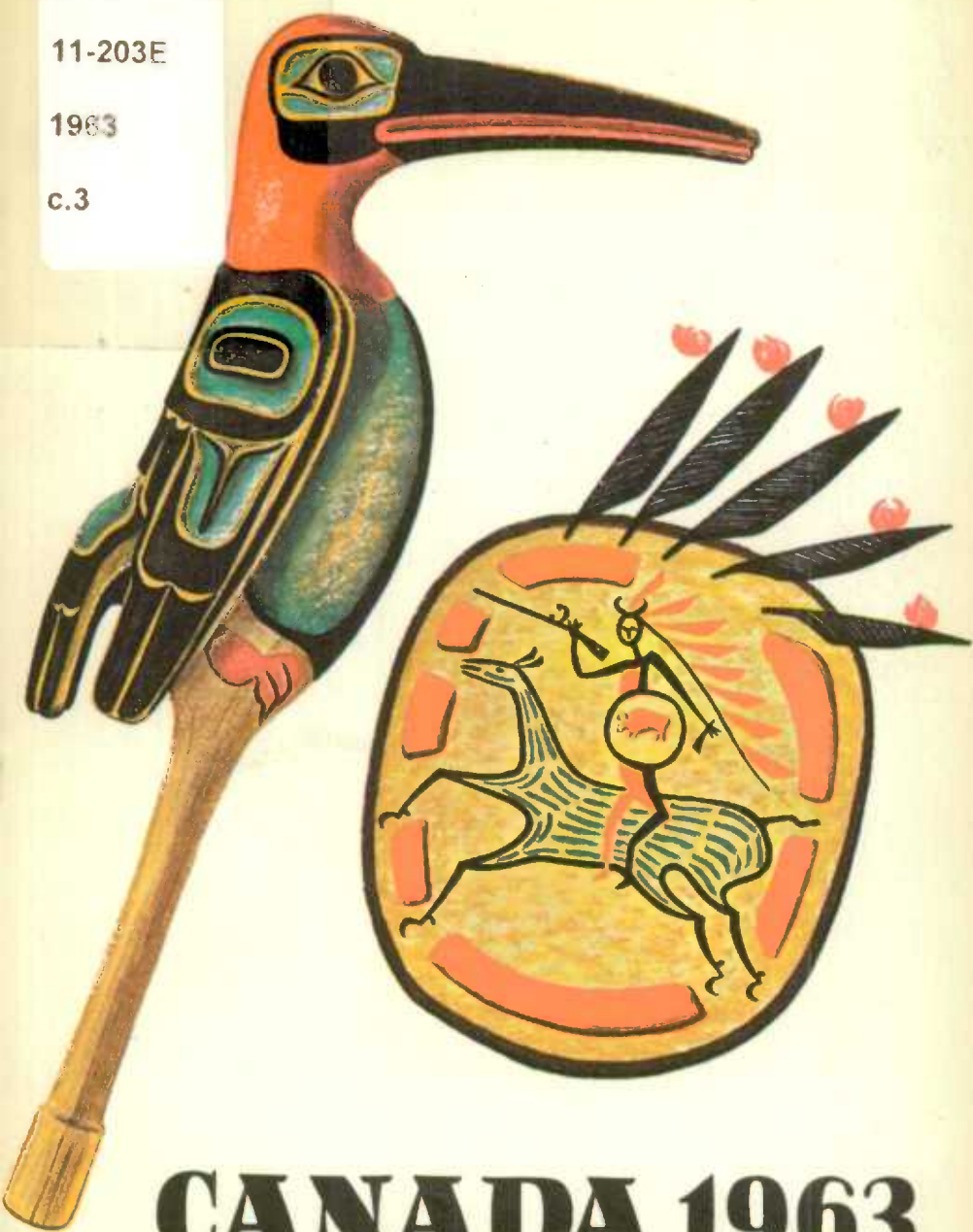


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1963

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CANADA 1963

THE COVER DESIGN of *Canada 1963* depicts five objects representative of indigenous Canadian art forms. The shield, the rattle, the mask, the wood carving and the bone horn—made by Plains Indians, West Coast Indians, Eastern Indians, early French Canadians and Eskimos—were chosen by Dr. Marius Barbeau, internationally known ethnologist who has been associated with the National Museum of Canada since 1911 and who is an acknowledged expert on Indian, Eskimo and early French-Canadian art. Each of these objects, chosen from Dr. Barbeau's own and the National Museum collections, is an excellent example of the art form it represents.

The shield: made by the Plains Indians, the rawhide shield of buffalo skin is decorated with a painting of the Prairie Indian hunter on horseback and incorporates the emblem of the sun and eagle feathers.

The mask: carved out of wood and decorated with horsehair and brass eyes, the false face is typical of the pagan Indian medicine ritual of Ontario.

The rattle: the motif of the Raven, a familiar deity to most Canadian Indians, is employed in this carved wooden rattle from the North Pacific Coast.

The wood carving: the little red cackeler is emblematic of French Canada. This model is from Beauce County, Quebec.

The horn: the walrus ivory tusk of the Eskimos is engraved with hunting scenes in the far north.

The cover was designed and painted by Arthur Price.



Lookouts are built into many of Canada's scenic highways. Here cars may pull off the road and passengers may enjoy the beauties of the lonscape or leave their cars and seek new vistas on foot.



CANADA 1963

*The
Official Handbook
of
Present Conditions
and
Recent Progress*

Prepared in the

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Ottawa.

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Foreword

Canada 1963 is the 34th 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 1963* include the latest summary of census findings, hitherto unpublished material on the average Canadian baby, new data correlating years of schooling with income, a resumé of events in all fields of the arts during 1962, and four new accessions to the National Gallery of Canada reproduced in full colour. A two-page layout provides a quick view of urban redevelopment plans in eight cities; other full page layouts are devoted to Canadian missions abroad, the work of volunteers, pulp and paper mills, religious art and other subjects.

Canada 1963 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, Feb. 1, 1963.

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Canadians of all ages, sizes, ethnic origins and tongues live together, work together and play together.

The Canadian People

Every ten years, Canada counts its entire population and everyone is briefly aware of a vast activity known as the Census. Not everyone knows, however, the reason for this activity: it is required by law to ensure proportionate representation of the population of each province in the House of Commons. There are, however, many other uses to which census information is put. A number of federal payments to the provinces are related to population, including the original payments granted under the British North America Act, the federal-provincial tax agreements of recent years, and the federal share of hospital insurance.

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.

Population growth in Canada during the 1951-61 decade was at the extremely rapid rate of about 3 p.c. per annum or 30 p.c. The increase of 4,228,818 people was about double the growth in the previous decade and about four times the number added to the population during the depressed period of the thirties. The high birth rates of the postwar years and the

substantial volume of immigration combined to bring about this rapid population growth. About 75 p.c. of the growth in Canada's population between 1951 and 1961 was due to natural increase and the balance to net migration, or the excess of immigration over emigration.

