



This new gamma-therapy unit has been installed in clinics in 39 countries. It has been estimated that about 1,500,000 treatments per year are provided by these Canadian machines throughout the world.

Other government sources of support for medical research are the National Health grants, established by the Department of National Health and Welfare in 1948 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 medical research. In addition, the so-called Public Health Research Grant provides for the support of studies that are considered of direct practical value in the diagnosis and treatment of disease.

Funds for medical research related to defence problems have been provided since 1946 by the Defence Research Board both for investigations carried out in its own laboratories and through grants-in-aid of research in the universities.

Finally, the Department of Veterans Affairs supports medical research in its own hospitals, which are particularly suited to the investigation of problems related to chronic disease.

In addition to the federal agencies which support medical research, an important role is played by provincial governments and private foundations. Some funds are also provided by various agencies in other countries such as the National Institutes of Health of the United States. It is estimated that the total amount available for medical research in Canada from all these sources for the year 1963 will be approximately \$13,000,000.

Research carried out in Canadian universities and supported by the agencies mentioned above varies considerably from one university to another. A survey across the country reveals, however, that a few areas are more actively pursued both in the preclinical and clinical sciences.

Outstanding contributions have been made to biochemical studies of cellular and nuclear enzymes, nucleic acids, steroids, proteins, lipids and carbohydrates. Special emphasis is given to problems of neurochemistry in some centres. The Collip Department of Medical Research at the University of Western Ontario is a well established institute devoted to the study of various problems in biochemistry. Biochemical studies related to diseases such as endocrine disorders and cancer are receiving increasing attention,

particularly in the clinical investigation units of university-affiliated hospitals. Similarly, physiologists and pharmacologists are engaged in the investigation of a wide range of problems; functional studies on various aspects of the nervous system, the cardiovascular system, carbohydrate metabolism, electrolyte metabolism and the endocrine system are yielding important results in various medical schools. Important observations are also forthcoming on various aspects of muscle activity. The Montreal Neurological Institute at McGill University, the Banting and Best Department of Medical Research at the University of Toronto and the Institute of Experimental Medicine and Surgery at the University of Montreal have already achieved international reputation in these fields. Studies on the many aspects of blood coagulation, both fundamental and applied to diseases of the blood, are actively pursued and, in view of the climate of Canada, problems on cold physiology are of particular interest. Bacteriologists have recently become engaged in studies dealing with the antigen-antibody problem and with questions concerning the characteristics of viruses. The Connaught Medical Laboratories in Toronto and the Institute of Microbiology and Hygiene in Montreal are well-known for their work in this field. The development of the electron microscope as a tool in bacteriology, pathology and anatomy has been a great stimulus for research in these disciplines since it allows the formulation of problems which require a high magnification. Studies of the abnormal structure in various states, such as arteriosclerosis, liver disease, hypersensitivity, tumour growth, are evidence of this in many pathology departments. Methods of electron microscopy, radioautography, microradiography, x-ray microscopy and histochemistry

A scientist records electrical changes inside single muscle fibres as part of research into the origin and mechanism of biological rhythms.



are enabling many Canadian investigations to contribute significantly to the understanding of ultrastructure and cellular structures, and obviously such studies have greatly influenced the development of many anatomy departments in the country.

An increasing interest in various cytogenetic problems is reflected by recent research on congenital anomalies; in some aspects Canada has pioneered in this field.

Undoubtedly the support of research in the so-called basic medical sciences has gone hand in hand with and has also stimulated the development of clinical investigations in departments of medicine and surgery particularly. The creation of metabolic and clinical investigation units in many universities bears this out as well as the excellent progress made on studies of hypertensive and respiratory diseases.

Apart from the Department of Experimental Surgery at McGill University many centres have developed research in this field in recent years. Problems concerned with gastric secretion following gastrectomy, transplantation, blood vessel anastomosis, bone repair, hypothermia are of particular importance in this regard.

The increasing interest of physicians as well as surgeons in collaborating with physicists and engineers is evident from the creation and support of biomedical engineering departments in a few centres.

Due also to the support available through the National Cancer Institute and the Heart Foundations, national and provincial, great strides are being



Research into diseases of children is carried on by a half dozen hospitals and medical centres in Canada. This is the play area in one of them.



The information centre at the Douglas Point Nuclear Power Station attracts thousands of visitors. Besides being shown a film and various exhibits inside the centre, visitors may climb the ramp and watch construction going on.

made towards the further development of research on the fundamental and applied aspects of cancer and heart disease.

Studies of problems related to cancer are carried out by individual investigators as well as by groups of investigators in special cancer research units maintained in some centres by the National Cancer Institute.

Cardiac units in many medical schools are evidence of interest in research on the part of clinicians in this field.

Finally, there has been an expansion all across the country in studies, both preclinical and clinical, related to the vast field of mental disease. The Allan Memorial Institute in Montreal has already established itself as one of the leaders in this field.

Atomic Energy

Highlights of nuclear activities in Canada during 1963 include greatly increased interest around the world in the Canadian approach to nuclear power, the putting into operation of a new nuclear research centre in Manitoba, steady progress in the construction of a large nuclear power station, and preparations for the installation of a new and more powerful particle accelerator.

The Douglas Point Nuclear Power Station, with its reactor known as CANDU, is nearing completion at a site on the eastern shore of Lake Huron. Canada's first large-scale nuclear power plant, it will have an electrical output of 200,000 kilowatts when it goes into commercial service in 1965. Douglas Point is being built as a co-operative project of Atomic Energy of Canada Limited and Ontario Hydro.

The prototype for large nuclear generating stations, the Nuclear Power Demonstration Station (NPD), has been put through a series of successful demonstration runs since the plant went into operation in 1962 and attained its full power output of 20,000 kilowatts. The NPD station, located about 16 miles up the Ottawa River from the Chalk River Nuclear Laboratories, is a joint project of Atomic Energy of Canada Limited, Ontario Hydro and Canadian General Electric Company Limited.

Although the CANDU-type reactor shows great promise, it represents only one stage in the evolution of power reactor technology, and an appreciable



Testing one of the two fuelling machines for the Douglas Point Nuclear Power Station. Used fuel will be removed and new fuel will be inserted in the reactor without shutting down the plant.

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 200,000 kilowatts capacity per year, these very high power reactors will fill a definite need by the time they are developed, and as much as 500,000 electrical kilowatts from one reactor may be desirable.

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; and Atomic Energy of Canada Limited (AECL), 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, 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 and now include all regulatory matters such as the licensing of reactors and financial assistance to Canadian universities engaged in nuclear studies.

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, reflecting the fall in demand from Canada's main customer, the United States.

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. The principal reason for this choice 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 in the construction of the first, would generate electricity at a cost competitive with conventional stations.

In the international field, close ties are kept with the United States Atomic Energy Commission (USAEC) and the United Kingdom Atomic Energy Authority (UKAEA), both of which have representatives permanently at Chalk River. In 1963 AECL and the UKAEA concluded an agreement to extend their collaboration on research and development concerned with heavy-water-moderated, water-cooled reactors and their fuel. The agreement reflects increased interest in heavy water reactors in Britain, where a heavy water power reactor is now being built. 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 European Nuclear Energy Agency, and with Euratom, as well as with France, India, Japan, Pakistan, Sweden, Switzerland and West Germany.

Model of a new "atom smasher" for Chalk River, which will accelerate beams of electrically charged particles to speeds greater than 133,000,000 miles per hour, and which will be housed in a 130-ton steel tank 81 feet long and 18 feet in diameter.



AECL operates Canada's main atomic research and development centre at Chalk River, Ontario, and in 1963 put into operation a second centre on the shores of the Winnipeg River, 65 miles northeast of Winnipeg, Manitoba. This centre, known as the Whiteshell Nuclear Research Establishment, has various laboratories which concentrate on work in the fields of chemistry, chemical engineering, fuel development, metallurgy and engineering studies—all directed toward the development of economic nuclear power. AECL has a Head Office and a Commercial Products Division in Ottawa and a Nuclear Power Plant Division in Toronto.

At Chalk River there are now five experimental reactors—ZEEP, NRX, NRU, PTR and ZED-2. The number of employees is about 2,400, of whom over 400 are university graduates.

The 42,000-kw. (thermal) NRX research reactor went into operation in 1947 and the 200,000-kw. (thermal) NRU research reactor was put into service in 1957. Both reactors have been used for nuclear power experiments, for fundamental research, for the making of radioactive isotopes, and for the production of plutonium from natural uranium. With the future market for plutonium uncertain, it was decided to cease plutonium production in NRU and the reactor was shut down in November 1963 to replace natural uranium fuel rods with enriched uranium fuel rods. While this change reduces the thermal power (heat output) to 60,000 kw., the density of neutrons (flux) remains high for experiments and for isotope production.

The three 100-watt research reactors, ZEEP, ZED-2 and PTR, are used for different purposes such as testing fuel rod arrangements for power reactors, determining the reactivity of fuel samples and studying the neutron-absorbing properties of materials.

In the many laboratories at Chalk River fundamental and applied research and development are carried out in biology, medicine, physics, metallurgy, chemistry and engineering. In addition to the research reactors, other large research machines such as a 10,000,000 electron volt Tandem Accelerator, a 3,000,000 volt Van de Graaff Generator and a large Beta Ray Spectrometer have been in use. The Tandem Accelerator is being dismantled to make way for a new 20,000 electron volt accelerator known as the MP Tandem Van de Graaff. This new machine will enable physicists to obtain new data on the arrangements of particles in atomic nuclei and on the forces which bind them together.

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.

Canada was one of the pioneers in the application of radioactive isotopes in research, medicine, agriculture and industry. The Commercial Products Division processes and sells radioactive isotopes produced in the Chalk River reactors and also develops new uses for isotopes and equipment for their application. The division manufactures six models of cobalt-60 beam therapy units. Over 300 of these cancer treatment units have been installed in clinics and hospitals in 40 countries. A portable facility is also available for the gamma irradiation of material and has been designed for industrial use.



More than 2,000 clothing factories employ nearly 88,000 people to produce clothing worth more than \$800,000,000 a year. The production of clothing for men is almost equal to that for women in terms of value.

Canadian Industry

The aggregate volume of production in Canada during the period following World War II has been subject to fairly well-pronounced cyclical fluctuations. Three major cycles in production can be distinguished during this period, the first one beginning in 1953. Although there were slight slowdowns in the rate of expansion prior to that time, they were not sufficiently pronounced to be considered as cyclical downturns in production¹.

The downward phase of the first postwar cycle lasted from the third quarter of 1953 to the second quarter of 1954. This was not only the briefest but also the most pronounced of the three postwar contractions, resulting in a 5 p.c. decline in total output. During the subsequent expansion, which extended over ten quarters, output made remarkable gains. By the fourth quarter of 1956, production had reached a level about 18 p.c. above the previous peak. Subsequent cyclical expansions have so far failed to match this performance.

¹ Industry, for purposes of this article, includes agriculture, forestry, fishing and trapping, mining, manufacturing, public utilities, construction, wholesale and retail trade, transportation, storage, communication, finance, insurance, real estate, public administration and defence, community, recreation, business and personal service. Production represents the quantity of unduplicated output of individual industries located in Canada, as measured in constant 1949 dollars. Total production is the sum of the output of all the individual industries.



Part of the \$5,000,000 gas conservation plant under construction at Judy Creek, 130 miles north-west of Edmonton. Owned by 11 companies, this plant will separate 40,000,000 cubic feet of gas a day, with the natural gas going to Edmonton via pipeline, and the liquified gases going to a gas conservation plant at Devon, where it will be processed into propane and raw materials for industrial plants.

The downward phase of the second cycle extended from the fourth quarter of 1956 to the fourth quarter of 1957. In spite of the slightly longer duration of this contraction, output declined by only 3.6 p.c. During the subsequent expansion, which lasted for nine quarters, production increased by about 10 p.c., bringing it to a level of 6.3 p.c. above the previous peak.

During the third postwar cycle, the downward phase of which began with the first quarter of 1960, output declined by 2.1 p.c. from peak to trough. The expansionary phase of this cycle commenced during the second quarter of 1961. By the fourth quarter of 1962, output had surpassed the level of the previous peak by 8.6 p.c., as opposed to the 4.1 p.c. increase during the corresponding period of the 1958 upturn.

These cyclical swings in total output were the result of the interaction of many complex factors, ranging from international conditions and inventory swings to such phenomena as businessmen's expectations of profits from future domestic sales. Thus ultimately the course of production depends on the demand for the products of the various industries. Some of the service-producing industries, for instance, commanded a steady and expanding market more or less in line with the increase in population. Industries such as agriculture and fishing have to operate within the limits imposed by natural phenomena or employ production methods which sometimes tend to counteract (or emphasize) the underlying forces of demand. In other industries output is more strongly affected by (and can be adjusted to) expectations of future demand. Many of the manufacturing industries would fit into this category. Some of the factors at work in the Canadian economy during the

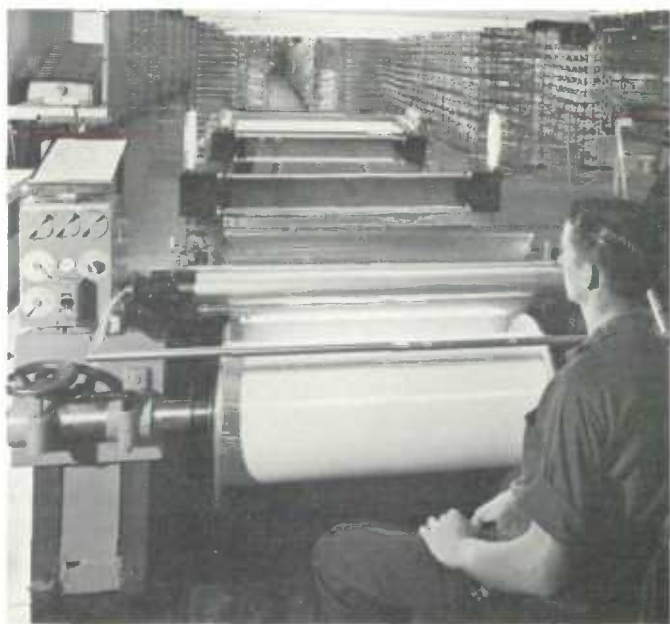
postwar period have helped to enhance the importance of cyclically sensitive industries.

The Second World War and the subsequent period of international reconstruction and development increased world demand for some products of Canadian mines and factories which had not previously been produced and exported on a comparable scale. Pent-up demand for consumer and investment goods appeared following the cessation of hostilities. At the same time technological innovations, often initiated during the war years, provided a strong stimulant to production. In addition, the population of Canada has increased by about 50 p.c. since 1946. Thus a growing domestic market along with strengthened world demand for Canadian exports gave rise to a favourable atmosphere for industrial expansion and resulted in a 90 p.c. advance in the volume of output between 1946 and 1962. At the same time, real output per capita increased by about 25 p.c., indicating that there was greater abundance of material resources at the disposal of the Canadian people.

Thus there was an increasing diversification within the Canadian economy during the postwar period, although the resource-based industries still played an important role in fostering foreign trade and economic progress. This was particularly evident during the course of the investment boom of the mid-fifties, which resulted in a considerable expansion of such resource-based industries as mining and electric power and gas utilities, and accelerated output in the industries supporting this expansion. The line of demarcation between the strictly extractive activities in mining and the initial stages of manufacturing has become increasingly blurred. Steady growth of the service-producing industries and increasing diversification in manufacturing continued throughout the postwar period.

Most Canadian industries can be classified into one of three major categories: irregularly expanding, cyclically sensitive and steadily expanding.

Hundreds of strands of nylon are combined onto a "beam" at this nylon plant at Kingston; it will be shipped to a textile mill for use in the production of nylon tricot.



As shown in the following table, the last group, consisting mainly of the other service and electric power and gas utilities industries, exercised a stabilizing influence on the economy, both during periods of contraction and of expansion. The group of primary industries, which exhibited irregular changes in output from period to period, generally tended to magnify the underlying cyclical swings in production as determined by the cyclically sensitive industries, such as manufacturing, trade and transportation. However there are some industries, as, for instance, mining, which do not follow a uniform pattern throughout the period and therefore do not fit precisely into any one of these categories.

Industry Production Movements During Recent Cycles

	Downturns			Upturns ¹		
	(Per Cent Changes in Output)					
	3Q'53 to 2Q'54	4Q'56 to 4Q'57	1Q'60 to 1Q'61	3Q'53 to 1Q'56	4Q'56 to 3Q'59	1Q'60 to 4Q'62
Gross Domestic Product.....	- 5.0	- 3.6	- 2.1	+12.7	+ 4.1	+ 8.6
Agriculture, forestry, fishing and trapping.....	-26.0	-18.4	-12.5	+ 4.6	-12.7	+ 5.6
Mining.....	+ 5.8	+ 1.2	- 3.5	+43.9	+13.9	+11.7
Manufacturing.....	- 3.5	- 7.2	- 3.8	+11.4	+ 1.3	+ 9.7
Construction.....	- 4.6	+ 3.1	- 5.7	+16.8	- 0.7	+ 1.4
Electric power and gas utilities.....	+ 7.0	+ 6.5	+ 4.1	+30.9	+27.1	+16.1
Transportation, storage and communication.....	- 6.1	- 1.6	+ 2.3	+18.3	+ 7.6	+10.4
Trade.....	- 3.0	- 2.6	- 1.5	+12.8	+ 6.6	+ 7.1
Other service ²	+ 2.8	+ 3.3	+ 3.3	+ 9.6	+11.0	+ 9.7

¹ In order to facilitate comparison between the expansionary phases of the three cycles, the changes are calculated to show the per cent increases (or declines) over the preceding peak which were achieved during the seven quarters immediately following each trough in total production.

² This group includes the finance, insurance and real estate, public administration and defence, and community, recreation, business and personal service industries.

The manufacture of electronic equipment and components has direct relationship to the development of communications, navigation, computing and data handling, flight simulation, nucleonics, geophysics and entertainment.





A night view of the ethylene and ethylene oxide units of a huge chemical plant in Montreal East.

An attempt to classify the main industry divisions within the Canadian economy into the three categories shows that the extractive industries generally tended to fall into the first industry group. Agriculture and forestry, for example, showed very strong irregular fluctuations. In forestry these sharp year-to-year changes sometimes occurred in response to altered demand and price conditions. During 1957, for instance, there was a notable decline in production as well as in foreign and domestic prices. This followed a period of overproduction culminating in 1956, and coincided with the 1956-57 downturn in total production. Fishing and trapping are also highly irregular primary industries, but their contribution to the output of the economy is not sufficiently great to exercise a decisive influence on cyclical fluctuations. Agricultural production, on the other hand, accounted in 1949 for about 10 p.c. of total output and thus sudden changes in the level of crops and other produce tend to leave their mark on the level of performance of the economy as a whole. By its very nature, agricultural production is subject to unpredictable influences, such as the weather, in addition to being affected by price and demand factors.

However, even within the agricultural segment of the economy, output movements do not conform to the same pattern. Thus poultry and dairy products, for instance, show steady gains during the fifties roughly in line with the expanding domestic market and population, while grain products still exhibit sharp year-to-year swings in output. The latter constitute a large portion of agricultural output and, since especially poor crop years have happened to coincide with the trough years of the postwar cycles, they have tended to magnify the amplitude of the cyclical downswings.

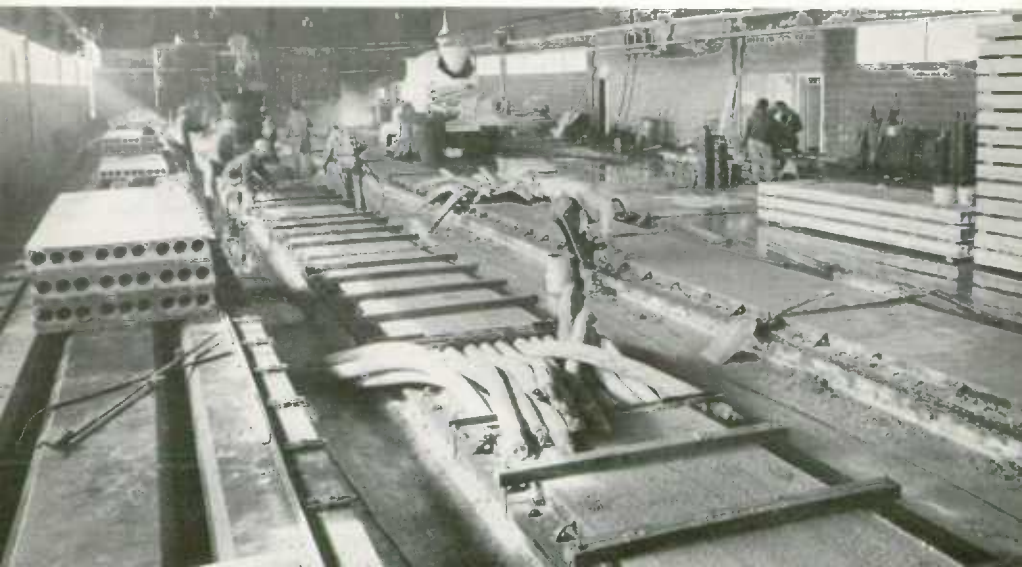
The service-producing industries are generally less sensitive to fluctuations of either a cyclical or an irregular nature. There were, however, some exceptions to this general rule during the postwar period. Foremost among these were transportation and trade. The finance, insurance and real estate and the community, recreation, business and personal service groups exhibited fairly smooth expansionary paths, while fluctuations in the public administration and defence component which is highly sensitive to exceptional factors, such as defence requirements, do not conform to a regular pattern.

Construction expanded considerably during the mid-fifties as a result of a strong demand for housing and the requirements for capital expansion, increasing by some 3 p.c. even during the 1956-57 downturn. During the late fifties, however, there developed a pause in construction activity and upward movements did not resume until 1961. These exceptional influences, prevalent during the fifties, therefore counteracted any possible cyclical movements which might otherwise have appeared. The electric power and gas utilities industry expanded rapidly throughout the postwar period. Even during periods of general contraction in output this industry group merely reflected slightly lower rates of increase. Mining had expanded quite rapidly, with only minor set-backs up to the late fifties. At that time, however, some tendency toward cyclical movements appeared in mining output. The 1960-61 downturn in total production was paralleled by a decline in the output of mines.

The industry groups which have shown the most pronounced and consistent cyclical fluctuations during the postwar period, therefore, were manufacturing, transportation and trade. It is on these industries that attention must be focussed in examining cycles in Canadian economic activity. They account for about 50 p.c. of the total volume of output and for this reason changes in the level of production of this industry grouping exercise a strong influence on aggregate production. There was also a marked similarity in the cyclical patterns of these three industry groups. Manufacturing showed the most regular patterns of contraction and expansion, while transportation was the most volatile of the series, declining considerably more during the first two downturns than either manufacturing or trade. Trade was the least volatile of the three, and as a rule declined less during the downswings but increased as rapidly as manufacturing during the course of the upturns.

Some similarity between the patterns of manufacturing and transportation output is to be expected since manufactured goods generally must be

Pre-stressed concrete members are here shown in various stages of manufacture in a new \$300,000 Regina plant.





One of the oldest surviving secondary industries in St. John's, Newfoundland, is the manufacture of ropes, twines and nettings.

In this shoe factory, uppers are being cut by skilled cutters. Production of leather footwear in 1963 was nearly 48,000,000 pairs.

transported before they can be sold or used. However, not all the goods which enter transportation channels are the end product of Canadian manufacturing industries, nor are transportation services provided solely for the movement of goods. Imported products as well as the produce of domestic farms, forests and mines also have to be moved along Canadian transportation channels. For these reasons, and because of the movement of passengers by rail, road, and, increasingly, by air, the changes in the level of output of transportation services and the manufacturing industries coincide but roughly.

Transportation lagged behind manufacturing and trade by one quarter during the downturn of the second cycle, but began to decline one quarter earlier than manufacturing during the third cycle. The downward phase of the second cycle in transportation lasted until the third quarter of 1958. At that time a slight secondary trough can also be detected in trade and manufacturing output, while mining had not as yet entered the expansionary phase of that cycle and the output of the agriculture and forestry industries hovered at levels considerably below the 1956 levels.

The factors affecting the output of the transportation industry are as diverse as the effects of these factors on the various components of that industry. Cyclical factors were most influential in the railway transport industry, the movements of which appear to be the main determinant of the cyclical fluctuations in total transportation, as railways account for more than one half of the total output of the transportation industries. That is not to say, however, that the role of the other industries was negligible. Water transport, for instance, also exhibited similar cyclical movements, while such industries as air transport and oil and gas pipeline transport helped to support the expansionary forces in the economy. This was particularly evident during the 1960-61 downturn when transportation showed an increase in output, measured from the time of the peak to the occurrence



Construction is one of Canada's major industries. In 1962, \$1,533,000,000 was spent on housing alone.

of the trough in total production. The transportation index led that particular downturn, however, and had begun to increase prior to the general upturn in production, largely as a result of the expansion in the other industries.

This similarity in cyclical patterns becomes even more apparent when the changes in the levels of output of manufacturing are compared with those in trade. Here again, the identity is not complete, as some of the goods entering trade channels are imported from abroad and, even in goods manufactured in Canada, divergent movements may develop because of time lags between production and final sales (either at wholesale or retail), resulting in inventory accumulation at any one of these stages. The particular relationship between manufacturing and trade is clarified by breaking down total trade into its two main components, wholesale and retail trade. The timing of the cyclical turning points in wholesale trade was, save in one case, identical with that in manufacturing. Retail trade is less volatile, and in this respect it is similar to the non-durables component of manufacturing, reflecting the fact that consumers are strongly resistant to any lowering in their basic standards of consumption during recessionary periods.

Manufacturing, like trade, showed divergent movements of a cyclical nature as between its two components. It was the durables component which accounted for the pronounced cyclical pattern in total manufacturing during the postwar period. Except for the first cyclical downturn which was longer and more severe in durables and comparatively mild and short-lived in non-durables, the cyclical turning points in durables coincided with those in total manufacturing.

The relative cyclical insensitivity of non-durables can, for the most part, be traced to the predominance of such steadily expanding components as foods and beverages. The clothing industry displayed relative stability, with a decline since 1957, while the textile industry showed short-term movements roughly coincident with the manufacturing cycle. Both clothing

and textiles have been subject to strong competition from imports and changes in their level of output cannot, therefore, be explained by considering only changes in domestic demand. However, the two industries serve as an illustration of the wide variety of factors and influences which determine the levels and shape the cyclical patterns of individual industries.

Within durable manufacturing, most of the major industry groups showed some cyclical fluctuations. Electrical apparatus and supplies showed a distinct cyclical pattern. The non-metallic mineral products group, which comprises industries that manufacture such products as hydraulic cement, concrete products and glass, revealed some resemblance in its production movements with those shown by the construction industry, although the cyclical movements are more pronounced. The wood products industry, while exhibiting the rough outlines of the manufacturing cycle, also showed some irregular movements reflecting its link with the forestry industry. At this level of aggregation cyclical movements appear to be much less regular and well defined than, for instance, those for total durables or manufacturing, where offsetting movements tend to smooth the series.

The two industry groups within durables, which show the most pronounced and clear-cut cyclical patterns, are iron and steel products and transportation equipment. Jointly they have accounted for about one half of the total output of durables. Within these two groups, in turn, the cyclically predominant industries were primary iron and steel and motor vehicles. Both these industries show distinct cycles in production which do not, however, coincide exactly with those in total manufacturing. Motor vehicle

During 1961, there were 95 mills producing paper and paperboard in Canada, 71 of them combined pulp and paper mills. In addition to newsprint, Canadian mills have a highly developed production of fine paper, wrapping paper, tissues, paperboard and other cellulose products.





New microwave equipment installed at Fort William in 1962 increased the capacity of the Trans-Canada microwave system by 600 voice-circuits.

production is the more volatile and irregular of the two series, as a rule reaching higher levels during the expansionary phases of the cycles. The timing of the troughs coincided, except during the first cycle, when the output of primary iron and steel was almost flat for two quarters following the trough, and motor vehicles reached the trough during the last of these (the fourth quarter of 1954). Primary iron and steel reached their peak earlier than motor vehicles during the first and third cycles. In both instances, however, motor vehicles production was affected by special factors such as strikes, either at home or in the United States, at the time of the peak in primary iron and steel. It is difficult to estimate precisely the extent of these influences but their importance cannot be discounted. Both industries are affected to a large degree by general economic conditions abroad as well as at home, and by the import and export climate for their products and the materials they use. The steel strike in the United States in 1959, for example, resulted in a considerable increase in the output of Canadian-produced iron and steel. Motor vehicle production in Canada, on the other hand, declined, possibly due to shortages of some U.S.-made automobile parts.

The iron and steel and the transportation equipment industries thus formed the backbone of the cyclical movements in durable manufacturing during the postwar period, although they were supported and modified by a number of other industries which exhibited patterns roughly in line with the manufacturing cycle.

Source of Personal Income, Selected Years 1939-62

(Millions of Dollars)

Source	1939	1946	1950	1959	1960	1961	1962
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	17,459	18,251	19,068	20,359
Less: Employer and employee contributions to social insurance and government pension funds.....	-35	-149	-256	-652	-745	-787	-816
Military pay and allowances.....	32	340	137	496	509	550	586
Net income received by farm operators from farm production ¹	412	1,034	1,156	1,126	1,178	949	1,402
Net income of non-farm unincorporated business.....	475	1,072	1,439	2,210	2,213	2,289	2,380
Interest, dividends and net rental income of persons.....	570	817	1,268	2,599	2,836	2,985	3,186
Transfer payments to persons:							
From government (excluding interest).....	229	1,106	1,030	2,755	3,129	3,408	3,652
Charitable contributions by corporations.....	6	12	25	43	40	44	45
Personal Income.....	4,290	9,719	13,428	26,036	27,411	28,506	30,794

¹ This item differs from item five of the table on p. 158 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 1939-62

(Millions of Dollars)

Disposition	1939	1946	1950	1959	1960	1961	1962
Personal Direct Taxes:							
Income taxes.....	62	711	612	1,744	1,978	2,131	2,311
Succession duties and estate taxes.....	28	54	66	130	158	144	166
Miscellaneous.....	22	31	62	214	224	236	237
Total Personal Direct Taxes.....	112	796	740	2,088	2,360	2,511	2,714
Personal Expenditure on Consumer Goods and Services:							
Non-durable goods.....	2,186	4,829	6,711	11,373	11,785	12,257	12,877
Durable goods.....	312	596	1,451	2,678	2,669	2,697	2,913
Services.....	1,486	2,606	3,864	8,540	9,058	9,532	9,959
Total Personal Expenditure on Consumer Goods and Services.....	3,984	8,031	12,026	22,591	23,512	24,486	25,749
Personal Saving:							
Personal saving excluding farm inventory change.....	140	878	583	1,433	1,523	1,797	2,182
Value of physical change in farm inventories.....	54	14	79	-76	16	-288	149
Total Personal Saving.....	194	892	662	1,357	1,539	1,509	2,331
Personal Income.....	4,290	9,719	13,428	26,036	27,411	28,506	30,794
Personal Disposable Income¹.....	4,178	8,923	12,688	23,948	25,051	25,995	28,080

¹ Personal income less total personal direct taxes.

National Income and Gross National Product, Selected Years 1939-62

(Millions of Dollars)

Item	1939	1946	1950	1959	1960	1961	1962
Income							
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	17,459	18,251	19,068	20,359
Military pay and allowances.....	32	340	137	496	509	550	586
Corporation profits before taxes ¹	521	1,269	2,118	3,003	2,905	2,873	3,254
Rent, interest and miscellaneous investment income.....	301	581	890	2,315	2,442	2,628	2,768
Accrued net income of farm operators from farm production.....	362	1,056	1,322	1,121	1,184	975	1,391
Net income of non-farm unincorporated business including independent professional practitioners.....	475	1,072	1,439	2,210	2,213	2,289	2,380
Inventory valuation adjustment.....	-56	-254	-374	-122	-80	-67	-132
Net National Income at Factor Cost.....	4,236	9,551	14,161	26,482	27,424	28,316	30,606
Indirect taxes less subsidies.....	734	1,270	2,000	4,259	4,470	4,716	5,261
Capital consumption allowances and miscellaneous valuation adjustments.....	637	998	1,913	4,204	4,459	4,539	4,755
Residual error of estimate.....	29	31	-68	-30	-99	-150	-221
Gross National Product at Market Prices.....	5,636	11,850	18,006	34,915	36,254	37,421	40,401

¹ Excludes dividends paid to non-residents.

Gross National Expenditure, Selected Years 1939-62

(Millions of Dollars)

Item	1939	1946	1950	1959	1960	1961	1962
Personal expenditure on consumer goods and services.....	3,984	8,031	12,026	22,591	23,512	24,486	25,749
Government expenditure on goods and services ¹	683	1,796	2,344	6,490	6,755	7,205	7,721
Business gross fixed capital formation ² :							
New residential construction.....	174	368	883	1,734	1,443	1,458	1,577
New non-residential construction.....	164	435	1,042	2,589	2,577	2,683	2,668
New machinery and equipment.....	254	585	1,423	2,571	2,672	2,494	2,709
Value of physical change in inventories:							
Non-farm business inventories.....	101	360	399	421	275	276	375
Farm inventories and grain in commercial channels.....	181	-27	151	-64	86	-420	190
Exports of goods and services.....	1,451	3,210	4,183	6,683	7,008	7,631	8,224
Less: Imports of goods and services.....	-1,328	-2,877	-4,513	-8,131	-8,172	-8,542	-9,033
Residual error of estimate.....	-28	-31	68	31	98	150	221
Gross National Expenditure at Market Prices.....	5,636	11,850	18,006	34,915	36,254	37,421	40,401

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 steady stream of new building produces a demand for heating, electrical and plumbing components. Here a workman installs goosenecks, elbows and traps made from polyethylene.

The Department of Industry

In July 1963 the Department of Industry was constituted to promote the establishment, growth, efficiency and improvement of manufacturing industries in Canada. This will be done through programs designed to assist manufacturers to adjust to changing market conditions, to help them develop new lines of production and enter new markets, and to promote greater industrial research and use of technological advances.

The Area Development Agency, part of the new Department, is responsible for research into means of increasing employment and income in designated areas, and for the administration of various Federal Government incentive measures intended to foster the economic growth of those areas.

The Domestic Commerce Service, formerly part of the Department of Trade and Commerce, is responsible for industrial promotion, product design, small business assistance and administration of the program of capital cost allowance for new products.

The industrial promotion activities of the Department of Industry assist manufacturers and processors to expand operations in Canada and are carried out in close co-operation with other federal agencies, with provincial, regional and municipal bodies and private development agencies and business organizations.

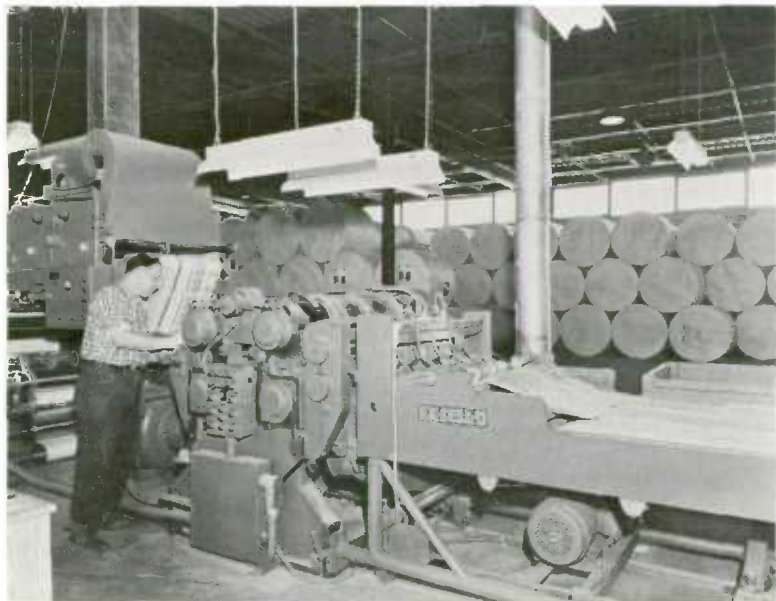
To encourage new or increased Canadian production, information on production and marketing opportunities within the domestic market is provided to Canadian manufacturers. Studies of opportunities for industrial

expansion and import surveys of Canadian market possibilities are undertaken, and Canadian businessmen are also provided with information on licensing arrangements, taxation, tariffs, financing and government rules and regulations.

The National Design Branch of the Department of Industry is the administrative arm of the National Design Council and, with the Council, initiates projects to assist Canadian industry in all aspects of design and to create awareness by businessmen and the general public of the importance of design in the successful making, marketing and export of goods. A national design index, illustrating and describing products of superior Canadian design is maintained as a reference catalogue for buyers and the general public. National and regional exhibitions, seminars and workshops are organized, and studies conducted on the needs of industry in the design field and the facilities and processes available to the manufacturer.