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	1,208,530	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	220,046	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

Among the provinces, the most western provinces of Alberta and British Columbia showed the fastest rates of growth, at roughly 4 p.c. per annum over the decade. Over half of the growth in British Columbia was due to net migration, a substantial part migration from other provinces, while in Alberta a high rate of natural increase as well as in-migration were responsible for its rapid growth. Ontario's population growth was around 35 p.c. Immigration from overseas contributed considerably to the population growth in this province, over half of all immigrants to Canada between 1951 and 1961 taking up residence in Ontario. Quebec recorded a 30-p.c. rise in population over the decade or about the same rate as shown for Canada. The 26.7-p.c. increase in population in Newfoundland was the result of a high rate of natural increase since this province showed some loss in population due to migration. Out-migration reduced the growth rate in the other Atlantic provinces, the population of Nova Scotia and New Brunswick showing a modest increase of around 15 p.c. in this ten-year period and that of Prince Edward Island only 6 p.c. Of the two remaining provinces, Manitoba's population grew at a rate of close to 2 p.c. per annum over the decade, or by 18.7 p.c., while in Saskatchewan the annual rate was approximately 1 p.c. or 11.2 p.c. over the ten-year period. The former held almost all of its natural increase whereas Saskatchewan experienced a much smaller growth than would be expected from its natural increase due to net out-movement of people from this province. However, out-migration from Saskatchewan in the 1951-61 period was less than half as large as in the previous decade.

The movement of population from rural to urban areas, which has been going on at least since the beginning of the 20th century, was maintained during the 1951-61 period. Whereas in 1901 almost two thirds of the population of Canada lived in rural areas and the balance in urban, by 1956 the situation had reversed itself when a little over two thirds of Canada's population resided in urban communities. According to the 1961 Census, which

defined as urban all population in communities of 1,000 and over, 12,700,390 or roughly 70 p.c. of the population was located in urban areas and only 5,537,857 in rural areas. Close to two thirds of the urban population were in major urban centres of 100,000 population and over. About three fifths of the rural population lived in small villages and settlements and two fifths on farms. The farm population numbered 2,072,785, a decline of about 20 p.c. since 1951.

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
Que.	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	35,454	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".

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, 1951-61

Census Metropolitan Area ¹	Population		Increase 1951-61
	1951	1961	
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.

Among the most significant statistics revealed by the 1961 Census is the 1,941,205 or 46 p.c. increase in the number of children under 15 years of age in the Canadian population since 1951. The age group 10-14, who are



In recent years, major changes have been made in the skylines of Canada's two largest cities, where more than one in five Canadians live.

Above, Toronto's downtown buildings rise majestically beyond the vast expanse of Lake Ontario.

Below, The multimillion-dollar development on Montreal's Dorchester Boulevard has dwarfed the former "skyscrapers".



or will shortly be reaching high school, increased at the notable rate of 64 p.c. The group 15-19 increased more rapidly than the total population, indicating a steady rise in new entries to the labour market over the next few years. By contrast, the age group 20-24, composed mainly of persons born in the period of low birth rates of the 1930's was only 8.7 p.c. larger than in 1951. This factor has contributed to the gradual decline in marriages of the past two or three years. 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, accompanied by higher or lower levels of immigration, and wars. Hence, in the older age 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.

Population by Specified Age Groups, 1951-61

Age Group	Population		Percentage Distribution		Percentage Increase
	1951	1961	1951	1961	1951-61
Total	14,009,429	18,238,247	100.0	100.0	30.2
0-4	1,722,109	2,256,401	12.3	12.4	31.0
5-9	1,397,825	2,079,522	10.0	11.4	48.8
10-14	1,130,783	1,855,999	8.1	10.2	64.1
15-19	1,057,972	1,432,559	7.6	7.9	35.4
20-24	1,088,641	1,183,646	7.8	6.5	8.7
25-34	2,173,949	2,481,107	15.5	13.6	14.1
35-44	1,867,700	2,389,885	13.3	13.1	28.0
45-54	1,407,335	1,878,504	10.0	10.3	33.5
55-59	570,690	705,835	4.0	3.8	23.7
60-64	506,152	583,635	3.6	3.1	15.3
65-69	433,497	487,102	3.1	2.7	12.4
70 and over	652,776	904,052	4.7	5.0	38.5

Square-dancing attracts young and old. Here enthusiasts dance in Toronto's High Park, as one feature of the Toronto Summer Music Festivals arranged by the City of Toronto to encourage use of its many parks.



The number of single, married, widowed and divorced males and females, 15 years and over, is shown in the following table. An important factor in the rise in the birth rate in the 1950's was the increase in the married proportion of the adult population. The more rapid increase in the number of widows than of widowers has continued with the result that at the 1961 Census the former were close to three times as numerous as widowers in the population.

Population 15 Years and Over by Marital Status, 1951-61

Marital Status and Sex	Population		Percentage Distribution		Percentage Increase
	1951	1961	1951	1961	1951-61
Males	4,920,815	6,052,802	100.0	100.0	23.0
Single	1,579,351	1,811,473	32.1	29.9	14.7
Married	3,141,754	4,019,725	63.8	66.4	27.9
Widowed	186,595	199,507	3.8	3.3	6.9
Divorced	13,115	22,097	0.3	0.4	68.5
Females	4,837,897	5,993,523	100.0	100.0	23.9
Single	1,242,437	1,379,733	25.7	23.0	11.0
Married	3,119,824	4,004,579	64.5	66.8	28.4
Widowed	456,753	578,716	9.4	9.7	26.7
Divorced	18,883	30,495	0.4	0.5	61.5

About 2,844,000 or roughly 15 p.c. of the population were born outside of Canada. The postwar immigrant population numbered 1,507,000. Immigration since World War II has resulted in considerable increases in certain ethnic groups. The Italian group at 450,000 was almost three times as large in June 1961 as at the 1951 Census; the population of German origin rose to 1,050,000 or 69 p.c. over the same period, while the Netherlands group at 430,000 was 63 p.c. larger than in 1951. The British Isles group at 7,997,000 increased by about 20 p.c. while the population of French origin was 5,540,000 or 28 p.c. greater than in 1951.

Population by Origin, 1951-61

Origin	Population		Percentage Distribution		Percentage Increase
	1951	1961	1951	1961	1951-61
British Isles ¹	6,709,685	7,996,669	47.9	43.8	19.2
French	4,319,167	5,540,346	30.8	30.4	28.3
German	619,995	1,049,599	4.4	5.7	69.3
Italian	152,245	450,351	1.1	2.5	195.8
Jewish	181,670	173,344	1.3	1.0	- 4.6 ³
Netherlands	264,267	429,679	1.9	2.3	62.6
Polish	219,845	323,517	1.6	1.8	47.2
Russian	91,279	119,168	0.7	0.7	30.6
Scandinavian ²	283,024	386,534	2.0	2.1	36.6
Ukrainian	395,043	473,337	2.8	2.6	19.8
Other European	346,354	711,320	2.5	3.9	105.4
Asiatic	72,827	121,753	0.5	0.7	67.2
Indian and Eskimo	165,607	220,121	1.2	1.2	32.9
Other and not stated	188,421	242,509	1.3	1.3	28.7
Total	14,009,429	18,238,247	100.0	100.0	30.2

¹ Includes English, Irish, Scottish and Welsh.