Scholarships and grants for institutional and specialized training in design and for research are awarded on a competitive basis and are tenable in Canada and abroad. A design centre, a permanent place of exhibition and reference, is located in Ottawa, as is a national register of practising designers and design consultants. Steps have also been taken to establish a visual aids library and an information service.

Heavy paper, destined to become milk cartons, emerges, printed and cut, from the press. Disposable milk cartons are gradually supplanting the traditional glass milk bottle, with savings in handling, washing and breakage.





Canada's most important fruit is the apple. In many different varieties, it is grown commercially in Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia.

Agriculture

There have been striking changes in the structure of Canadian agriculture in the past few years. Since 1951, the number of farms has declined by 22.6 p.c. Value of capital invested in agriculture has increased by nearly 40 p.c. largely due to rising land values, but approximately \$600,000,000 more capital was invested in farm machinery and equipment.

Due to technological improvements and the growing use of power equipment, agriculture has become more commercialized. A greater inter-dependence with the rest of the economy has resulted. Farmers today are using increased quantities of industrial products such as commercial fertilizers, weed killers and insecticides. Huge expenditures are made for fuel oil and other products needed to operate mechanized equipment. 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.

The occupied area of farms in Canada amounts to 173,000,000 acres of which 100,000,000 are improved. In 1961, there were 481,000 farms and the capital invested in land, buildings, machinery and livestock amounted to \$13,200,000,000. Under the census definition of a farm—"a holding of one acre or more with sales of agricultural products during the past 12 months valued at \$50 or more"—many small holdings, which do not provide farm operators with their main source of income, are included; in fact, 127,600 farms reported sales of farm products of less than \$1,200. Most of these so-called farms are merely rural residences and the owners are employed in walks of life other than farming. The number of farmers therefore does not necessarily correspond to the number of farms; in June, 1961, there were 415,000 farm operators, 145,000 family workers and 127,000 paid workers in Canada.

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 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 other province in Canada is as completely dependent upon agriculture as Prince Edward Island. Mixed farming prevails on the Island with major emphasis on 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 suitable for agriculture and little more than one quarter of the farm lands are improved. There are many part-time farmers with quite small holdings, but in contrast there are also 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.

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 southwestern Saskatchewan, southern Alberta and the foothills of Alberta and sizable 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.

The mountainous topography of British Columbia limits farming to the coastal sections, the valleys and plateau regions of the interior and the Peace River Block in the northeastern part of the province. The mild, maritime climate of the coast and the high concentration of urban population have led to the development of specialized dairy, poultry, small fruit and vegetable farming in this area. In the central interior, where the climate is more severe,



One of seven provincially-owned grazing reserves in Alberta, this one at Seven Persons, opened in the summer of 1963, will eventually support 1,000 head of cattle. Enclosed by 30 miles of barbed wire fencing, the pasture is irrigated and planted with a grazing mixture specially adapted to the southern prairies. Ranchers pay from \$1.50 to \$2.45 per cow per month on Alberta grazing reserves.

there are several areas devoted to cattle and sheep ranching. In the Okanagan Valley, situated in the southern interior, fruit production predominates, particularly apple growing. In the Peace River Block agriculture has been limited to grain and forage seed production and stock raising.

Farm Income

The technological changes which have occurred in agriculture since the end of World War II have had a pronounced effect on farm production and income. Annual farm output during the five-year period 1958-62 has averaged about 25 p.c. higher than for the period 1947-51. Output per worker is even greater. This substantial increase in production is reflected in a higher volume of sales which, together with some improvement in the general level of farm prices since the mid-fifties, has resulted in the establishment of record high farm cash income levels in recent years.

Net Income of Farmers from Farming Operations, 1960-62

Item	1960	1961	1962
	\$'000	\$'000	\$'000
1. Cash income.....	2,776,723	2,953,951	3,149,387
2. Income in kind.....	351,168	342,702	342,590
3. Supplementary payments.....	77,204	35,766	70,313
4. Realized gross income (1+2+3).....	3,205,095	3,332,419	3,562,290
5. Operating and depreciation charges.....	1,916,358	2,007,771	2,109,293
6. Realized net income (4-5).....	1,288,737	1,324,648	1,452,997
7. Value of inventory changes.....	51,627	-280,657	177,313
8. Total gross income (4+7).....	3,256,722	3,051,762	3,739,603
9. Total net income (8-5).....	1,340,364	1,043,991	1,630,310



Roadside stands where tourists and others may buy fresh fruit and vegetables in season may be found beside many highways.

The relative importance of the various commodity groups contributing to cash income has tended to change during the past few years with the importance of livestock and livestock products increasing at the expense of field crops and farm woodlot products. For the seven-year period ending 1962, livestock and livestock products accounted for 60 p.c. of total farm product sales, while in the early fifties they accounted for just over 55 p.c.

The contribution of commodity groups to farm cash income varies considerably from province to province. In recent years, sales of livestock and livestock products have accounted for about 70 p.c. of total farm cash receipts in Ontario, close to 80 p.c. in Nova Scotia and approximately 85 p.c. of the total in Quebec. On the other hand, sales of field crops, mostly wheat, have provided for nearly 70 p.c. of total cash farm income in Saskatchewan. Except for Manitoba, the contribution of livestock and products to the total farm cash income for the remaining provinces has varied from slightly under 60 p.c. to about 65 p.c. In Manitoba, the contributions of crops and livestock have been about equal.

The increasing commercialization of agriculture and its growing dependence on other industries for the goods and services used in production are reflected in the steady rise in farmers' total operating expenses and the change in the relative importance of items contributing to these expenses. At the present time farm operating expenses are twice what they were at the end of World War II. Relative to total expenditures over the years, farmers' expenditures for hired farm labour have declined, while those for such things as fertilizers and the operation of power machinery, especially tractors, have increased.

Although farmers' outlays for the operation of their farms account for an increasingly large share of gross farm income, the high level of cash receipts in 1962 helped to maintain both realized and net farm income for that year at a level which compares favourably with the high average net returns realized during the early fifties. Although prices paid by farmers for commodities and services used in production and for family living have risen during the

past decade, this has been offset to quite an extent by a substantial decline in the total number of farmers between 1951 and 1961.

Apart from income realized from farming operations, many farmers have supplementary sources of income. In 1958 it was found that farm operators received \$470,000,000 from off-farm sources, more than a third as much as the estimated total net farm income of \$1,337,600,000.

Cash Income from Farming Operations, by Province, 1960-62

Province	1960	P.C. of Total	1961	P.C. of Total	1962	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	29,159	1.1	23,857	.8	25,005	.8
Nova Scotia.....	43,004	1.6	45,095	1.5	45,435	1.4
New Brunswick.....	50,032	1.8	42,227	1.4	42,986	1.4
Quebec.....	411,105	14.8	437,608	14.8	456,921	14.5
Ontario.....	869,285	31.3	890,065	30.1	931,168	29.6
Manitoba.....	223,308	8.0	243,599	8.3	255,133	8.1
Saskatchewan.....	550,375	19.8	600,212	20.3	684,725	21.7
Alberta.....	473,257	17.0	534,084	18.1	556,927	17.7
British Columbia.....	127,198	4.6	137,204	4.7	151,087	4.8
Totals.....	2,776,723	100.0	2,953,951	100.0	3,149,387	100.0

Field Crops

Some 80,400,000 acres of improved land—four fifths of all the improved land in Canada—lie within the Prairie Provinces of Manitoba, Saskatchewan and Alberta and it is from this region that a vast outflow of grains and oil-seeds originates. A large part of the harvest is surplus to Prairie requirements and is used, not only in other parts of Canada, but also for export.

The commodity produced in greatest abundance is wheat and, due to the combined influence of climatic conditions, plant breeding programs and a most efficient grading system, Canadian high-protein wheat rates special significance in the milling industry throughout the world.

However, the semi-arid conditions of the Prairie region which make it possible to produce high-quality grains does have drawbacks and these are reflected in the marked year-to-year changes in output. For example, drought was a serious factor in 1961 when only 260,000,000 bushels of wheat were produced. This was followed by more normal growing conditions in 1962 and production, at 538,000,000 bushels, was more than double that of the previous year. In 1963, growing conditions were exceptionally favourable and output set a new production record of nearly 700,000,000 bushels. Such vast changes in production put a severe strain on the grain handling and marketing facilities as well as farm incomes. Thus, much of the farm legislation pertaining to Western Canada is designed to alleviate the most serious consequences of such marked instability in output.

In addition to the instability caused by climatic conditions, which are largely beyond the control of farmers, significant changes occur in the pattern of land use as producers attempt to adjust operations in response to market conditions. Thus, wheat acreage which totalled 26,500,000 acres in 1949 declined gradually to a low of 20,900,000 in 1957 and has since risen steadily

to 27,000,000 acres in 1963. In some cases year-to-year changes in acreages and yield combine to produce dramatic shifts in output.

For example, the acreage seeded to Durum wheat more than doubled between 1960 and 1961 but the average yield per acre was less than half that of the preceding year because of drought and, as a result, output declined. In 1962 with the acreage almost doubled again, the average yield was more than double and production shot upwards from 14,500,000 bushels in 1961 to a record of 61,200,000 bushels.

In other parts of Canada, field crop output tends to be tied more closely to the livestock economy with considerably more emphasis on hay, pasture and feed grains. However, feed grain production is usually insufficient to meet feeding requirements and considerable quantities are moved from the Prairie Provinces each season to help meet these needs.

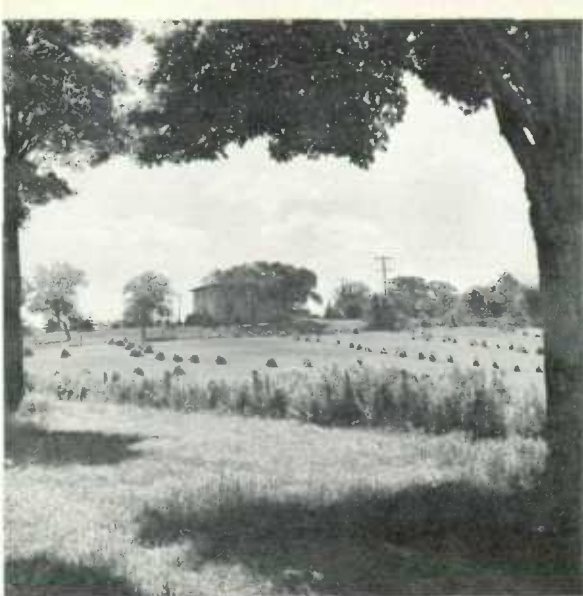
Prince Edward Island and New Brunswick devote a considerable proportion of their improved land to potatoes and produce this commodity much in excess of home requirements, shipping the surplus to other provinces in Eastern Canada and, depending on market conditions, to the United States and other countries.

Oilseed crops, which years ago were mainly confined to flaxseed, expanded to form a significant proportion of the field crops output. Rapeseed, a crop born of wartime necessity, struggled through a number of difficult years following the war, but has since become firmly established as a valuable cash crop in northerly regions in the Prairie Provinces. Canada is now the principal world exporter of this commodity and the Winnipeg Grain Exchange is the only organization of its kind in the world to provide hedging and futures trading facilities for this crop. Sunflowers were introduced as a cash crop in World War II but, unlike rapeseed, production has remained relatively small. Mustard seed acreage has also expanded in recent years. This crop, which for a number of years was confined to Southern Alberta, has spread to both Saskatchewan and Manitoba. Soybean growing is confined chiefly to Ontario. Acreage sown to this crop increased rapidly during and after World War II but has been quite stable for the past decade.

Although there are some 19 field crops for which annual estimates are made and which are produced over an extremely variable range of climatic, soil and farm organization conditions, wheat remains the major cash crop in Canada.



Spring seeding in Saskatchewan.



A typical harvest scene in eastern Canada.

Canada's 1962-63 crop year exports of the five principal grains plus wheat flour in terms of grain totalled 383,600,000 bushels compared with the 1961-62 total of 414,000,000 and the ten-year average of 427,700,000. The 1962-63 shipments consisted of 304,500,000 bushels of wheat, 27,600,000 of wheat flour, in terms of wheat, 21,100,000 of oats, 10,500,000 of barley, 7,300,000 of rye and 12,600,000 bushels of flaxseed. Clearances of bulk wheat (excluding bagged

seed) in 1962-63 represented a decrease of about 23,000,000 bushels from those of 1961-62. Exports of oats and rye increased sharply over the previous year, those of flaxseed showed a slight increase while shipments of barley were considerably lower.

Shipments of Canadian wheat to Britain, at 77,500,000 bushels, were 3,800,000 above the previous year and marked the first time since 1957-58 that wheat exports to this market recorded an increase. The British market accounted for 26 p.c. of the total wheat clearances in 1962-63 compared with 23 p.c. in 1961-62.

Other countries which imported Canadian wheat in 1962-63 were as follows, in millions of bushels with 1961-62 figures in brackets: Communist China, 56.4 (72.0); Japan, 44.1 (48.0); Federal Republic of Germany, 28.0 (43.9); Poland, 14.2 (12.3); Belgium and Luxembourg, 10.0 (11.5); Republic of South Africa, 7.9 (0.5); France, 6.9 (1.0); Philippines, 6.7 (3.9); Venezuela, 6.7 (4.7); Italy, 4.9 (3.9); Netherlands, 4.8 (3.6); Ireland, 3.5 (2.3); and Switzerland, 2.9 (8.0). In addition, Czechoslovakia and Yugoslavia were customers for Canadian wheat in 1962-63, with imports of 4,400,000 and 3,900,000 bushels, respectively. These 16 markets accounted for 95 p.c. of the 1962-63 overseas clearances of wheat.

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



Combines unloading grain on a prairie farm.

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 steady the flow of farm income and spread it throughout the year.

The initial payment set by the Wheat Board in the 1961-62 crop year was again \$1.40 per bushel basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. On August 24, 1961 the Wheat Board announced that initial payments for all grades of wheat, oats and barley would remain at the same levels as during the previous crop year except for all grades of Canada Western Amber Durums. Initial payments for these grades were increased by 35 cents per bushel to assist in meeting the abnormal positions which prevailed in respect to supplies of Amber Durum. The higher initial payments for 1961-62 for all grades of Amber Durum were intended to encourage producers to deliver these grades at the earliest possible date. On February 23, 1962, the Canadian Wheat Board announced that, effective March 1, 1962, the initial payment prices for wheat delivered to the Board in the 1961-62 crop year would be increased by 75 cents per bushel for Durums (in addition to the 35 cent increase announced August 24, 1961) and 10 cents per bushel on all other grades of wheat. An adjustment payment was made to producers at these same rates, in respect of deliveries during the period August 1, 1961 to February 28, 1962.

An interim payment on the 1961-62 wheat pool account was announced on December 6, 1962, and this interim payment was, at the same time, a final payment on the 1961-62 deliveries of Durum grades only. Although the Canadian Wheat Board Act does not make provisions for separate final payments for Durum wheat and other spring wheat, the act does provide for interim payments to be made when these can be made without a loss. Prior to deducting the Prairie Farm Assistance Act levy the total payment for No. 1 C.W. Amber Durum totalled \$3.14 per bushel.

The final payment on the 1961-62 pool account for wheat was announced on March 22, 1963 and amounted to some \$123,900,000. After deducting the PFAA levy the average final payment to producers amounted to a record 42.9 cents per bushel. The total payment for No. 1 Northern basis in store Fort William-Port Arthur or Vancouver but prior to deduction of the PFAA levy, amounted to \$1.91 per bushel.

Estimated Area, Yield and Production of Principal Field Crops, 1962 and 1963

Crop	Area		Yield per Acre		Production	
	1962	1963	1962	1963 ¹	1962	1963 ¹
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	26,816,900	27,566,200	21.1	26.1	565,554,000	719,146,000
Winter wheat.....	450,000	442,000	35.1	41.6	15,795,000	18,387,000
Spring wheat ²	26,366,900	27,124,200	20.9	25.8	549,759,000	700,759,000
Oats for grain.....	10,591,100	9,487,800	46.6	47.2	493,610,000	447,639,000
Barley.....	5,287,100	6,160,100	31.4	35.0	165,888,000	215,876,000
All rye.....	624,500	651,600	19.3	20.0	12,044,000	13,033,000
Fall rye.....	527,200	552,800	20.5	20.3	10,784,000	11,203,000
Spring rye.....	97,300	98,800	12.9	18.5	1,260,000	1,830,000
Flaxseed.....	1,445,000	1,685,400	11.1	11.7	16,042,000	19,778,000
Mixed grains.....	1,521,600	1,411,300	47.4	48.4	72,186,000	68,291,000
Corn for grain.....	421,300	500,500	76.0	64.8	32,025,000	32,420,000
Buckwheat.....	45,300	46,500	24.8	23.1	1,122,000	1,073,000
Peas, dry.....	49,800	49,200	16.6	18.8	827,000	925,000
Beans, dry.....	65,400	67,100	21.8	21.8	1,423,000	1,461,000
Soybeans.....	221,000	228,000	29.9	26.5	6,608,000	6,042,000
Potatoes.....	288,100	285,400	cwt. 163.0	cwt. 155.1	46,971,000	44,258,000
Rapeseed.....	371,200	483,500	lb. 789	lb. 929	293,000,000	449,000,000
Sunflower seed.....	23,000	38,000	755	860	17,360,000	32,688,000
Tame hay.....	12,370,000	12,288,000	tons 1.82	tons 1.84	22,536,000	22,568,000
Fodder corn.....	367,200	396,700	12.01	11.58	4,409,000	4,595,000
Field roots.....	26,400	26,100	10.68	10.69	282,000	279,000
Sugar beets.....	84,677	95,493	13.06	12.58	1,105,704	1,201,376

¹ As indicated on the basis of conditions on or about September 15, 1963.

² Includes relatively small quantities of winter wheat in all provinces except Ontario.

Fruits and Vegetables

The processing industry plays an important part in the marketing of Canadian-grown fruits and vegetables. 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.

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 on a large scale in the southern part of the Okanagan Valley in British Columbia.

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.

The total farm value of fruit crops in Canada in recent years reached almost \$54,000,000. In the districts where these fruit crops are produced, sales make up an important part of the agricultural income. The 1963 apple crop, estimated at 19,394,000 bushels, was about 2 p.c. greater than that of 1962. The 1963 crops of plums and prunes, peaches, sour cherries, raspberries and loganberries were also above those of 1962. Growers of the other fruits, however, picked smaller crops in 1963 than in 1962.

Vegetables. About 215,000 acres are planted to commercial vegetable crops in Canada and the farm value of production amounts to about \$60,000,000 annually. The principal canning crops—beans, corn, peas and tomatoes—totalled 130,020 acres in 1963 compared with the previous year's 134,360 acres.

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.

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.



Farm Values of Vegetables Produced, 1958-62

Vegetables	1958	1959	1960	1961	1962
	\$'000	\$'000	\$'000	\$'000	\$'000
Asparagus.....	1,412	1,349	1,297	1,321	1,389
Beans.....	2,815	1,886	2,066	2,873	3,118
Beets.....	1,122	1,278	1,092	1,153	1,293
Cabbage.....	3,403	2,508	2,517	2,620	2,478
Carrots.....	5,333	5,489	6,227	5,816	7,332
Cauliflower.....	1,435	1,330	1,560	1,340	1,666
Celery.....	1,563	1,223	1,119	1,103	1,266
Corn.....	5,659	5,693	5,704	6,503	6,871
Cucumbers.....	600	2,128	2,271	2,616	2,117
Lettuce.....	3,509	2,943	2,640	2,171	2,653
Onions.....	3,784	3,630	3,900	5,739	6,254
Parsnips.....	427	418	447	476	490
Peas.....	4,481	4,224	4,649	5,222	5,806
Spinach.....	579	722	635	523	488
Tomatoes.....	18,480	16,416	18,803	17,943	19,271
Turnips.....	—	2,999	2,981	2,813	2,943
Totals.....	54,602	54,236	57,908	60,232	65,435

Livestock

In 1961 cattle were reported on 78 p.c. of farms; pigs on 46 p.c.; and sheep on 8 p.c. The sale of cattle, hogs and sheep accounted for 33 p.c. of the cash income from farming operations in 1962. Livestock and dairy enterprises together yielded 50 p.c. of the farm cash income.

The number of cattle increased from 8,400,000 head in 1951 to 12,300,000 in 1963. All of this increase was in cattle raised for beef and most of the

A cattle ranch in British Columbia.



increase took place in the Prairie Provinces. Increasing emphasis on beef production, however, has been common to all regions. A considerable number of western cattle and calves are normally shipped to Ontario to be finished there for eastern markets. Feedlot operations throughout the prairie region have expanded rapidly in recent years. Exports of live cattle and beef are principally to the United States. Feeder cattle and calves are the bulk of this export trade but a fairly steady quantity of dairy cattle move to milkshed areas of the eastern United States. There is also a growing international demand for Canadian bloodlines of both beef and dairy breeds.

Hog raising is common to most farming areas of Canada but is most heavily concentrated in Ontario, Alberta and Quebec. Cyclical fluctuations in production are most marked in Saskatchewan and Manitoba. The estimated annual production of hogs has varied during the past decade from a low of 6,170,000 head in 1954 to a peak of 9,887,000 in 1959. The bacon, or meat-type, breeds of hogs predominate rather than those high in lard yield, and to stimulate careful breeding and selection for carcass improvement a quality premium of \$3 is paid to the producer for each Grade A hog marketed. The principal export market for pork, as for cattle and beef, is the United States and prevailing prices in Canada are generally very closely related to the structure of prices there.

The experience of many Canadian farmers and ranchers demonstrates that the income derived from wool and lamb crops makes sheep raising favourably competitive with other livestock production, yet sheep production continues to decline and imports of mutton and lamb in 1962 exceeded the national production of these meats. Carcass grading of lambs has recently been more extensively adopted and premiums are paid to the producer for each carcass that meets the defined standards. A policy of deficiency payments on wool is also in effect to stimulate quality production.

Estimated Meat Production and Consumption, 1961 and 1962

Item		1961	1962 ¹	1961	1962 ¹
		BEEF		VEAL	
Animals slaughtered.....	No.	2,510,900	2,503,600	1,048,800	990,100
Animals exported.....	"	474,319	455,686	28,820	36,559
Meat production ²	'000 lb.	1,302,641	1,306,878	123,754	121,486
Total domestic disappearance.....	"	1,271,296	1,297,605	123,751	120,146
Per capita consumption.....	lb.	69.7	69.9	6.8	6.5
		PORK		MUTTON AND LAMB	
Animals slaughtered.....	No.	7,522,100	7,648,200	816,700	764,600
Animals exported.....	"	27,611	4,617	2,529	25,656
Meat production ²	'000 lb.	966,595	978,211	35,116	32,648
Total domestic disappearance.....	"	910,296	925,752	65,075	71,335
Per capita consumption.....	lb.	49.9	49.9	3.6	3.8
		OFFAL		CANNED MEAT	
Production.....	'000 lb.	95,390	95,501	84,928	88,643
Total domestic disappearance.....	"	81,747	78,109	99,108	97,860
Per capita consumption.....	lb.	4.5	4.2	5.4	5.3

¹ Preliminary.

² 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 the total milk production. In 1962 there were 2,956,000 milk cows on farms compared to 3,006,000 in 1952, excluding Newfoundland. While the national dairy herd was about the same as a decade ago, increasing specialization in milk production has occurred. The number of farmers reporting milk cows decreased from 455,000 to 309,000 between 1951 and 1961, but farm output of milk increased about 26 p.c. from 15,300,000,000 pounds in 1952 to 19,300,000,000 pounds in 1962. Selection, breeding and management practices have resulted in an average annual increase of over 2 p.c. per year in milk production per cow during this period. The principal dairy breeds are Holstein, Guernsey, Jersey and Ayrshire, but a considerable amount of total production is attributable to dual-purpose types.

Canadian farmers are selling a larger part of their total milk supply than a decade ago. As a result of this, commercial milk deliveries rose even faster than the total output of milk. Ten years ago, almost 15 p.c. of the total milk supply was retained on farms compared with 10 p.c. in 1962. Milk delivered for the fluid milk market and manufacturing amounted to 17,300,000,000 pounds in 1962, 32 p.c. greater than similar sales in 1952.

Creamery butter, cheddar cheese, evaporated milk and skim milk powder are the leading dairy products manufactured in Canada. Most of the

A model dairy farm in the Eastern Townships of Quebec.



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, evaporated milk, whole and skim milk powder, and casein, while imports consist entirely of special varieties of cheese.

Per capita consumption of milk and its products in whole milk equivalent was approximately 1,000 pounds per year from 1949 to 1957. It declined to 921 pounds in 1961 before moving up to 958 pounds in 1962. This upward movement was due to increased creamery butter consumption in response to a consumer subsidy, effective from May 1, 1962.

The total farm value of milk produced in 1962 was estimated at \$622,000,000. Of this amount, \$539,000,000—17 p.c. of total farm cash income from farming operations—was derived from the sale of milk, cream and farm butter.

Dairy Production, by Economic Area, 1960, 1961 and 1962

Economic Area and Year	Total Milk Production ¹	Milk Used in Fluid Sales ¹	Products Manufactured ²			
			Butter		Cheddar Cheese	Ice Cream Mix
			Creamery ¹	Farm ¹		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....	1960 1,063,598	378,953	16,088	1,468	1,733	1,542
	1961 1,086,634	385,407	17,305	1,460	1,438	1,555
	1962 1,066,614	393,319	16,681	1,080	1,394	1,598
Que. and Ont.....	1960 12,443,469	3,871,191	209,127	1,658	105,131	12,699
	1961 13,047,494	3,915,640	234,366	1,285	113,945	13,144
	1962 13,241,599	4,020,040	245,813	1,123	111,882	13,367
Prairies.....	1960 4,100,469	1,025,976	90,128	5,985	2,539	4,064
	1961 4,193,836	1,033,340	94,582	5,179	2,361	4,361
	1962 4,082,448	1,048,787	91,789	4,298	2,303	4,426
B.C.....	1960 877,887	475,261	5,060	416	969	2,175
	1961 917,302	479,500	5,880	360	1,168	2,361
	1962 912,116	487,494	7,215	250	979	2,398
Totals.....	1960 18,485,423	5,751,381	320,403	9,527	110,372	20,480
	1961 19,245,266	5,813,887	352,133	8,284	118,912	21,421
	1962 19,302,777	5,949,640	361,498	6,751	116,558	21,789

¹ Preliminary.

² Not included in this table are: whey butter, with a production of 2,965,000 pounds in 1960, 3,869,000 pounds in 1961 and 3,952,000 pounds in 1962; other cheese with 12,373,000 pounds, 12,496,000 pounds and 13,620,000 pounds, respectively; and concentrated milk products with 614,223,000 pounds, 663,049,000 pounds and 623,667,000 pounds, respectively.

Poultry and Eggs

The rapid application of technological advancements in breeding, feeding and housing practices has made poultry products very competitive with other foods for the consumers' dollar and has brought about intense competition within the industry itself. General farms have tended to lose interest in poultry but the more specialized operators have been spurred to greater production in order to maintain income. The proportion of farms keeping chickens declined from 69 p.c. to 55 p.c. between 1951 and 1961, but output of fowl and chicken meat almost doubled, egg production rose by almost 50 p.c. and turkey meat production was almost quadrupled. Specialization has been most marked in the production of broiler weight chicken and turkeys.



The production of broilers has become a highly automated big business and more people are eating poultry each year. Per capita consumption has risen from less than 20 lbs. in 1945 to over 31 in 1962.

The effect of climate has been largely eliminated. While production before specialization was characterized by wide seasonal fluctuation, there is now a reasonably steady supply of fresh eggs and poultry on the market in all seasons. The development of broiler and egg production has been especially accentuated near the large consumer outlets such as Toronto, Montreal, Winnipeg and Vancouver, and in districts such as the Annapolis Valley of Nova Scotia, the Moncton area in New Brunswick and southwestern Ontario.

Eggs and poultry are marketed under rigid grade standards uniformly applied from coast to coast. The Canadian consumer has every confidence in the story the grade mark tells and the Federal Government inspection service lends confidence to inter-provincial and export trading of Canadian poultry products.

Summary of Supply, Distribution and Consumption of Poultry Meat and Eggs in Canada, 1962

(Poultry meats on eviscerated weight basis)

Item	Total Meat	Fowl and Chicken	Turkey	Goose	Duck	Eggs
	'000 lb.	'000 lb.				'000 doz.
Stocks at Jan. 1.....	42,001	21,251	20,122	107	521	3,750
Production ¹	565,978	411,513	147,155	2,931	4,379	434,200
Imports.....	8,595	4,874	2,556	—	1,165	3,736
Total Supply.....	616,574	437,638	169,833	3,038	6,065	441,686
Exports.....	1,879	1,768	18	93	—	1,536
Stocks at Dec. 31.....	37,169	9,971	26,678	215	305	4,950
Domestic disappearance.....	577,526	425,899	143,137	2,730	5,760	435,200
Less used for hatching.....	—	—	—	—	—	16,504
Domestic consumption.....	577,526	425,899	143,137	2,730	5,760	418,696
Per capita consumption.....	31.0 lb.	22.9 lb.	7.7 lb.	0.1 lb.	0.3 lb.	22.5 doz.

¹ Production estimates do not include Newfoundland.

Furs

The early history of Canada was closely associated with the fur trade which strongly influenced exploration and settlement. While the value of wildlife pelts is still important to the economy, especially of more northerly and sparsely settled areas, it has been surpassed by the value of pelts taken from animals raised in captivity. Fur farming developed in Prince Edward Island and spread to other provinces in the late 1800's. It was based principally on the production of fox pelts, particularly the silver fox. At its peak in 1939 the output of fox pelts from over 7,000 farms reached almost 250,000 with a value of nearly \$4,000,000. In the meantime mink production on farms had been developing and by 1940 the value of mink pelts from some 3,300 farms exceeded \$2,000,000. The number of fox pelts produced declined rapidly during the postwar period and since 1957 has averaged less than 2,000 pelts per year with few farms continuing in production. Mink pelt production has, on the other hand, been growing quite steadily with increasing specialization. Fewer farms, only 1,578, produced over \$18,000,000 worth of mink pelts in 1961.

While mink has accounted for about 99 p.c. of the value of fur farm pelts in recent years, chinchilla raising is increasing and there is local interest in nutria production in some provinces. Other animals, such as fisher, marten, lynx and raccoon have been raised successfully on some fur farms, but the quantity of such pelts produced is very small.

Fur farms pay a nominal licence fee in most provinces and operate under supervision of provincial government departments. Research on breeding, feeding, housing and general care of fur-farm animals is conducted at a federal Experimental Farm at Summerside, P.E.I.

Number and Value of Pelts Produced, by Kind, 1961-62

Kind	Number	Value	Average Value
		\$	\$
Wildlife:			
Squirrel.....	1,869,940	681,969	0.36
Muskrat.....	1,524,363	1,334,229	0.88
Beaver.....	386,823	4,249,632	10.99
Ermine (weasel).....	148,714	135,288	11.91
Rabbit.....	192,991	121,459	0.63
Mink.....	147,011	1,992,629	13.55
Fox—White.....	45,358	534,907	11.79
Other.....	16,075	56,339	3.50
Lynx.....	47,625	448,052	9.41
Marten.....	36,102	201,809	5.59
Raccoon.....	23,534	47,363	2.01
Other (badger, bear, coyote, fisher, otter, skunk, wildcat, wolf, wolverine).....	35,877	554,665	...
Totals, Wildlife.....	4,474,413	10,358,341	...
Ranch-raised:			
Chinchilla.....	10,559	148,617	14.07
Fox.....	1,815	18,150	10.00 ¹
Mink.....	1,269,050	18,405,102	14.50
Nutria.....	3,896	7,792	2.00 ¹
Totals, Ranch-raised.....	1,285,320	18,579,661	...
Grand Totals.....	5,759,733	28,938,002	...

¹ Estimated. ... Not applicable.

Nutria, or South American beaver, were first introduced into Canada in the early 1920's, from Germany and South America, and are ranch-bred.



Government and Agriculture

The Federal Government in 1963 accelerated implementation of the Agricultural Rehabilitation and Development Act under agreements reached with all provinces the previous year.

The ARDA program is designed, through self-help by the communities involved and supported by federal-provincial financing, to improve living standards and develop income and employment opportunities in rural areas. ARDA aims are three: making the best use of rural resources; conservation and efficient development of soil and water resources; and diversified economic growth.

By the fall of 1963, ARDA projects estimated at about \$8,000,000 had been launched in all 10 provinces and many other projects were in the planning stage. Considerably more than half of the 205 federal-provincial projects involved conservation and land-use work. The balance comprised studies of regional problems and the economic status of communities and their needs.

A nation-wide inventory of land resources was also begun in conjunction with the provincial governments, each of which maintains a Department of Agriculture, to discover and assemble more information on the capabilities of different soil types for such uses as agriculture, forestry, recreation and wildlife production.

ARDA is only one of several policies of assistance to agriculture.

The Prairie Farm Rehabilitation Administration carries out large and small works of irrigation and water conservation in the settled areas of the three prairie provinces.

Some 1,500,000 acres are under irrigation in Alberta and Saskatchewan and 2,000,000 acres of community pasture have been built up in Saskatchewan and Manitoba. PFRA has converted part of the delta of the Saskatchewan River into farm land and has also brought water to orchardists in the interior of British Columbia. Since 1958 it has been supervising the construction of Canada's largest earth-fill dam in Saskatchewan and for nearly 30 years has been responsible for building many livestock and community water storages each year.

Among federal measures benefiting the Western grain farmer are the Prairie Farm Assistance Act (which compensates for the loss of crops through natural causes); the Canada Grain Act (grading and storing); Canadian Wheat



Inspection of meat passing over national or provincial borders is the responsibility of the federal Department of Agriculture; within a province it is the responsibility of the provincial or municipal authorities.

Board Act (orderly marketing); and financial assistance based on farm-stored grain and grain which could not be threshed before winter.

Under the Maritime Marshlands Rehabilitation Act a considerable acreage of pasture and farm land has been reclaimed along the Bay of Fundy. This has involved the construction of extensive and permanent drainage systems, new roads, bridges and dams, some work on which is still under way.

The Farm Credit Corporation, through authority of the Farm Credit Act, has lent more than \$250,000,000 in recent years to put farms on a more efficient operating basis. Farm improvement loans offered by chartered banks and guaranteed by the Federal Government provide a supplementary and widely popular service.

The Crop Insurance Act, passed a few years ago to enable the Federal Government to assist provincial crop insurance schemes, has proved beneficial to thousands of producers of different kinds of crop.

One of the most important bulwarks against instability of farm income is the Agricultural Stabilization Act which ensures price support at all times to major farm products and, as the need arises, to lesser crops. This act is administered by a board with powers to offer several types of support.

Within the Canada Department of Agriculture separate divisions for livestock, poultry, fruit and vegetables, dairy products, plant products and plant protection are responsible for administering acts and regulations concerned with inspection, grading and other controls with the objectives of maintaining high standards of quality in farm products. In addition, a consumer section promotes the use of farm products through experimental work carried on by home economists, and a transportation and storage section concerns itself with problems relating to the movement and storage of agricultural produce. Premiums are paid on top grades of some products and subsidies have been paid for public cold storage, for improvement of cheese factories, for transportation of some products, and to fairs and exhibitions which encourage competition. Record of Performance programs, the National Poultry Breeding Program and the seed certification programs are maintained to stimulate and assist good breeding practices.

The Health of Animals Branch has been successful in suppressing large outbreaks of hog cholera, has eliminated bovine tuberculosis from the national herd and is more than halfway through a program to eradicate brucellosis.

The Department carries on research in some 50 institutions in the 10 provinces, in addition to testing at a score of substations extending into the Yukon and Northwest Territories.

Major subjects covered include the breeding, nutrition and management of livestock; disease control in plants and breeding of superior varieties adapted to Canadian climatic conditions; processing and storage of fruit and vegetables, dairy products and other foods; new preparations of foods; and control of pests, weeds and diseases.

Under continuous study are shelterbelt trees, the reclamation of marshes and peat bogs, dryland and irrigation farming, the growing of special crops and solution of regional problems. Better varieties and breeds and superior management practices developed at the department's laboratories and experimental farms have contributed to improved commercial production.

The Department operates an information service to give publicity to agricultural news and research findings of value to the farmer. It carries on economic and markets research to the same end.

On the international scene, Canada continues to play an active role as a leading producer of food. The amount of \$5,000,000 in cash and kind was pledged by Canada in 1962 to the World Food Program, which has since assisted in four emergency and destitution cases—in Iran, Thailand, Algeria and Tanganyika.

Canada has served on the Council of the Food and Agriculture Organization (United Nations) since its inception. More than 100 Canadians have served as technical assistants in many countries under FAO in the fields of agriculture, fisheries, nutrition, home economics and economics. This country contributed \$600,000 to FAO in 1962 and again in 1963.

Canada is a member of the Agricultural Committee of the Organization for Economic and Co-operative Development, and has taken part in many of the projects studying agriculture in member nations.