² Includes Danish, Icelandic, Norwegian and Swedish.

³ Decrease due mainly to enumerative reasons. See also next table, which shows a 24 p.c. increase in population of Jewish religion, 1951-61.

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, 1951-61

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	3,664,008	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

The Canadian Family

Most people think of a family as a group of blood relatives of all generations. When it comes to counting families, however, the unit must be given a more precise definition. Under the definition of the family by which the Canadian census counts heads, it consists of two or more persons, either husband and wife, with or without unmarried children living at home, or of one parent with one or more children. A household consisting of a married couple

In many institutions, services, attended by people of many faiths, are held in inter-denominational chapels such as this one in a day centre for older people. There is no state church in Canada; each person is free to practice his own religion.





living with the parents of one of them would comprise, according to this definition, two families.

Of the 4,147,444 families, comprising 16,095,721 people, in Canada in 1961, 3,800,026 families were composed of both a husband and a wife living together, with or without children. The average family was composed of 3.9 persons, an increase from 3.7 in 1951.

There were 4,554,493 households in Canada in 1961. 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.

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 about one in six households owns one.

Canadians spend an average of \$905 per capita in retail trade. During 1962, the average housewife bought a 24-oz. loaf of bread for 25 cents, a pound of coffee for 76 cents, of tea for \$1.23, of flour for 10 cents, of butter for 63 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 63 cents a dozen for oranges. Bacon was \$1.00 a pound, cheese 73 cents, sirloin steak \$1.06 and stewing beef 70 cents. The flow of European immigration since the Second World War has brought an unexpected boon to the country as a whole in that it has stimulated the import to Canada and the manufacture in Canada of many interesting foods formerly unknown or classed as infrequent luxuries.



The Canadian Baby of 1961

Almost 6,750,000 infants have been born in Canada since the end of World War II or an annual average of 420,000 during the 16-year period. Some 471,000 Canadian mothers brought a total of almost 476,000 live-born infants into the world between midnight New Year's Eve 1961 and the following New Year. This represents a birth rate of over 26, that is, the addition of 26 persons for every 1,000 already in the population.

The 1961 rate of newborns was, however, the lowest recorded at any time since the end of the War. Although a rate of this size is by no means the highest in the world, it is one of the highest among the more highly developed countries of the world. For example, England and all the European and Scandinavian countries (except the Netherlands) have birth rates ranging from 14 to 19 per 1,000 of their populations, while rates for Ireland, Scotland, Australia, U.S.A. and the Netherlands range from about 20 to 23. New Zealand, on the other hand, had a slightly higher rate than Canada for 1961.

It is almost a universal biological phenomenon that more boys than girls are born in any one year; in Canada during 1961 there were about 1,057 boys born for every 1,000 girls.

The typical or average 1961 Canadian baby boy weighed 7 pounds, 6 ounces and baby girls about 3 ounces less. The average age of his or her mother was slightly over 28, and of his father about 31½ years. One or two out of every 100 of the 1961-born babies were born outside a large, well-equipped public hospital, where complete obstetrical and pediatric care was provided to mother and child during their average stay of 5-7 days.

Of the births in 1961 half were either a first or second child, while in one out of three cases the new arrival was a fourth or later child. In one out of every 93 deliveries, on the average, the 1961 baby was one of a set of twins; in one out of every 13,700, one of a set of triplets. His chances of being born a twin or a triplet were considerably less than those of his parents' generation. On the other hand, his chances of surviving to childhood and adulthood were much better than those of his parents' day.

Although the average age of the 1961 baby's mother was a little over 28, the actual ages of the 1961 mothers ranged from 12 to over 50. The following table illustrates that of every 100 mothers, nearly 9 were under 20 years of age at the time of the child's birth; close to 30 were between 20 and 24; another 28, between 25 and 30; 19, between 30 and 35; 11, 35 to 40; and about 4 over 40 years of age. Over 200 of the 1961 mothers were under 15 years of age and almost 17,000 over 40.

Order of Birth of 1961 Live-Born Infants and the Ages of Their Mothers (Excluding Newfoundland)

Order of Birth of Child	Age of Mother							Age not Reported	Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40+		
1st child.....	228	28,877	54,688	22,868	8,381	3,000	675	469	119,186
2nd ".....	2	8,624	44,460	32,953	14,541	5,078	1,108	36	106,802
3rd ".....	—	1,628	22,809	30,239	18,756	7,838	1,679	9	82,958
4th ".....	—	243	9,192	19,483	16,049	8,239	2,026	13	55,245
5th ".....	—	24	3,244	10,985	11,019	7,031	2,111	7	34,421
6th ".....	—	2	968	5,822	7,347	5,275	1,673	4	21,091
7th or more.....	—	—	339	5,220	12,948	14,390	7,473	14	40,384
Not stated.....	—	—	—	—	—	—	—	22	22
Totals.....	230	39,398	135,700	127,570	89,041	50,851	16,745	574	460,109
P.c. of mothers in each age-group...	0.1	8.6	29.5	27.8	19.4	11.1	3.6	..	100.0

Percent in Each Birth Order

	99.1	73.3	40.3	17.9	9.4	5.9	4.0	..	25.9
1st child.....	99.1	73.3	40.3	17.9	9.4	5.9	4.0	..	25.9
2nd ".....	0.9	21.9	32.8	25.8	16.3	10.0	6.6	..	23.2
3rd ".....	—	4.1	16.8	23.7	21.1	15.4	10.0	..	18.0
4th ".....	—	0.6	6.8	15.3	18.0	16.2	12.1	..	12.0
5th ".....	—	0.1	2.4	8.6	12.4	13.8	12.6	..	7.5
6th ".....	—	—	0.7	4.6	8.3	10.4	10.0	..	4.6
7th or more.....	—	—	0.2	4.1	14.5	28.3	44.6	..	8.8
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	..	100.0

¹ Less than 0.1 p.c.

Although on the average half of the 1961 babies were either a first or a second child, the birth order in the family of the 1961 babies naturally varied widely according to the age of the mother. For example, for nearly 3 out of 4 of the mothers under 20, the 1961 baby was her first, as would be expected, while for 4 out of 10 of the 20-24-year-old mothers it was her first-born, for 3 out of 10 her 2nd-born and for over 2 out of 10 her 3rd- or 4th-born. On the other hand 4 of 100 mothers over the age of 40 had their first-born in 1961, while for almost half in this age-group the 1961 baby was her 7th or later child.

Although the weight at birth was 7 pounds, 6 ounces for the average 1961 baby boy and 7 pounds 3 ounces for a girl, the actual birth weights of the 244,403 boys and 231,297 girls ranged from less than one pound to over 14½ pounds.

The infant's weight at birth depends on a host of maternal factors, such as the duration of the mother's pregnancy, the number of previous deliveries, her age, her physical and nutritional condition—and even her psychological attitude—during pregnancy, and obviously whether the delivery results in a single child, twins, triplets or even quadruplets (of which 11 sets have been born since World War II). These and many other factors increase the chance of producing what is termed an 'immature' infant, that is, one weighing less than 2,500 grams (about 5½ pounds). This has been established as a rough minimum body weight necessary for the complete development of the organs generally required to sustain independent life in the infant without special hospital care during its early natal period. The following table illustrates that, other things being equal, women under 20 and over 35 tend to produce higher proportions of immature infants than those in their 20's or early 30's. For example, the chances of a teenage mother having an immature infant boy are 86 and an immature girl 98 out of 1,000, as compared with 60 and 74 for a mother in her late 20's. On the whole the late 20's and early 30's would appear to be the ideal age for motherhood as mothers in this age-group produce more average-weight and less immature infants; teenage mothers, on the other hand, produce smaller babies, and older mothers bigger babies than average, and also more immature ones.



Almost half—48.2 p.c.—
of the Canadian
people are under 15
years of age.

Birthweight of 1961 Infants Born Alive, per 1,000 Mothers of Each Age

Birthweight	Age of Mother						
	Under 20	20-24	25-29	30-34	35-39	40-44	45+
Boys:							
Under 5½ lbs.	86	65	60	63	71	73	75
5 lbs. 9 oz.-7 lbs. 2 oz.	362	339	310	293	289	281	295
7 lbs. 3 oz.-8 lbs. 13 oz.	474	496	505	497	476	473	432
8 lbs. 14 oz.-10 lbs. 7 oz.	75	95	117	137	149	157	180
Over 10 lbs. 7 oz.	3	5	8	10	15	16	18
Totals	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Girls:							
Under 5½ lbs.	98	78	74	75	80	85	88
5 lbs. 9 oz.-7 lbs. 2 oz.	442	432	400	374	356	340	354
7 lbs. 3 oz.-8 lbs. 13 oz.	417	434	451	462	456	450	424
8 lbs. 14 oz.-10 lbs. 7 oz.	42	54	72	84	100	116	125
Over 10 lbs. 7 oz.	1	2	3	5	8	9	9
Totals	1,000	1,000	1,000	1,000	1,000	1,000	1,000

One obviously important factor affecting the weight of the child at birth is the duration of pregnancy before delivery, as well as the age of the mother and other factors. The following table dramatically illustrates the chances of having an immature child delivered before full term. For example, practically all infants delivered before 28 weeks of pregnancy can be expected to be immature or under-developed, and about two thirds for those delivered at 28-31 weeks.

Birthweight of 1961 Infants Born Alive, per 1,000 Mothers by Duration of Pregnancy

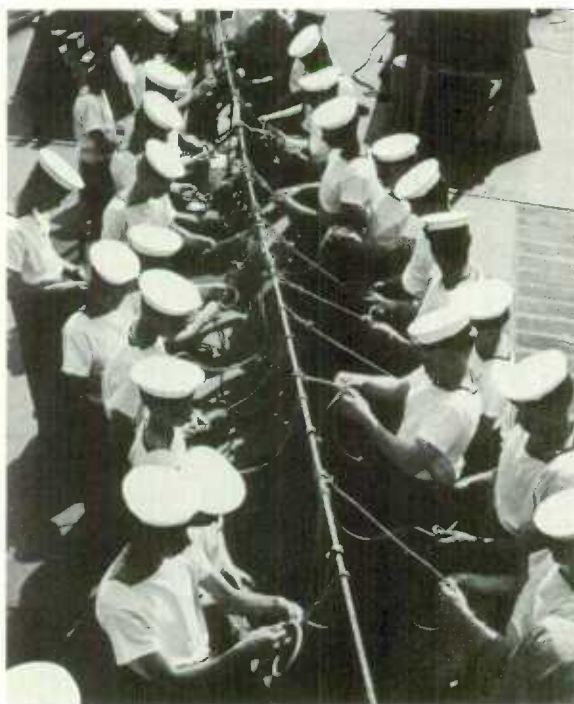
Birthweight	Weeks						
	Under 20	20-23	24-27	28-31	32-35	36-39	40+ (full term)
Boys:							
Under 5½ lbs.	1,000	992	981	683	425	81	19
5 lbs. 9 oz.-7 lbs. 2 oz.	—	8	12	296	430	419	274
7 lbs. 3 oz.-8 lbs. 13 oz.	—	—	6	20	139	418	557
8 lbs. 14 oz.-10 lbs. 7 oz.	—	—	1	1	5	78	140
Over 10 lbs. 7 oz.	—	—	—	—	1	4	10
Totals	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Girls:							
Under 5½ lbs.	1,000	997	973	650	441	104	29
5 lbs. 9 oz.-7 lbs. 2 oz.	—	3	22	332	428	480	374
7 lbs. 3 oz.-8 lbs. 13 oz.	—	—	5	17	126	364	507
8 lbs. 14 oz.-10 lbs. 7 oz.	—	—	—	1	5	50	85
Over 10 lbs. 7 oz.	—	—	—	—	1	2	5
Totals	1,000	1,000	1,000	1,000	1,000	1,000	1,000

¹ Less than .5.

The following figures, extracted from the most recent (1956) official Canadian life tables, illustrate the improvement in chances of survival of a new-born and a one-year-old reaching certain critical periods of life. These are, of course, based on the mortality rates in effect during the life-table year and would not strictly apply to people born since then as they will live out their lives under different—and probably lower—mortality rates; their chances of survival will, in all probability, be much better than these figures indicate.

Past and Present Chances, out of 1,000, of Survival to Certain Ages

Chances of Survival	Boys		Girls	
	1931	1956	1931	1956
From birth to:				
1st birthday.....	913	965	931	972
Age 6 (primary school).....	888	959	908	967
Age 12 (high school).....	878	955	899	965
Age 21.....	860	945	882	960
Age 45.....	780	896	794	931
Age 65.....	587	677	617	788
Age 70.....	489	565	526	703
From 1st birthday to:				
Age 6 (primary school).....	973	993	976	994
Age 12 (high school).....	962	989	966	992
Age 21.....	942	979	948	987
Age 45.....	855	928	854	957
Age 65.....	643	702	663	811
Age 70.....	535	585	565	723



Sea cadets in training learn to tie knots and splice ropes. There are many organizations providing educational and recreational programs for teenagers.



Of those infants who die within the first month of life—and particularly those within the first week and day of life—the vast majority will die of conditions and anomalies contracted during pregnancy, immature development of the foetus, or respiratory failure after the difficult process of being born. In 5 out of 8 infants the immature development of the foetus was the precipitating factor and in 2 out of 8 congenital malformation or disease of the respiratory system. One third of those who survive the first month succumb to some respiratory or gastro-intestinal disease (notably pneumonia), a congenital malformation incompatible with sustained life, or accidental suffocation or asphyxia by food or other object.