Canada is also a member of the International Wheat Agreement and of the General Agreement on Tariffs and Trade.



Trumpeter swans in courtship display at the Delta Waterfowl Research Station in Delta, Manitoba.



Pauring slag at night at International Nickel's operations at Copper Cliff, Ontario. Slag trains, powered with two electric locomotives, run approximately every half hour and consist of 18 slag cars carrying 16-ton-capacity slag pots. Molten slag is dumped by rotating the pots on each slag car.

Mining

Very few Canadian industries have as long a history as the mining industry with its record of mineral exploration dating from the days of the earliest explorers. The fact that in 1900 the value of mineral production had only reached \$64,000,000 does not detract from the significance of the industry's four centuries of history. Furthermore, the annual production total even to the end of World War II never reached \$600,000,000; yet all of the historic events to that time laid a foundation for the spectacular rise in production in the postwar period to almost \$3,000,000,000 in 1963.

There are several references to mineral resources in 16th century Canadian history, starting with the records of Jacques Cartier's expedition up the St. Lawrence River in 1536, when Indians reported finds of gold, silver and copper. In 1576, Martin Frobisher, who has been called Canada's first prospector, returned to England from a search for the Northwest Passage and reported a gold discovery on Baffin Island. He obtained royal support for two later expeditions and in 1577 and 1578 took back to England hundreds of tons of rock thinking it to be gold ore. Analyses proved it to be worthless but this was not the first nor the last time that inexperienced gold seekers have been disappointed. During the long interval since this event in the great Elizabethan period of voyage and discovery, there has been little interest in mineral possibilities on Baffin Island but now considerable attention is being given to iron occurrences on the Island.

In the 17th century, the first event of interest concerned a mining engineer who accompanied Champlain in 1604 and reported a silver discovery on

St. Mary's Bay in Nova Scotia and a copper discovery on the shores of the Bay of Chaleur in Gaspé not far from the present large Gaspé Copper Mines' operation at Murdochville. Coal was first reported on Cape Breton Island in 1672 by Nicholas Denys who had obtained a gold, silver and copper mining concession in Nova Scotia from Louis XIV in 1654. The first examination of bog iron deposits at Baie St. Paul and in the St. Maurice Valley, Quebec, was made by Sieur de la Portardière who came from France in 1667. This led to the country's first smelting of iron ores in the St. Maurice River valley by La Compagnie des Forges in 1737; the famous St. Maurice forges operated there until the 1880's. These and other early Quebec iron producing operations were of great importance to the settlers in providing metal for household utensils, ploughshares and cannon balls.

In the 18th century, mineral discoveries included silver-lead occurrences on the shores of Lake Timiskaming which were noted on a map published in 1744, and native copper on the north shore of Lake Superior in 1770. Nova Scotia's gypsum deposits were mined for export as early as 1779 with the product finding a good market as a fertilizer in eastern United States agricultural areas. Coal was mined in Cape Breton Island as early as 1711; there were coal exports to Boston in 1724, and by 1784 coal mining had commenced at Sydney Harbour, Nova Scotia.

As settlement spread westward, iron deposits were found in Upper Canada early in the 19th century and the first iron furnace was erected in 1800 in Leeds County. A number of industrial mineral deposits were worked, one of the earliest being gypsum near Paris in 1822. Industrial mineral materials were mined at a number of localities throughout the colonies for local construction purposes and, although there is no record of quantities used, various types of building stone as well as clays, sand and gravel began to have widespread use. The first Portland cement made in Canada was produced in 1840 at Hull, Quebec.

The most important event in the 19th century relating directly to the mineral industry was the establishment of the Geological Survey of Canada in 1842. From that time forward, a systematic examination of Canada's

In northern Ontario in 1910, scenes like this were common as prospectors and mine developers moved into the hardrock gold country in search of wealth. A few made strikes and names like Larder Lake, Kirkland Lake and Porcupine became famous.





At this location on the St. Maurice River a few miles above Three Rivers, Quebec, the first iron in Canada was smelted from local ore, limestone and charcoal made from hardwood. The original furnace was built about 1736 and iron was produced intermittently until 1883.

rock formations and its mineral wealth has proceeded and the work of the Geological Survey, which has a worldwide reputation, continues to make a vital contribution to the development of Canada's natural resources. Early work of the Geological Survey led to the firm establishment of the Nova Scotia coal industry. Its geological reports also created interest in copper mining in the Eastern Townships of Quebec, leading to the opening of the Eustis mine in 1865 which operated continuously for almost 75 years.

Petroleum was first recovered in North America as a result of drilling operations at Oil Springs in southwestern Ontario in 1858. Ontario remained the only oil and gas producing province until 1910 when a discovery was made near Moncton, New Brunswick. Important salt deposits were discovered near Goderich, Ontario, in 1866 during oil drilling operations.

On the Pacific coast there was interest in coal mining as early as 1835 but it was the discovery of gold in the gravels of the lower reaches of the Fraser River in 1858, following several earlier gold discoveries, which attracted widespread interest to the region. Miners moved north to Canada in large numbers as the California gold strike of 1849 faded and they began to work their way up the Fraser and Thompson Rivers, then into the rich Cariboo district and to the Yukon River where gold was discovered in 1869. In 1896 the famous Klondike discovery was made and thousands flocked to the Yukon. Although mining activity associated with these placer gold discoveries was short-lived, it initiated settlement and economic development of British Columbia which, in turn, led to the province's entry into Confederation and the subsequent transcontinental railway-building program to the Pacific coast.

Canada's first gold discovery in the Canadian Shield was made at Madoc, Ontario, in 1868 and there was gold mining elsewhere in eastern Canada but gold was not the only mineral of prominence during the second half of the 19th century. Silver was discovered on Silver Islet in Lake Superior in 1868 and a mine was worked there until 1884. Apatite and mica were mined in



Silver Islet, a tiny island in Lake Superior, originally between 80 and 90 feet in diameter and only about 8 feet above lake level, was Canada's first major source of silver. Between 1868 and 1884, some 3,000,000 troy ounces were recovered in the plant shown in the drawing.

a number of localities throughout southern Ontario. Brick and tile plants, based on the extensive clay deposits near Toronto, were also established. Asbestos was first mined in the Eastern Townships of Quebec in 1878 following discoveries during the building of the Quebec Central Railway. The industry there has since become the world's largest source of asbestos. The gold boom in central British Columbia had died out by the early 1870's but base metal discoveries in the southeastern part of the province in the 1880's led to a new mining boom in the 1890's. The famous Rossland gold-copper district went into production at that time as did the silver-lead-zinc deposits in the Slocan district and, at Kimberley, one of the world's greatest lead-zinc producers. By 1900 there was a thriving mining industry in southern British Columbia. In 1883 the Sudbury, Ontario, nickel-copper deposits were discovered during the construction of the Canadian Pacific Railway. Metallurgical research, resulting by 1892 in methods for the separation of nickel and copper and by 1899 in improved steel manufacture through the addition of nickel, led to the mining of Sudbury ores on a large scale. Since that time well over three quarters of the world's nickel has come from the Sudbury basin.

At the turn of the present century, interest was directed to northern Ontario and Quebec with the discovery in 1903 of the rich silver deposits of the Cobalt area during construction of the Temiskaming and Northern Ontario Railway. Subsequently, prospectors moved north and east to discover silver at Elk Lake and gold at Larder Lake in 1906, silver at Gowganda in 1907, and gold in the Porcupine district in 1908. Some of Canada's greatest gold mines—the Hollinger, McIntyre and Dome all in the Porcupine area—were started in 1909 and the Kirkland Lake gold camp in 1911.

As the mineral industry record of the 20th century unfolded, many important discoveries were made throughout the country. These discoveries eventually established names which now have a permanent place in Canadian mineral industry history, including the following: the Britannia copper



Aerial view of the Giant Mines, located near Yellowknife in the Northwest Territories.

deposit near Vancouver, B.C., discovered in 1898 with first production in 1904; the Premier silver mine in northern B.C., discovered in 1910; the Turner Valley oil and gas field in Alberta, 1913; the Flin Flon copper-zinc area in northern Manitoba, 1915; the Yukon silver-lead ores in the Mayo district, 1919; the first oil well in Canada's most northern oil field at Fort Norman, N.W.T., 1920; the Noranda copper deposits in northwestern Quebec, 1921; the Sherritt Gordon copper-zinc deposit in northwestern Manitoba, 1923; the Red Lake gold mining district in northwestern Ontario, 1925; the silver-radium deposit on the shores of Great Bear Lake, N.W.T., 1930; and the Steep Rock iron ore deposit in northwestern Ontario, 1938. Low metal prices in the early 1930's retarded base metal mine development but the increase in the price of gold to \$35 (U.S.) in 1934 resulted in an increase in the number of gold mines from 15 to over 100 during the 1930's.

World War II gave an impetus to base metal production. Smelter and refining facilities at Sudbury, Falconbridge, Noranda, Montreal East, Trail and Flin Flon were expanded to meet the enlarged requirements of nickel, copper, lead and zinc. By the end of the war, the industry was ready for a great new wave of exploration and development which resulted in a six-fold increase in the value of mineral production between 1945 and 1963.

In the postwar period there has been major expansion in each of the three sectors of the mineral industry—metals, industrial minerals and fuels. In the metals sector, intensive development of Quebec-Labrador iron ore resources commenced in the early 1950's, resulting in the establishment of the new mining towns of Schefferville, Labrador City and Gagnon, new railway and dock facilities, and many service industries. The iron ore industries of Ontario and British Columbia also progressed so that Canada's total iron ore production rose from 1,100,000 tons in 1945 to 16,300,000 tons in 1955 and 28,000,000 tons in 1963. The uranium industry expanded rapidly in the 1950's with the opening up of the Elliot Lake and Lake Athabasca areas. However, because of a termination of United States marketing contracts, production has fallen from the 1959 peak of 16,000 tons of uranium oxide to about one half that annual output, and the industry faces lean years

until after 1970 when market demand is expected to improve. Non-ferrous mineral production facilities have been greatly expanded in the postwar period by such mines as the Thompson nickel mine in northern Manitoba; the Chibougamau area copper mines of northern Quebec; the copper-zinc mines of the Lake Manitouwadge area, north of Lake Superior; the Craigmont and Bethlehem copper mines of central British Columbia; the Gaspé copper mine at Murdochville; and the Bathurst area lead-zinc mines in New Brunswick.

In the industrial minerals sector, expansion in the asbestos industry included the opening up of the Cassiar asbestos mine in northern British Columbia. Potash and elemental sulphur industries have been established on a large scale in western Canada and these industries are now capable of producing 15 p.c. of the world's requirements of potash and sulphur.

The oil and gas industry in western Canada has gone ahead rapidly since the Leduc, Alberta, oil discovery of 1947. Many oil and gas fields have since been discovered, and oil and gas pipeline transportation facilities have been built across Canada and to export points on the United States border. Crude oil production increased from 7,000,000 barrels in 1946 to almost 290,000,000 barrels in 1963. Natural gas production increased from 48,000,000,000 to well over 1,000,000,000,000 cubic feet a year in the same period.

In Nova Scotia's Cape Breton Island, Dominion Coal and Steel Corporation operates a steel mill integrated with iron and coal mines in the Maritimes. Iron ore is obtained from the company's Wabana mine in Newfoundland and mixed with other grades of ore from Schefferville, Quebec, and some from Brazil. Canada is the 12th largest steel producer in the world, having quadrupled its output since 1939.





What is believed to be the world's largest high grade deposit of potash occurs in Saskatchewan. This mine at Esterhazy recently tripled its beneficiation plant and its 1,200,000-ton a year capacity makes it the largest capacity potash unit on the continent.

These highlights in the long history of the Canadian mineral industry account for its prominent position in the country's economy today. Raw and semi-processed products of the industry amount to one third of the country's merchandise exports. All new railway construction since World War II has been associated with mineral development. A railway now under construction to Great Slave Lake, where a new townsite at the Pine Point lead-zinc deposits is being built in preparation for mine operation by 1967, typifies the role of mining in opening up the north. New steel plants and fabricating facilities to supply pipe to the oil and gas industry in western Canada are illustrative of benefits to the manufacturing industries arising from mineral resource development. Many areas in Canada benefited from mineral development at some time over the years to the early 1940's. Since then, mineral resource development has become so widespread that its benefits are felt by every sector of the economy and every region of the country from Newfoundland to Vancouver Island and from the Great Lakes area to the Arctic.

Recent Mineral Developments

Mineral developments in Canada during 1963 continued to be widespread and diversified, a pattern that has been characteristic of the industry for many years. It was not a year of rapid growth in output but rather one of preparation for increased production of many minerals through the construction of new or expanded facilities at widely scattered locations. Exploration for minerals both in long-established mining areas and in remote locations was active and, in many instances, very encouraging.

In 1963 the value of Canada's mineral production rose to a new high of \$2,950,000,000, about 3.7 p.c. higher than the \$2,842,984,195 of 1962, the previous all-time record. Exports of minerals and their products continued to be a dominant factor in the country's trade. They rose in value from

\$2,235,200,000 in 1961 to \$2,521,800,000 in 1962, the latest year for which figures are available. The accompanying tables break down mineral exports by sector and compares them to total exports of all products. In 1961, exports of mineral-based products were 38.8 p.c. of the \$5,755,500,000 total; in 1962 they were 40.8 p.c. of the \$6,178,600,000 total.

The mineral industry ranks second only to agriculture among the primary industries in net value of output and leads all industry in aggregate value of exports. Nickel is the leading mineral commodity followed by aluminum, crude petroleum, iron ore, copper, and uranium, in that order. Canada leads the world in the production of nickel, asbestos, platinum and platinum metals, and zinc; is second in uranium, gold, cadmium, gypsum and titanium; third in lead, magnesium, cobalt and bismuth and stands high among world producers of copper, iron ore, silver and several other mineral commodities. Canadian resources of many minerals are ample both for domestic requirements and any foreseeable export demand.

Exports of Mineral-Based Products in Relation to Total Trade, 1961 and 1962

	1961		1962	
	\$'000,000	p.c.	\$'000,000	p.c.
Raw material	819.7	14.2	988.1	16.0
Semi-processed	935.5	16.3	943.4	15.3
Fully manufactured	480.0	8.3	590.3	9.5
Totals	2,235.2	38.8	2,521.8	40.8
Total exports of all products	5,755.5	100.0	6,178.6	100.0

Canada's Mineral Production, by Type and Per Capita Value, 1950, 1955-63

	Metallic Minerals	Industrial Minerals	Fuels	Total	Per Capita Value
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$
1950	617	227	201	1,045	76.21
1955	1,008	373	414	1,795	114.35
1956	1,146	420	519	2,085	129.66
1957	1,159	466	565	2,190	131.85
1958	1,130	460	511	2,101	123.01
1959	1,371	502	536	2,409	137.79
1960	1,407	520	566	2,493	139.51
1961	1,387	542	653	2,582	141.57
1962	1,496	568	781	2,845	153.20
1963 ¹	1,506	588	882	2,976	157.49

¹ Preliminary.

Of particular significance to the mineral industry in 1963 was the establishment in May of the Canadian dollar at 92.5 cents (U.S.) in relation to the United States dollar. This resulted in an advantage to Canadian exports of all kinds and improved Canada's competitive position in world markets. It also provided renewed incentive for capital investment in the development of the country's mineral resources.



Oil exploration continues unabatedly. Here rough-necks are at work drilling near Wetaskiwin, Alberta.

Metallic Minerals

Metallic minerals production in 1963 at \$1,505,732,688 was about the same as the \$1,496,433,950 of 1962. There were no dominant trends in output and neither substantial gains nor losses were apparent. Rises in value of output were registered for silver, iron ore, lead and zinc mainly because higher prices prevailed in 1963 than in the previous year; quantities were about the same or slightly lower. Reduced dollar values of uranium deliveries and gold were due to declining output. Nickel again was the leading metal with production valued at \$365,000,000, down \$20,000,000 from the record set in 1962. It was followed, in value, by copper, iron ore, gold, uranium, zinc and lead in that order.

Production of nickel declined slightly from the 232,068 tons of 1962 even though both exports and domestic consumption were higher. The 13 p.c. cutback in operating rates of nickel-copper mines of The International Nickel Company of Canada, Limited at Sudbury, Ontario, and Thompson, Manitoba, that was initiated on October 1, 1962, remained in effect throughout the year. Nickel markets throughout the world remained firm but became increasingly competitive following completion of the United States stockpiling program and buildup of company inventory. Canada supplies about three quarters of the world's nickel requirements and has a productive capacity of about 500,000,000 pounds a year.

Despite initial production from four copper mines in 1963, output increased only slightly from the record 458,590 tons of 1962. The cutbacks in 1962 at major copper producers in Ontario and Quebec that ranged up to 15 p.c. of 1961 operating rates remained in effect throughout 1963. Shipments of copper in concentrates to Japan, mainly from British Columbia, nearly doubled to 90,000 tons. Several properties were being prepared for production in 1964 and other companies were sinking shafts for underground exploration, development and possible production.

Iron ore shipments in 1963 increased to 28,000,000 net tons from the previous record of 27,898,000 tons in 1962. Exports to United States, which takes nearly 80 p.c. of Canadian exports, improved slightly while those to Britain and Western Europe declined. Shipments to Japan from British Columbia were about the same as the 1,544,523 long tons in 1962. Consumption of domestic iron ore by Canadian iron and steel plants increased sharply resulting in a comparative decrease in imports from the United States. With the completion of iron ore projects already under way, Canadian

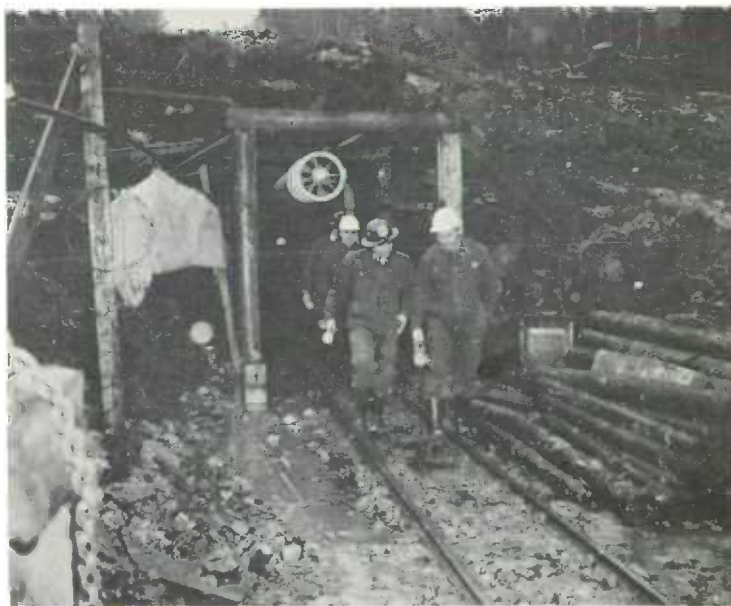
productive capacity will approach 45,000,000 long tons. (1 long ton equals 1.12 net tons or short tons.)

Gold production continued the decline that has been in evidence for several years. The trend of higher operating costs combined with the mining of lower-grade ores in Canadian lode gold mines has resulted in mine closures and less emphasis on exploration for new properties. The average Royal Canadian Mint price for a troy ounce of fine gold increased from \$37.41 in 1962 to about \$37.78 in 1963; the United States purchase price remained at \$35 (U.S.) a fine troy ounce.

Uranium production in 1963 declined about 6.5 p.c. from the 16,862,823 pounds of uranium oxide (U_3O_8), valued at \$151,425,006, produced the previous year. The extremely rapid growth of the uranium industry in the 1950's will stand out as one of the most remarkable achievements in the Canadian mineral industry. The decline in production following the peak years of 1958-59 has been substantial and will continue further until there is a much higher demand in industrial applications, particularly in the generation of electric power, which is not expected until at least the early 1970's. Total sales of uranium oxide to the United States Atomic Energy Authority and the United Kingdom Atomic Energy Authority from 1955 to the end of 1963 were valued at \$1,600,000,000.

Mine output of lead at 200,000 tons in 1963 was about 7 p.c. lower than that of 1962, but, with higher prices prevailing, value of output was about the same. Canada is the world's third largest producer, following Australia and the United States. Mine production of zinc was 530,000 tons in 1963, an all-time high, and enabled Canada to retain its position as the world's second largest producer; it achieved first place in 1964. Recoverable content of both lead and zinc is, of course, lower than mine production and is shown in the accompanying statistics. Higher zinc output was due mainly to commencement of mining copper-zinc ores by two companies in the Mattagami

The entrance to what may become North America's first and only tin mine. The property, at present under development, is in Charlotte County, New Brunswick.



area of northwestern Quebec. Further gains in zinc output should be realized in 1964 when new mines in New Brunswick and Quebec begin production. Canadian Electrolytic Zinc Company Limited commenced production at its electrolytic zinc recovery plant at Valleyfield, Quebec, late in 1963. It is the first such plant in eastern Canada.

The six Canadian aluminum reduction plants, five in Quebec and one in British Columbia, have an annual rated capacity of 888,000 tons, second only to the United States among world producers. All the bauxite and most of the alumina is imported and, as a consequence, aluminum production is not included in statistics of the mineral production of Canada. Production in 1963 was about the same as the 690,297 short tons of 1962 that was valued at \$266,000,000. The major markets for primary metals are the United States, Britain and the European Economic Community; domestic consumption is about 15 p.c. of production.

Industrial Minerals

The value of industrial mineral output increased to \$585,000,000 in 1963 from \$558,181,380 in 1962 with both sectors (non-metallic minerals and structural materials) increasing. New production records were established for asbestos, gypsum, potash, elemental sulphur and cement. Output of magnesium minerals, nepheline syenite and salt were at near-record levels.

Asbestos shipments worth \$138,000,000 established a new record for the fourth consecutive year. Canada remains the leading world producer even though its share of world production has declined from about 60 p.c. in 1962 to less than 45 p.c. as the Soviet Union and South Africa have become proportionately larger producers. A large asbestos producer in Newfoundland commenced shipments about mid-year. Other important developments also occurred in the industrial minerals sector. These included record shipments of elemental sulphur recovered from the processing of natural gas in western Canada; the first full year's operation of a potash mining and processing facility at Esterhazy, Saskatchewan; and further expansion in gypsum and salt mining and processing. The Esterhazy potash operation will become the world's largest on completion of the expansion begun in 1963. There was continuing growth in the important and widely scattered construction materials industry.

Fuels

The petroleum industry reached the national oil target of 800,000 barrels a day of crude petroleum plus natural gas liquids, as set for the end of 1963 by the Federal Government in February 1961. From a daily average of 643,016 barrels of liquid hydrocarbons in 1961, production increased to over 735,000 barrels on a daily average basis in 1963. Alberta supplied 67 p.c., Saskatchewan 25 p.c., British Columbia 5 p.c. and Manitoba, Ontario and the Northwest Territories supplied the remaining 3 p.c. Exports to the United States were 33 p.c. of output; the balance was used in Canadian refineries. Imports of crude oil, all to eastern Canada, averaged about

400,000 barrels a day, with 60 p.c. of it coming from Venezuela and the balance from the Middle East.

Natural gas production averaged close to 3,000,000,000 cubic feet a day in 1963, about 20 p.c. higher than in 1962, with 80 p.c. of it coming from Alberta.

Reserves of crude oil and natural gas liquids, at the beginning of 1963, were 5,176,000,000 barrels, equivalent to 18 years at current production rates; those of natural gas were 35,457,000,000,000 cubic feet or 30 years' supply at current production rates.

The downtrend in coal production that began in the early 1950's appears to have been arrested at between 10 and 11 million tons a year of all grades. Since 1950 there has been increasing competition for energy markets from petroleum and natural gas which have largely replaced coal in many of its traditional markets.

Mineral Production of Canada, by Provinces, 1961-63

Province	1961		1962		1963 ¹	
	Value	Per cent	Value	Per cent	Value	Per cent
	\$		\$		\$	
Newfoundland	91,618,769	3.6	101,858,960	3.6	121,785,645	4.1
Prince Edward Is.	606,644	0.1	677,906	0.1	654,120	0.1
Nova Scotia	61,693,156	2.4	61,651,093	2.1	67,307,328	2.3
New Brunswick	18,804,385	0.7	21,811,575	0.8	26,501,143	0.9
Quebec	455,522,933	17.6	516,453,166	18.1	529,388,211	17.8
Ontario	943,666,456	36.5	913,342,174	32.1	876,583,824	29.4
Manitoba	101,489,787	3.9	158,932,169	5.6	171,032,024	5.7
Saskatchewan	215,977,233	8.4	237,653,502	8.3	257,076,318	8.6
Alberta	473,480,540	18.3	566,502,703	19.9	635,001,853	21.3
British Columbia	188,542,078	7.3	235,428,145	8.3	260,715,547	8.8
Yukon	12,750,304	0.5	13,137,730	0.5	14,626,150	0.5
Northwest Territories ..	18,145,162	0.7	17,537,066	0.6	15,237,755	0.5
Totals	2,582,300,387	100.0	2,844,986,179	100.0	2,975,909,918	100.0

¹ Preliminary.

An old timbered shaft, relic of the famous Klondike Gold Rush of 1896, is exposed as a modern hydraulic gold operation washes away the permafrost cliff on Hunker Creek near Dawson City. To sink the shaft through the permanently frozen ground, Gold Rush miners had to build fires to thaw the muck before it could be dug out. A fascinating thing about this cliff is that as it thaws it begins to smell, as the bones and other animal remains buried there 35,000 years ago complete their decomposition. Bones of buffalo, muskox and sabre-toothed tigers have been identified.



Mineral Production of Canada, by Kinds, 1962 and 1963

	Unit of measure	1962		1963 ¹	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	1,931,397	748,223	1,525,830	595,074
Bismuth.....	lb.	425,102	839,912	380,289	747,458
Cadmium.....	lb.	2,604,973	4,730,957	2,431,171	5,834,809
Calcium.....	lb.	123,511	124,412	79,429	97,698
Cobalt.....	lb.	3,481,922	6,345,205	2,815,184	5,324,032
Columbium (Cb ₂ O ₅)..	lb.	1,016,514	1,006,349	1,270,000	1,260,000
Copper.....	lb.	914,770,211	282,732,696	917,470,086	287,704,456
Gold.....	oz.t.	4,178,396	156,313,794	4,011,003	151,375,632
Iron ore.....	ton	27,359,676	263,004,217	30,634,598	295,360,801
Iron, remelt.....	ton	...	9,845,669	...	8,736,936
Lead.....	lb.	430,658,673	42,721,341	411,797,459	45,297,722
Magnesium.....	lb.	17,631,310	4,821,823	17,390,900	5,391,179
Molybdenum.....	lb.	817,705	1,261,451	1,000,000	1,534,000
Nickel.....	lb.	464,483,999	383,784,622	437,298,121	362,781,957
Platinum, group.....	oz.t.	470,787	28,848,637	344,736	21,848,696
Selenium.....	lb.	487,066	2,800,630	482,960	2,240,101
Silver.....	oz.t.	30,422,972	35,442,761	30,739,429	42,543,371
Tellurium.....	lb.	58,725	352,350	74,942	483,271
Tin.....	lb.	650,941	442,640	1,062,073	743,450
Tungsten (WO ₃).....	lb.	3,580	1,611	...	...
Uranium (U ₃ O ₈).....	lb.	16,859,169	158,183,669	16,281,957	148,890,731
Zinc.....	lb.	926,289,098	112,080,981	915,033,762	116,941,314
Total metallics.....		...	1,496,433,950	...	1,505,732,688
Arsenious oxide.....	lb.	160,750	6,832	187,450	7,498
Asbestos.....	ton	1,215,814	130,281,966	1,272,024	134,880,206
Barite.....	ton	226,600	2,123,964	177,079	1,753,728
Diatomite.....	ton	211	10,228	322	12,880
Feldspar.....	ton	9,994	222,460	8,557	194,954
Fluorspar.....	ton	...	1,870,184	...	2,004,200
Graphite.....	ton	...	...	2	1,400
Grindstone.....	ton	10	2,000	10	2,000
Gypsum.....	ton	5,332,809	9,349,775	5,931,636	11,101,058
Iron oxides.....	ton	771	58,363	1,004	73,866
Lithia.....	lb.	499,736	558,654	663,208	700,800
Magnetite-dolomite and brucite.....	...	...	3,431,873	...	3,106,092
Mica.....	lb.	1,204,034	84,596	1,068,650	61,817
Mineral waters.....	gal.	377,248	207,325	...	...
Nepheline syenite.....	ton	254,418	2,605,421	255,409	2,508,356
Peat moss.....	ton	238,035	7,480,396	258,857	8,923,632
Pozzolana.....	ton	...	4,927	...	5,000
Pyrite, pyrrhotite.....	ton	517,308	1,879,584	492,073	1,759,226
Quartz.....	ton	2,085,620	3,817,445	1,942,355	4,209,777
Salt.....	ton	3,638,778	21,927,135	3,233,985	21,301,851
Soapstone and talc.....	ton	46,161	625,208	54,641	771,864
Sodium sulphate.....	ton	246,672	3,954,273	254,078	4,065,625
Sulphur in smelter gas.....	ton	292,728	3,089,537	311,156	3,261,596
Sulphur, elemental.....	ton	695,098	9,286,999	1,161,661	12,232,668
Titanium dioxide, etc.....	ton	...	11,573,862	...	9,249,953
Total non-metallics.....		...	214,453,009	...	222,190,047
Coal.....	ton	10,284,769	69,160,213	10,509,005	71,616,557
Natural gas.....	M.cu.ft.	946,702,727	108,641,159	1,070,900,800	109,325,200
Nat. gas by-products.....	bbl.	...	50,778,506	...	68,251,585
Petroleum, crude.....	bbl.	244,115,152	552,352,509	259,613,000	633,219,100
Total fuels.....		...	780,932,387	...	882,412,442
Clay products (brick, tile, etc.).....	...	...	37,816,878	...	37,758,646
Cement.....	ton	6,878,729	113,233,726	6,988,412	117,588,571
Lime.....	ton	1,424,459	17,646,588	1,439,583	17,447,478
Sand and gravel.....	ton	181,245,762	118,603,283	185,498,913	121,167,131
Stone.....	ton	47,553,485	65,866,358	55,090,659	71,612,915
Total structural materials.....		...	353,166,833	...	365,574,741
Grand Totals.....		...	2,844,986,179	...	2,975,909,918

¹ Preliminary.² Includes pyrophyllite.

... Figures not available.

... Figures not appropriate or not applicable.

— Nil or zero.



A pulp loader in action.

Forestry

Canada's forests, which extend in an unbroken belt 600 to 1,300 miles wide from the Atlantic to the Pacific, are one of Canada's greatest renewable resources. In addition to supplying raw material for the great lumber, plywood, pulp and paper and other wood-using industries, the forests control water run-off and prevent erosion, provide shelter and sustenance for wild-life, and recreational facilities for people.

There are approximately 170 kinds of trees native to Canada of which about one-fifth are softwoods. Of these, spruce, Douglas fir, hemlock, cedar, pine, balsam fir, yellow birch, maple and poplar provide most of Canada's lumber. Spruce, balsam fir, jack pine, hemlock and poplar are the principal species used in the manufacture of pulp and paper.

The forests of British Columbia, Ontario and Quebec, in decreasing order, contain the largest volumes of standing merchantable timber within reach of economic exploitation. British Columbia accounts for some 37 p.c. of Canada's cut of timber followed by Quebec, with 28 p.c., and Ontario, with 16 p.c.

Productive forests—those capable of producing usable timber—cover nearly 1,000,000 square miles. About 80 p.c. of this forest land is publicly owned and administered by the ten provincial governments which make the forest crop available to the forest industries through a variety of systems. The remaining 20 p.c. is made up of farm woodlots, forest land owned by companies and by individuals, and areas for which the Federal Government is responsible.



A tree harvester which can skin branches, debark and cut a tree near ground level in seven seconds.

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; however, average annual utilization of about 3,300,000,000 cubic feet, together with losses, is still much less than the annual

growth of the forests. Nevertheless, the drain on the forests is increasing, and has prompted governments and industry alike to plan for greater production. This is being accomplished by more intensive forest management, by the prompt harvesting of over-mature forests and by planting millions of trees on areas which have been denuded by fire, have failed to reproduce naturally after cutting, or which were cleared for agriculture and later abandoned.

Over the past few years, the standards of utilization of Canada's forests have been much improved. Today, a greater amount of pulp and paper can be produced from one cord of wood than ever before. Alcohol, vanilla, tanning liquor, road binders and turpentine are made from what were formerly waste materials in the production of pulp. The development of new pulping processes and the manufacture of products such as fibreboard, particleboard and laminated wood products are permitting the harvesting of formerly unused woods and the more complete utilization of wood harvested.

The Department of Forestry. The importance of the forest industries to the nation was recognized by the passing of the Department of Forestry Act in 1960, which united in a new department the Forestry Branch of the Department of Northern Affairs and National Resources and the Forest Biology Division of the Department of Agriculture. The Department of Forestry maintains regional laboratories, field stations and experimental areas on federal lands and carries out extensive basic and applied research into forest management, forest fire control, forest insects and diseases and forest products. It also administers federal-provincial forestry agreements, under which federal financial assistance is provided to provincial programs of forest inventories, reforestation, access roads, stand improvements, and the purchase of capital assets used in forest fire protection. In 1962 a new agreement was entered into with the provinces by which \$16,000,000 was provided in a "single

package" for a two-year period, replacing three former agreements. The Department is responsible for the carrying out of forest surveys on federally-administered lands and assisting federal government agencies with forest management matters. It also provides public information and education on the protection and wise use of the nation's forests.

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.

Logging. 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 operations of the east where the smaller trees with their generally lower individual values make highly developed mechanization economically difficult. Extensive research is being carried on and companies co-operate in the exchange of information. In 1962 a group of companies formed the Logging Research Associates to pool their resources in an effort

Corrugating medium and many varieties of liners for the manufacture of corrugated shipping containers are produced in this mill at Bathurst, New Brunswick, for its seven container plants. Other box-makers use boxboards also made here in the manufacture of folding and set-up boxes.



to achieve substantial and rapid progress in the field of wood extraction. 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 1961 amounted to 3,303,289,000 cubic feet of solid wood, with products valued at \$846,035,000. This includes logs, bolts, pulpwood, fuelwood, poles, railway ties, and other primary products. Minor products include Christmas trees, cascara bark, balsam gum, resin, etc. Almost 96 p.c. of the industrial wood cut in 1961 was processed to some degree in Canada. Estimates of output for 1962 indicate an increase of about 121,000 cubic feet over the 1961 figure.

With regard to volume of production of primary wood products, in 1961 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 1962 stands at 9,222,000,000 ft.b.m., an increase of about 12.0 p.c. over the 1961 figure of 8,236,613,000 ft.b.m. Of the 1961 total, British Columbia accounted for 68 p.c., the Prairie Provinces and the Yukon and Northwest Territories for 5 p.c., Ontario for 8 p.c., Quebec for 12 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 is the leading species, both in volume and value. Douglas fir is second, followed in volume produced by hemlock, cedar, white pine, jack pine, balsam fir, yellow birch, and maple.

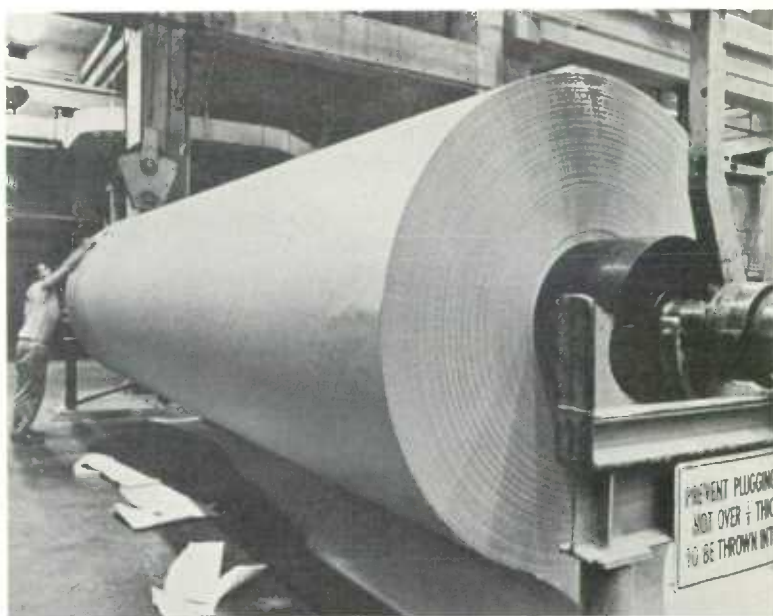
The lumber industry proper employed 41,134 employees who earned \$144,700,000 in salaries and wages. Shipments amounted to 7,097,193,000 ft.b.m. of lumber with a gross value of \$450,179,000. Exports amounted to 4,923,611,000 ft.b.m. valued at \$352,811,000.