Although our present infant loss is only about one quarter of what it was 30 years ago, Canada still has a relatively high infant mortality rate among the more highly developed countries of the world. Australia, New Zealand and most of the European countries—and particularly Scandinavia—have considerably lower rates than Canada. Every effort is being made by the medical profession, hospital authorities and public health agencies generally to impress on mothers the extreme importance of early and complete pre-natal care, so as to prolong the pregnancy to full term, if possible, and permit delivery of mature, well-developed average infants possessing the best possible chance of surviving to full, productive lives.

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.	475,700	26.1	128,475	7.0	140,985	7.7	334,715	18.4
1962.	476,000	25.6	127,000	6.8	144,000	7.7	332,000	17.9

¹ Per thousand population.

² Estimated.



This Indian artist has been given a Canada Council grant of \$2,500 to revive interest amongst his own people of Alberni, B.C. in their former arts and crafts.

The Native Canadians

Of the 18,600,000 people in Canada today, only about 220,000 are descendants of the original inhabitants of North America. These are the Indians and Eskimos, the former outnumbering the latter by about 17 to 1. 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

The Indians of Canada who now number 208,286 are organized into 562 bands which vary in size from fewer than ten members to more than 7,000. They live on or have access to 2,217 reserves occupying almost six million acres. Three out of four Indians live on reserves; the remainder are either in the Yukon and Northwest Territories where no reserves have been set aside, or have fitted into the local economy. Every year more young Indians are seeking employment and lives of their own away from home communities.

Today Canadian Indians may be found in many walks of life—in the teaching and other professions, in farming, ranching and logging, in construction and allied trades, and in administrative and clerical positions. However, there are many in remote regions who will continue to follow the same way of life as their forefathers for years to come—trapping, hunting and fishing.

Education is the key to the future of the Indians. At the end of 1961 there were 45,000 Indian children in school—double the number of a decade ago. Of these, one in every four now is attending a non-Indian school.

Of growing importance are the "joint school" agreements between the Indian Affairs Branch and local school boards, under which Indian children from nearby reserves are admitted into local schools. Usually, in order to accommodate them, the school board must build additional classrooms. In such instances, the Federal Government pays part of the construction costs as well as a tuition grant for each Indian pupil. Many of the students going to integrated schools are attending high school classes. Last year 2,800 Indian teenagers were in Grades 9 to 12 in non-Indian schools while 80 young Indians were in Grade 13 and university courses. There are 112 teachers of Indian blood teaching in Indian schools.

Young Indians are being schooled so that they can compete on equal terms with other Canadian students after completing their education. To help them find employment, the Indian Affairs Branch in 1957 launched a job placement program. There now are 14 placement specialists established at various centres across Canada. Supplementing the facilities of the National Employment Service, they guide students from the classroom into employment, see 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 institutes.

For older Indians and those who prefer to live on the reserves, there are many economic development programs. Most important to the Indian economy are trapping and fishing. The main cash crop of the Indian is still fur and the federal and provincial governments co-operate in extensive fur management schemes. Commercial fishing, which is comparatively new

to many Indians, is rapidly becoming a major source of income in the northern areas. Young Indians are being trained in management for the day when they will take over the management of their own fisheries.

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



This Indian boy is taking a course in welding under the Indian Affairs Placement Program. The Federal Government is encouraging the Indian people to undertake training in special skills.



A group of Eskimos ready to leave their winter quarters in motor boats and whale boat to set up their summer fishing camp some distance away.

The Eskimos

Each year an increasing number of Canada's 11,835 Eskimos who live in the Northwest Territories, Arctic Quebec and Labrador make the transition from a nomadic life of hunting to regular wage employment.

Economic development in the north, particularly the growth of the Eskimo co-operatives, coupled with a decrease in some types of game, is settling the Eskimo people more and more in northern centres with schools, planned communities and employment opportunities.

For many children, the transition from isolated hunting camps to the modern classroom is complete. Some 2,100 youngsters now spend the school term at desks; more than half of them live in student residences in daily touch with the modern age of air transportation and electronics. Since 1951, school attendance among Eskimo children has risen from 8 p.c. to 62 p.c.: within the next decade it is expected that every Eskimo child will be in school.

While a basic formal education is a long step toward wage employment, it is only one of many channels of knowledge. New trades—carpentry, electronics, mining mechanics and domestic sciences are taught in vocational training classes. On-the-job learning is showing adult members of the community how to make a better living by their traditional skills and the natural resources of their land.

Through the Eskimo co-operatives, older Eskimos have been brought in touch with a business society for the first time. Each member of the co-operative has a vote in business operations; community leaders are emerging as directors and in time will have full management of the co-operative.

Fourteen Eskimo co-operatives in the Northwest Territories and Arctic Quebec are now engaged in a variety of operations based on commercial fishing, handicrafts, tourism and the operation of small retail stores. During these early years of development, the Eskimo people need the technical and

educational support of the Department of Northern Affairs and National Resources. Northern products from the Eskimo co-operatives must meet the high standards and demanding production schedules of the southern market.

In addition to providing business experience and work opportunities, the co-operatives are bringing badly-needed cash into Eskimo communities. This year, the 14 enterprises will gross in the neighbourhood of \$1,000,000. Of this amount, nearly \$250,000 will be brought into the north by the sale of Eskimo carvings and prints and craft work. It is expected that this figure will continue to rise in coming years.

One of the most pressing needs in Arctic communities is for more Eskimo housing. Although many people still live by hunting and trapping outside the settlements, more and more of them are becoming settled wage earners in need of permanent homes. Through a program of loans and grants, most homes are being purchased by the Eskimos on terms they can afford. At Frobisher Bay, a group of 15 families has established a co-operative which aims to provide all members with adequate comfortable three-bedroom housing.

Other housing is provided as a relief measure to help those who, through physical disability, cannot afford to pay for their own shelter. Eskimos, of course, are eligible for all forms of social assistance, including family allowances and old age benefits.



Earlier this year, the Districts of Keewatin and Franklin were added to the former constituency of Mackenzie River to form a new federal constituency of "Northwest Territories". Last June, election returns showed that most Eskimos of voting age took the opportunity to cast their votes in the federal election for the first time.

An Eskimo carpenter works on a new refrigerated warehouse at Inuvik, N.W.T. This picture was taken at 12 noon in 25° below zero weather.

This youngster has just arrived in Canada in the first group of 100 Chinese refugee families to come from Mainland China in 1962.



Immigration

Canadian immigration in 1962 was affected not only by economic conditions at home and abroad but also by the coming into effect, on February 1, 1962, of new Canadian immigration regulations which made sweeping changes in eligibility, particularly in unsponsored categories. An unsponsored immigrant can now qualify entirely on his own individual merit. The regulations stress the qualities and qualifications of the person rather than the accident of his nationality.