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 1961 there were 26 mills making pulp only, 24 were making paper only and 75 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. Over 76 p.c. of the wood pulp manufactured was converted to other products in Canada; the remainder was shipped abroad. Newsprint accounted for about 77 p.c. of all paper products manufactured and over 95 p.c. of all paper products exported in 1961. Canadian production of paper, paperboard, and building board in 1961 was 8,769,000 tons. Quebec's share of this figure was 44 p.c., Ontario's was 28 p.c., British Columbia's was about 13 p.c., and that of the remaining provinces was about 15 p.c.

**Principal Statistics of the Pulp and Paper Industry, 1940, 1959,
1960 and 1961**

Item	1940	1959	1960	1961
Establishments..... No.	103	127	128	125
Employees.....	34,719	65,028	65,642	65,799
Salaries and wages..... \$'000	56,074	322,311	344,410	355,171
Gross value of factory shipments..... "	298,035	1,498,042	1,578,727	1,634,606
Value added by manufacture..... "	158,231	759,492	811,547	842,420
Pulp produced..... '000 tons	5,291	10,832	11,461	11,779
..... \$'000	149,005	744,940	772,626	796,291
Paper produced..... '000 tons	4,319	8,550	8,923	8,769
..... \$'000	225,837	1,106,071	1,167,040	1,189,794
Pulp exported..... '000 tons	1,069	2,450	2,600	2,867
..... \$'000	60,930	311,252	325,122	346,662
Newsprint exported..... '000 tons	3,243	5,913	6,190	6,254
..... \$'000	151,360	722,601	757,930	761,313



Huge rolls of newsprint having just come out of the pulp and paper machine in a mill at Port Alberni, British Columbia.

Continuous fundamental and applied research into woodland and pulp and paper mill operations is carried out by the Pulp and Paper Research Institute of Canada, which also, in co-operation with McGill University, trains post-graduate students in fields of interest to the pulp and paper industry.

Wood-Using Industries. This group includes the industries, other than the sawmills and the pulp and paper industry, that use wood as their principal raw material: the veneer and plywood mills, sash, door and planing mills, wooden box factories, etc. Most of these industries obtain from the sawmills the wood that they transform into planed and matched lumber, flooring, doors, windows, laminated structures, prefabricated buildings, boxes, barrels, caskets, woodenware, etc.

In 1961 these industries employed 37,512 persons (37,511 in 1960) and paid out \$129,462,000 (\$126,828,000 in 1960) in salaries and wages. The gross selling value of their products was \$484,424,000 (\$461,109,000 in 1960). Of this amount the sash, door and planing mill industry accounted for \$235,160,000 (\$212,832,000 in 1960) and the veneer and plywood industry for \$143,719,000 (\$137,881,000 in 1960).

Paper-Using Industries. This includes the asphalt roofing manufacturers, the paper box and bag manufacturers and other paper converters. Included in this group are establishments that use synthetic materials, metal foil, etc., to produce articles similar to those manufactured of paper and paper-board.

In 1961 this group comprised 444 establishments (439 in 1960), employed 29,063 persons (29,509 in 1960) and distributed \$115,966,000 in salaries and wages (\$113,130,000 in 1960). The gross value of factory shipments was up to the record value of \$571,128,000 (\$542,786,000 in 1960).



Junior Forest Wardens receive thorough instruction on fire prevention and fire-fighting, at a special school at Edson, Alberta. A number of provinces have programs in forestry for young people.



Bay de Verde, a fishing outport on the tip of Trinity Peninsula, Newfoundland, is one of the few places remaining where cod, in any large quantity, is split and dried on flakes seen in the foreground.

Fisheries

There were several significant developments in Canadian fisheries in 1963. On the Atlantic coast capital expansion in the groundfish industry sharpened concern over the growing number of foreign vessels now fishing off those shores and the Federal Government eased and clarified the problem of foreign fishing on both coasts by establishing a 12-mile exclusive fishing zone along Canada's entire coastline, the new law to become effective in mid-May of 1964. On the Pacific, after a high degree of prosperity in the previous year, 1963 was a season of labour-management troubles and costly strikes.

The groundfish industry is growing rapidly in all the Atlantic Provinces. In Newfoundland where cod is the major catch and blocks of frozen cod the most valuable product, fishermen's earnings and the output of the freezing industry have reached record levels in recent years. A new fish freezing plant being built at Lunenburg, N.S., will be in operation in 1964; it will handle 80,000,000 lb. of fish a year and provide jobs for about 800 persons. Another large plant planned for Canso, N.S., will be completed in 1965 and will handle 30,000,000 lb. of fish yearly. Larger catches will, of course, be required to supply these plants and, in preparation for this, fishing fleets are being expanded and modernized and training programs for fishermen are being extended to prepare them for operating and maintaining the new equipment.

Oddly enough, expansion of the fish freezing industry and its increased requirements for cod helped to revitalize the salt cod industry. As the freezers intensified operations in southern Newfoundland, saltfishing became concentrated in the northern part of the island and in Labrador with a local intensification of sales which yielded better incomes to the men who fish in these remote areas. Ten years ago the fleet, which used to sail from southern ports to fish on the Labrador, had dwindled to five vessels and in 1959 the fishery died out altogether. Several years ago it showed signs of revival and in 1963 comprised no less than 40 vessels. After the two-year scarcity of 1960-61, world stocks of cod were low; and the population explosion in less advanced countries had created a need for low-priced protein food which can be expected to grow for a long time to come. In these circumstances the upturn of the salt cod business may well indicate an enduring trend.

Aside from events in the groundfish industry, possibly the most significant development in Atlantic fisheries in 1963 was a changeover in the swordfishery from harpooning, which is limited to fish which can be speared on the surface, to midwater longlining, which catches the big fish further down. Commercial experiments were first made in 1962. In 1963 fully half the catch was taken by the new method. Bigger individual fish and a heavier total poundage taken in less time made the effort more profitable.

In British Columbia, where salmon, halibut, and herring are the major fisheries, a three-week strike in July caused serious losses in the salmon industry; and halibut and herring prices declined. Optimism for the future was, however, apparent on the boat-building premises. Most of the big keels laid were for vessels which were primarily halibut longliners, although in line with established west coast custom they were made readily convertible to use in the other big fisheries. All had refrigeration, either spray frozen as

in the tuna boats, or chilled brine, or frozen dry storage. Construction was rushed in the early months of the year because vessels completed before the end of March could claim a higher federal subsidy than was available later.

Emphasis at the 1963 annual meeting of the Fisheries Research Board of Canada was on the coming necessity for more intensive use of fish in our own national waters. Reasons were the world's population



Fishermen in Prince Edward Island bring up clams from the sea-bottom in scissor-like double rakes.

explosion and search for more protein food and the sharply stepped-up international competition for fish in the open oceans. This entire field of speculation and planning was of particular interest to the lake fisheries. They were already involved in lively experiments in new lakes, new plant construction, new products, new markets and new methods of transportation. They naturally wish to take full advantage of their fortunate position in relation to competition from foreign fishing fleets. But, like the sea fisheries, they export most of their fish and must compete for sales on the world market.

Seventy per cent of the varied output of all the Canadian fisheries is shipped abroad. Therefore the industry must cope with the price, import and exchange controls of the buying countries and the only countervailing influence it can bring to bear is the high quality and reliability of its products.

The world's fish catch is produced by more than 100 nations but, in terms of value of shipments, 16 fishing countries provide three quarters of it and half of their contribution comes from only three of them: Japan, Canada and Norway.

In international competition the Canadian industry has three major advantages. Canada is closer than any other nation to the most valuable fishing grounds known in all the oceans. Within its borders it has greater areas of fresh water than any other country. And it is closer than any other nation to the world's greatest fish importer, the United States. In addition, love of the sea and a long tradition of fishing skills have been handed down for generations among the coastal peoples and, now wedded to this, is a wealth of an advanced technology. Furthermore, because of its still small population, Canada has a large surplus from its 2,000,000,000-pound annual catch.

On the world market about 40 p.c. of the total demand, in terms of value, is for chilled or frozen fish and shellfish supplied by the freezing industry, while about 30 p.c. is for the output of the canneries. By far the greatest buyer is the United States. It more than doubles the purchasing of Britain, which stands in second place and is a heavy buyer of Canadian canned salmon. Two thirds of the American import demand is for fresh and frozen products. Major consumer items are groundfish fillets and steaks; lobsters; and dressed fish such as halibut, salmon, whitefish and swordfish.

Smelt-fishing at Parry Sound on Ontario's Georgian Bay, where a gala outdoor smelt fry is held at the peak of the season.





Unloading the first tuna to be fished commercially on the east coast of Canada during the summer of 1963. This operation was launched with financial assistance from the Federal Government and the Province of New Brunswick.

Here again Canada has a natural advantage. Its fleets fish in cold waters, which produce the crisp-fleshed species most wanted in the freezing industry. While the bulk of its fish exports cross the United States border by refrigerated rail transport, an increasing amount is now moving by road. Many fish processing plants are in operation hundreds of miles beyond reach of railways. Fish from Great Slave Lake moves direct to warehouses in Chicago; there is an established flow of whitefish from Lake Winnipeg to gefilte fish plants in New York; frozen groundfish fillets loaded at Canadian fishing ports can go to any important American distributing centre without re-handling or temperature change en route. Transport of live lobsters from the Atlantic Provinces to American tourist areas is another rapidly growing enterprise.

The Federal Government's main activities in aid of the fisheries are protecting fish stocks by putting legal limitations on fishing and patrolling fishing grounds to ensure that regulations are observed; inspecting fish plants and their products to encourage high-quality output; and, in co-operation with the provinces, experimenting in application to the fisheries of new scientific and technological discoveries. These and other efforts of the Department of Fisheries of Canada are soundly based on the specialized research conducted by the Fisheries Research Board.

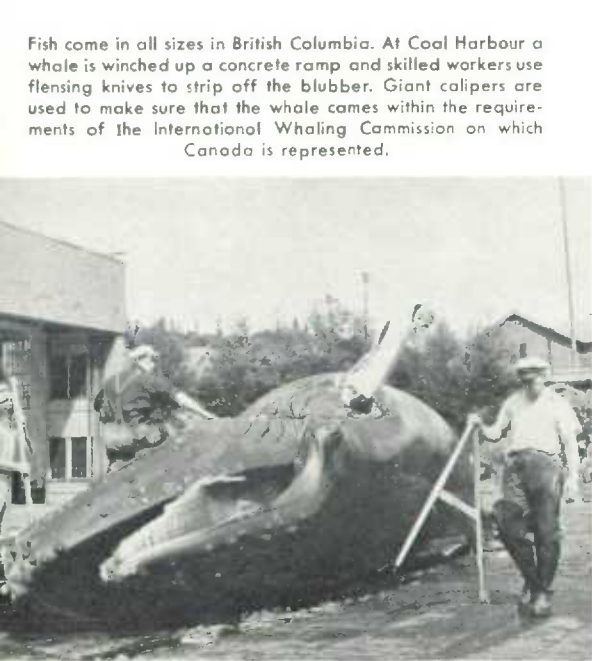
Fisheries Statistics. Canadian fishermen received more money from their fishing operations in 1962 than in any other year. On the Atlantic Coast, the cod fishery returned to normal and there was a good steady market demand for most species. Lobster, cod, haddock, scallops and herring, in that order, remained the top money-makers. On the Pacific Coast, 1962 will go down in history as the "year of the pinks", landings of this species reaching an all-time record of 93,000,000 lb. Halibut fishermen also landed more fish and received higher unit prices than ever before. The herring fleet, although tied

up for six weeks in price negotiations, equalled the previous year's catch. The inland fisheries, with increased export markets for frozen lake fish and better-than-average landings of most species, had a successful year.

**Quantity and Value of Landings of the Chief Commercial Fish,
1960-62**

Kind of Fish	1960		1961		1962 ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
Atlantic Coast	—	59,763	—	59,004	—	68,373
Cod.....	604,621	16,538	516,861	15,646	585,386	18,904
Haddock.....	95,126	3,685	118,395	4,647	115,021	4,869
Halibut.....	6,618	1,712	6,143	1,668	6,104	1,776
Herring and "Sardines".....	246,329	3,682	193,369	2,756	246,502	3,430
Lobsters.....	51,517	18,031	47,547	18,054	46,452	19,781
Mackerel.....	13,138	724	14,118	694	16,167	653
Redfish.....	46,859	1,172	56,216	1,458	61,114	1,585
Salmon.....	3,577	1,461	3,466	1,417	3,776	1,752
Swordfish.....	3,890	1,342	3,196	1,238	3,495	1,580
Other.....	298,647	11,416	271,237	11,426	270,233	14,043
Pacific Coast	—	27,962	—	38,778	—	46,695
Halibut.....	27,161	4,379	24,951	5,316	24,527	7,773
Herring.....	187,675	2,178	448,433	4,589	445,275	4,752
Salmon.....	75,153	18,401	121,634	26,152	163,907	30,559
Other.....	45,051	3,004	40,532	2,721	43,672	3,611
Inland	—	12,766	—	12,450	—	13,446
Pickering (blue).....	5	2	2	1	—	—
Pickering (yellow).....	13,888	3,020	13,346	2,455	14,959	3,226
Whitefish.....	27,093	3,494	27,184	3,814	26,578	3,817
Other.....	82,112	6,250	82,541	6,180	95,494	6,403
Totals	—	100,491	—	110,232	—	128,514

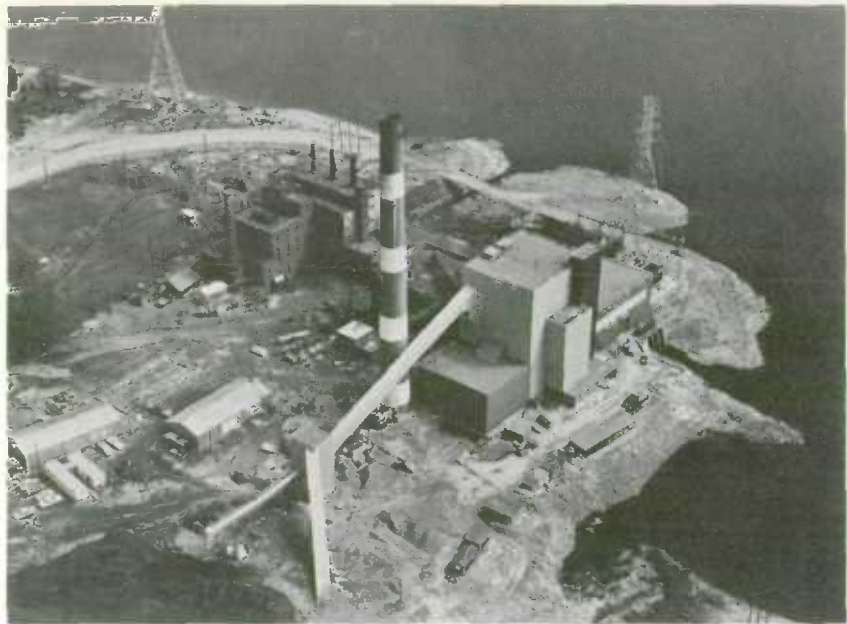
¹Preliminary.



Fish come in all sizes in British Columbia. At Coal Harbour a whale is winched up a concrete ramp and skilled workers use flensing knives to strip off the blubber. Giant calipers are used to make sure that the whale comes within the requirements of the International Whaling Commission on which Canada is represented.



Elsewhere, a shrimp fisherman hand-brails his catch from the cod end of the net.



The new 60,000 kw. generating station of the New Brunswick Electric Power Commission at Newcastle Creek on Grand Lake went into production in November, 1963. It is the largest thermal unit in the province, will burn upwards of 100,000 tons of coal annually and increase the Commission's generating capacity to 409,136 kw.

Electric Power

Canada's rich heritage of energy resources is found in many forms—falling water, wood, coal, petroleum, natural gas and radioactive ores. As a direct result of the abundance of these resources and the manner in which they have been developed, Canada occupies second place among the countries of the world in per capita production of electricity.

Most of Canada's present power needs are met by energy generated from water power. Because this resource is renewable and consequently one of the most permanent of the country's natural resources, it will continue to play an important part in satisfying electric energy requirements. By the beginning of 1964, the total capacity of generating machinery installed in hydro-electric plants in Canada exceeded 20,000,000 kw. Approximately three quarters of this capacity is in the industrially important St. Lawrence River—Great Lakes region in Quebec and Ontario. These two provinces, together with British Columbia, are richest in water power resources and in the amount of hydro-electric generating capacity installed.

The water power sites from which, until recently, Canada's power requirements have been met have been those sites situated close to demand centres. The regulating factor here has been the limit to economic transmission distances. Within the last few years, however, advances in long-distance power transmission techniques have led power engineers to look at previously remote hydro sites with new interest. Several of these sites are now producing power and several others are under development.

The benefits which can be derived from integrated hydro-thermal power systems have contributed significantly to the increasing emphasis on thermal

power production. By the end of 1963, the total capacity of generating machinery installed in thermal plants in Canada exceeded 6,200,000 kw.

Most thermal plants in eastern Canada burn coal, while in western Canada large quantities of oil and natural gas are used in addition to coal. The use of nuclear fuels for the production of electric power has been the subject of intensive research for a number of years and, in 1962, the country's first commercial nuclear-electric power became available at Chalk River in Ontario. Also in Ontario, construction of Canada's first full-scale nuclear-electric station is currently in progress and plans being made for even larger stations suggest the probability that nuclear energy will assume more and more of the burden of satisfying the nation's power requirements.

Recognizing the benefits inherent in the economic transmission of energy over long distances, the Government of Canada is co-operating with provincial authorities in carrying out studies aimed at making more effective use of Canada's water resources and seeking answers to the problems involved in establishing a national power grid.

Atlantic Provinces

Of the four Atlantic Provinces, Newfoundland alone derives most of its electrical energy from water power. During 1963, the main centre of activity in its hydro-power development program was the Twin Falls site on the

A dramatic view of the power dam at Chutes aux Outardes, Quebec.





One of the three single-phase high-voltage test transformers now being used in experiments at Ontario Hydro's extra-high voltage test line at Coldwater. Entry into the field of extra-high-voltage transmission was undertaken to develop power sites on the Abitibi and Mattagami Rivers to meet the increasing demands in southern Ontario. The new line will carry 500,000 volts.

Unknown River in Labrador, where the addition of 93,600 kw. of new generating capacity brought the total capacity of the station to 187,200 kw. A new development on Sandy Brook on the Island of Newfoundland added another 5,950 kw. The next few years should see a start on the harnessing of the power resources of the mighty Hamilton River in Labrador, where the development of two sites on the main stem will yield several million kilowatts of hydro capacity.

Prince Edward Island has little hydro-electric potential and depends for its electricity supply almost exclusively upon thermal power. Most of the latter is generated at the Charlottetown plant and at a smaller plant at Summerside. A 20,000-kw. unit, installed in the Charlottetown plant in 1963, increased the station's generating capacity to 52,500 kw.

In Nova Scotia, ample supplies of local coal are available to fuel thermal plants, largest of which are the stations at Halifax, Glace Bay, Trenton and Sydney, with a combined total installation of 334,100 kw. Construction of a 100,000-kw. steam plant was started at Tufts Cove on Halifax harbour. The single-unit plant, due to be in service by 1965, will be the first of a multi-unit complex with an eventual total capacity exceeding 500,000 kw. Although it depends largely upon power from thermal sources, Nova Scotia has developed hydro-electric power in substantial amounts and there is a possibility that construction will start at several new sites in the very near future.

New Brunswick's current program of electric power development involves the creation of new hydro and thermal generating facilities. The capacity of New Brunswick's largest thermal station, located at Courtenay

Bay, is being increased by the addition of a new 100,000-kw. unit. When the unit comes on the line in 1966, the station's total capacity will be almost 150,000 kw. In the hydro-electric field, investigation of a hydro site at Mactaquac on the Saint John River indicates that development of the site would be economically feasible. Tentative plans call for the building of a hydro plant with a generating capacity of 500,000 kw. The headpond created by the dam offers attractive possibilities for recreation purposes. The hydro-electric station at Tinker Falls on the Aroostook River is being expanded from its present capacity of 10,040 kw. to a total of 34,640 kw., the latter to be available in 1965.

Quebec

In terms of available water power resources, Quebec is Canada's richest province; it is also first in the amount of water power developed, with a total installed hydro-electric generating capacity of 9,418,000 kw. It is interesting to note that Quebec's entire hydro capacity is installed on rivers



Hydro-Quebec's building on Dorchester Street, Montreal is headquarters for the Quebec Hydro-Electric Power Commission which, in 1963, took over the operation of 11 private power companies.



Lakeview Generating Station, where the largest generator of its kind ever installed by a Canadian utility—300,000 kw.—went into production in 1961. By the mid-sixties, when all six units are in service, the \$217,000,000 thermal-electric station will have a capacity of 1,800,000 kw.

in the St. Lawrence River basin with some 7,200,000 kw. of this total on the St. Lawrence River itself and on four of its major tributaries. Notwithstanding the formidable total of hydro capacity already installed, many years of development lie ahead before the full potential of this great river system is exploited. The Beauharnois plant on the St. Lawrence River, with an installed generating capacity in excess of 1,500,000 kw. is the largest hydro-electric plant in Canada.

In 1963, the Government of Quebec, through the Quebec Hydro-Electric Power Commission, nationalized the assets of 11 of the province's major private power producers.

The Carillon hydro station on the Ottawa River, which went into service in 1962 with an initial capacity of 180,000 kw., was extended in 1963 by the addition of 270,000 kw. of generating capacity. Completion of the Carillon plant in 1964 will realize a total of 630,000 kw. in 14 units. By July 1964, the fourth 12,000-kw. unit at the Rapid II hydro plant on the Ottawa River will be in operation, raising the plant's capacity to 48,000 kw.

The interest of power engineers both in Canada and abroad is centred on the huge Manicouagan-Outardes hydro complex now under construction in Quebec. This ambitious project involves harnessing the waters of the two rivers to provide nearly 6,000,000 kw. of hydro capacity. Main features of the project will be the erection of generating stations at Manic 1, 2, 3 and 5 on the Manicouagan River and at Outardes 45 and 58 on the Outardes River.

At Manic 5, construction crews are building one of the highest and most massive dams of its kind in the world. Over 4,000 feet long, the dam, a buttressed, multi-arch structure, will tower some 703 feet at the highest point above bedrock. The flow of the river is being channelled past the con-

struction site by two 47-foot wide, 2,000-foot long tunnels due to be plugged in the spring of 1964, when the reservoir is scheduled to start filling. The process of filling the reservoir will take until 1971. First power is due in 1968 and the entire plant will be in operation in 1971 with a capacity of 1,344,000 kw.

Construction of Manic 2, 11 miles from the mouth of the river, is also under way. In the gravity dam being built at the site, hollow cells incorporated in the dam reduce concrete requirements significantly without affecting the strength or stability of the structure. The dam at Manic 2 is reported to be the largest dam in the world to use this principle. The first of eight 140,000-kw. generators will go on the line in July 1965 and the entire plant, with 1,120,000 kw., will be in service by 1967. The capacity planned for the Manic 3 plant is 1,120,000 kw. and for the Manic 1 plant, 208,000 kw. Preliminary studies at the Outardes 45 and 58 sites are almost complete. At Outardes 45, plans call for the installation of 880,000 kw. and at Outardes 58, total capacity will be 600,000 kw.

Electric power from the Manicouagan-Outardes plants will be transmitted at 300-kv. to two major collector stations, thence at 735 kv. to Quebec City and Montreal. The latter voltage is the highest presently planned for long distance transmission in Canada, and is among the highest in the world.

Because of the abundance of readily available water power in Quebec, the role of thermal power in its power economy has been relatively small. The growing interest in thermal power in other parts of Canada, however, is becoming evident in Quebec and, by the end of 1965, its present total thermal capacity of approximately 171,000 kw. will have been almost tripled with the completion of a 300,000-kw. plant at Tracy near Sorel on the south shore of the St. Lawrence River. A 10,000-kw. station to supply an asbestos mill and a townsite of about 1,000 people is planned for Asbestos Hill in the Ungava region, with initial service between 1966 and 1970.

Ontario

With 5,925,000 kw. of installed hydro-electric generating capacity, Ontario is surpassed only by Quebec. However, its total of 2,568,000 kw. of installed thermal-electric capacity far exceeds the corresponding total for any other province in Canada.

The Whiteshell Nuclear Research Establishment of Atomic Energy of Canada Limited went into operation in July 1963 at Pinawa, 65 miles north of Winnipeg. The main objective of research at the new centre is economic nuclear power.





Ontario Hydro's Little Long Generating Station went into production in October, 1963. Located 42 miles north of Kapuskasing, the \$48,000,000 station is the first of three plants being built on a 15-mile stretch of the Mattagami River; it has a two-unit capacity of 121,600 kw.

Of the provinces with major water power resources, Ontario alone has reached the stage where the major part of these resources is developed. The harnessing of the remaining sites has, nevertheless, moved ahead at a rapid pace, with 209,000 kw. of new hydro capacity coming into service in 1963. Of this total, 87,400 kw. were installed at Otter Rapids Generating Station on the Abitibi River and 121,600 kw. at Little Long Generating Station on the Mattagami River. The present 174,800-kw. capacity of Otter Rapids will eventually be doubled and there is provision at Little Long for increasing the station's capacity to 243,000 kw. Two other stations are under construction on the Mattagami River. One of these, the Harmon Station, is designed for an initial installation of 129,200 kw. with provision for the addition of 129,200 kw. later. Initial capacity of the Kipling Station also will be 129,200 kw. with provision for the addition of an equal amount as required. Power from all four stations will be gathered at Pinard Transformer Station, from which the generating stations will be remote-controlled. From Pinard, the power will be relayed initially at 230 kv. and later at 500 kv. to the Toronto area. A new hydro station on the Montreal River, which will have a generating capacity of 15,000 kw., should be in service in December 1964. To meet the possibility that the actual demand for power will exceed forecast estimates, development of a number of other hydro sites is being considered. These sites include Mountain Chute on the Mada-waska River, Maynard Falls on the English River, Chigaminwingum Falls on the White River, Long Sault Rapids on the Abitibi River, and a site at the confluence of the Montreal and Matabitchuan Rivers.

A total of 203,800 kw. of new thermal capacity went into service in Ontario in 1963. At Thunder Bay Generating Station in Fort William, a 100,000-kw. unit was commissioned in July. The remaining 103,800 kw. of new capacity is made up of 61,000 kw. at Sarnia, 25,000 kw. at Sault Ste. Marie, and 17,800 kw. at Copper Cliff. Work is in progress on the installation of the third and fourth 300,000-kw. units at Lakeview Generating Station near Toronto. Commissioning of these units, scheduled for 1964 and 1965 respectively, will boost the station's total capacity to 1,200,000 kw. A recent decision to increase the number of units to eight will mean that by the latter part of 1968, Lakeview will have a total capacity of 2,400,000 kw. To augment still further Ontario's already substantial total of conventional thermal generating capacity, plans are being made to build a new plant in southwestern Ontario with a capacity of 1,000,000 kw. Canada's first full-scale nuclear-electric station, now under construction at Douglas Point on Lake Huron, is due to be commissioned in 1965. Capacity of the station will be 200,000 kw.

Prairie Provinces

Of the three prairie provinces, Manitoba is the most abundantly endowed with water power resources and leads in total installed hydro-electric capacity. The largest block of hydro-electric capacity in Manitoba at the present time is located on the Winnipeg River, now completely developed with a total capacity of 567,650 kw. at six generating stations. Another important development is the 168,750-kw. Kelsey plant on the Nelson River. The province's total hydro capacity remained unchanged in 1963, but construction at the Grand Rapids site on the Saskatchewan River went ahead on schedule. Grand Rapids will provide 220,000 kw. of new capacity in 1964 and another 110,000 kw. in 1965. There will be provision in the plant for the eventual

Saskatchewan Power Corporation's 13-storey building, rising beside the Saskatchewan Hotel in Regina, will be the tallest building in the province.





A dramatic photograph of technicians installing circuit breakers.

addition of a further 110,000 kw. In accordance with arrangements between the Governments of Canada and Manitoba, joint investigation of the water power potential of the Nelson River is continuing. The reach of the river currently under study is that between Kelsey Generating Station and Hudson Bay, chiefly at Kettle

Rapids, Long Spruce Rapids and Limestone Rapids. Manitoba's largest thermal stations are the Brandon and Selkirk stations, each with a generating capacity of 132,000 kw. The site at the Selkirk station is large enough to permit an eventual installation of 1,000,000 kw.

Prior to 1963, Saskatchewan's total hydro-electric generating capacity of approximately 119,000 kw. was used solely to service mining operations in the northern part of the province. Power to satisfy the major part of industrial and domestic demands in the southern part of the province was supplied by thermal stations. The year 1963 marks the first time that hydro-electric power generated in Saskatchewan has been fed into the general distribution system. The initial installation of 134,000 kw. of hydro capacity at Squaw Rapids on the Saskatchewan River is the first step in a long-range program to develop the water power resources of the Saskatchewan River basin. Two more units to be installed at Squaw Rapids in 1964 will increase the station's capacity to 201,000 kw. and there is provision for a further two units. Construction of the South Saskatchewan River project near Outlook is going ahead on schedule. The dam and reservoir are being built primarily for irrigation purposes, but hydro-electric generation facilities will be included. The hydro site, known as the Coteau Creek site, will be developed to provide 124,400 kw. of capacity in 1967, which will be increased to 186,600 kw. in 1969. There is considerable interest in the development of a pumped storage project on the Anerley Lakes chain near the South Saskatchewan River Dam. If this project were built, surplus energy during off-peak periods could be

used to fill the Anerley reservoir; stored water released from the reservoir would generate power during peak load periods. The cities of Moose Jaw and Prince Albert were connected to the provincial grid system in 1963 and the thermal plants, rated at 37,500 kw. and 22,200 kw. respectively, which supplied these two centres, were closed down.

Alberta's major hydro installations are located in the southeastern region of the province on the Bow River and its tributaries. Considerable reserves of water power are available in northern areas of the province, but growing demands in southern Alberta are being met by thermal-electric plants burning local fuels. Alberta's largest generating stations are the thermal plants at Wabamun and Edmonton. The Wabamun plant has an installed capacity of 282,000 kw. and the Edmonton plant has 330,000 kw., the latter including 75,000 kw. installed in 1963. An addition of 225,000 kw. at the Wabamun plant is scheduled for 1967. By the fall of 1964, the first generating unit at Big Bend on the Brazeau River will be ready for operation. Installation of the unit will add 150,000 kw. to the province's hydro generating capacity. A pump-generator station, operating in conjunction with the Big Bend development, will supply another 9,720 kw. of generating capacity.

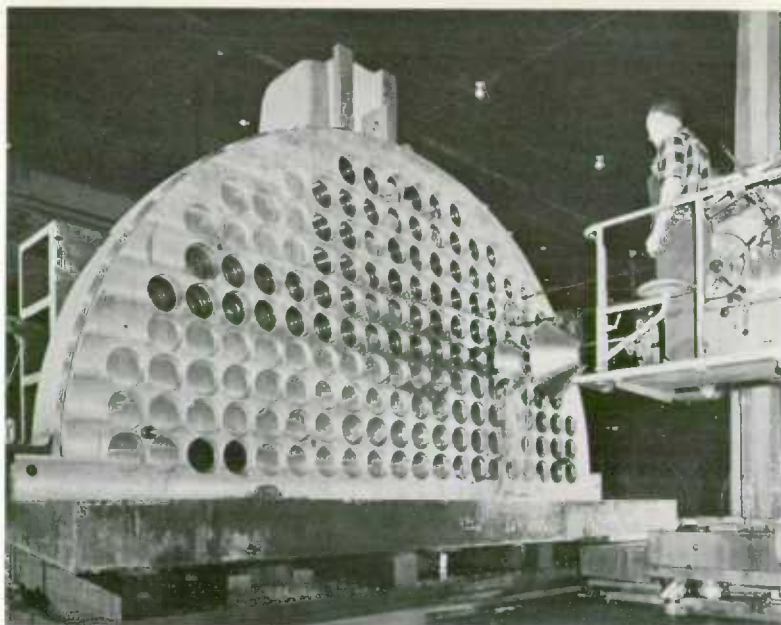
British Columbia

British Columbia's many fast-flowing 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 hydro-electric generating capacity installed, British Columbia, with a total of 2,614,000 kw., is exceeded only by Quebec and Ontario.

Although the province is abundantly endowed with water power resources, thermal energy plays an important part in the power economy. Of the total of 259,680 kw. of new capacity installed in 1963, 187,680 kw. was thermal, bringing the total thermal capacity in British Columbia to 828,000 kw. Installation of a second unit at the Burrard Generating Station will augment this total by 150,000 kw. in 1964, and there are plans to increase the capacity at Burrard by a further 450,000 kw. to bring the total station capacity to 900,000 kw.

At Waneta hydro station on the Pend d'Oreille River, the total generating capacity now stands at 216,000 kw. following the installation of a third unit in 1963.

Plans for the future development of the Columbia and Peace Rivers are of major significance to British Columbia. The Columbia River Treaty, signed on behalf of Canada in 1961, provided 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 water stored in Canada behind the proposed Duncan Lake, High Arrow and Mica Dams on the Columbia River. In addition, Canada would receive one half the value of the estimated flood damage prevented in the United States through operation of the proposed dams for flood control. Canada has not yet ratified the Treaty, but negotiations aimed at clarifying and adjusting the Treaty were carried on between Canada and the United States during 1963. Agreement between Canada and British Columbia has been reached with regard to their respective responsibilities under the Treaty.



Twelve of these semi-circular sections will be assembled to form two shields, one of which will be installed at each end of the reactor vessel at the Douglas Point nuclear electrical generating station now under construction. Each shield is 16' 10" in diameter, 3' 8" thick and weighs 120 tons. Besides serving as radiation shields, they will act as terminal connections for 306 latticed pressure tubes into which the uranium oxide fuel is fed.

Construction crews at the Portage Mountain damsite have diverted the Peace River through three diversion tunnels, by-passing a 3,000-foot stretch of the river and making way for construction of Portage Mountain Dam. By 1968, Portage Mountain Dam, straddling the Peace River Valley for a distance of one and a quarter miles, will have risen to its full height of 600 feet, forming a 680-square-mile lake, the largest in British Columbia. A comparison between the estimated 2,300,000 kw. at Portage Mountain and the 1,500,000 kw. installed at Beauharnois in Quebec, at present Canada's largest generating plant, gives some idea of the power available on the Peace River. First power from Portage Mountain will become available in 1968. A second dam and powerhouse twelve miles downstream from Portage Mountain would provide a further 650,000 kilowatts.

Yukon and Northwest Territories

In the Yukon Territory, substantial water power resources exist on the Yukon River and its tributaries. Hydro-electric plants with a combined generating capacity of 28,000 kw. and a number of small thermal plants with capacities totalling 5,000 kw. supply the power needs of mining operations and communities.

More than half of the water power resources of the Northwest Territories are located on rivers flowing into Great Slave Lake. On one of these, the Taltson River, a hydro-electric plant will be built at a site known as Twin Gorges, about 35 miles northeast of Fort Smith. Construction of the plant, due to begin early in 1964, will add 18,000 kw. to the total of 17,000 kw. of

hydro capacity at present installed in the Northwest Territories. The total thermal capacity of 22,000 kw. includes 3,500 kw. of new capacity installed during 1963.

**Available and Developed Water and Thermal Power in Canada,
January 1, 1964**

Province or Territory	Water Power			Installed Generating Capacity	
	Available Continuous Power at 80 p.c. Efficiency		Installed Turbine Capacity	Hydro	Thermal
	At Ordinary Minimum Flow	At Ordinary Six-Months Flow			
	hp.	hp.	hp.	kw.	kw.
Newfoundland.....	1,608,000	3,264,000	632,000	452,000	69,000
Prince Edward Island..	500	3,000	1,000	—	59,000
Nova Scotia.....	30,500	177,000	205,000	143,000	377,000
New Brunswick.....	123,000	334,000	310,000	230,000	301,000
Quebec.....	12,557,000	23,711,000	13,177,000	9,418,000	171,000
Ontario.....	5,496,000	7,701,000	8,248,000	5,925,000	2,568,000
Manitoba.....	4,758,000	8,454,000	989,000	747,000	343,000
Saskatchewan.....	552,000	1,131,000	326,000	253,000	607,000
Alberta.....	911,000	2,453,000	414,000	291,000	864,000
British Columbia.....	18,200,000	19,400,000	3,831,000	2,614,000	828,000
Yukon Territory.....	4,678,000	4,700,000	38,000	28,000	5,000
Northwest Territories...	1,367,000	1,795,000	22,000	17,000	22,000
Canada.....	50,281,000	73,123,000	28,193,000²	20,118,000	6,214,000

¹ These figures reflect the effect of possible streamflow regulation based on known storage potentials.

² This total includes the capacities of a small number of turbines connected directly to mechanical equipment.

Electric Power Statistics. The total electric energy generated in Canada in 1962 amounted to about 117,500,000,000 kwh. Of this total 88.5 p.c. was produced by water power. Imports amounted to 2,791,000,000 kwh. and exports to 4,049,000,000 kwh.

In 1961 there were 4,716,819 residential, including rural, customers in Canada compared with 4,542,780 in 1960. The amount of electricity consumed in residences and farms advanced from 20,397,014,000 kwh. to 21,979,672,000 kwh., or from 4,490 kwh. to 4,660 kwh. per customer. The per customer consumption varied widely among the provinces; Manitoba led with 6,535 kwh. while Prince Edward Island and New Brunswick had the lowest averages. Farm customers added during 1961 numbered 13,361.

Canadians enjoy some of the lowest electricity rates in the world. The rate for domestic service over the past ten years has remained at 1.6 cents per kwh., as compared to about 2.5 cents in the United States. Ontario, Quebec, Manitoba and British Columbia consumption is highest, while lower consumption occurs in Saskatchewan, Alberta and the Maritimes, which depend on relatively high cost thermal electricity.

The 1961 average bill for domestic and farm service stood at \$73.53 against \$71.88 for 1960, an increase of 2.3 p.c. while consumption per customer rose 3.8 p.c. Provincial bills ranged from \$105.25 in British Columbia to \$61.52 in Quebec.

Manufactures

From all indications, 1963 should prove to be a banner year for Canadian manufacturers. During the first eight months of the year all indicators showed substantial increases over the first eight months of the previous year. Should this trend continue for the balance of the year, the selling value of factory shipments should reach a record high of \$27,980,000,000 or an increase of 5.6 p.c. as compared with 1962. This will be the second time in Canadian history that shipments topped the \$25,000,000,000 mark. Salaries and wages should also rise to \$5,930,000,000, an increase of 5.8 p.c. Number of employees at 1,347,000 will be 2.4 p.c. higher.

Volume output with a 5 p.c. increase will be slightly less than the 5.6 p.c. increase in the value of factory shipments, thus indicating a slight rise in the prices of manufactured products. Manufactures of durable goods should be up by 4 p.c. as compared with an increase of 6 p.c. for non-durable or consumer goods.

Not all provinces shared alike in the growth of manufactures during 1963. From the point of view of goods shipped, New Brunswick, which was the only province in 1962 to report decreased shipments, should end the 1963 operations with an increase of 7.8 p.c., the highest increase of any province. British Columbia had the second highest increase of 7.5 p.c., followed by Ontario with 7.2 p.c., Prince Edward Island and Nova Scotia 6.8 p.c., Quebec 3.4 p.c., Manitoba 2.5 p.c., Alberta 2.0 p.c. and Saskatchewan 0.2 p.c. Newfoundland was the only province to report lower shipments, the decline being 3.3 p.c.

The manufacture of pulp and paper has been Canada's leading industry for many years—in net value of shipments, in exports, in total wages paid and in capital invested. It is the largest industrial buyer of goods and services, including transportation. It 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.



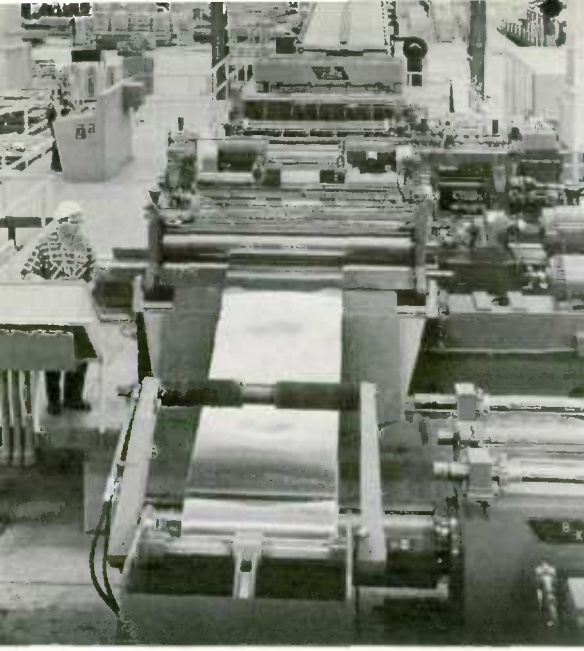


Next to apples, peaches are the most important commercial fruit in Canada, with production fluctuating between two and three million bushels. Canning and processing industries have been developed in the fruit-growing areas of Canada and the finished product is labelled by grade according to a rigid set of qualifications drawn up and enforced by the Canada Department of Agriculture.

Manufacturers in 1962 operated at a phenomenally high level of production. Although lower in magnitude than 1963, the percentage increase in 1962 in shipments, value added by manufacture, number of employees, salaries and wages paid and volume of production was in all cases higher than the expected percentage increase for 1963. Shipments at \$26,500,000,000 will be 9.3 p.c. higher while the number of employees at 1,316,000 and salaries and wages paid at \$5,608,000,000 will be 4.0 p.c. and 7.2 p.c. higher respectively. The volume of production, although 7.8 p.c. higher, fell below the 9.3 p.c. increase in shipments, again indicating increased unit prices for manufactured products. The increase in the number of employees at 4.0 p.c. was lower than the 7.8 p.c. increase in volume output. This follows the trend in recent years for the need of fewer employees to produce the same volume of goods. Also the 7.8 p.c. increase in the volume of manufactures as a whole was attained by an increase of 5.0 p.c. in the volume of non-durable or consumer goods and a 11.2 p.c. increase in the volume of durable goods.

The industrial expansion of Canada since Confederation has been phenomenal. In the past generation alone, Canada has changed from a country producing and exporting mainly primary products to a country that is increasingly producing and exporting manufactured goods.

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



An interior view of the new \$12,000,000 plant for the production of aluminum sheet. This plant was opened in Kingston, Ontario, in June 1963, and is the most modern in North America and the largest aluminum cold rolling mill in Canada, with a present capacity of 25,000 tons of sheet annually.

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 ma-

nufacturing remained about 25 p.c. while in service industries their numbers had risen to 52 p.c. Over the past 15 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 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 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 requiring 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.

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.

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

A \$3,000,000 chemical plant at Fort Saskatchewan, 20 miles from Edmonton, Alberta, manufactures glycol and amines.



1939 level. Tangible evidence of the permanence of these gains was provided by the fact that a substantial portion of war-expanded manufacturing facilities found a profitable use in the postwar 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 prewar 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 growth of Canadian manufacturing industry from 1917 to 1963.

Manufacturing Statistics, Significant Years, 1917 to 1963

Year	Employees ¹	Salaries and Wages ¹	Value Added By Manufacture ²	Gross Value of Products ³
	No.	\$'000	\$'000	\$'000
1917	606,523	497,802	1,281,132	2,820,811
1920	598,893	717,494	1,621,273	3,706,545
1929	666,531	777,291	1,755,387	3,883,446
1933	468,658	436,248	919,671	1,954,076
1939	658,114	737,811	1,531,052	3,474,784
1944	1,222,882	2,029,621	4,015,776	9,073,693
1949	1,171,207	2,591,891	5,330,566	12,479,593
1953	1,327,451	3,957,018	7,993,069	17,785,417
1954	1,267,966	3,896,688	7,902,124	17,554,528
1955	1,298,461	4,142,410	8,753,450	19,513,934
1956	1,353,020	4,570,692	9,605,425	21,636,749
1957	1,359,061	4,819,628	9,822,085	22,183,594
1958	1,289,602	4,802,496	9,792,506	22,163,186
1959 ⁴	1,300,765	5,062,745	10,306,282	23,204,209
1960 ⁴	1,275,476	5,150,503	10,380,148	23,279,804
1961 ⁴	1,265,032	5,231,447	10,682,138	24,243,295
1962 ⁴	1,315,600	5,608,100	11,685,580	26,497,920 ⁵
1963 ⁴	1,347,200	5,933,400	12,340,400	27,981,800 ⁵

Manufacturing Statistics, by Province and Industrial Group, 1961

	Employees ¹	Salaries and Wages ¹	Value Added By Manufacture ²	Gross Value of Products ³
	No.	\$'000	\$'000	\$'000
Provinces				
Newfoundland	9,896	35,970	70,010	137,224
Prince Edward Island	1,724	4,207	8,131	30,041
Nova Scotia	26,801	88,919	159,218	375,307
New Brunswick	22,443	73,892	159,979	397,457
Quebec	423,729	1,626,572	3,207,856	7,327,258
Ontario	591,501	2,597,408	5,429,853	11,957,330
Manitoba	41,212	157,302	315,235	769,895
Saskatchewan	12,149	48,948	120,972	344,432
Alberta	37,921	157,348	346,732	933,826
British Columbia	97,518	440,198	863,443	1,967,091
Yukon and Northwest Territories	138	681	708	3,434
Canada	1,265,032	5,231,447	10,682,138	24,243,295
Industrial Groups				
Food and beverages	188,855	687,996	1,704,715	4,905,434
Tobacco products	9,442	39,154	128,640	334,983
Rubber	18,860	82,004	171,594	331,135
Leather	31,413	89,574	140,388	291,069
Textiles	62,544	212,558	392,689	875,288
Knitting mills	21,459	57,469	100,641	219,296
Clothing	87,728	234,388	377,072	801,535
Wood	80,042	280,331	431,373	1,035,344
Furniture and fixtures	33,153	112,446	185,103	362,062
Paper and allied industries	94,862	471,137	1,071,316	2,205,734
Printing, publishing and allied industries	72,779	327,901	591,099	872,292
Primary metal	87,238	457,619	1,129,978	2,806,484
Metal fabricating (except machinery and transportation equipment industries)	94,611	421,916	739,019	1,492,691
Machinery (except electrical machinery)	42,083	195,606	329,764	639,739
Transportation equipment	107,709	522,470	828,670	1,960,777
Electrical products	79,531	353,568	617,534	1,205,534
Non-metallic mineral products	40,128	174,087	381,394	675,013
Petroleum and coal products	14,053	85,340	290,698	1,220,194
Chemical and chemical products	52,167	254,004	760,928	1,433,878
Miscellaneous manufacturing	46,375	171,878	309,523	574,813

¹ Estimated on the basis of the monthly employment survey which covers manufacturers employing 15 hands or over.

² Estimated on the basis of the percentage for 1959 of value added to shipments.

³ For 1952 and subsequent years the basis of collection was "Value of factory shipments" instead of "Gross value of products".

⁴ Figures for 1959 to 1963 were compiled in accordance with the revised "Standard Industrial Classification, 1960". The figures for 1961 exclude the two new industries which were included with the previous published figures on manufacturing.

⁵ Estimated on the basis of the monthly survey of shipments by manufacturers.

This sardine canning factory in New Brunswick employing 1,500 men and women is reputed to be the world's largest with a 1962 output of 1,200,000 cases, two thirds of which were exported to Britain, Austria and Australia. The remainder were marketed in the United States and Canada.





Skilled workers in a Nova Scotia furniture factory work on chair and chesterfield frames.

In 1961, the value of factory shipments was \$24,243,000,000, the highest amount on record. The index of the physical volume of production, which stood at 153.0 in that year, exceeded by 2.8 p.c. the previous high attained in 1959 and by 2.5 p.c. the index for 1960. Despite this increase in volume of output, the number of employees at 1,265,000 was 0.8 p.c. lower than in 1960, thus continuing the recent trend for the same amount of goods to be produced by fewer employees; in the period 1949-61, the volume of goods manufactured increased by 53 p.c. and the number of persons employed by only 8 p.c. Salaries and wages paid in 1961 reached \$5,231,000,000, an amount 1.6 p.c. higher than the 1960 total and also the highest on record. It should be noted that the addition of 368,000 persons to the population in 1961 supplemented labour income and had a stimulating effect on the output of consumer goods.

Of tremendous importance in sustaining the high level of production in 1961 was the continued high spending on capital goods. Investment in capital goods amounted to \$8,172,000,000 in 1961, a decrease of \$90,000,000 from the previous year. Of the total spent, \$5,518,000,000 was for construction and \$2,654,000,000 for machinery and equipment. Spending for construction was \$65,000,000 higher while for machinery and equipment it was \$155,000,000 lower.

Export demand for Canadian manufactured products was also a strong factor in stimulating the high level of production in 1961. Exports of fabricated materials advanced from \$2,874,300,000 in 1960 to \$2,916,400,000 in 1961, an increase of 1.5 p.c. Substantial improvements were shown in the amounts of timber and lumber, wood pulp, newsprint, whiskey, nickel, fertilizers, aircraft, lead and lead products, non-farm machinery, veneer and plywood going abroad, but at the same time declines occurred in such major export items as shingles, wheat flour, farm implements and machinery, aluminum and its products, copper and its products, zinc, automobiles and parts, artificial abrasives, synthetic rubber and plastics and uranium ores and concentrates.

All industries producing non-durable goods, with the exception of the clothing and knitting mills group, reported increased volume in 1961. The greatest increase in volume of 11.2 p.c. was attained by the miscellaneous industries group. This was followed by leather products with an increase of 10.7 p.c., textiles 9.9 p.c., tobacco and tobacco products 6.4 p.c., paper products 3.4 p.c., products of petroleum and coal 3.3 p.c., foods 2.8 p.c., beverages 2.1 p.c., rubber and rubber products 1.7 p.c., printing, publishing and allied

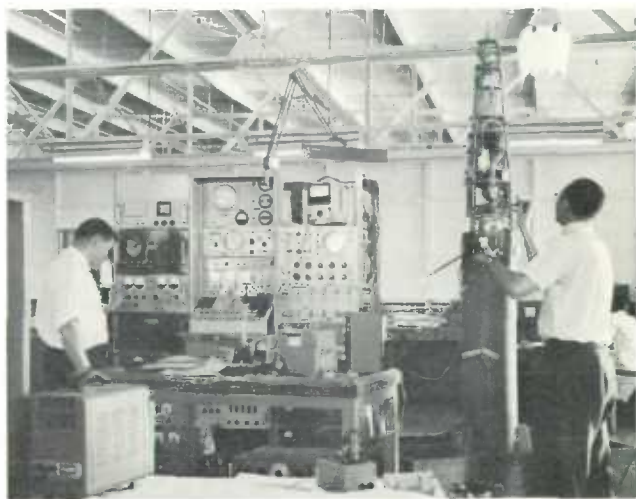
industries 1.1 p.c. and chemicals and allied products 1.1 p.c. Volume output of clothing factories and knitting mills declined 0.7 p.c. The significant feature in 1961 was the upsurge in the output of leather products and textiles. These two groups, which were operating during the previous few years at comparatively low levels, materially bettered their position during 1961. The clothing and knitting industries, however, still have the smallest increase in volume since 1949 in both the non-durable and durable goods sectors.

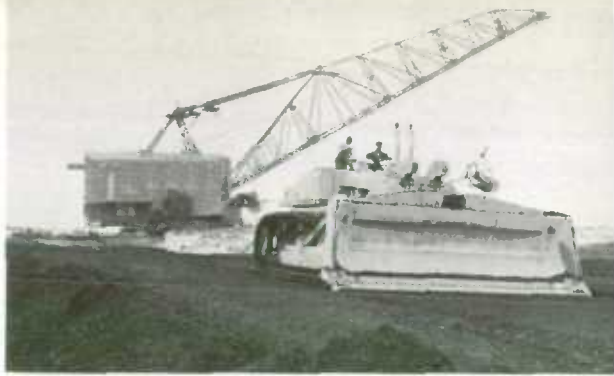
In the durable goods sector the trend in 1961 was mixed. Four of the groups reported increases and two declines. Of the groups reporting increased volume, non-metallic mineral products had the highest increase of 4.4 p.c., followed by wood products with 2.6 p.c., iron and steel products 1.5 p.c. and electrical apparatus and supplies 1.3 p.c. The output of non-ferrous metal products dropped 0.5 p.c. and transportation equipment 0.2 p.c.

The level of manufacturing activity in 1961, as measured by the number of persons employed, was lower in all provinces, except Newfoundland and New Brunswick, the latter two provinces reporting increases of 6.1 p.c. and 1.2 p.c. respectively. The greatest loss in employment was suffered by Nova Scotia with a drop of 4.8 p.c. This was followed by Saskatchewan with a drop of 3.9 p.c., British Columbia 2.3 p.c., Alberta and Quebec 1.8 p.c., Manitoba 1.6 p.c., Ontario 1.2 p.c. and Prince Edward Island 0.3 p.c. Perhaps the most outstanding feature in 1961 was the reversal in the trend of manufacturing employment in Saskatchewan which after three successive years of increases reported the second highest decline in employment.

Ontario, which is recognized as one of the world's major industrial areas, accounts for approximately half of Canada's manufacturing production. Despite the great industrial progress made by other provinces, Ontario continues to maintain its predominance, and in 1962 accounted for 50.0 p.c. of the total value of factory shipments. Quebec with 29.9 p.c. of the total shipments ranks as the second largest industrial province, while British Columbia with 8.1 p.c. of the total ranks third. Ontario is also the largest producer of durable goods and consequently its share of the total fluctuates with the business cycle. When manufacturing production reaches a high level, Ontario's share of the total increases and conversely its share of the total drops slightly when the level of production declines.

Canada's famous Black Brant rockets, used in upper atmosphere research, are manufactured in Winnipeg. Here technicians are installing telemetry devices in the nose cone of a Black Brant.





Ever-expanding construction programs create a demand for newer or bigger construction tools. The largest "crawler" in the construction industry, this piece of machinery is powered by 425 hp.

This huge dragline is capable of stripping 9,000,000 cubic yards of overburden a year in a three-shift operation—enough to fill 180,000 railway cars.

Capital Investment

Capital expenditures in Canada can have important effects on the pace of economic activity in the country since these expenditures account for more than 20 p.c. of the gross national product. Individuals buying new houses, businessmen acquiring plants and machinery, and governments building roads, dams and office buildings, all are procuring these assets not for current consumption but for the production of goods and services for future consumption. The total size and value of this capital program is a useful indicator of the amounts of labour, materials and funds likely to be needed for its accomplishment. Intended outlays reported by businessmen are also an indication of their assessment of the capacity and efficiency of the existing production facilities in relation to expected future demand.

The most recent studies of capital expenditures in Canada were conducted late in 1962 and in late May and June of 1963. Information was obtained from business, institutions and governments regarding expected outlays in 1963 for new structures and machinery and equipment. In addition, the expected level of expenditures for the construction of new housing was estimated.

Capital spending during 1963 was expected to reach a total of \$9,300,000,000, or a 7 p.c. increase over the 1962 level. Outlays for construction and machinery purchases were expected to be, respectively, 6 p.c. and 9 p.c. higher than in 1962. A capital program of this magnitude would mean that a continuing high proportion of Canada's gross national product was being devoted to the expansion, modernization and renewal of the nation's production facilities, and should provide continuing strong support toward a higher rate of general economic activity in 1963. Demands for both construction materials and labour should increase by about the same extent as overall construction expenditures. Part of the machinery required is normally obtained from abroad but Canadian producers would probably obtain a proportionate share of the larger market.

The trend of business conditions influences the extent to which plans of capital expenditures are fulfilled or exceeded. Prolonged work stoppages, changes in prices or cost of borrowing, and other unexpected factors can affect the timing of commencement, completion or general adherence to original plans for capital projects.

Business investment in 1963 was expected to increase by about 8 p.c. Expansion in capital outlays was expected in new facilities for power generation and gas distribution with larger programs in manufacturing, transportation and communication. Important increases in investment were in prospect for the paper and wood products industries, chemicals, and for capital-producing industries. All major equipment-producing groups of industries planned expanded investment programs in 1963. Higher levels of capital spending in transportation and communication were expected to arise from factors such as accelerated work on rapid transit systems in two major cities, pipeline building programs, additional telegraph facilities being installed, and larger deliveries of commercial aircraft. Outlays for oil and gas well development were also expected to be higher in 1963. However, expansion in all these areas was likely to be partially offset by reductions of different magnitudes in capital spending plans in non-metal mining and in primary metal production.

The spending for social capital facilities in Canada was expected to increase in 1963 but by a smaller percentage than in the preceding year. With the passing of the peak phase in the federally-supported program of technical school construction, some slowing down was expected but school construction as a whole was likely to equal the 1962 level. On the other hand, significant increases were in prospect in the building of new hospital and university facilities with increases of lesser magnitude in outlays for highways, roads, streets, water systems and other improvements by provincial and municipal governments.

An aerial view of the world's first perforated caisson breakwater at Baie Comeau, Quebec. Designed by the Department of Public Works and the National Research Council, the 1,000-foot-long breakwater is honeycombed with holes that allow waves to pour through into a chamber where their energy is reduced by friction and turbulence. Water spilling back out of the holes creates a counter wave to meet and reduce the incoming wave. This action creates a quiet harbour for ships berthed on the opposite side of the structure.



Estimates for the housebuilding program for 1963 indicated a 3 to 4 p.c. rise over the preceding year. In 1962 there were 130,000 new housing units started and close to 127,000 completed. The number of new units started in 1963 was estimated to be at least equal to that in 1962 and with a large carryover of uncompleted houses going into 1963, the number of completions was expected to exceed moderately the completions during 1962.

Private and Public Capital Expenditures, by Sector, 1959-63

Sector	1959	1960	1961	1962 ¹	1963 ²
	\$'000,000				
Business Capital (excluding Housing):					
Forest and mineral products.....	728	863	818	969	1,130
Fuel and power.....	1,044	992	1,090	1,010	1,116
Trade, finance and commercial services.....	833	875	847	847	848
Transportation, storage and communication.....	1,025	990	829	830	888
Other.....	1,171	1,154	1,183	1,301	1,379
Totals.....	4,801	4,874	4,767	4,957	5,361
Housing and Social Capital:					
Housing.....	1,752	1,456	1,467	1,587	1,643
Institutional services.....	536	573	616	808	887
Govt. depts. and waterworks.....	1,328	1,359	1,322	1,386	1,450
Totals.....	3,616	3,388	3,405	3,781	3,980
Total Capital Expenditures.....	8,417	8,262	8,172	8,738	9,341

¹ Preliminary.

² Intentions.



Construction of a sewage settling tank, one of the concomitants of suburban building.

Before construction can begin, destruction must take place. In most large urban centres today, sweeping projects for slum clearance and redevelopment of obsolescent areas are either in the planning stage or under active development.



Canadian Balance of International Payments. To supply their everyday needs, Canadians depend on the labour and products of countries in every part of the world. Oranges, tea and coffee reach the breakfast table through transportation and distribution systems involving many hands, both Canadian and foreign. The morning newspaper reflects the services of reporters and news-gathering agencies around the world. The family car is likely to represent the output of Canadian labour working with equipment supplied by the savings of non-residents and using the engineering skills which they had developed. While this great stream of goods, services and savings was flowing into Canada, an important although smaller flow of goods, services and savings was moving outward across our borders. Many Canadians earn their living by supplying export demands—the prairie farmer growing wheat on his own land, the fisherman netting salmon on the Pacific coast, the Labrador miner using non-resident-owned mining and transportation equipment to mine and ship iron ore, the workers in lumber and paper mills and in a host of other factories. It is this widespread interchange of goods, services and savings which has contributed to high incomes and a high standard of living in Canada and in many other parts of the world.

Every hour of every day, commodities are in transit into and out of Canada by train, truck, ship, aircraft and even pipeline. Great as this traffic is, it accounts for only about half of Canada's international transactions. Canadians earn substantial amounts from the provision of services and savings to non-residents, and there are even greater payments by Canada for similar services and savings provided by non-residents. In addition to these international exchanges, which currently equal more than \$900 per year for every Canadian, there is a vast amount of investment, borrowing and lending between Canada and other countries.

In recent years Canadians' purchases from non-residents of goods and services have persistently exceeded sales by a sizable margin. This imbalance has been made possible by very large inflows of foreign capital for investment

in Canadian industry and in addition at times by heavy borrowings by provinces and municipalities. These inflows have been associated with growth and development and have, in turn, contributed to the deficits by stimulating demands for larger purchases of foreign goods and services. There have been deficits with one exception each year since 1950, and they ranged between \$1,000,000,000 and \$1,500,000,000 in each of the years from 1956 to 1960. The largest deficits 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 moderated somewhat but has continued to be far larger than earlier. In accord with the changing strength of demand at home and abroad, variations in the current account deficit have reflected mainly changes in demands for goods. But most of the current account deficit has originated persistently and increasingly from non-merchandise transactions. 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 natural result 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 influx of new Canadians has led to rising remittances by those having family connections outside 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 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

Westmount Subdivision, Halifax, N.S., is a good example of a new suburban development.





Increasing in popularity are the apartment buildings with swimming pool and play area, such as this one in Dorval, Quebec.

the accumulated deficits of earlier years. Together with miscellaneous investment income, these transactions have in recent years resulted in net payments by Canada of over \$500,000,000 annually. And 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. Net payments of this kind have been rising and are now well over \$150,000,000 annually.

While the financing of large external deficits has been accomplished for the most part with little or no visible difficulty, the underlying problems involved in high and persistent deficits from transactions in goods and services were revealed starkly in 1962. At that time a decline in the inward movement of foreign capital to Canada occurred for a variety of reasons, and contributed to doubts as to the future external value of the Canadian dollar. Outflows from Canada of capital, both Canadian and foreign, developed on a large scale, and in a matter of less than eight months Canada had to dispose of more than \$1,000,000,000 of its most liquid foreign investments—official holdings of gold and United States dollars. Measures were taken to restore balance in Canada's international accounts, and other countries and international institutions joined in the defence of the Canadian dollar. These measures soon restored confidence, and official holdings of gold and United States dollars rose to new high levels.

International Investment Position

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 well over \$19,000,000,000 at the end of 1963, about \$1,000 for every man, woman

and child in Canada. Canada's gross external liabilities amount to over \$29,000,000,000, of which about half represent 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 over \$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. Foreign investment accounts for 63 p.c. of the ownership of the Canadian petroleum and natural gas industry and represents control of 75 p.c. The mining industry is 59 p.c. foreign-owned and 61 p.c. foreign-controlled. Manufacturing other than petroleum refining is 51 p.c. foreign-owned and 57 p.c. foreign-controlled. The degree of foreign ownership and control varies 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, in recent years, were approaching \$800,000,000 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.

Housing

One of the significant trends in housing in Canada during 1963 was the noticeable increase in the construction of rental units in metropolitan areas. Apartment dwelling starts during the first eight months accounted for 54 p.c. of all new construction in these areas as compared to 41 p.c. for the corresponding period in 1962. Some 91 p.c. of all new rental units started between January and the end of August 1963 in cities of 5,000 population and over were located in the metropolitan areas, indicating a continued trend towards higher density residential construction. Among the factors contributing to the growing rate of rental construction are the changing age structure of the Canadian population and the changing relationship in supply and demand for home-ownership housing.

The amount of money that a prospective homeowner or a builder can borrow to build a dwelling with National Housing Act financing was substantially raised in 1963. The National Housing Loan Regulations were amended to increase the maximum loan amounts available for both owner-occupied and rental housing dwellings. The loan ceiling was raised to \$15,600 for houses having four bedrooms or more, and to \$14,900 for houses containing

three bedrooms or less. The maximum loan for apartment multiple-family dwellings was increased to \$12,000 for each housing unit.

To promote house building in winter and thus stimulate employment, the Government of Canada, through the Department of Labour, undertook to pay \$500 to those who purchased new homes built during the winter months. The incentive payment applied to first purchasers only. Whether the practice is to be continued will be decided when the results of this initial experiment have been fully evaluated.

In June 1963, the Federal Government announced a reduction in the maximum interest rate that could be charged on National Housing Act loans to 6½ p.c. per annum from the previous 6½ p.c. The lower rate applied to both home-ownership housing and rental housing and to loans made by approved lenders operating under the NHA as well as to loans made directly by Central Mortgage and Housing Corporation, the federal housing agency.

During the closing days of 1962, the Federal Minister responsible for the operations of CMHC announced that direct loans by the Corporation were being made available for rental housing projects.

During the first eight months of 1963, housing starts in Canadian centres of 5,000 population and over numbered 70,734 dwellings, an increase of 7.1 p.c. over the total of 66,014 for the same period of 1962.

National Housing Act mortgage lending during the period declined 8.5 p.c. to 33,022 units as compared with a total of 36,101 in the corresponding months of 1962. Of these approvals, loans by approved lenders accounted for 24,570 and Central Mortgage and Housing Corporation for 8,452.

Average construction cost for NHA single-family dwellings covering the same six-month period was \$15,868 including the insurance fee, an increase of \$815 per unit over the 1962 average.



New women's residences at the University of British Columbia, financed under the National Housing Act.

Row housing in North Vancouver. Each house has its own little private garden and there is a communal swimming pool.



An 11 p.c. federal tax imposed on construction materials in June 1963 was subsequently lowered to 4 p.c. for the first year so as to permit a graduated scale to be established and to alleviate the hardship that might have been worked on the building trade had the original 11 p.c. tax remained.

During the 12-month period ending August 31, 1963, requests for federal sewerage loans from 223 municipalities across Canada were approved, amounting to \$40,109,000. To assist in the construction of dormitory accommodation for university students the Federal Government made a total of 29 loans to universities, colleges and other eligible institutions, amounting to over \$28,500,000 and providing accommodation for 5,759 students. A total of 28 federal limited-dividend loans to help finance construction of accommodation for elderly citizens was approved. Nine of these were in Ontario, six in Saskatchewan, six in British Columbia, five in Manitoba, and one each in Nova Scotia and Prince Edward Island. Two limited-dividend loans were granted for the housing of low-income families, one in Vancouver, British Columbia and the other in Jasper Place, a suburb of Edmonton, Alberta. Federal Government contributions were received by the cities of Montreal and Halifax to assist in urban redevelopment projects.

Low-rental housing projects financed through joint participation by the federal and provincial governments were approved for Montreal, P.Q., Winnipeg, Man., the Ontario municipalities of Cochrane, Collingwood, Delhi, Fort Frances, Kapuskasing, Lindsay, Port Arthur, Ottawa and Toronto, and for Moncton and Saint John in New Brunswick.

Federal urban renewal study grants to eight Canadian municipalities were approved during the year ended August 31, 1963. These were Joliette and Ville d'Anjou in Quebec, Cornwall, Toronto and Trenton in Ontario, Edmonton and Medicine Hat in Alberta, and Moose Jaw in Saskatchewan.

Federal-provincial land assembly projects for the development of serviced building lots were approved for Toronto, Carleton Place, Trenton, Tisdale and Nepean Township in Ontario, and St. John's, Newfoundland, for a total of 1,931 lots.

During the same period transactions in NHA insured mortgages were active, with 7,950 purchased by investors for a total value of \$92,250,000. Since May 1961, when the first auction of mortgages was held by Central Mortgage and Housing Corporation, 12,900 mortgages were sold, amounting to \$148,250,000. The purpose of these sales is to stimulate mortgage lending by NHA approved lenders, to attract funds into mortgages by institutions not in a position to initiate mortgage loans, and to lessen dependence on public funds for the financing of residential construction.

Federal housing research grants were made to the Planning Institute of British Columbia, the Ontario Research Foundation, the Canadian Housing Design Council, the Community Planning Association of Canada, and the Division of Building Research of the National Research Council. In addition, grants were provided to assist education in housing and community planning through fellowships, bursaries, travel scholarships in architecture, and senior fellowships, and to study professional training in town planning in Canada to meet the growing need for planning services by municipalities.



Enchantment!

Domestic Trade

The marketing of goods and services is a complicated and far-flung operation employing 42 p.c. of Canada's working population. If transportation, finance, insurance and real estate were included—and they are all closely involved in trade—the figure would rise to 54 p.c. In 1961 there were 152,620 retail stores, with sales of \$16,073,000,000. As marketing services are used by virtually every member of the population, they are subject to extreme pressures of competition. During the past decade, domestic trade has undergone more radical changes than in any comparable period. The flight of shopping centres from downtown areas to suburbs has brought about such innovations as night shopping and shopping malls—downtown streets from which traffic is prohibited and where outdoor restaurants, playgrounds, benches and flowers are special attractions.

There is a growing 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 period 1951-61 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 growth of shopping centres in Canada has been very rapid. In 1950 there were only two shopping centres in operation, one in Quebec and



Shopping centres are increasing in both size and complexity; in the biggest ones it is now necessary to provide a directory of shops.

one in British Columbia. By 1960 there were 263 shopping centres with sales for that year of \$815,682,284.

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 21.0 p.c. in 1960. 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 1960 and 1961 the sales of specialist firms who make a business of supplying and servicing machines in various locations increased 12.4 p.c., from \$38,250,840 to \$43,493,663.

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 \$545,000,000 in 1960. There has been 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, the number of power laundries and dry cleaning plants have increased from 1,298 in 1951 to 1,843 in 1960 and the receipts of these businesses have grown from about \$97,000,000 to \$163,000,000. 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 1961 there were 1,341 regular theatres and 238 drive-ins with only 107,418,494 admissions. Receipts fell from about \$94,000,000 in 1951 to \$68,882,172 in 1961.

Estimates of Wholesale Sales, 1959-62

Kind of Business	1959	1960	1961	1962 ¹
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables	279.5	288.4	288.7	301.7
Groceries and food specialties	1,544.5	1,649.7	1,751.4	1,913.7
Meat and dairy products	171.3	165.0	175.0	176.3
Clothing and furnishings	120.0	116.1	116.6	119.1
Footwear	37.1	38.0	39.4	41.4
Other textile and clothing accessories	230.2	204.6	206.0	208.2
Coal and coke	155.9	153.3	140.6	139.3
Drugs and drug sundries	216.6	221.9	236.0	252.0
Newsprint, paper and paper products	262.8	276.4	291.6	307.3
Tobacco, confectionery and soft drinks	723.4	741.1	769.9	802.0
Automotive parts and accessories	407.9	414.8	414.4	446.6
Commercial, institutional and service equipment and supplies	130.2	137.4	140.4	151.0
Construction materials and supplies including lumber	964.4	877.6	894.0	974.3
Farm machinery	84.9	73.0	67.8	73.3
Hardware	317.6	327.1	350.7	359.4
Household electrical appliances	181.4	182.7	199.5	211.3
Industrial and transportation equipment and supplies	779.7	748.1	750.1	778.5
All other trades	2,145.2	2,149.3	2,204.5	2,544.8
Totals	8,752.6	8,764.5	9,036.6	9,800.2

¹ Preliminary.

A view of the Newfoundland Agricultural and Homecraft Exhibition held annually in St. John's.





At the Canadian Gift Show, held in Toronto in June 1963, examples of Canadian-made pottery, jewelry and copperware were displayed.

Estimated retail sales totalled \$17,570,500,000 in 1962, an amount 4.8 p.c. higher than the 1961 figure. Motor vehicle dealers registered the largest increase in sales from the previous year with a gain of 11.0 p.c.

Retail Store Sales by Type of Business and by Province, 1960-62

Type of Business and Province	Sales			Percentage Change
	1960	1961	1962 ¹	1961-62
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and combination stores.....	3,473.9	3,580.8	3,704.1	+3.4
Other food and beverage stores.....	1,224.6	1,243.8	1,316.6	+5.9
General stores.....	640.4	654.4	684.9	+4.7
Department stores.....	1,453.5	1,503.1	1,561.4	+4.1
Variety stores.....	350.4	371.2	382.8	+3.1
Motor vehicle dealers.....	2,551.0	2,488.3	2,762.6	+11.0
Garages and filling stations.....	1,145.5	1,212.0	1,239.1	+2.2
Men's clothing stores.....	258.9	260.7	275.4	+5.6
Family clothing stores.....	235.3	243.2	250.6	+3.0
Women's clothing stores.....	277.0	283.5	291.2	+2.7
Shoe stores.....	168.8	169.6	174.6	+3.0
Hardware stores.....	326.3	327.6	338.8	+3.4
Lumber and building material dealers.....	435.9	425.6	448.2	+5.3
Furniture, radio and appliance stores.....	546.6	548.2	560.1	+2.2
Restaurants.....	569.4	573.4	585.8	+2.2
Fuel dealers.....	323.8	317.4	328.0	+3.3
Drug stores.....	416.0	428.3	436.0	+1.8
All other stores.....	2,104.8	2,145.7	2,230.1	+3.9
Totals.....	16,502.1	16,776.8	17,570.5	+4.8
Province				
Atlantic Provinces.....	1,429.7	1,465.2	1,501.3	+3.0
Quebec.....	3,944.3	4,183.5	4,444.2	+5.5
Ontario.....	6,312.7	6,339.9	6,550.1	+1.8
Manitoba.....	842.5	817.0	857.6	+3.7
Saskatchewan.....	938.0	905.2	962.6	+3.4
Alberta.....	1,366.5	1,400.8	1,470.6	+4.3
British Columbia (incl. Yukon and N.W.T.).....	1,668.4	1,665.2	1,784.1	+3.8

¹ Preliminary.