The buoyant economies of European countries, coupled with unfavourable reports of conditions in Canada in 1962, deterred many prospective immigrants. On the other hand, political and economic change elsewhere, particularly in African countries, induced others to inquire about migration to Canada.

Immigration in 1962 was slightly higher than in the previous year, 74,586, compared with 71,689 in 1961—approximately one half of whom were, in each case, dependants. The majority were between the ages of 20 and 34 inclusive. As in previous years, Ontario and Quebec received the greater part of the influx.

A reflection of the 1951-61 immigration rate is the figure of 13.5 p.c. (2,454,562) of the population who reported their mother tongues to be other than English or French.

The year 1962 was marked by the decision to admit from Hong Kong 100 refugee Chinese families. The first group arrived by air in August, 1962. The number of refugees landed during 1962 totalled 1,733.

During 1962, reports were received by the Department of Citizenship and Immigration of the establishment by newcomers of 1,633 businesses at a total estimated value of \$22,144,525; and their purchase or rental of 821 farm properties valued at \$15,169,500. As immigrants are under no obligation to report such transactions, these purchases reflect only a small proportion of the real estate involved. The majority of the business purchases reported were made by German immigrants; the farm purchases, by newcomers from the Netherlands.

Canadian immigration offices abroad are located in the following centres: Vienna, Brussels, Copenhagen, Helsinki, Paris, Cologne-Mulheim, Berlin,

Hamburg, Stuttgart, Munich, Athens, Dublin, Rome, The Hague, Oslo, Lisbon, Stockholm, Berne, London, Liverpool, Glasgow, Belfast, Leeds, Bristol, Hong Kong, New Delhi, Tel Aviv, New York, Chicago, Denver and San Francisco.

Citizenship

The Canadian Citizenship Act, passed in 1946, established a Canadian national status and specified what classes of persons were entitled to claim this status as of January 1, 1947. It also provided for the acquisition of Canadian citizenship by British subjects and aliens.

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

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

The number of persons reporting Canadian citizenship increased by 26.6 p.c. in the 1951-61 period and represented 94.2 p.c. of the population in 1961 (96.8 p.c. in 1951). On the other hand, the relatively high level of

Hundreds of foreign-born Canadians, dressed in their traditional native costumes, made a pilgrimage to the shrine at Cap de la Madeleine, where they made a presentation to the statue of St. Mary of bread, wheat and maple leaves in the name of all new Canadians.



immigration between 1951 and 1961 resulted in an increase of 139.1 p.c. in the number of residents in 1961 who were not citizens of Canada. These persons represented 5.8 p.c. of the total population in 1961 as compared with 3.2 p.c. a decade earlier.

The number of persons born in Canada increased by 28.8 p.c. in the 1951-61 period and represented 84.4 p.c. of the population in 1961 (85.3 p.c. in 1951). The foreign-born population living in Canada on June 1, 1961 increased by 38.1 p.c. since 1951, and formed 15.6 p.c. of the total population. Approximately 27 p.c. of these persons had immigrated to Canada before 1921, 20 p.c. between 1921 and 1945, and 53 p.c. since 1945.

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

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

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



The face of a new Canadian! This Hungarian-born refugee has just received her Canadian citizenship certificate.



Niagara Falls, traditionally a "must" on the honeymooners' itinerary, achieves an eerie beauty in winter garb.

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



Toronto's famed Casa Loma is the beautiful setting of the annual gardening show.

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.

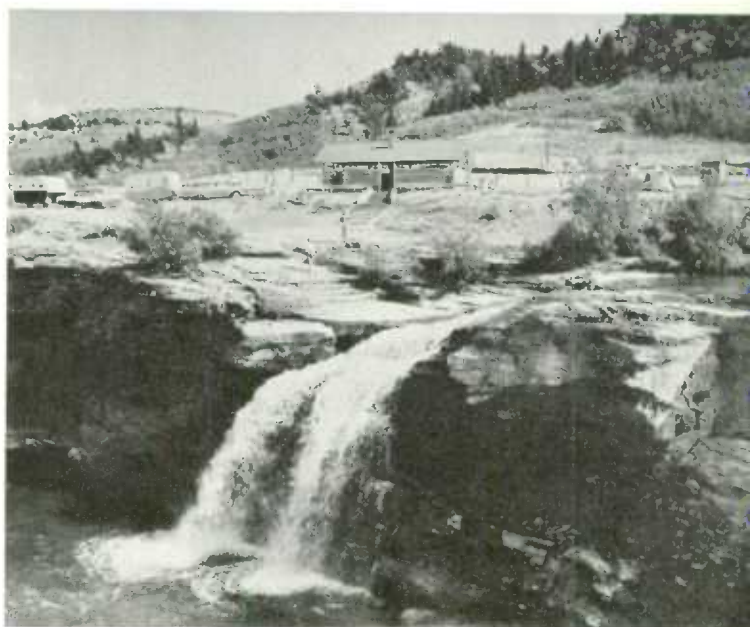
Canada has thousands of rivers and lakes. The swift-flowing rivers abound in fish and are a source of hydro-electric power; many of the lakes have been developed for recreational sites. The greatest lake and river system—the St. Lawrence River and the Great Lakes—provides water transportation for ocean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

Approximate Land and Freshwater Areas of the Provinces and Territories

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

Geographically, Canada is divided into ten provinces and two territories. Each province has its own provincial capital and its legislative buildings. The capitals vary from peaceful little Charlottetown, Prince Edward Island (population 18,318) to the sprawling metropolis of Toronto, Ontario (population 1,824,481). Other capital cities are St. John's, Newfoundland; Halifax, Nova Scotia; Fredericton, New Brunswick; Quebec, Quebec; Winnipeg, Manitoba; Regina, Saskatchewan; Edmonton, Alberta; Victoria, British Columbia.

In the foothills of southern Alberta, Lundbreck Falls is an attractive feature of this holiday campsite.



The Climate

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

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

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

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

On the other hand, the large water surfaces of central and eastern Canada produce a considerable modification in the climate. Winters are milder with

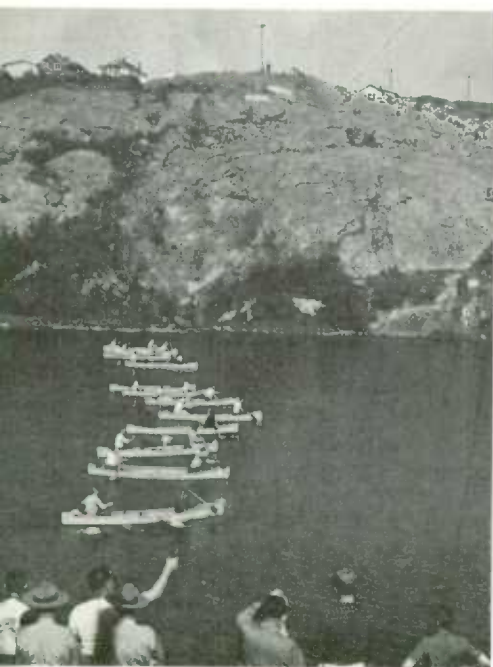


It's summer on one side of the glass doors, winter on the other. Many resorts provide year-round sports and relaxation.

more snow in southwestern Ontario, while in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. To a lesser degree the smaller lakes in interior Canada modify the climate but only of the adjacent shores.