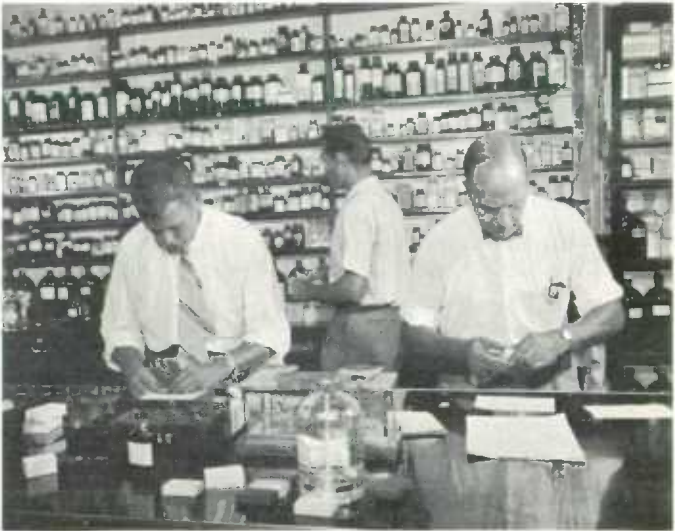
Chain Store Statistics, 1953-60

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
1960.....	9,954	3,468,413	382,099	304,230	94,528	175,048

Sales of new passenger cars reached an all-time high in dollar volume during 1962 with 502,565 units sold for a total of \$1,482,407,000. The financing of new passenger vehicle sales by sales finance companies covered 30.6 p.c. of new car sales in 1962, the lowest proportion to date.

New Passenger Car Sales and Financing, 1955-62

Year	Sold		Financed		P.C. of Total Sales Financed	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000		\$'000		
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
1961.....	437,319	1,290,026	141,234	330,199	32.3	25.6
1962.....	502,565	1,482,407	153,983	379,543	30.6	25.6



In 1962, drug stores did \$436,000,000 worth of business. Of this amount, \$55,000,000 was spent in chain drug stores.



The marketing of services is an important aspect of retail trade. This young man travels seven months a year from the Yukon to Prince Edward Island sharpening curling rocks which, owned by curling clubs, now travel about 350 miles a year, compared with the 5-7 miles of an individually owned rock.

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 businessmen, is the quickest means by which they can expand their assets. It is, in effect, a form of compulsory saving and a stimulus to industry.

Whether or not the securing of easy credit is an advantage to the individual, the fact remains that the amount of balances outstanding on the books of selected credit holders increased more than 77 p.c. in the period 1955 to 1962 while retail sales, the source of most of this credit, increased only 34 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.

Balances Outstanding on Credit Extended 1955-63

(Estimates of selected items)

Date	Retail Dealers ¹	Finance and Loan Companies	Total	Cash Personal Loans ²	Total Selected Items
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1955 December 31.....	822	605	1,427	722	2,149
1956 ".....	872	769	1,641	789	2,430
1957 ".....	900	795	1,695	780	2,475
1958 ".....	937	787	1,724	947	2,671
1959 ".....	993	844	1,837	1,178	3,015
1960 March 31.....	918	830	1,748	1,177	2,925
June 30.....	938	889	1,827	1,284	3,111
September 30.....	949	898	1,847	1,334	3,181
December 31.....	1,038	873	1,911	1,375	3,286
1961 March 31.....	961	828	1,789	1,396	3,185
June 30.....	980	839	1,819	1,493	3,312
September 30.....	993	832	1,825	1,544	3,369
December 31.....	1,088	791	1,879	1,606	3,485
1962 March 31.....	999	767	1,766	1,660	3,426
June 30.....	1,020	806	1,826	1,832	3,658
September 30.....	1,019	820	1,839	1,840	3,679
December 31.....	1,125	816	1,941	1,854	3,795
1963 March 31.....	1,044	815	1,859	1,894	3,753
June 30.....	1,063	880	1,943	2,042	3,985

¹ Includes both charges and instalment.

² Includes small loan companies cash loans, chartered banks personal loans (excluding fully secured and home improvement loans); Quebec Savings banks loans.

Retail Prices

The Consumer Price Index. The Consumer Price Index measures 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 monthly and annually as a percentage of their prices in the base period 1949.

The "Basket". 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).

A well-stocked store at Povungnituk, where an Eskimo is trading Arctic fox skins for groceries. Most of the stores in the north are not heated, because of the high cost of fuel, so shopkeeper and customer are warmly dressed.



Index Movements, 1949-63. Between 1949 and 1963, the Consumer Price Index rose 33.0 p.c., from 100 to 133.0. 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 33.0 p.c. rise in consumer prices between 1949 and 1963 occurred in these two periods.

In 1963, the Consumer Price Index averaged 133.0, 1.8 p.c. above the 1962 average of 130.7. Indexes for all but one of the seven main groups composing the index were higher in 1963 as prices of most goods and services rose above average levels of the previous year. The food index rose 3.2 p.c. as prices of most foods increased, including eggs, fresh and canned fruit, restaurant meals, bakery and cereal products, sugar and jams. Prices decreased for most cuts of beef but were higher for other meats, fish and poultry. The second largest increase occurred in the health and personal care index which moved up 2.6 p.c. as a result of increases in prepaid medical care, doctors' and dentists' fees, and personal care supplies. Pharmaceutical prices were slightly lower than in the previous year. About the same rate of increase occurred in the clothing index which rose 2.5 p.c., mainly on higher prices for men's and women's wear. Increases were wide-spread, however, including footwear, piece goods, jewelry and clothing services. The indexes for recreation and reading and for housing



Competition for business has put emphasis on service. Rugs may be cleaned at home, to save the householder the inconvenience of being without them.



A barge store provides the only shopping centre at the commercial fishing camp on the shore of Frobisher Lake in northern Saskatchewan.

also moved up in 1963 but by smaller percentages, 1.4 p.c. and 1.0 p.c. respectively. In the former, admission prices to motion pictures and sporting events and prices of newspapers and magazines were higher while in housing, mortgage interest and prices of new houses and repairs were up from the previous year. The tobacco and alcohol index recorded an increase of 0.3 p.c. while the transportation index was unchanged.

Consumer Price Index Numbers, 1949-63

(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
1962.....	126.2	134.8	113.5	140.4	158.3	147.3	117.8	130.7
1963.....	130.3	136.2	116.3	140.4	162.4	149.3	118.1	133.0



A laboratory test is carried out at a co-operative vegetable oil extraction plant in the Mennonite town of Altona, Manitoba.

Co-operatives

The volume of business carried on by Canada's 2,836 co-operative associations during the year ended July 31, 1962 totalled \$1,421,000,000, a decrease of 4 p.c. from the previous year.

Marketing and purchasing co-operatives are still the largest part of the Canadian co-operative movement and reported total sales of \$1,372,605,000 in 1962.

The Ontario Hog Producers Co-operative Association which accounted for over \$90,000,000 worth of sales of livestock, was dissolved in 1961. While sales of livestock and livestock products increased considerably in Alberta, Saskatchewan and Nova Scotia, the change in Ontario more than offset this increase and resulted in an overall decline of \$66,000,000 in sales of livestock and livestock products in 1961.

Sales of grains and seeds amounted to \$386,608,000, sales of dairy products to \$240,167,000, and sales of livestock and livestock products to \$204,082,000. Sales of merchandise and supplies by marketing and purchasing co-operatives amounted to \$423,000,000, an increase of 8 p.c.

On a provincial basis, total sales increased in Alberta from \$169,000,000 in 1961 to \$186,000,000 in 1962 or by \$17,000,000. In Nova Scotia sales increased by \$5,000,000 from 1961, and in Quebec by \$4,000,000. Sales declined in Saskatchewan, Manitoba and Ontario. In the other provinces total sales were almost the same as in 1961.

The number of service co-operatives declined from 882 in 1961 to 869 in 1962. Most of the student co-operatives in Quebec ceased to operate during the year. Value of services and other business amounted to \$25,000,000, an increase of 4 p.c. from 1961. Total assets decreased from \$110,000,000 in 1961 to \$107,000,000 in 1962. In Alberta alone total assets decreased by \$7,000,000.

The main types of service provided include transportation, electricity, seed cleaning, cold storage, housing, grazing and artificial breeding.

Fishermen's co-operatives are marketing and purchasing associations which are reported separately because of the more specialized activities in which they are engaged. Sales of fish increased from \$16,000,000 in 1961 to \$18,000,000 in 1962. Total volume of business, including sales of fish, fishing supplies, other supplies and other revenue amounted to \$23,000,000.

Co-operative wholesales are organized by affiliated co-operatives to provide them with merchandise and supplies and/or to market farm and fish products for the benefit of their members. Some of them handle a wide range of goods and products, others are highly specialized.

In 1962, two wholesales marketed mainly fish for their affiliated members; one marketed mainly fruits and vegetables and one sold mainly groceries.

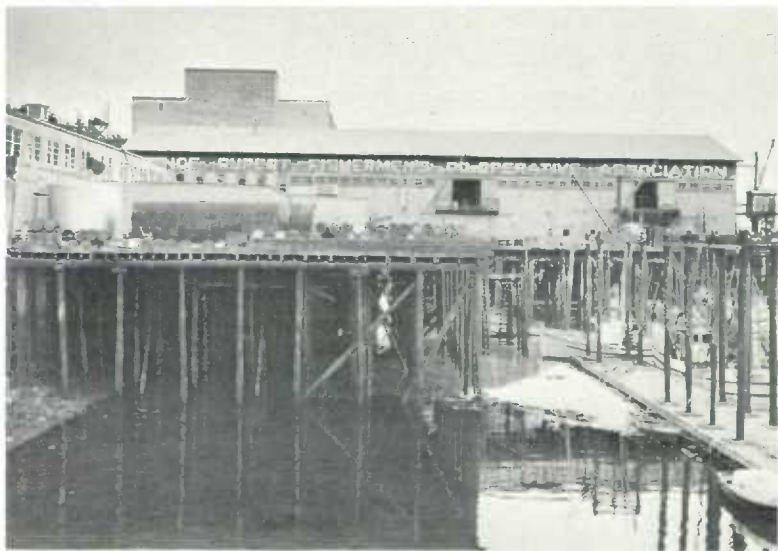
Total sales in 1962 amounted to \$337,000,000, sales of supplies to \$206,000,000 and sales of farm and fish products to \$131,000,000.

There were 14 co-operatives in the Canadian Arctic in 1962, four in northern Quebec and 10 in the Northwest Territories. Annual reports from nine co-operatives showed that sales totalled \$457,631. The members benefited from these sales directly in payments for products delivered, wages, etc.—in the amount of \$131,542. Thirteen of the co-operatives are of the multi-purpose nature, engaged in more than one of the following activities—fishing, handicrafts, logging, boat building, graphic art, tourism, carvings, fur trading and operating of a retail store or coffee shop. The Sisi Co-operative at Frobisher Bay is a housing co-operative, the first in the north.

The Travel Industry

International travel comprises all types of human movement across frontiers, including holiday and business trips, temporary migration for employment or study, shopping excursions, travel for medical or health reasons, and visits to friends and relatives. As might be expected, the greatest amount of international traffic, as far as Canada is concerned, is with the

Wharves and warehouse of a fisherman's co-operative at Prince Rupert, British Columbia.



United States. Canadians made 27,944,000 visits to the United States in 1962, while 31,656,400 visits to Canada from the United States were made.

Canadians are in the rare position of being able to travel to the United States or to Britain without a passport, although Canadians travelling to Britain are required to present a passport upon re-entry to Canada. Americans need no passport to enter Canada. Canadians are entitled to bring back \$25 worth of goods from the United States duty free after 48 hours' stay and provided no claim has been made for four months; from other countries they may bring in \$100 worth of duty-free goods once a year, after 14 days' stay.

Examination of international travel between Canada and the United States by type of transportation shows comparable patterns in some respects for non-immigrants and Canadians. As might be expected, the automobile is the most important type of transportation used by both the non-immigrants and Canadians. In 1962 some 24,600,000 non-immigrants entered Canada from the United States by automobile, representing nearly 78 p.c. of the total entrants for the year. Approximately 500,000 each entered by plane, bus and rail. Entries by boat were abnormally heavy (700,000 or 2.2 p.c.) in 1962 due to the close proximity of the World's Fair in Seattle, Washington to Victoria, B.C. The residual entering as pedestrians, local bus, or other types of transportation not already specified constituted about 4,900,000 in 1962 or between 15 and 16 p.c. of the total.

Canadians returning by automobile from trips to the United States in 1962 numbered 22,400,000 or some 80 p.c. of the total by all types of transportation. This shows a slightly higher proportion of the Canadian travel

Native Indians performing tribal dances are a tourist attraction at the Nova Scotia Festival of the Arts.





A typical "old-fashioned" summer resort, popular for family holidays. The church, the little general store, the cottages on the lake have yet to be replaced by the luxury motel, kidney-shaped swimming pool, juke box and dance hall.

was by automobile than shown for the non-immigrants. There was also a higher percentage of Canadians travelling by air (1.7 p.c.) whereas the proportion travelling by bus (1.6 p.c.) was almost equal. Less than one p.c. of the Canadians returning from the United States were aboard trains while, at the same time, boats were of much less importance as a means of transportation for Canadians re-entering than for non-immigrants entering Canada from the United States. Between 15 and 16 p.c. appear in the residual group (other travellers) which is practically the same proportion as non-immigrant entries.

The bulk of international travel between Canada and the United States is of a short-term nature composed of visits of 24 hours or less. In 1962 some 21,600,000 visits of non-immigrants to Canada were in this category while some 10,100,000 trips were for a period of more than 24 hours. Canadian visits to the United States are also predominantly on a short-term basis. In 1962 the breakdown of Canadian visits to the United States showed 23,000,000 or 82.3 p.c. of the aggregate in the short-term group of 24 hours or less and 4,900,000 or 17.7 p.c. in the long-term traffic with visits of over 24 hours.

Foreign spending in Canada, which benefits directly or indirectly many sections of the business and economic life, has the same ultimate effect on Canada's balance of payments with other countries as exports of commodities. If travel were considered as a commodity, receipts from its "export" would rank third, exceeded only by total exports of newsprint and wheat.

Receipts from non-immigrants entering Canada from the United States are estimated at \$512,000,000 in 1962, an increase of \$77,000,000 or 18 p.c.

above the previous year. Contrary to the trend in number of visitors, the greatest proportion of the receipts are from the group staying over 24 hours. In 1962 \$453,800,000 or nearly 89 p.c. of the receipts came from the long-term traffic which represents about 32 p.c. of the visitors. Furthermore, non-immigrants entering by automobile spent some \$323,000,000 in Canada, which is roughly 63 p.c. of the total receipts, although the number of visits by this group represented some 78 p.c. of the aggregate for the year. Non-immigrant visitors entering by transportation other than automobile accounted for \$189,000,000 or 37 p.c. of the expenditures in Canada during 1962 while, on the other hand, they represented about 22 p.c. of the total number of visits.

Payments by Canadians travelling in the United States (excluding Hawaii) amounted to \$414,000,000 in 1962, a decrease of \$41,000,000 or 9 p.c. below the previous year. As part of a series of official actions to relieve pressure on the Canadian dollar, a temporary measure (effective June 25, 1962) reduced the customs exemption on Canadian purchases of merchandise in the United States from \$100 to \$25 every four months. This change, and the devaluation of the Canadian dollar, contributed to the significantly lower expenditures in the United States for 1962.

Comparable to the pattern appearing in receipts from non-immigrants, the greatest proportion of the payments made by Canadians travelling in the United States are made by the group staying over 24 hours even though they represented only 18 p.c. of the visits. Estimates show \$365,000,000 were paid by some 4,900,000 persons staying over 24 hours, while the remainder of the payments (\$49,000,000) were made by 23,000,000 persons staying 24 hours or less. Payments by Canadians returning by automobile amounted to \$203,000,000 or 49 p.c. of the total while the number of persons involved constituted 80 p.c. of the aggregate of re-entries. At the same time, residents of Canada returning by non-automobile transportation spent \$211,000,000 which represents 51 p.c. of the total payments whereas they accounted for about 20 p.c. of the total visits.

Balance of Payments on Travel Account, Canada and Other Countries, 1958-62

(Millions of Dollars)

Item	1958	1959	1960	1961	1962
Account with the United States—					
Credits.....	309	351	375	435	512
Debits.....	413	448	462	459	419
Net.....	-104	-97	-87	-24	+93
Account with Overseas Countries—					
Credits.....	40	40	45	47	50
Debits.....	129	150	165	183	186
Net.....	-89	-110	-120	-136	-136
Account with All Countries—					
Credits.....	349	391	420	482	562
Debits.....	542	598	627	642	605
Net.....	-193	-207	-207	-160	-43



All kinds of accommodation compete for the tourist's dollar. There is the traditional Quebec hotel, the huge motor hotel specializing in convention business, the luxury vacation motel, and the airport hotel with its complicated sound-proofing construction, involving eight-inch masonry walls between rooms, double-glazed vacuum-sealed windows, vertical and horizontal concrete extensions beyond the walls to act as baffles, and a quiet air-conditioning system.





Ookpik—a 6-inch-tall, seal-skin doll vaguely resembling an Arctic owl—is the symbol of the Department of Trade and Commerce at foreign fairs, exhibitions and sample shows. Made by Eskimos in Fort Chimo, Ookpik was an instant success when he attended his first show late in 1963 and orders for duplicates poured in. Two Canadian toy companies are now under contract to the Federal Government to mass-produce Ookpik, with royalties going to the Eskimo co-operative.

Foreign Trade

In recent years Canadian foreign trade has expanded considerably. A new peak was reached in 1962 and current figures indicate a further rise for 1963. During the first ten months of 1963, total exports increased by 7.6 p.c. to \$5,640,300,000 over the same period in 1962 and were greater in value than in the similar ten months of any previous year. Imports in 1963 advanced to a new record, but not quite as sharply, rising to \$5,386,800,000 or 2.3 p.c. above the amount for January–October 1962. Total foreign trade by the end of October 1963 was thus more than \$500,000,000 above the value reached in the same period of the preceding year. There was also a striking change in the balance of trade, which for the first ten months of 1963 showed an export surplus of \$253,500,000 as compared with an import balance of \$25,400,000 for January–October 1962. Summary statistics of Canada's foreign trade since 1957 appear in the table below.

Exports, Imports and Total Trade of Canada, 1957-63

(Millions of Dollars)

	Exports			Imports	Total Trade	Balance of Trade
	Domestic	Re-exports	Total			
Calendar Year						
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.....	5,255.6	131.2	5,386.8	5,482.7	10,869.5	-95.9
1961.....	5,755.0	140.2	5,895.2	5,768.6	11,663.8	+126.6
1962.....	6,178.5	169.2	6,347.7	6,257.8	12,605.5	+89.9
January-October						
1962.....	5,098.8	140.9	5,239.6	5,265.0	10,504.6	-25.4
1963 ¹	5,489.2	151.1	5,640.3	5,386.8	11,027.1	+253.5

NOTE: Figures revised to exclude settlers' effects, tourist purchases, private donations and other special non-commercial transactions.

¹ Preliminary.

International Background

Since over one fifth of the national income and major portions of the revenues of many important industries are derived from foreign trade, developments in principal world markets and trading groups have a direct effect upon Canada's economy. World commerce advanced by approximately 6 p.c. in 1962, levelling off somewhat towards the end of that year, but by mid-1963 appeared to have regained momentum. Industrial production rose approximately 4 p.c. during the first half of 1963 compared with the same six months of the preceding year. There was increased industrial activity in the United States, Western Europe and Japan and the position of some of the primary producers also improved.

According to the latest figures available, Canada ranked fifth among the major trading nations of the world in the total value of commodities exchanged. The United States occupied first place, followed by the Federal Republic of Germany, Britain and France. On the basis of trade per capita, Canada was in eighth position, preceded by Switzerland, Belgium and Luxembourg, the Netherlands, Denmark, Sweden, Trinidad and Tobago and Norway. Comparative statistics of international trade by principal countries follow.

Leading Countries in World Trade, by Value of Trade and Trade per Capita, 1961 and 1962

Country	Exports, f.o.b.		Imports, c.i.f.		Total Trade	
	1961	1962	1961	1962	1961	1962
Value of Trade (Millions of U.S. Dollars)						
World Trade ¹	118,720	124,400	124,460	131,600	243,180	256,000
United States.....	20,912 ²	21,644 ²	16,109	17,775	37,021 ²	39,419 ²
Germany, Federal Republic.....	12,690	13,267	10,948	12,289	23,638	25,556
Britain.....	10,754	11,058	12,314	12,576	23,068	23,634
France.....	7,222	7,363	6,679	7,517	13,901	14,880
Canada.....	6,107	6,231	6,195	6,367	12,302	12,598
Italy.....	4,188	4,066	5,222	6,056	9,410	10,722
Japan.....	4,246	4,917	5,810	5,637	10,046	10,554
Netherlands.....	4,288	4,584	5,087	5,347	9,375	9,931
Belgium and Luxembourg.....	3,924	4,324	4,219	4,555	8,143	8,879
Sweden.....	2,738	2,923	2,921	3,114	5,659	6,037
Trade per Capita ³						
Switzerland.....	371	395	492	538	864	933
Belgium and Luxembourg.....	412	453	443	477	855	930
Netherlands.....	368	389	437	453	806	842
Denmark.....	333	357	406	458	739	814
Sweden.....	363	387	387	412	750	798
Trinidad and Tobago.....	402	393	391	402	793	795
Norway.....	257	267	447	454	704	722
Canada.....	335	336	340	343	675	678
New Zealand.....	328	321	372	303	700	624
Hong Kong.....	216	225	329	342	545	567

¹ World total exclusive of China, U.S.S.R. and those countries of Eastern Europe not reporting trade currently.

² Including military aid extended to other countries.

³ Trading countries as listed by I.M.F., except that Aden, Netherlands Antilles and countries with neither exports nor imports of U.S. \$100,000,000 in 1962 were excluded.

SOURCES: International Monetary Fund, *International Financial Statistics*, September, 1963; and United Nations Statistical Office, *Population and Vital Statistics Reports*, Series A, Vol. XV, Nos. 2 and 3.

The trend towards a more consolidated development of Europe was checked at the end of January 1963 by the French veto of Britain's request for admission to the European Economic Community (EEC) or Common Market. 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. Negotiations concerning Britain's possible entry had been proceeding for over a year and had these been successful it was likely that several European countries would have followed suit. Intra-EEC trade increased 100 p.c. between 1958 and 1962 and imports from other countries by over 35 p.c. Consumer expenditures remained high. In 1962 approximately 7.4 p.c. of Canada's domestic exports were sent to EEC countries and 5.4 p.c. of its imports derived therefrom.

Britain plays a leading role in the European Free Trade Association (EFTA), the other members of which are Austria, Denmark, Norway, Portugal, Sweden and Switzerland. In 1962 Canada sent 16.8 p.c. of its domestic exports to EFTA countries and obtained 10.6 p.c. of all imports from this group, Britain taking 87.7 p.c. of such exports and sending 85.3 p.c. of the corresponding imports. At a meeting of ministers of EFTA countries in May 1963 it was decided to accelerate tariff reductions, which by the end of December 1963 should amount to 60 p.c., so that by the end of 1966, internal tariffs between members and quantitative import restrictions on industrial goods will be abolished. Each nation of this group retains its

Part of the Canadian exhibit at the Barcelona Samples Fair, June 1963.



As part of its long-range plan for the modernization of its railroads, Mexico ordered 80 diesel locomotives, valued at \$16,100,000, from Canada. When the agreement was signed in January 1963, it was the largest individual industrial shipment made through Export Credits Insurance Corporation.



own tariff against non-members. Trade between members rose some 16 p.c. between 1960 and 1962 and total imports by around 7 p.c.

The Organization for Economic Co-operation and Development (OECD), founded in December 1960, includes Canada, the United States and 18 European nations. The main objectives of OECD are to encourage economic and financial growth by member countries, to co-ordinate aid to less developed nations and to bring about a non-discriminatory expansion in world trade. The third annual meeting of the Ministerial Council was held in Paris in November 1963 and confirmed the need for the more developed members to assist in solving the problems of the less developed member countries. It is expected that Japan will enter OECD shortly, which would then include the main industrial nations of the world.

Approximately 80 p.c. of world trade takes place among the 58 nations, including Canada, which are associated in the General Agreement on Tariffs and Trade (GATT). In operation since 1948, GATT has been most effective in reducing or stabilizing tariff rates, eliminating import restrictions and other trade barriers between member countries. Important negotiations are scheduled for the spring of 1964; named the "Kennedy Round", these were made possible through the broad powers accorded the late President of the United States by the Trade Expansion Act of 1962 which permits tariff reductions by as much as 50 p.c. in order to secure concessions from others. GATT ministers, meeting in May 1963, agreed that future tariff discussions would be based on wide across-the-board reductions rather than on individual country and product bargaining and that efforts should be intensified to seek broader markets for the exports of the less developed countries.

The Latin American Free Trade Association (LAFTA), in operation since 1961, is composed of nine nations—Argentina, Brazil, Colombia, Chile, Ecuador, Mexico, Paraguay, Peru and Uruguay—and is open to new adherents. The aim of LAFTA is to remove customs duties and other trade restrictions between members at a minimum reduction rate of 8 p.c. annually arriving

at their elimination by 1972. Already individual tariff concessions have been granted on about 7,500 items. Agreements are to be sponsored to rationalize industrial production regionally, to develop a common customs tariff against outsiders and to solve transportation and communication problems. Intra-area trade in 1962 accounted for about 7 p.c. of the group's imports and exports. In Central America, further steps were taken toward economic integration in 1963, the Central American Common Market has increased trade and stimulated investment, and the completion of a common external tariff will facilitate the regional distribution of imported goods.

In view of Canada's prominence in world trade, these developments in different regions have a bearing on the course and composition of its commerce. The consolidation of such markets and the diversification in their output may well lead to greater demand for capital goods, machinery and engineering specialties. Also, should the GATT negotiations make real progress, the concessions obtained could open further markets to Canadian exports of many types. Poor harvests in the U.S.S.R., Communist China and Eastern European countries have created a large demand for imported wheat and their purchases of substantial quantities are expected to stimulate Canadian business activity considerably over the next few years.

Canadian Trade Trends

The total value of Canada's foreign trade has advanced each year since 1958, exports annually from 1954 and imports since 1960. In 1961, for the first time since 1952, exports exceeded imports and this trend was continued in 1962 and 1963. These two recent years have been buoyant ones for Canadian trade and substantial gains were recorded for both exports and imports. The lower foreign exchange value of the Canadian dollar helped

A huge digester—part of the machinery and equipment bought from Canada for a \$10,500,000 paper mill—is unloaded at Nacimiento, Chile. The mill will have a rated capacity of 60,000 tons of newsprint annually.





One of a recent sale of 145 Canadian road graders arriving in Argentina.

improve Canada's competitive position on a wide range of exports and the physical volume of merchandise handled has increased. The value of imports has risen as well, although the rate of advance in 1963 up till the end of October was less than in the same period of the preceding year, gains in latter months outweighing losses in the first six months.

Exports

The main components of Canadian export trade by stage of manufacture are fabricated materials, followed by crude materials and then by finished or end products. Gains were reported in each category but latterly the largest advance has been in exports of finished goods. This last group, which increased some 25 p.c. in value between 1961 and 1962, accounted for approximately 14 p.c. of Canadian exports, while fabricated materials were around 50 p.c. and crude materials, 36 p.c.

Among individual commodities, newsprint remained the principal export, recent annual shipments exceeding \$750,000,000. Strikes against newspapers in New York and Cleveland caused interruptions in early 1963 deliveries but by the third quarter these losses had been cancelled out. Wheat was in second place and, with shipments running at peak capacity in the latter months of 1963, due to large deliveries to the U.S.S.R., these should well exceed the 1962 level of \$601,000,000. Lumber exports, which rose to nearly \$400,000,000 in 1962 and wood pulp to almost \$370,000,000, were both still gaining in 1963 aided by increased sales to the United States and Japan. Nickel and nickel products declined in 1962 to \$322,000,000 while aluminum and aluminum products rose to \$293,000,000 and in the first half of 1963 both advanced mainly in shipments to the United States and Britain.



Loading this 58-foot long, 85,000 - pound unit posed a major problem for Montreal's stevedores. It is a process tower with 30 miles of intricately wound copper tubing inside it, part of cryogenic processing equipment to be installed in Algeria to liquefy natural gas from Sahara Desert wells.

Reflecting improved conditions in the United States, crude petroleum exports at \$232,000,000 in 1962 were 52 p.c. greater than in the preceding year, and continued to advance slightly in 1963. Natural gas, also transmitted by pipeline, was valued at \$72,000,000 in 1962, a gain of over 70 p.c., and was increasing in 1963. Iron ore and concentrates rose by nearly two thirds to \$220,000,000, reflecting more active steel operations in the United States in 1962 and in the first part of 1963. Copper and its products, valued at over \$210,000,000, were up 4.5 p.c. and rose again in early 1963. Exports of the above commodities, with the exception of natural gas, amounted to more than \$200,000,000 in 1962 and two thirds showed gains over the corresponding total for the preceding year.

Sales abroad of uranium have declined for several years as a result of the stretch-out in the United States purchasing program; they were valued at \$166,000,000 in 1962. A new contract was negotiated with Britain in July 1962 and early 1963 shipments showed an improvement. Exports of aircraft and parts at \$147,000,000 were high in 1962 and included a number of transport types, both military and commercial, for the United States. Asbestos sales increased to almost \$136,000,000 in 1962 but fell slightly in the first half of 1963. Non-farm machinery advanced more than one fourth, to over \$122,000,000, and rose by more than one half in the first six months of 1963. Particulars concerning these and other leading Canadian exports during the years 1960 to 1962 and for the first six months of 1963 are contained in the table below.

Principal Domestic Exports, 1960-63

Commodity ¹	Calendar Year			January-June	
	1960	1961	1962	1962	1963
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	757,930	761,313	753,060	361,959	349,610
Wheat.....	410,453	663,191	601,518	294,028	303,514
Lumber and timber.....	346,300	354,866	396,747	191,622	217,749
Wood pulp.....	325,122	346,661	369,902	185,319	191,520
Nickel and products.....	251,248	341,934	322,485	160,226	184,913
Aluminum and products.....	269,420	250,727	293,007	131,457	150,939
Petroleum, crude and partly refined.....	94,450	152,334	232,497	115,630	121,957
Iron ore and concentrates.....	155,472	135,835	220,522	79,130	85,140
Copper and products.....	223,916	201,803	210,854	100,336	108,816
Radioactive ores and concentrates.....	263,541	192,722	166,009	85,578	86,013
Aircraft and parts.....	50,172	80,126	146,917	72,147	51,841
Asbestos, unmanufactured.....	120,113	131,533	135,638	58,042	56,275
Machinery (non-farm) and parts.....	67,074	96,694	122,528	54,112	110,777
Whisky.....	79,220	80,397	84,885	34,937	36,876
Synthetic rubber and plastics materials, not shaped.....	109,144	103,832	84,571	43,368	43,471
Farm implements and machinery (except tractors) and parts.....	81,279	76,028	82,973	46,348	66,142
Fish, fresh and frozen.....	68,833	72,528	78,288	31,099	30,804
Chemicals, organic and inorganic..... ²	65,072	65,072	72,966	29,761	28,637
Electrical apparatus, n.e.s.....	47,282	55,817	72,484	17,435	40,544
Gas exported by pipeline.....	18,051	41,689	72,423	35,813	41,443

¹ Commodities ranked by value of exports in 1962.² Data for 1960 not comparable.

Imports

The chief imports into Canada over a period of years have tended to follow a somewhat similar pattern, with iron and its products accounting for over one third of the total and machinery and parts topping the list of leading commodities. This occurred again in 1962 and 1963, the value of



Canadian products are used in the transmission of high voltage electric power over the Waikato plains of New Zealand.

machinery imports exceeding \$676,000,000 in 1962. Automobile parts gained almost 30 p.c. to reach over \$392,000,000 in that year and increased sharply also in early 1963. Imports of electrical apparatus advanced by nearly one fourth to be in third place at \$325,000,000 but contracted about 6 p.c. in 1963. Crude petroleum arrivals increased moderately to \$305,000,000 in 1962 and then rose at a faster rate in 1963. Imports of aircraft, at \$259,000,000, showed some variation in both years but the figures include a considerable amount of military aircraft brought in under special arrangements. Arrivals of passenger cars have been declining in recent years, were valued at \$153,000,000 in 1962 and fell sharply in 1963. Tractors accounted for \$140,000,000 and imports rose 25 p.c. in the first half of 1963. Plastics, at nearly \$120,000,000 in 1962, were higher than in previous years and appeared to be advancing in 1963. Farm implements and machinery increased almost 20 p.c. in 1962 at \$113,000,000 and were up an additional third in the first six months of 1963. Engines, also at \$113,000,000, were more than 40 p.c. above the two previous years and retained this high level in 1963. The order of importance of the above-mentioned imports shifts slightly from year to year, but each is usually within the top ten in rank. The table which follows shows that their values in 1962 exceeded \$100,000,000 and gives particulars of these and other chief imports over the period 1960-63.

Lumber and timber are Canada's third largest export, exceeded only by newsprint and wheat. In 1962 the value of lumber and timber exported was close to \$400,000,000.



Principal Imports, 1960-63

Commodity ¹	Calendar Year			January-June	
	1960	1961	1962	1962	1963
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.....	579,801	611,320	676,077	345,584	384,273
Automobile parts (except engines).....	296,571	304,487	392,687	195,671	248,465
Electrical apparatus, n.e.s.....	265,260	257,239	325,316	164,193	153,988
Petroleum, crude and partly refined.....	280,071	291,170	304,898	146,514	163,103
Aircraft and parts.....	167,009	312,552	259,251	176,228	75,599
Automobiles, passenger.....	220,144	157,003	153,679	106,098	49,467
Tractors and parts.....	131,541	136,014	140,287	74,829	93,580
Plastics and products.....	97,650	105,417	119,708	57,782	59,161
Farm implements and machinery (except tractors) and parts.....	97,118	95,680	113,451	59,464	78,832
Engines, internal combustion, and parts, n.e.s.....	81,594	80,040	113,206	58,434	58,922
Parcels of small value.....	53,764	55,094	85,504	39,156	46,220
Apparel and apparel accessories.....	72,019	75,962	71,728	34,676	27,898
Cotton fabrics.....	75,150	75,896	71,208	41,265	32,989
Coal, bituminous.....	61,821	58,777	62,461	26,172	28,559
Paperboard paper and paper products, n.e.s.....	49,009	53,949	59,202	40,057	37,492
Fuel oils.....	66,853	59,789	59,142	17,569	17,540
Plates, sheet and strip (steel).....	56,667	53,275	57,898	31,961	34,973
Sugar, unrefined.....	50,677	52,729	56,926	24,024	38,188
Iron ore.....	48,370	47,433	56,324	16,856	17,551
Coffee, green.....	47,314	52,184	55,655	27,100	27,802

¹ Commodities ranked by value of imports in 1962.

Wheat is Canada's second largest export; the value of wheat exported in 1962 was more than \$600,000,000.



Direction of Trade

Particularly in 1962 and also but to a lesser extent in 1963, there has been an added emphasis placed on Canada's trade with the United States. In 1962, 63.8 p.c. of its total trade was with that country, a considerable rise from 60.7 p.c. in 1961. This was chiefly due to an increase of 4.5 p.c. in the proportion of Canadian exports thereto which in sum amounted to 59 p.c. while the share of imports therefrom rose slightly to 68.7 p.c. In the first six months of 1963, the United States absorbed 57.6 p.c. of Canada's exports and supplied 70.4 p.c. of its imports. Proportionately there was less trade with Britain in 1962 than for several years, its share of Canada's total trade dropping to 11.8 p.c. from 13.2 p.c. in the immediately preceding year. Britain bought 14.4 p.c. of Canada's exports and originated 9 p.c. of its imports in 1962, while for the first half of 1963 the ratios were 15 p.c. and 7.9 p.c. respectively. The share of exports to other Commonwealth and preferential rate countries declined in recent years but rose in the first six months of 1963 to 6.1 p.c. while the ratio of imports supplied remained at 5.1 p.c.

Leading Trade Partners

The United States is Canada's principal trading partner, each country being the other's best customer. Britain is second and together these two nations participate in approximately three quarters of Canada's international

Newsprint—Canada's leading export, valued at more than \$750,000,000 in 1962.





A member of the Canadian Fruit and Vegetable Products Mission to Britain examines processed fruits and vegetables in the sampling rooms of the Co-operative Wholesale Society Limited in Manchester.

trade. The next largest market for Canadian goods in 1962 was Japan, followed by the Federal Republic of Germany. Owing mainly to substantial wheat sales, Communist China was fifth. In order of export importance, Australia, the Netherlands and Italy all increased their purchases from Canada, though shipments to Norway, Belgium and Luxembourg and France declined in 1962. Each of the foregoing countries in that year was the destination of more than \$50,000,000 of Canadian commodities. Of the Latin American nations, Venezuela and Mexico were Canada's main markets, followed by Brazil, Argentina and Colombia. The Republic of South Africa, India, New Zealand and Jamaica were, after Australia, the leaders in the Commonwealth and preferential group while Poland was the main Eastern European country. With the exceptions of Communist China, the Federal Republic of Germany, Italy, Belgium and Luxembourg, and Argentina, Canadian exports to all of these countries increased in the first six months of 1963.