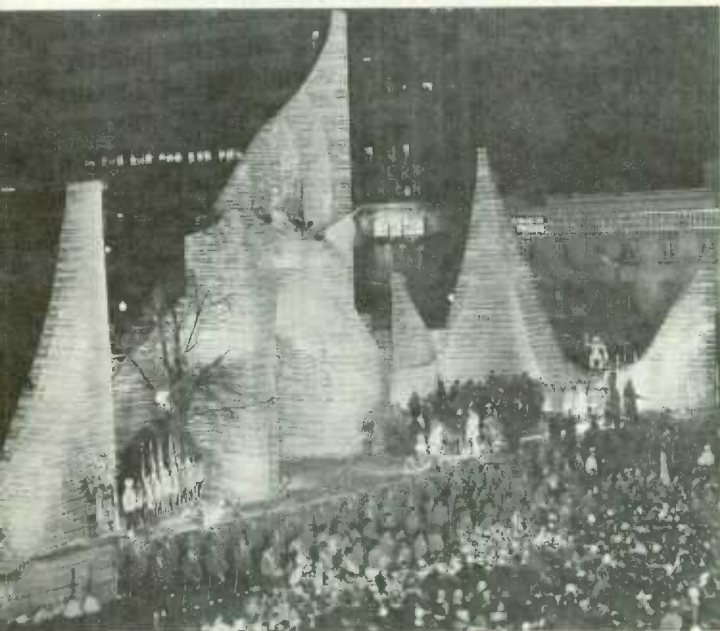
Temperature and Precipitation Data for Certain Localities in Canada
(Long-term average)

Station	Temperature (deg. Fahrenheit)					Precipitation Av. Annual (inches)	Bright Sunshine (hrs. per annum)	Freezing Temper- ature (days)
	Av. Annual	Av. Jan- uary	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 Iles, 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



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

The rugged landscape of northern Manitoba can be seen here as the Gold Rush Canoe Derby gets under way at the Flin Flon Trout Festival.



Whether it be a regatta, an ice carnival, a rodeo or a salmon derby, there are places to go all year round where the thrill of the spectator is in direct proportion to the skill of the performer.

Travelling Places

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 in Montreal. These go on for weeks and are featured by carnival parades, night ski-ing festivals, ice canoe races, dogsled derbies, masquerades and costume balls, street dancing in an ice palace and a generally pervasive spirit of revelry.

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

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

June marks the opening of the Stratford Shakespearean Festival which runs until September, and of the summer theatre season. In the West, local stampedes and rodeos are held and competitors test their skill at calf-roping, broncho-riding and chuck-wagon-racing in preparation for the greatest show of them all, the world-famous Calgary Stampede, held in July. In 1962 the Calgary Stampede celebrated its 50th anniversary. 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. In 1962, it also marked the opening of the month-long International Music Camp at the International Peace Gardens in Manitoba. 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.

The lasting influence of their Scottish forebears is particularly evident among the Maritimers. In Nova Scotia during July are held the Gathering



Canadians of Scottish descent never tire of the 'pipes, and Highland Games are annual contests of musical and dancing skills and feats of strength in many Canadian centres.

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 Beeton, Ontario, the Simcoe County Quilt, Rug and Craft Fair lasts four 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. In Ottawa, July marks the beginning of the colourful ceremony of the Changing of the Guard on Parliament Hill which is performed each morning until the beginning of September. In 1962, a Pion-Era, presented at Saskatoon, featured exhibits of machinery and household equipment used by pioneers.

In July 1962, the British Empire and Commonwealth Game Trials were held in Vancouver and the town of Vernon, B.C., in the Okanagan Valley, staged the Vernon Tourist Days, featuring a square dance jamboree, a 12-mile marathon swim, an all-nation folk festival, army cadet precision marching, bands, water skiing contests, and talent concerts. The Vancouver International Festival opened with a program of music, drama, dancing, art and films.

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 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. The Montreal Festivals of the Arts, the Montreal International Film Festival and the International Festival of Popular Music in Quebec open. In Ontario, the Glengarry Highland Games are held at Maxville and, at Brantford, the Annual Six Nations Indian Pageant. The International Film Festival opens at Stratford and in Toronto the world's largest annual fair—the Canadian

National Exhibition—opens its gates to 3,000,000 visitors. In 1962, the first annual figure-skating school opened at Banff, as did the Banff Summer Festival of drama, opera, ballet, choral and orchestral music.

During August, annual exhibitions are held in towns and cities from coast to coast. In British Columbia, there is an International Regatta at Kelowna, a Salmon Derby at Sechelt, Loggers Sports Day at Squamish and the Pacific National Exhibition opens in Vancouver. On August 2, 1962, the city of Victoria, B.C., celebrated the 100th anniversary of the granting of its charter, and on August 4, Sioux Lookout, Ontario, celebrated its 50th anniversary. Centennial celebrations were held in a number of cities and towns and Sherbrooke, Quebec, celebrated its 125th anniversary. In the Yukon, Dawson City celebrates Discovery Day and during July and August, 1962, staged the Dawson City Gold Rush Festival which included the preview of a Broadway musicale, and which brought thousands of visitors to this former gold-rush town.

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

Guides, many of them Indians, receive a lesson in cooking as part of the tourist guides course which includes instruction in map-reading, camping, safety and first aid, and every skill likely to be needed to make a hunting or fishing trip a success.





Sun Valley in the Laurentian Mountains north of Montreal is a highly-developed winter sports area and the site of championship ski-meets.