The order of the first eight most important suppliers of imports to Canada has not altered in recent years. After the United States and Britain, Venezuela is the next source, mainly due to the large amounts of petroleum shipped to this country. The Federal Republic of Germany follows, passenger cars being the leading commodity; and Japan is in fifth place, supplying a wide variety of goods, particularly apparel and electrical apparatus. Each of these countries forwarded more than \$125,000,000 worth of goods to Canada in 1962. France, Italy, Belgium and Luxembourg, Australia, India and Saudi Arabia shipped between \$56,000,000 and \$40,000,000 of commodities to Canada. In the first six months of 1963, imports from the majority of these suppliers declined with the exceptions of Venezuela, Saudi Arabia, India and Australia. The following tables list the most important countries for Canada in the international field by the values of Canadian exports to and imports from each one.



Imports of hemp, tea, rubber, tin and coconut are unloaded from a Danish ship which will then take on fish bound for New York.

Imports by Leading Countries, 1960-63¹

Country ²	Calendar Year			January-June	
	1960	1961	1962	1962	1963
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	3,686,625	3,863,968	4,299,539	2,219,116	2,188,796
Britain.....	588,932	618,221	563,062	290,028	245,640
Venezuela.....	195,189	216,640	224,275	106,545	114,095
Germany, Federal Republic.....	126,988	136,530	141,199	70,582	61,567
Japan.....	110,382	116,607	125,359	58,525	56,543
France.....	50,121	54,280	56,160	25,278	24,712
Italy.....	42,843	49,140	51,859	23,511	23,150
Belgium and Luxembourg.....	41,401	44,780	48,682	21,694	17,810
Australia.....	35,508	36,685	45,216	17,466	20,149
India.....	29,352 ³	33,465 ²	43,479	18,430	20,128
Saudi Arabia.....	37,402	41,393	40,551	19,709	23,609
Jamaica.....	37,688	38,511	39,721	18,787	28,175
Netherlands.....	31,456	33,493	37,049	18,300	17,520
Netherlands Antilles.....	32,521	31,137	35,856	9,622	8,596
Iran.....	30,740	21,622	31,736	11,779	21,553
Brazil.....	24,883	29,081	31,600	14,525	14,555
Switzerland.....	24,343	26,102	28,040	13,127	13,622
Malaya and Singapore.....	28,120	23,597	27,740	12,463	12,761
Sweden.....	20,409	24,221	25,873	13,100	15,046
Mexico.....	21,007	18,193	24,444	12,455	15,066

¹ Figures revised to exclude settlers' effects, tourist purchases, private donations and other special and non-commercial transactions.

² Countries ranked by value of imports in 1962.

³ Includes Damão, Diu and Goa.

Domestic Exports by Leading Countries, 1960-63¹

Country ²	Calendar Year			January-June	
	1960	1961	1962	1962	1963
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,932,171	3,107,176	3,608,439	1,737,637	1,810,228
Britain.....	915,290	909,344	909,041	421,940	470,509
Japan.....	178,859	231,574	214,535	104,590	132,115
Germany, Federal Republic.....	165,597	188,694	177,688	74,253	71,792
China, Communist.....	8,737	125,448	147,438	99,641	75,781
Australia.....	98,862	78,628	104,965	46,100	52,527
Netherlands.....	62,554	61,297	76,940	29,727	38,114
Italy.....	68,393	67,688	74,521	35,032	32,266
Norway.....	61,595	69,744	69,054	30,551	34,689
Belgium and Luxembourg.....	69,131	76,055	68,169	34,054	28,857
France.....	72,907	71,923	57,561	24,408	33,482
Venezuela.....	35,345	34,978	42,328	21,038	23,921
Mexico.....	38,023	38,529	41,267	18,011	19,371
Republic of South Africa.....	52,655	37,819	37,525	19,404	37,045
Poland.....	16,665	36,819	37,391	7,060	9,378
India.....	37,199 ³	43,330 ³	29,633	11,110	23,373
Brazil.....	19,755	30,076	28,481	12,077	13,585
New Zealand.....	23,858	31,125	26,784	11,309	12,728
Switzerland.....	26,404	22,422	23,891	10,379	11,103
Argentina.....	19,364	30,893	22,546	12,384	10,907

¹ Figures revised to exclude settlers' effects, tourist purchases, private donations and other special and non-commercial transactions.

² Countries ranked by value of exports in 1962.

³ Includes Damão, Diu and Goa.

The final weld connecting Canadian and American natural gas pipelines, near Emerson, Manitoba, makes possible the export of gas to the United States.





The Department of Trade and Commerce maintains information booths at exhibitions and fairs.

Department of Trade and Commerce

The primary function of the Department of Trade and Commerce is the promotion of external trade. The Department makes available to businessmen a wide variety of services to assist them in selling their products abroad. These services are provided by the Department's head office in Ottawa, four regional offices in Canada, and a corps of Trade Commissioners stationed around the world.

Highlight of the 1963 trade promotion program was "Operation World Markets", a comprehensive four stage campaign which took place from March 23 to May 3, 1963. It included "World Markets Machinery" in which nearly 200 foreign businessmen and government officials were brought to Canada from March 23-31; a National Canadian Samples Show, held in Toronto, April 2-4, attended by over 600 buyers from Britain, Ireland, Western Europe, the West Indies, and the United States; an Export Trade Promotion Conference, held in Ottawa from April 16 to May 3, at which 1,143 Canadian businessmen discussed export opportunities with Trade Commissioners from around the world; and a Trade Commissioner Conference, which carried out detailed group studies and discussions on special problems encountered in trading areas abroad.

In addition, 18 Canadian Trade Missions were sent out to countries around the world, and another eight missions brought to Canada. The Department also organized the participation by Canadian firms in 33 trade fairs abroad. A feature of the 1963 Trade Fairs program was a "solo" Canadian fair held in Philadelphia, November 11-16, in which 103 Canadian firms participated.

The Trade Fairs and Missions Branch is responsible for developing and administering the Department's programs for the participation by Canadian firms in trade fairs abroad and for the dispatch of trade missions abroad. In both fields, it works in close co-operation with industry, other Government Departments, and Trade Promotion Branches of the Department.

The Canadian Government Exhibition Commission organizes, designs, produces and administers all Canadian exhibits at fairs and exhibitions abroad in which the Canadian Government participates. It also advises private exhibitors and their agents on the best means of displaying Canadian products at trade fairs, and prepares domestic exhibits for Government Departments and agencies on request. It is responsible for international fairs and exhibitions held in Canada that are financed and sponsored by the Federal Government.

The Trade Commissioner Service is the overseas arm of the Department, and is responsible for promoting Canada's foreign trade interests abroad. More than 140 Trade Commissioners are stationed in 64 posts in 47 countries. They know the economic conditions in their territories and they provide information on potential markets for Canadian commodities and on foreign competition, import controls, tariff provisions, shipping facilities and labelling regulations. They assist in securing reliable agents for Canadian firms and provide a point of contact for visiting businessmen.

Members of a trade mission from Argentina admire a field of New Brunswick potatoes.

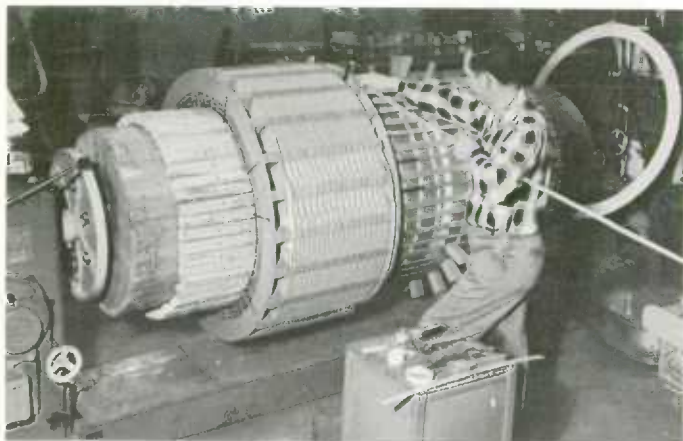




Specially designed for loading operations, this Canadian equipment is now being used in Sweden.

The principal function of the Commodities Branch is to maintain close contact with the Canadian business community and to assist industry in promoting the export of its products. Commodity officers stationed in Ottawa can provide information on trade opportunities and on the export potential of products in markets abroad. They also encourage firms without previous experience or with new products to explore the possibilities of selling in foreign markets.

The Export Credits Insurance Corporation, which reports to Parliament through the Minister of Trade and Commerce, provides facilities for Canadian exporters in two fields: export credits insurance and export financing. Its insurance operations protect Canadian exporters against losses arising from causes beyond the control of either the buyer or exporter. Financing facilities



The large power transformer being wound here was manufactured for export to Texas.

The signing of the International Coffee Agreement, 1962, by a representative of Canada brought to 29 the number of signatories to this new agreement designed to increase the purchasing power of coffee-exporting countries by keeping prices at equitable levels and by increasing consumption.



are offered for capital goods exports, usually connected with major projects, which require credit terms extending beyond five years. The maximum aggregate insurance liability authorized is \$600,000,000. The total funds available for financing are \$300,000,000.

The International Trade Relations Branch 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 affecting Canadian exporters. The Economics Branch analyses the general economic situation in Canada and conducts studies on market conditions.

The Trade Services Branch administers the controls established under the Export and Import Permits Act and provides information to the business community. It studies and reports upon all transportation matters affecting export trade. It is also responsible for the operations of the Department's regional offices in Canada.

The Trade Publicity Branch is responsible for providing information of interest to businessmen, at home and abroad, in order to stimulate demand for Canadian products. It produces publications for use by Trade Commissioners, including the periodical "Canada Courier", and all advertising and printed matter used in conjunction with trade fairs and trade missions.

In addition it produces the magazine "Foreign Trade" which provides reports on conditions in foreign lands, market opportunities, tariff charges, and a wealth of other material for Canadian businessmen.

The Branch is also responsible for all publicity and advertising at home and abroad and for the general information work of the Department.

The Canadian Government Travel Bureau is responsible for encouraging tourist travel to Canada and co-ordinates tourist promotion outside Canada by the provinces, transportation companies and national, regional and local tourist associations. It undertakes extensive tourist advertising campaigns abroad, provides tourist publicity material for foreign newspapers, magazines, radio and television outlets, and annually handles approximately 1,000,000 inquiries from potential visitors to Canada. It operates tourist offices in New York, Chicago, San Francisco and London, England.



A unique bank, recently opened at Longueuil, near Montreal, consists of a modern building separated by a moat from a fortress. The historic site is part of a tract of land granted Charles Le Moyne in the 1640's. A museum, located in the grey stone fortress, will contain original documents of the renowned 11 sons of Le Moyne, antique coins, and documents of early and modern Longueuil and of the Montreal City and District Savings Bank.

Finance

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 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; nickel five-cent coins; and bronze one-cent coins. The Canadian currency, like the currencies of most countries, is not guaranteed by gold but is based on the confidence of its holders.

Foreign Exchange Rates as of January 2, 1964

Country	Unit	Can. Dollar Equivalent	Units per Can. Dollar
Australia.....	Pound	2.4176	.4136
Belgium and Luxembourg.....	Franc	.02168	46.10
Britain.....	Pound	3.0220	.3309
France.....	New Franc	.2204	4.54
Germany.....	D Mark	.2717	3.68
Hong Kong.....	Dollar	.1889	5.29
India.....	Rupee	.2267	4.41
Iran.....	Rial	.01427	70.10
Italy.....	Lira	.001736	576.04
Japan.....	Yen	.003001	333.11
Malaysia.....	Straits Dollar	.3529	2.83
Mexico.....	Peso	.08643	11.57
Netherlands.....	Florin	.2999	3.33
New Zealand.....	Pound	3.0014	.3331
Norway.....	Krone	.1510	6.62
South Africa.....	Rand	1.5110	.6617
Sweden.....	Krona	.2081	4.81
Switzerland.....	Franc	.2503	3.99
United Arab Republic.....	Pound	2.4854	.4023
United States.....	Dollar	1.0803125	.925390
Venezuela.....	Bolivar	.2387	4.19

Most debts or transactions are paid by cheques drawn on one's deposit at a chartered bank or other financial institution.

The Canadian commercial banking system consists of eight banks operating under authority granted them by Parliament and supervised by an official of the Department of Finance who is known as the Inspector-General of Banks. No Canadian bank has failed since 1923. On July 31, 1963 the chartered banks operated 5,393 offices in Canada and 173 abroad. These banks accept deposits from businesses and individuals. Other financial institutions which accept deposits are loan and trust companies, credit unions, the Post Office Savings Bank, the Province of Ontario Savings Office, the Montreal City and District Savings Bank, La Banque d'Économie de Québec, and the Treasury Branches of the Province of Alberta.

The chartered banks lend money, usually on a short-term basis, to individuals and large or small businesses of many types, across the country. Amongst many other services, the banks buy and sell foreign currencies, act as agent in buying or selling stocks and bonds, and provide safe storage for valuable articles such as bonds and jewelry.

Some loans to individuals are made on the security of marketable bonds or stocks. The great majority are made either on evidence alone of the would-be borrower's ability to repay (e.g., steady employment, prompt repayments on past debts, a sensible personal budget, and other signs of property and good character), or on this evidence of property and character together with title to an article being purchased with the loan or credit. Once the loan is paid off, the title is handed over. Terms and conditions of payment vary, but in many cases involve regular instalments over periods lasting from a few months to three years. This field is served by banks, retail stores, instalment sales finance companies, credit unions, and federally-licensed small loan companies and money lenders.

Queen Street looking north in Charlottetown, Prince Edward Island, showing the new Royal Bank and Federal Buildings.





The striking new Monarch Life Assurance Company Building in Winnipeg.

In Canada, mortgage loans are provided by credit unions, loan and trust companies, life insurance companies, the pension funds of groups such as the employees of a firm, and various government agencies, especially Central Mortgage and Housing Corporation. The chartered banks are excluded from mortgage financing with the exception of CMHC approval loans. Mortgage loans on houses which are not brand new are provided by financial institutions, but also to a large extent by individuals, especially house owners selling their dwellings. Often a lawyer is the agent that brings lender and borrower together.

Statistics of the Chartered Banks of Canada, Jan. 1, 1964

Bank	Total Assets	Personal Savings Deposits	Total Deposit Liabilities	Loans and Discounts	Liabilities to Share- holders
	\$'000	\$'000	\$'000	\$'000	\$'000
Royal Bank of Canada...	5,629,909	1,830,367	5,059,257	2,570,744	317,860
Canadian Imperial Bank of Canada.....	5,345,631	2,139,675	4,890,374	2,476,909	272,044
Bank of Montreal.....	4,305,751	1,872,025	4,005,139	2,294,585	215,818
Bank of Nova Scotia.....	2,751,168	937,055	2,570,248	1,605,369	138,065
Toronto-Dominion Bank.	2,522,670	983,827	2,345,147	1,378,765	120,585
Banque Canadienne Nationale.....	940,432	462,638	879,769	491,919	56,410
Provincial Bank of Canada	492,129	213,429	463,687	289,667	25,785
Mercantile Bank of Canada	106,014	3,761	99,479	55,663	5,005
Totals.....	22,093,704	8,442,777	20,313,100	11,163,621	1,151,572

Credit unions in Canada are co-operative savings and loan organizations controlled by the members. There are now over 4,700 chartered credit unions with a total reported membership of over 2,700,000 persons. The bond of association that members of a credit union may have typically is membership in a parish or labour union, employment in a plant or industry, or residence in a rural community. The basic principles of credit unions are to encourage thrift and make loans to members.

In Canada there are more than 30 trust companies doing business at more than 200 offices. Their basic function is to manage prudently the money and property entrusted to their care. They administer the estates of deceased persons, administer pension funds, manage companies in receivership, act as financial agents for municipalities and corporations and perform a host of other related services for the public. Most companies sell investment certificates with terms to maturity of up to five years. Some compete vigorously with the banks to obtain deposits from the public. The funds received by trust companies are invested to a large extent in mortgages. All trust companies are regulated by the Federal Government or a provincial government.

The Federal Government or the Province of Ontario regulate 13 mortgage loan companies doing business in many branch offices from coast to coast. The principal function of mortgage loan firms is indicated by their title. They obtain funds by the sale of debentures to the investing public and also in most cases by attracting deposits from the public. In addition to these 13 companies, there are mortgage loan firms registered in other provinces including one sizable company, chartered in Manitoba, which engages in the mortgage loan business across Canada. It does not accept deposits.

A course in progress at the Canadian Imperial Bank of Commerce Staff College in Toronto. Accountants, assistant managers and managers come from across Canada to courses lasting two, three and four weeks, and live in the college while attending them.





At the Royal Canadian Mint, coin blanks are put into this machine and stamped on both sides. The finished coin drops out the bottom into the little bowl.

Insurance companies in Canada are supervised by the federal and provincial governments. At the beginning of 1962 there were more than 160 companies and fraternal benefit societies competing to sell various forms of life insurance and annuities to the public. These organizations also sell insurance covering medical expenses and wages not earned because of ill health. Insurance may be purchased from a registered salesman or through a "group" plan at one's place of work. In addition to those selling life insurance, there were more than 300 companies selling insurance for fire, theft, automobile damage and other casualties. The Federal Government provides certain types of insurance, including annuities, as do the governments of the provinces of Alberta and Saskatchewan.

Annuities and some forms of life insurance represent a popular way in which Canadians set aside money to be saved. In effect the life insurance industry competes with other financial institutions, such as mutual funds, for a share of the public's savings dollar.

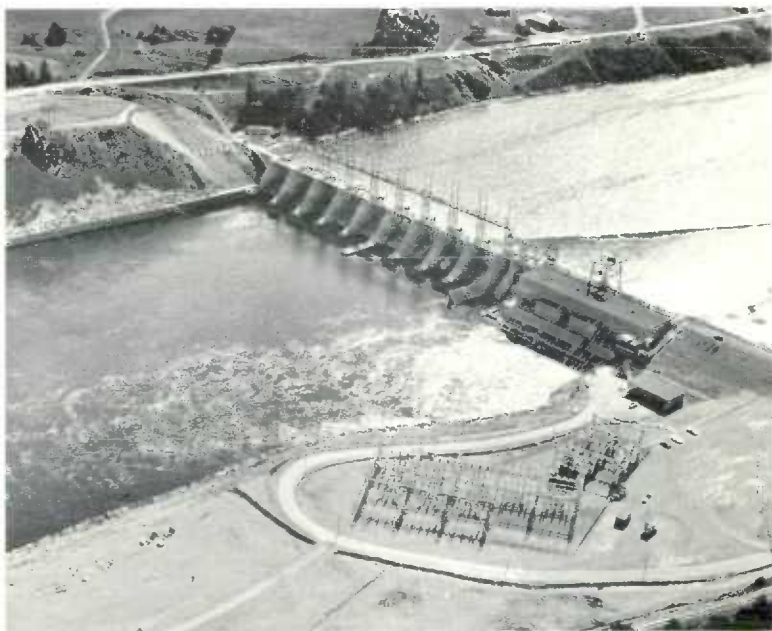
In recent years mutual funds have become an increasingly familiar avenue of savings for the small investor. There are now 41 mutual funds of significant size in Canada. A mutual fund is an organization which combines the capital of many investors to purchase, under experienced management, a broad range of securities. Usually the emphasis is on common stocks.

Another popular means of saving by Canadians in all ranks of life are the Federal Government's Canada Savings Bonds. They are sold annually each autumn by chartered and Quebec Savings banks, investment dealers, trust companies, Caisses Populaires, Province of Ontario Savings Office, Alberta Treasury Office, and through a payroll deduction scheme at most places of work. Unlike most other types of security they can be cashed in at any time for their full face value plus accrued interest.

The functions of a central bank in Canada are performed by the Bank of Canada established in 1934, and subsequently acquired by the Government, 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 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 federally-owned Industrial Development Bank exists to supplement the securities markets and the activities of other financial institutions in supplying the medium and long-term capital needs of small and medium-sized enterprises; it does not accept deposits.

In 1961 a Royal Commission on Banking and Finance was appointed to study such subjects as the financing of the Canadian economy, interest rates, consumer credit, the management of the public debt, the Bank of Canada, the chartered banks and other institutions performing banking and credit functions, and the various laws which govern their activities. The Commission is considering ways of encouraging the development of savings institutions. It is anticipated that it will report its findings in 1964.



Nearly two thirds of all the electric power generated in Canada is publicly owned. This is the New Brunswick Electric Power Commission's recently-expanded Beechwood hydro development on the Saint John River.



With one nuclear power demonstration station in operation, another under construction and two federal research centres as well as several university ones, federal grants toward nuclear research are more than \$30,000,000 a year.

Government Finance

It is now virtually impossible to examine the financial picture of one level of government in isolation; federal, provincial and municipal finances are becoming more and more interrelated. Although the British North America Act outlined certain 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, developments over the years have necessitated major changes in revenue and expenditure patterns to meet growing and changing needs and demands.

Under the latest federal-provincial taxation arrangements, for the period April 1, 1962 to March 31, 1967, the Federal Government reduced its personal and corporate income tax rates from the 1961 levels and all provinces are levying personal and corporation income taxes for this five-year period. Ontario and Quebec continue to levy succession duties and British Columbia re-entered this field on April 1, 1963.

Many shared-cost programs aimed at reducing unemployment and improving government capital facilities have been introduced or extended in recent years. These include the winter works incentive programs under which the Federal Government pays one half of the labour costs of certain municipal capital projects undertaken in the winter months. These payments are channelled through the provincial governments and are supplemented in most cases by provincial contributions. The federal share amounted to \$27,000,000 in 1962-63. A tremendous surge in the construction of trade and vocational schools, technical institutes and vocational high schools resulted from the federal offer, in 1962, to contribute 75 p.c. of the approved capital

cost of schools completed within a stated time limit. Some of these new schools and additions to existing schools will be owned and operated by the provincial governments, who are financing the remaining 25 p.c. of the capital costs; others will be owned and operated by local school boards which receive the federal contribution through their provincial governments, with additional provincial assistance in many instances. Total federal contributions to the provinces for technical and vocational training rose from \$36,000,000 in 1961-62 to \$208,000,000 in 1962-63.

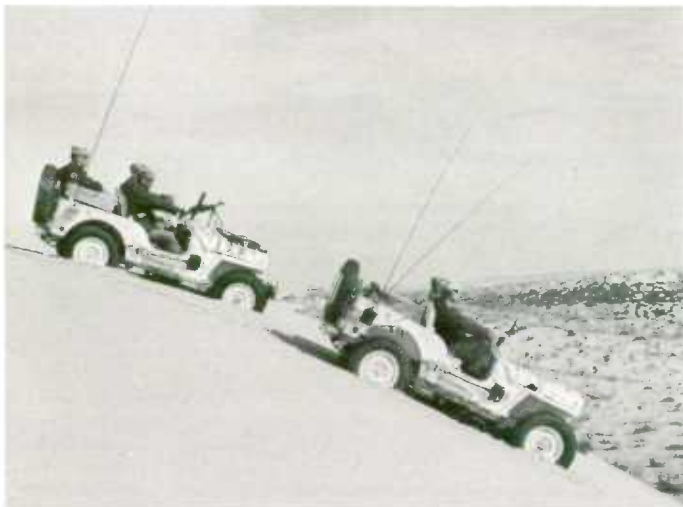
Another major development in the joint financing of projects to promote increased employment in Canada was the passage in August 1963 of a federal act setting up a Municipal Development and Loan Board to administer a \$400,000,000 loan fund for specified municipal capital works projects. To accelerate the commencement of new municipal projects, the act provides for "forgiveness" of a portion of the loan if the works are completed by a specified date. Provincial approval of the proposed municipal projects is required before the federal loans may be made to the municipalities.

Plans are unfolding for the celebration of the Centennial of Confederation in 1967. A Centennial Commission has been set up to administer federal grants to provinces and organizations for approved Centennial projects. The Canadian World Exhibition Corporation has also been set up to plan and administer the 1967 World Fair in Montreal. Facilities for the Fair are being financed by federal, provincial (Quebec) and municipal (Montreal) funds.

In addition to the above projects, which must be carried out before a specified date, there are a number of programs of a continuing nature in

A student learning the secrets of refrigeration. Government expenditures on technical training and re-training programs have risen sharply in the last two years. Federal expenditures under the Technical and Vocational Training Assistance Act amounted to more than \$200,000,000 in 1962-63.





Members of the Canadian 8th Hussars, serving with the United Nations Emergency Force in the Middle East, patrol across the Sinai Desert. Defence services and mutual aid constitute the largest item of expenditure of the Federal Government, and account for approximately 25 p.c. of the total.

which the Federal Government pays a predetermined share of the costs of provincial programs. 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. Federal payments to the provinces under this Act amounted to \$337,000,000 in 1962-63. The Federal Government also shares the cost of providing unemployment assistance, blind pensions and disabled persons allowances and many other programs.

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.

Finances of the Government of Canada

The Government of Canada levies both direct and indirect taxes. Of the former, the income tax (individual and corporation) yields the largest return. Of the latter, excise taxes (including a general sales tax), excise duties and customs duties produce substantial revenues. Succession duties and some other taxes yield relatively minor amounts, and certain non-tax revenues are collected 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 70 years of age.

On October 16, 1963, Royal Assent was given to an Act to amend the Old Age Security Act, to increase the monthly pension from \$65 to \$75 effective October 1, 1963, and to raise the old age security tax, for which each individual is liable, from 3 p.c. to 4 p.c. of the taxpayer's taxable income for the year, with a maximum of \$120, applicable to the 1964 and subsequent taxation years. Transactions of the Old Age Security Fund are included in the statistical presentation of "net general revenue" and "net general expenditure" on p. 276 but are not included in "budgetary" revenue and expenditure on p. 277.

As explained above, commencing in 1962 the Federal Government partially withdrew for a five-year period from the personal and corporation income tax fields, and all the provincial governments are levying personal and corporation income taxes at least equal to, and in some cases greater than, the federal withdrawal.

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, natural resources and primary industries, and debt charges. The outlays for defence, health and welfare, veterans' benefits, debt charges and payments to provinces have, during and since World War II, caused much of the great growth in federal expenditure.

A storehouse for surplus grain. Federal expenditures in connection with the carrying costs of temporary wheat reserves amounted to \$35,000,000 in 1962-63.



Net General Revenue and Expenditure of the Federal Government, Year Ended March 31, 1962

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—			
Income—		Defence services and mutual	
Corporations.....	1,302,179	aid.....	1,648,294
Individuals.....	2,051,606	Veterans' pensions and other	
Interest, dividends, and other		benefits.....	337,318
income going abroad.....	112,306	General government.....	287,117
General sales.....	1,044,557	Protection of persons and prop-	
Excise duties and special excise		erty.....	88,121
taxes—		Transportation and communica-	
Alcoholic beverages.....	206,277	tions.....	429,932
Tobacco.....	367,386	Health.....	365,906
Automobiles.....	25,270	Social welfare.....	1,423,923
Other commodities and serv-		Recreational and cultural serv-	
ices.....	24,703	ices.....	31,973
Customs import duties.....	534,516	Education.....	93,569
Estate taxes.....	84,579	Natural resources and primary	
Other.....	1,043	industries.....	403,323
Total Taxes.....	5,754,422	Trade and industrial develop-	
Privileges, licences and permits..	24,390	ment.....	13,553
Sales and services.....	64,000	National Capital area planning	
Fines and penalties.....	1,338	and development.....	16,794
Exchange fund profits.....	32,606	Debt charges (excluding debt	
Receipts from government enter-		retirement).....	689,544
prises.....	123,323	Payments to government enter-	
Bullion and coinage.....	8,144	prises.....	171,570
Postal service.....	213,579	Payments to provincial and	
Other revenue.....	9,174	municipal governments—	
Non-revenue and surplus receipts..	18,477	Federal-provincial tax-sharing	
Total Net General Revenue..	6,249,453	arrangements.....	479,269
		Other.....	87,986
		Other expenditure—	
		International co-operation	
		and assistance.....	67,396
		Postal service.....	214,804
		Other.....	172,033
		Non-expend and surplus pay-	
		ments.....	293
		Total Net General Expen-	
		diture.....	7,022,718

Saskatchewan, the only province with a comprehensive medical care insurance program, spends more per capita on health than any other province. Net expenditures on health in the year ended March 31, 1963, amounted to \$49,000,000, or more than \$50 per capita in Saskatchewan.



Finances of the Federal Government, Years Ended March 31, 1868-1963

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	155,495,780	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	11,617,734,269	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	11,265,080,154	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	662.71
1958.....	5,048,788,279	303.96	5,087,411,011	306.29	11,046,273,890	646.74
1959.....	4,754,722,689	278.38	5,364,039,533	314.05	11,678,389,860	667.99
1960.....	5,289,751,209	302.57	5,702,861,053	326.20	12,089,194,003	676.51
1961.....	5,617,679,854	314.36	5,958,100,946	333.41	12,437,115,095	681.93
1962.....	5,729,623,724	314.16	6,520,645,674	357.53	13,228,137,045	712.34
1963.....	5,878,692,431	316.57	6,570,325,358	353.81	13,919,769,972	736.65

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, expenditure and the net debt of the Government of Canada reached an all-time high in the year ended March 31, 1963. The net debt surpassed the previous record of \$13,421,000,000 attained at March 31, 1946, by nearly \$500,000,000.

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, 1963 the net debt had declined to approximately 34 p.c. of the gross national product.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at March 31, 1963, amounted to almost \$17,962,000,000. The portion of the unmatured funded debt payable in Canada was 97.4 p.c., the portion payable in London amounted to 0.2 p.c. and in New York 2.4 p.c.

Provincial Finance

Net general revenue of provincial governments is estimated at \$3,360,000,000 in 1963-64, and net general expenditure \$3,710,000,000.

Total tax revenue is expected to be \$2,218,000,000 for the fiscal year ended March 31, 1964, an increase of \$143,000,000 or 7 p.c. over the corresponding preliminary figures for the year ended March 31, 1963. Higher revenue from the general sales tax, and from the increased taxes in certain provinces on motor fuel and fuel oil sales, together with larger revenues from corporation and individual income taxes, are the main factors contributing to these higher estimates.



New suburban developments have proved a heavy strain on municipal resources, calling for installation of sewers, water mains, roads and streets. In some cities, by-laws have been passed requiring the subdivider to assume full responsibility for the costs of installing these services, thereby relieving the municipality of this burden.

Prince Edward Island raised the general sales tax from 4 p.c. to 5 p.c., and the tax on motor fuel from 16 cents to 18 cents per gallon. In Quebec the motor vehicle fuel tax was increased from 13 cents to 15 cents, and the diesel fuel tax from 18.5 cents to 21 cents per gallon; it is expected that these increases, together with higher sales, will result in additional revenue for Quebec of approximately \$27,000,000. Ontario amended the retail sales tax exemption, so that the 3 p.c. tax now applies to sales of 21 cents and over, instead of 17 cents and over; also, the rate of tax on the net profits in excess of \$10,000 of logging operations was raised from 9 p.c. to 10 p.c. In Manitoba a new tax was introduced on the purchase of tobacco products, and British Columbia now levies succession duties, effective April 1, 1963.

Estimated net general expenditure at \$3,710,000,000 in 1963-64 is an increase of \$267,000,000 over the preliminary estimate for the previous year. Expenditure on education comes to more than 28 p.c. of the total expenditure, on health and welfare a further 28 p.c., and an additional 20 p.c. is allocated to transportation and communications, mainly highways.

The expenditure on education again reflects the provincial share of construction costs of vocational and technical training schools, the construction of which is further encouraged in 1963-64 by the offer of the Federal Government to continue the contribution of 75 p.c. of the approved capital cost until a specified total is reached for each province; it will then be reduced to 50 p.c. of the approved capital costs. The municipal winter works program will be continued with a ceiling of \$100,000 instead of \$50,000 on individual projects, but the seven and one half months qualifying period in 1962-63 will be cut to six months in the 1963-64 period; the Federal Government will pay 50 p.c. of the payroll costs, except for projects in municipalities in "designated areas" where the federal share will be increased to 60 p.c. to encourage a higher level of winter employment in those areas.

Net General Revenue and Expenditure of Provincial Governments, Year Ended March 31, 1964¹

Province	Revenue	Expenditure	Province	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.....	79,740	90,320	Man.....	134,300	159,290
P.E.I.....	19,450	21,700	Sask.....	202,460	200,890
N.S.....	115,980	130,150	Alta.....	283,820	290,120
N.B.....	95,620	107,850	B.C.....	382,340	381,240
Que.....	910,790	1,043,590			
Ont.....	1,135,680	1,285,030	Totals.....	3,360,180	3,710,180

¹ Estimated.

**Analysis of Net General Revenue and Expenditure
of Provincial Governments, Year Ended March 31, 1964¹**

Source	Revenue	Function	Expendi- ture
	\$'000		\$'000
Taxes—			
Income—corporations.....	416,386	Transportation and communica- tions (chiefly roads).....	742,980
individuals.....	417,821		
Sales—general.....	528,050	Health.....	740,450
motor fuel and fuel oils.....	521,850		
other.....	72,510	Social welfare.....	305,080
Succession duties.....	74,560	Education.....	1,049,110
Other.....	186,823		
Total taxes.....	2,218,000	Natural resources and primary industries.....	221,360
Government of Canada:		Debt charges (exclusive of debt retirement).....	124,610
Statutory subsidies.....	23,471		
Federal-Provincial Fiscal Ar- rangements Act:		Contributions to municipalities (unconditional).....	78,800
Share of federal estate tax....	9,979	Other expenditure.....	447,790
Equalization (including stabi- lization).....	159,684		
Atlantic Provinces Adjust- ment Grants.....	35,000	Total net general expendi- ture exclusive of debt retirement.....	3,710,180
Newfoundland Additional Grant.....	8,000		
Share of income tax on power utilities.....	7,130		
Total Government of Canada.....	243,264		
Privileges, licences and permits...	608,620		
Liquor profits.....	222,600		
Other revenue.....	67,696		
Total net general revenue...	3,360,180		

¹ Estimated.

Direct and indirect debt of provincial and territorial governments, less sinking funds, amounted to \$8,387,000,000 at March 31, 1962, an increase of \$1,282,000,000 over the previous year. Direct debt at March 31, 1962, was \$4,065,000,000 or \$219 per capita and indirect (guaranteed) debt was \$4,322,000,000 or \$233 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

The movement of freight has also changed its pattern. At the end of World War II, railways were handling nearly three quarters of the ton-miles of freight moved between cities; fifteen years later their share was barely one half. The proportion carried by water was roughly unchanged during this period, rising only from 22 p.c. to 25 p.c. Freight moved by highway carriers, however, rose from 3.5 p.c. to 11 p.c. and oil pipelines, which did not exist for long-distance transport in 1945, carried almost 14 p.c. in 1960. Air cargo has shown a great increase, but still totals less than one per cent of all intercity ton-miles.

These changes in traffic patterns have been largely caused by the enormous technological development of the last two decades, especially in the air, road and pipeline transportation industries. Improved techniques are also evident in the older established transportation industries. The railways have switched from steam to diesel locomotives, built electronically operated freight yards and introduced machine-processing of data for operational, analytical and accounting purposes. In addition, they have built new lines into the remote mining areas which have been opened up since the War, abandoning many uneconomic lines and services, particularly passenger services, and expanding into the highway transport field to a significant degree.

The building of the St. Lawrence Seaway brought benefits to inland shipping by enabling all but the largest ocean freighters to sail some 2,200 miles from the sea up the St. Lawrence and through the Great Lakes to the Lakehead. The seven locks of the Seaway accommodate ships up to 730 feet in length.



Assembled in sequence of operation are six machines used for replacing ties: in the foreground, the spike-puller; next the dual tie saw; the tie bed scarifier; the tamper jack; the electro-gang-tamper; and the spike-driver. Mechanized tie renewal has cut the labour cost per tie almost in half.

Air services have increased and expanded and new jet and turbo-prop aircraft have been brought into service. Huge new airports and hangars have been built and competitive fares continue to attract passengers away from ships and trains. In many northern areas of Canada the only means of transportation is by air; even those settlements that can be reached by ship in the summer depend on aircraft the rest of the year.

Truckers have been quick to exploit the benefits of improved highways and trucks so that freight may be picked up at a shipper's warehouse in one part of the country and delivered by the same truck to a consignee perhaps two or three thousand miles away. Such an occurrence would have been rare only ten years ago. Together with the increase in trucking as a means of long distance transport, the size of trucking companies has also expanded to such an extent that some companies now operate as many as 1,000 vehicles. This increase in trucking service has been paralleled to a lesser extent by an increase in private trucking.

Passenger traffic on the highways is either by bus or by private car; the latter is by far the most commonly used medium. In fact, so ubiquitous has become the family car that every town and city is plagued with problems of traffic congestion, parking, accident hazards and the building of expensive throughways.

Pipelines for natural gas, petroleum and petroleum products are now a major element in Canada's vast transportation network. They run from the oil and gas fields of Western Canada as far east as Montreal, as far south as California.

An important factor in the building of the 430-mile long Great Slave Lake Railway is the 150,000-pound track-laying machine which can lay a mile of track a day. Here it is bringing track from the main line to the four new grain elevators at Manning, Alberta. The Great Slave Lake Railway will be the first in the Northwest Territories. The northern terminus of this new railway, at Hay River, is only 500 miles south of Canada's Arctic coast.



Railways

More than 80 p.c. of railway transportation in Canada is provided by two great transcontinental railway systems: the Canadian National Railway System, a government-owned body, and the Canadian Pacific Railway Company, a joint stock corporation. These two systems, though highly competitive, co-operate in many fields where duplication of service is not profitable. Both systems, in addition to their far reaching railway operations, conduct other transport activities: fleets of inland and coastal vessels, ocean-going steamships, nation-wide telegraph services providing communications 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.

Railway operating revenues of the two lines in Canada, excluding highway transport, telecommunications and other ancillary operations, totalled \$1,023,728,561 in 1962, virtually unchanged from the previous year. During the same period, railway expenses rose 0.1 p.c. to \$996,623,954 and net earnings before fixed charges amounted to \$27,104,607, down slightly from 1961.

Revenue freight traffic in terms of tonnage and distance aggregated 58,421,000,000 ton-miles in 1962, up approximately 247,000,000 from the earlier year. The average length of haul was fractionally greater at 459.6 miles, while the average revenue per ton-mile fell off to 1.52 cents from 1.53.

The number of passengers carried by the two major railways rose 3.1 p.c. to 18,061,204. Seventy per cent of this increase was attributable to the growth of commuter travel. Passenger miles increased 3.2 p.c. to 1,896,000,000, while the average journey declined one mile to 221. The average revenue per passenger-mile was down two tenths of a cent to 6.1 cents.

Throughout 1962 the two transcontinental railways made further improvements in service to customers and continued increases in operating efficiency. Such specialized equipment as tri-level automobile cars were

The new \$1,450,000 merchandise services terminal at Winnipeg, opened in October 1963. The trailer dock, shown here with the sorting ring in the foreground, is 84 × 300 feet. Mechanized equipment and experienced staff can load or unload at the same time 33 big highway trailer vans, 33 city pick-up trucks and 24 rail freight or express cars.





The MV *Taverner*, a 188-foot motor vessel capable of carrying 39 berth passengers and 20 seated passengers, was built by the Department of Transport for the Canadian National Newfoundland Fleet on the St. John's—Lewisport run.

introduced to railway shippers; new branch lines were being constructed to serve mineral developments in various parts of Canada; and further advances were made toward integrating the handling of merchandise shipments by the various transportation facilities operated by the two systems.

Construction of Canada's first pioneer railway to be built into the Northwest Territories by Canadian National for the Federal Government, began in 1961 and is to be completed in 1966. The 430-mile railway from Peace River, Alberta, to Pine Point on the south shore of Great Slave Lake will provide easy access to the rich lumber, oil and mineral reserves of the north.

Intensifying their campaign to stimulate passenger travel, the railways in 1962 broadened their incentive fare rates. In addition to time payment services, family rates and all-inclusive package plans, an experimental plan was introduced whereby prices are related to high and low traffic patterns and to distance. A ticket-by-mail plan was also instituted during the year enabling customers to order tickets by telephone and receive them by mail.

Some plans include the transportation of the family car over long distances.

Shipping

All Canadian waterways, including canals, lakes and rivers, are open on equal terms to the shipping of all countries of the world, except for the coastal trade.

In May 1961 the Minister of Transport announced that the Great Lakes and the St. Lawrence River system would be excluded from some of the reciprocal provisions of the British Commonwealth Merchant Shipping Agreement, under which ships enjoy equal privileges with Canadian ships in the carriage of goods and passengers from one port in Canada to another port in Canada, in other words, the coastal trade. This will mean that the exclusive right to carry goods and passengers between Canadian ports in the Great Lakes and the St. Lawrence River system from Havre St. Pierre will belong to Canadian-registered ships. In 1962 the coastal trade carried 43,769,420 tons of cargo, compared with 46,416,518 in 1961. Of this total,

37,897,683 tons, or 86.6 p.c., were carried in Canadian vessels; the remainder were almost entirely in vessels of British registry.

During 1962 a total of 142,594 vessels engaged in international or coast-wise shipping arrived at Canadian ports, compared with 147,171 vessels in 1961 and 153,500 in 1960. The total tonnage of all cargo loaded and unloaded at Canadian ports in international shipping amounted to 102,155,098 tons in 1962 compared with 92,948,103 tons in 1961. Of this tonnage, a total of 26,731,619 tons, or 26.2 p.c., was carried in vessels of Canadian registry.

The major commodities exported by ship in 1962 were iron ore (24,265,218 tons), wheat (8,970,509 tons), gypsum (4,099,270 tons), lumber and timber (3,054,367 tons), newsprint (2,895,476 tons), and pulpwood (1,826,668 tons). Import shipments of bituminous coal (10,875,140 tons), crude petroleum (8,211,277 tons), iron ore (5,813,857 tons), fuel oil (3,731,837 tons), and aluminum ore (2,045,521 tons), constituted 73.2 p.c. of the total unloaded.

Canadian aids to navigation include adequate marking of dangerous areas by lighthouses and other marine signals, an efficient pilotage service, ice forecasting and icebreaking services, and radio-signal and direction-

The harbour of Saint John, New Brunswick. The Long Wharf was recently completely reconstructed by the National Harbours Board at a cost of \$3,500,000.



finding stations. Comprehensive federal legislation and regulations ensure a high standard of safety for navigation in Canadian waters.

Harbours

Although Canada is the second largest country in the world, its geographical situation, with coastlines on three oceans, and the magnificent 2,687-mile St. Lawrence Seaway penetrating almost half the continent, makes water transportation of far greater importance than might be expected. No less than 21 ports handle more than 2,000,000 tons of freight every year, and the maintenance and operation of harbour facilities is essential to the smooth running of the economy.

Eight harbours—at Halifax, Saint John, Chicoutimi, Quebec, Three Rivers, Montreal, Vancouver and Churchill—are administered by the National Harbours Board, a Crown corporation established in 1936. The Board provides and operates port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, and terminal railways. Eleven other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are about 300 public harbours, all of which are under the supervision of the Department of Transport. At most ports, there are additional dock and handling facilities owned by private companies such as railways, pulp and paper, oil, and sugar industries.

**Foreign and Coastwise Trade through Ports Handling over
2,000,000 Tons in 1962**

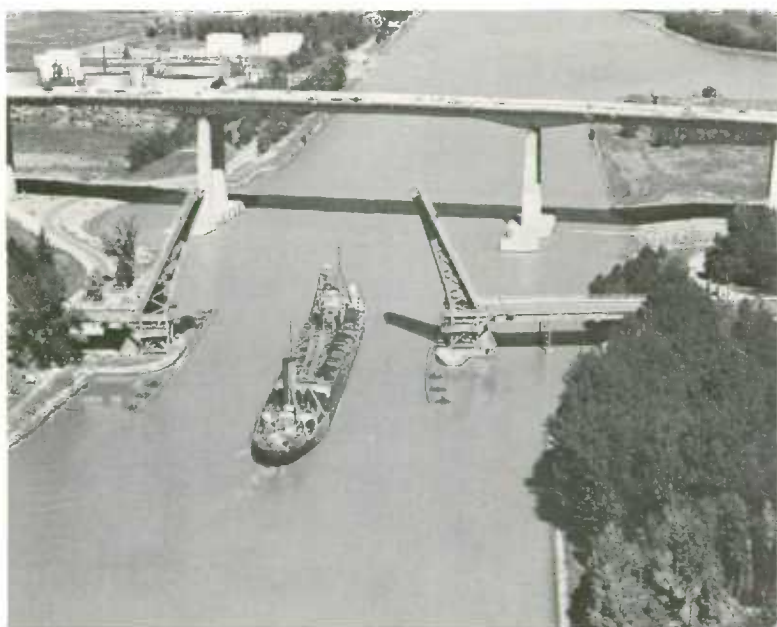
Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	
Montreal	3,403,001	7,481,355	4,396,483	4,504,624	19,785,463
Vancouver	7,240,366	1,124,214	3,727,125	3,566,332	15,658,037
Seven Islands	11,645,573	218,922	283,773	285,729	12,433,997
Port Arthur—Fort William	3,641,159	410,228	7,191,877	669,409	11,912,673
Hamilton	234,779	6,958,713	329,879	705,441	8,228,812
Halifax	2,544,529	3,300,578	1,840,471	501,080	8,186,658
Toronto	298,267	2,780,927	396,513	1,836,631	5,312,338
Sault Ste Marie	485,513	3,508,200	306,173	931,487	5,231,373
Port Cartier	5,128,712	57,709	3,811	19,100	5,209,332
Saint John	1,112,511	2,223,769	835,312	435,906	4,607,498
Quebec	942,794	765,563	202,237	2,669,177	4,579,771
Baie Comeau	1,858,558	1,189,267	112,142	831,409	3,991,376
New Westminster	969,404	138,281	1,128,477	1,192,201	3,428,363
Sarnia	155,745	750,235	1,987,755	477,029	3,370,764
Three Rivers	1,107,171	752,806	1,627	1,487,395	3,348,999
Sydney	193,218	445,173	1,694,339	954,370	3,287,100
Port Colborne	1,285,743	313,585	405,972	852,036	2,857,336
Sorel	996,922	333,080	125,509	1,398,055	2,853,566
Port Alfred	412,291	1,874,231	19,629	420,655	2,726,806
Victoria	1,008,142	59,453	238,552	839,473	2,145,620
Hantsport	2,028,465	1	—	1,350	2,029,816

Certain of these ports, such as Seven Islands, 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 Seven Islands, bauxite at Port Alfred and gypsum at Hantsport.

Canals

The major canals in Canada are those of the St. Lawrence-Great Lakes waterway with 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 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 Seaway accommodates 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 1962 the volume of freight carried through the St. Lawrence section of the Seaway (Montreal to Lake Ontario) totalled 25,747,821 tons compared with 23,672,825 tons in 1961 and 13,499,698 tons in 1956, the peak year prior to the opening of the Seaway in 1959.

Subsidiary Canadian canals or branches include the St. Peter's 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 and Carillon Canals on the Ottawa River; the Rideau Canal between Ottawa and Kingston; 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 1962, 63,568,291 tons of freight passed through all Canadian canals in 22,836 vessels.



The old bridge opens to let a lake freighter enter the Welland Canal; behind it the new bridge is part of the Queen Elizabeth Way.

The new International Airport at Winnipeg was opened on January 17, 1964.



Civil Aviation

Vast distances, rugged terrain and extreme variations in weather have contributed to the growth and development of civil aviation in Canada, the result of many years of planning, training and research to ensure that appropriate services and controls are provided in the operations of aircraft, airports, traffic controls, communications, navigational facilities, and meteorological services.

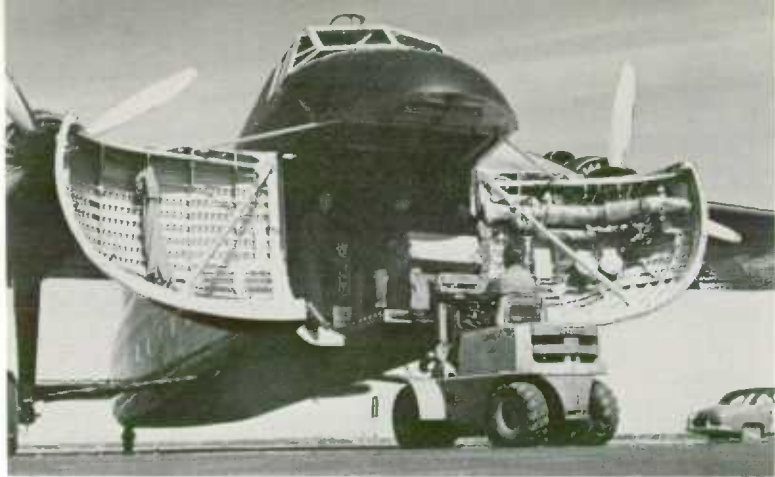
Courses in pilot training, air traffic control, meteorology, radio operation and inspection, and ice observation are given or arranged by the Department of Transport.

Competition and rapid technical developments have greatly increased the speed and efficiency and have reduced the costs of transportation in Canada. Great distances have enabled the use of larger and faster aircraft with considerable economy. During 1962 Super DC8 jet and Vanguard turbo-prop services were increased on the longer routes. The elapsed flight time between travelling from Victoria, B.C. to St. John's, Newfoundland is approximately eight and a half hours. Travel time between Montreal and Vancouver has now been reduced to six hours.

A number of American and other foreign air carriers operate regular commercial air services between Canada and the United States or overseas countries. These carriers transported into and out of Canada during 1962, 795,275 revenue passengers and 11,752 tons of goods. Passengers and goods carried in transit through Canada are excluded from these figures.

In addition to the airlines operating scheduled services, a number of small airlines operate non-schedule service, many of them to parts of Canada that are inaccessible by other means of transportation. They also supply such other 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 spread insecticides by aircraft.

During 1962, new airports were under construction at Flin Flon, Manitoba, St. Andrews, Manitoba and Pitt Meadows, B.C. The latter two are satellite ports of Winnipeg and Vancouver airports respectively. The number



Supplies are unloaded from the nose of an aircraft at the airport in Yellowknife, N.W.T. Smaller planes are used to transport supplies to harder-to-reach areas.

of actively licensed civilian airports increased from 546 on March 31, 1962 to 597 on March 31, 1963; more than half were seaplane bases. The inclusion of unlicensed aerodromes, unlicensed seaplane bases, heliports and military air fields made a total of approximately 1,450 ports and bases in Canada.

At March 31, 1963, there were 23,238 airmen licensed, including pilots, air navigators, air traffic controllers, flight engineers and aircraft maintenance engineers. The number of such licences in force at the end of 1962 was over 9 p.c. more than at the end of 1961.

The number of aircraft registered in Canada at March 31, 1963, was 6,270. Included were 4,109 private aircraft, 1,978 commercial and 183 government-owned aircraft.

Canadian air carriers transported 5,268,799 passengers during 1962, 6.4 p.c. more than in 1961. The number of passengers transported by Canadian carriers have nearly doubled in the period 1955 to 1962 inclusive. Passenger-miles in unit toll service nearly tripled during the same period.

Revenue goods flown during 1962 amounted to 118,289 tons, an increase of 3.7 p.c. over 1961. Although tonnage flown has a hesitatingly downward trend from a high in 1956, cargo ton-miles have more than doubled and mail ton-miles have increased by 50 p.c.

The number of airport licences in force as at March 31, 1962, amounted to 546. Of this number, 266 were land and 280 seaplane bases. Airport revenues in 1961 totalled \$14,677,864, compared with \$11,384,755 in 1960.

Assets of Canadian air carriers increased at a remarkably fast rate in the last ten years. As at December 31, 1961, total assets were valued at \$366,251,901 and were nearly six times greater than in 1951 (\$62,702,059). Additions of larger and more modern aircraft to the fleet, in order to provide the public with the highest standards of transportation and to meet an ever growing competition, were mainly responsible for the sharp increase in the assets. In 1961, flight equipment valued at \$197,612,656 accounted for 54 p.c. of the total assets of Canadian carriers. However, the development of a more modern and more productive aircraft fleet is reflected in the rising costs associated with acquisition and ownership which, in turn, affect the overall picture of the profit and loss accounts.

Operations of Canadian Air Carriers, All Services, 1961 and 1962

	Scheduled Carriers	Non- Scheduled Carriers	Total 1962	Total 1961
	\$	\$	\$	\$
Operating revenues:				
Unit toll transportation:				
Passengers.....	206,825,056	4,314,956	211,140,012	186,890,383
Express.....	4,172,328	176,190	4,348,518	3,661,298
Freight.....	11,275,074	1,092,968	12,368,042	10,897,999
Excess baggage.....	1,412,317	113,548	1,525,865	1,327,808
Mail.....	13,626,995	787,881	14,414,876	13,867,910
Total unit toll transportation.....	237,311,770	6,485,543	243,797,313	216,645,398
Bulk transportation (charter and contract).....	9,264,439	18,729,352	27,993,791	27,720,828
Specialty and non-flying services.....	3,075,132	9,752,085	12,827,217	10,507,675
Total operating revenues.....	249,651,341	34,966,980	284,618,321	254,873,901
Operating expenses—total.....	243,338,898	33,995,046	277,333,944	257,445,532
Operating income (loss).....	6,312,443	971,934	7,284,377	Dr. 2,571,631
Net income after taxes.....	Dr. 4,926,545	329,218	Dr. 4,597,327	Dr. 13,146,423
Revenue passengers carried.....	No. 4,695,464	No. 573,335	No. 5,268,799	No. 4,950,897
Revenue goods carried:	lbs.	lbs.	lbs.	lbs.
Cargo (freight and express).....	104,667,692	92,109,046	196,776,738	190,790,131
Excess baggage.....	985,261	385,249	1,370,510	1,537,789
Mail.....	36,539,380	1,891,395	38,430,775	35,749,456
Totals.....	142,192,333	94,385,690	236,578,023	228,077,376
Revenue goods carried:	tons	tons	tons	tons
Cargo.....	52,334	46,055	98,389	95,395
Excess baggage.....	492	193	685	769
Mail.....	18,270	945	19,215	17,875
Totals.....	71,096	47,193	118,289	114,039

: Excludes excess baggage carried by the two largest carriers.

The Department of Transport's new mobile air traffic control tower can be moved to any airport accessible by road or rail. It will be used primarily in emergencies if a fixed tower is out of commission; to serve airports without towers during periods of increased activity; at air shows; and at airports where a permanent tower is under construction.





What is claimed to be the world's largest deep sea deck cargo barge was built at Esquimalt, B.C. to carry crushed limerock from Blubber Bay in the Gulf of Georgia to Lake Oswego, Oregon. The barge has a capacity of 10,700 tons, yet can negotiate the 20-foot-deep, 200-foot-wide channel of the Willamette River.

Road Transportation

Because of its tremendous land area and the unusual distribution of its relatively small population, no other country is more dependent on transportation than Canada. At one time rail and water were the primary modes of transportation. However, economic, technological and demographic changes over the past fifty years have increased the importance of road transportation to such an extent that Canada can rightly be considered a nation on wheels.

In 1962, there were 5,800,000 motor vehicles registered in the country, or 10 for every 32 Canadians. Impressive as the degree of motor vehicle ownership may be, still more impressive is the extensive use to which Canadians put these vehicles. The average vehicle consumed approximately 600 gallons of motive fuel in 1962 and travelled 8,250 miles.

For road passenger transportation, Canadians rely mainly on the automobile, with intercity buses and urban transit systems playing a secondary role.

The automobile, which accounts for 78 p.c. of total motor vehicle registrations, is by far the most popular means of passenger transportation in Canada. The average Canadian family has 1.1 automobiles and spends, approximately, 9.1 p.c. of its income on this form of transportation. In terms of passenger-miles, automobiles accounted for 86 p.c. of the total performed by all modes of transportation in 1962.

Buses carried over 50,000,000 passengers in intercity and rural services, earned over \$45,000,000 and performed in excess of 90,000,000 vehicle-miles in 1962. The average fare per passenger on these services was 75 cents, indicating that short distance travel predominated. This mode of transportation was slightly more important in the travel habits of Canadians than rail passenger transportation. In 1962, the former accounted for 5 p.c. of passenger-miles performed by all modes while the latter accounted for 4 p.c.

Canada, with a predominantly urban population, relies heavily on urban transit systems for local transportation services. These systems carried 995,000,000 passengers and earned \$135,000,000 in passenger revenue from an average fare of 14 cents in 1962. The continued mushrooming of subdivisions around major urban centres and the increasing rate of ownership and use of private automobiles have 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 while trolley coaches and street cars have lost favour to the extent that the latter are now operated only in Toronto. Transit systems in the larger urban areas are usually municipally owned while, in the smaller centres, private ownership is more prevalent.

One of the more important providers of freight transportation services is the trucking industry. In 1961, there were 942,900 trucks and road tractors operating on Canadian roads and streets. Each vehicle travelled an estimated 7,200 miles and carried 5.2 tons to perform 19,100 ton-miles. Although rental trucks accounted for only 6.2 p.c. of the total number of trucks, they were by far the most important class in providing transportation services. This type of vehicle travelled an average of 25,500 miles and carried 10.8 tons to perform 200,900 ton-miles. Revenue earned was \$12,400 per truck or 6.2 cents per ton-mile.

To accommodate the large volume of vehicular traffic, an integrated system of roads and streets is required. Although provincial governments



A surveyor works with a transit as he lays out new roadways during the Mackenzie Highway construction in the Northwest Territories.



An unusual mode of transportation — an aerial car ferry that carries pedestrians and one car across the Fraser River between Boston Bar and North Bend, B.C. It can carry up to three tons, operates 24 hours a day and is free.

are primarily responsible for highways and municipal governments for urban streets, the Federal Government assists both in an attempt to provide adequate road facilities. The total expenditure by all levels of government on highways and urban streets amounted to \$989,000,000 in 1961, representing a per capita expenditure of \$54.

As a result of similar expenditures over the years, Canada now has 467,100 miles of roads and streets, 65 p.c. of which are surfaced. On average, in 1961, there were 17.3 and 11.8 motor vehicles per mile of surfaced and total roads and streets respectively. Although these ratios may not appear to be an improvement over the situation a few years ago, most of the mileage constructed in recent years is far superior to that of former years and is designed to carry a far greater volume of traffic per mile of road.

Many current major construction projects are concerned with 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-west across Montreal Island, the Ottawa Queensway, the Frederick G. Gardiner Expressway in Toronto and the Deas Island Road and Tunnel in Vancouver. Some sections of these routes are already open to traffic.

Growing traffic congestion in downtown areas has led to suggestions that people should be encouraged to use urban transit systems by paying higher 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 partially completed is the only city in Canada with a subway. However, construction of a subway line was begun in Montreal in 1962.

Pipelines

Pipelines are 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.

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 9,000 miles of pipeline and ancillary facilities worth over \$500,000,000. In 1961 the industry carried 351,000,000 barrels or an average of 961,000 barrels per day. Trunk pipelines increased their traffic by 23.4 p.c. to 147,000,000,000 barrel-miles or

A provincial Department of Transport official makes a safety check of a highway transport in Ontario.



21,400,000,000 ton-miles. The average length of haul increased to 492.2 miles per barrel compared with last year's 390.4 miles. The rated capacity for the average crude oil trunk pipeline system mile is estimated to be 150,000 barrels per day.

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 carried more than 400,000,000,000 cubic feet of gas, an increase of 38 p.c. from the previous year. Total traffic is 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 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

A 161-mile extension of the Peace River pipeline to Edmonton from the Fox Creek pumping station near the Kaybob oilfield in northwestern Alberta was recently constructed; it can transport 40,000 barrels a day.



Some indication of the difficulties of the terrain over which gas and oil pipelines were laid is this view of pipeline construction across the Red Deer River.



residential sales account for about 32 p.c. of the market, industrial 53 p.c., and commercial 15 p.c. Alberta is the largest consuming province, taking nearly 39 p.c. of the national market, followed by Ontario which consumes 33 p.c. This industry operates about 27,000 miles of pipeline of which 9,000 are distribution mains smaller than 3" in diameter.

Oil Pipeline Transport

		1959	1960	1961	1962 ¹
Total net receipts:					
All commodities.....	bbls.	310,780,422	315,471,479	352,493,854	387,459,595
Crude oil (domestic)....	"	177,829,488	185,062,776	221,622,809	254,874,604
Total net deliveries:					
All commodities.....	"	307,348,736	312,777,909	350,891,871	385,294,367
Total operating revenues..	\$	87,063,987	94,209,335	106,728,135	122,747,571
Total operating expenses..	\$	21,830,343	22,926,604	24,554,444	28,056,494
Net income (after income tax).....	\$	20,985,946	23,502,277	30,715,081	36,426,607
Property account.....	\$	468,676,666	485,525,285	535,626,151	557,709,996
Long-term debt.....	\$	305,238,208	298,910,522	322,671,204	306,029,767
Pipeline mileage:					
Gathering.....	miles	2,382	2,775	3,164	3,494
Trunk.....	"	5,426	5,661	6,390	6,543
Barrel miles.....	'000	114,265,808	119,109,247	147,032,151	166,208,113

¹ Preliminary.

Gas Utilities (Transport and Distribution Systems)

		1959	1960	1961
		Natural Gas Systems		
Total net receipts.....	Mcf.	375,817,275	455,818,504	576,716,783
Sales:				
Residential.....	"	97,937,027	110,132,901	122,207,511
Industrial.....	"	141,694,838	164,233,744	200,337,157
Commercial.....	"	43,485,254	51,121,809	57,778,309
Total operating revenues.....	\$	249,589,116	241,917,935	318,815,426
Total operating expenses.....	\$	164,992,275	137,683,457	190,051,550
Net income (after income tax).....	\$	7,384,727	20,152,586	38,797,713
Property account.....	\$	1,396,759,909	1,535,828,269	1,706,865,431
Long-term debt.....	\$	1,014,011,883	1,064,403,786	1,185,766,596
Pipeline mileage.....	miles	30,528	32,815	35,638

Manufactured and Liquefied Petroleum Gases Systems

Sales:				
Residential.....	Mcf.	912,532	877,670	
Industrial.....	"	161,359	945,240	2,829,098
Commercial.....	"	417,108	375,662	
Total operating revenues.....	\$	1,941,865	2,127,723	2,398,082
Total operating expenses.....	\$	1,952,869	2,076,884	2,122,772
Net income (after income tax).....	\$	363,418	305,255	260,648
Property account.....	\$	10,086,346	10,301,373	10,877,456
Long-term debt.....	\$	n.a.	6,452,381	7,939,908
Pipeline mileage.....	miles	461	462	466



A compressor station on the natural gas pipeline near Ignace, Ontario.



The town of Gander, Newfoundland, is provided with telephone services by Canadian National Telecommunications from their terminal building seen on the left.

Communications

Canada is a challenge to communications from the standpoint of population, topography and climate. Even so, long-haul telephone calls and television programs travel the entire width of the nation via microwave radio relay at the speed of light—186,000 miles per second. Communications services are being extended to remote northern territories. Complex installations providing communications for national defence span the country. Communications contact between nations is being increased through use of submarine cable crossing ocean floors and before long communications satellites will take their place in the general scheme of things. By virtue of its experience and achievements in communications Canada may reasonably be expected to play a leading part in co-ordinating the development of communications on a world-wide scale.

Telecommunications

Telephone service is being carried to the furthest reaches of the country, and many measures are being taken to enhance the value of service in both rural and urban communities. At the same time, a substantial investment in research is being made by the telephone industry to widen its variety of optional services. Plans to transmit over the telephone network virtually every kind of information that can be translated into suitable electrical signals continued to gain momentum in 1963.

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 61 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. In addition, Canadian National Telecommunications has telephone exchanges in the Yukon, the Northwest Territories and northern British Columbia and has provided more than 8,000 sets in Newfoundland.

Canadian use of telephone service runs at a high level. Between 1952 and 1961, the number of telephones increased from 3,352,366 to 6,014,015—an average of one for 3.06 persons. Canadians have also earned the distinction of leading the rest of the world in the number of telephone conversations per capita. Latest figures show the estimated number of calls per annum on all systems to be 10,468,915,318, representing an average of 1,741 calls per telephone and 568 calls per person. Long distance calls account for 2.2 p.c. of the total, most of them to points in Canada or between Canada



Every TV station in Canada is associated with a telephone company television operating centre. Technicians monitor the transmissions, switch programs, test and line up the microwave facilities.



The centre of new super-speed automatic data exchange system of the Aluminum Company of Canada Limited, which links 81 Alcan offices throughout Canada, the United States and Europe over a 21,000-mile network.

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, it has been necessary 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 land-lines.

A 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.

About 89 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. 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.

Numerous flexible services are provided 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 exchanges 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. It is also expected that in the foreseeable future air travellers will be able to place calls over the long distance network while in flight over Canada. Versatile closed-circuit television systems, for use in the new fields of industrial and educational television, have also been developed.

There is an ever growing need in business and industry to process large volumes of information, and the vast amount of long distance calls carried over the regular telephone network is today being greatly augmented by machine-to-machine communications. DATA-PHONE data sets convert the electrical pulses from business machines into tone-signals acceptable to telephone circuits; a DATA-PHONE data set at the receiving business machine reconverts the tone-signals into machine language. It is expected that, within the next few years, the volume of information transmitted between machines will equal the amount carried on regular voice calls.

Several new optional services provide even greater flexibility for machine-to-machine and voice calling over long distances. TELPAK, a private line inter-city service, is available to organizations which transmit large volumes of information requiring an exceptionally broad band of frequencies, such as data for advanced computers and high-speed facsimile equipment. Alternatively, it may be used to carry simultaneously many smaller loads of information such as voice calls and teletype, which require relatively narrow bands of frequencies. RAPIDIAL, another new service, dials up to 290 telephone numbers automatically. The numbers can be up to 14 digits in length. An electronic facsimile service, PHONE-FAX, transmits or receives letter size handwritten or printed messages, charts, drawings or forms over the regular network or private lines. BELLBOY, a pocket radio signaller alerts the user, who may be away from his office, but still in the building or nearby vicinity, that a telephone call has come in for him.



Skindivers lay underwater charges to blast a trench in the sea bed for the transatlantic telephone cable linking Canada and Scotland.

Working in temperatures of 40° below zero, telephone construction crews cut through two feet of ice to lay a submarine cable across a lake in northern Ontario.



Canada's two major telecommunications companies, Canadian National and Canadian Pacific, originally were engaged primarily in providing communication services for their parent railroad companies. Their telegraph service was at that time their major contribution to the business and social life of the people of Canada. The telegram, presently being handled by 5,500 railway offices in the order of 15,000,000 messages annually, was the forerunner of a wide variety of services which today are helping to meet Canada's complex and varied telecommunication requirements. These include data processing systems, telex, facsimile and wire photo service, telemetering, television and radio network facilities, teletype and data switching centres, and other modes of voice and record transmission on a national basis. CN-CP Telex Service, established in 1956, has met a very definite need in Canada. Almost 6,000 Telex subscribers are able to dial each other, on a toll basis, and communicate quickly by teletype. Telex is a world-wide service and Canadian subscribers have access to 170,000 subscribers in other countries.

The world's longest single microwave radio relay network, which spans Canada from coast-to-coast and was completed by the Trans-Canada Telephone System in 1958, has become an integral part of the nation's communications system. This microwave system can carry simultaneously many hundreds of telephone conversations, large volumes of data, and television programs for the CBC and CTV television networks.

Construction of an even longer microwave network was undertaken by CN-CP Telecommunications in 1962. Covering a 3,375 mile route between Montreal and Vancouver, this section will be connected to the Montreal-St. John's, Nfld., link and will bring interconnected microwave facilities to all ten Canadian provinces.

The new segment will service such centres as Ottawa, Toronto, Sudbury, the Lakehead, Winnipeg, Saskatoon, Regina, Edmonton, Calgary and Kamloops and terminal points at Montreal and Vancouver. It is expected to become operational late in 1963.

In the Canadian Northwest, a need for communications to serve industrial interests and military purposes resulted in several major projects by CN Telecommunications.

In July of 1961, a 1,200 mile microwave system between Grande Prairie, Alberta, and the Yukon-Alaska border was completed by Canadian National.

The residents of Yellowknife, Fort Rae, Fort Providence, Hay River, Pine Point and Fort Smith in Canada's north are now served by a land-line communications web stretching from Fort Smith on the Alberta-N.W.T. border, around the Great Slave Lake to Yellowknife. Communication with the world is accomplished by connection to a microwave system between Hay River and Edmonton.

By 1965, Canadian National expects to provide simultaneous long distance telephone, teletype, telex, commercial telegraph, air operational and weather communications to Fort Simpson, Wrigley, Fort Norman, Norman Wells, Fort Good Hope and Inuvik. High frequency radio will provide services to Aklavik, Fort McPherson and Arctic Red River from Inuvik. Additional facilities will be instituted at successive communities as construction proceeds northward.

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.

With the demand for overseas communications services—telephone, data and television—continuing to grow at a rapid pace, communications satellites like Telstar I, launched in July, 1962, and Telstar II, launched in May, 1963, are expected to play an ever-increasing role in carrying this worldwide traffic. The Canadian Overseas Telecommunication Corporation is responsible for Canadian participation in any satellite program designed to provide overseas communication from Canada, and is currently participating in engineering and other studies having the objective of securing a proper place for Canada in the development and use of satellites for communications purposes.



Construction for the microwave system between Grande Prairie, Alberta, and Alaska by the telecommunications departments of the Canadian National and Canadian Pacific Railways involves the installation of repeater stations on mountain peaks, such as this one in the Rockies at an altitude of 9,000 feet.

A letter carrier sorts the mail for his route before starting on his way.



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.

Postal Service

Every year the average Canadian entrusts some 225 pieces of mail to Canada's 11,336 post offices, for delivery. They may be dropped through letter-slots at one of 3,113,765 addresses visited by letter carriers, or inserted in mail boxes on one of 5,640 rural routes. They may travel by highway, railway, air or water; however they travel, it is by the quickest method available.

The volume of mail transmitted by air increases every year; more than 1,000,000 ton-miles are flown each December. In 1963 regular air mail service to Resolute Bay, N.W.T., from Montreal—a distance of more than 2,000 miles almost due north—was established to replace the former irregular delivery based on courtesy flights.

Postage rates for letters are 4 cents for local delivery and 5 cents for delivery in any part of North, South and Central America, the British Commonwealth, the Republic of Ireland, France and Spain, for the first ounce. Postcards to the above and other Postal Union countries are 4 cents each, and aérograms are delivered anywhere in the world for 10 cents each.

The services provided by the Post Office Department are not confined to the delivery of mail. It provides many associated services, including the sale of unemployment insurance stamps, collection of government annuities payments, distribution of many government forms, such as income tax forms, civil service employment application forms and family allowances and old age security application forms, issues money orders and has, since 1868,



More than 1,000 journalists from all over the world converged on Ottawa in May 1963 to report the 15th Ministerial Meeting of NATO. Here Mr. Dirk U. Stikker, NATO Secretary General, briefs the press.

operated the Post Office Savings Bank. During the year ended March 31, 1963, money orders to a total value of \$898,164,577 were issued and Post Office revenue for the same period reached a peak of \$222,358,848.

During the year, post office operations were streamlined by the installation at Vancouver and Winnipeg of photoelectric counters to count parcels automatically and, at Halifax, of a vertical rise conveyor. A new piece of equipment was introduced on an experimental basis in the Winnipeg Post Office. The combination segregator, stacker, facer-canceller is a pilot installation which is expected to speed the processing of mail.

Less elaborate but equally practical are the 150 letter carrier carts, designed by the Department's engineers, which were placed in service as an experiment to reduce the letter carrier's load and the number of relay bundles required. During the year, also, 34 new buildings were completed at large centres to provide postal accommodation, while 59 other post offices were built to replace rented premises.

The Press

Every weekday in Canada, 115 daily newspapers are published in more than 4,000,000 copies. Most of them appear in the afternoon; the remainder in the morning. Of the 115, 98 are in English, 11 in French and 6 in other languages.

The trend in daily newspaper publication is toward chain ownership. There are three large newspaper chains, one of which owns 24 papers; editorial policy is, however, developed at the local level. Most newspapers have no competition in their own areas; only 11 cities have more than one paper.

In addition to the dailies, there are 924 weekly papers, of which 682 are published in English, 178 are published in French and 64 in other languages.

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 60 p.c. of the revenue received from Canadian periodical publications, totalling about \$400,000,000 yearly, of which amount \$300,000,000 is realized from advertising and \$100,000,000 from sales. Printed and bound books were produced to the value of \$49,000,000 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 \$116,714,000 in 1962, and the latter \$6,940,000. Newspapers, magazines and books consumed \$68,400,000 worth of newsprint and \$24,000,000 worth of book paper in 1961. The publishing and printing industry employed more than 31,300 people whose salaries and wages amounted to \$148,000,000.

The commercial printing pressroom of Saskatchewan's largest printing and lithographing plant, owned by and operated by the 85,000 farmer members of the Saskatchewan Wheat Pool. The plant publishes the *Western Producer* as well as job printing, including four-colour catalogues and even books.



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Abbreviations

bbl.—barrel	lb.—pound
bu.—bushel	M.—thousand
cu. ft.—cubic feet	Mcf.—1,000 cubic feet (gas)
cwt.—hundredweight	mm.—millimetre
ft. b.m.—feet board measure	oz. t.—ounces troy
gal.—gallon	p.c.—per cent
hp.—horse-power	sq. mi.—square miles
kw.—kilowatt	kwh.—kilowatt hour

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