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

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

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

National park names and areas are as follows:—

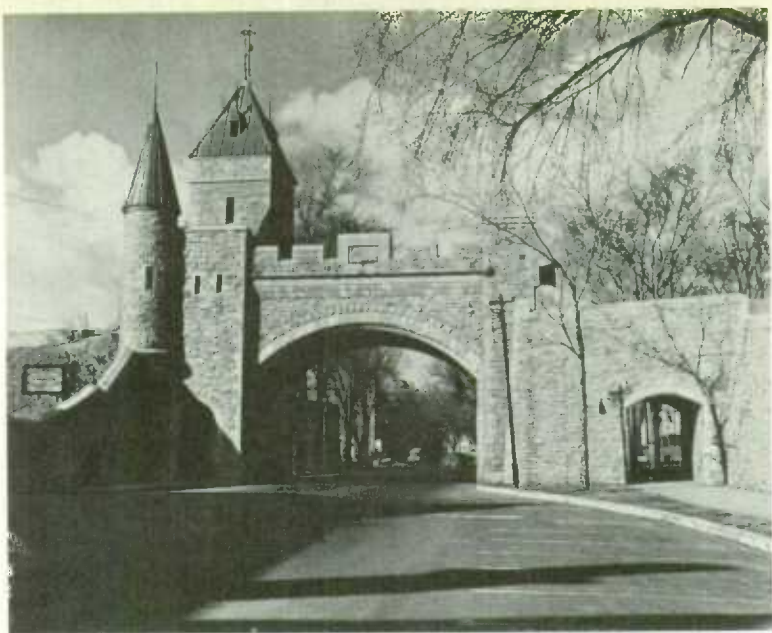
<u>Park</u>	<u>Area</u> sq. miles	<u>Park</u>	<u>Area</u> acres
SCENIC, RECREATIONAL AND ANIMAL		HISTORIC—continued	
Wood Buffalo, Alta. and N.W.T.	17,300.0	Fort Amherst, P.E.I.	222.0
Jasper, Alta.	4,200.0	Fort Lennox, Que.	210.0
Banff, Alta.	2,564.0	Fort Beauséjour, N.B.	81.3
Prince Albert, Sask.	1,496.0	Fort Prince of Wales, Man.	50.0
Riding Mountain, Man.	1,148.0	Halifax Citadel, N.S.	36.9
Kootenay, B.C.	543.0	Fort Battleford, Sask.	36.7
Glacier, B.C.	521.0	Fort Anne, N.S.	31.0
Yoho, B.C.	507.0	Port Royal, N.S.	20.5
Cape Breton Highlands, N.S.	367.0	Grand Pré, N.S.	14.0
Waterton Lakes, Alta.	203.0	Cartier-Brébeuf, Que.	14.0
Terra Nova, Nfld.	153.0	Alexander Graham Bell Museum, Baddeck, N.S.	14.0
Mount Revelstoke, B.C.	100.0	Lower Fort Garry, Man.	13.0
Fundy, N.B.	79.5	Woodside, Ont.	12.0
Elk Island, Alta.	75.0	Fort Langley, B.C.	9.0
Prince Edward Island, P.E.I.	7.0	Fort Wellington, Ont.	8.5
Point Pelee, Ont.	6.0	Fort Malden, Ont.	8.0
Georgian Bay Islands, Ont.	5.4	Fort Chambly, Que.	2.5
St. Lawrence Islands, Ont. (acres)	260.0	Batoche Rectory, Sask.	1.3
		Sir Wilfrid Laurier's Birthplace, St. Lin, Que.	1.0
HISTORIC			
Fortress of Louisbourg, N.S.	339.5		
Signal Hill, Nfld.	243.4		

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

The Canadian Government Travel Bureau, Ottawa, issues leaflets, hooklets 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.



Fishermen try their luck in the Caribou River in Quebec's provincial Laurentide Park.



St. Louis Gate in Quebec City is one of three preserved of the original five turreted gates in the walls circling the city.

Canada's History

The discovery and settlement of Canada are closely related to the development of international trade. In Europe in the 15th and 16th centuries, the first imports of silks and spices and other exotic items began to appear, brought back by explorers and adventurers from the Near and the Far East. Convinced that there must be a western passage to India and China, intrepid sailors steered their tiny ships into the setting sun, finally to find anchorage off some point on the eastern coast of North America. North and south they ranged, trying to broach a sea passage to the Pacific Ocean. As they circumnavigated Atlantic islands and probed the riverways of this new country, they gradually realized that this seemingly barren and forbidding land was one which had been bountifully blessed with riches of great variety.

The most valuable fishing grounds in the world lie off the east coast of Canada where the ocean bed forms a shallow continental shelf extending far out to sea before suddenly dropping down into the ocean depths. Transportation is provided by lake and river systems, of which the largest carries ocean vessels 2,000 miles inland. With half the world's fresh water, Canada has plentiful low-cost electric power as well as water for irrigation in the dry belts of the prairies. The native animals provided the first export of the New World in the form of rich and varied furs, and from the forests which were their habitat came timber for 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.

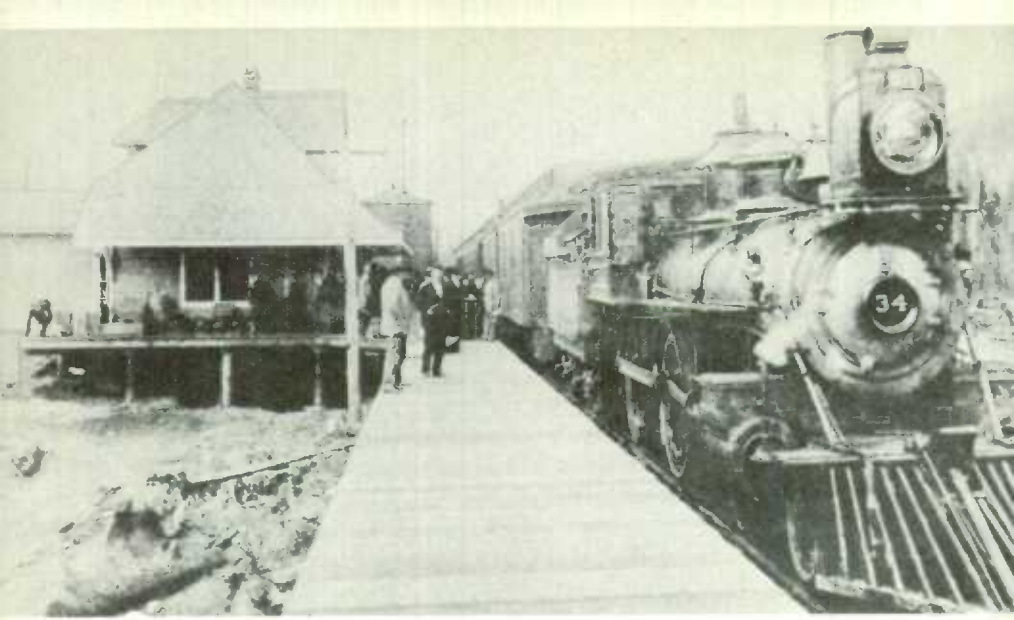
Four hundred years ago the secrets of Canada's natural resources were unknown and even today a full realization of its riches is not complete. The sequence of the discovery and exploitation of these resources is the economic history of Canada.

The first of Canada's riches to be discovered and exploited were the fisheries on the Atlantic banks and the Gulf of St. Lawrence. From early in the 16th century European fishermen made the voyage to the banks and shores of North America to fish the sea that Cabot reported as "swarming with fish, which can be taken not only with the net but in baskets let down with a stone". They were neither explorers nor settlers but they did resort to harbours to dry-cure their fish, a process adopted to save salt. There they met Indian trappers and began to trade iron and steel axes, knives, guns, needles, nails and cooking pots for furs (particularly beaver for felt hats).

So fast did the fur trade grow that European traders were vying with each other for charters of monopoly, and the natural sequel was the settling of colonists to defend them. In 1670 Charles II granted a charter to The Governor and Company of Adventurers of England Trading into Hudson's Bay and gave it a monopoly of trade through Hudson Strait and possession of the lands to be reached through the Strait. The company established trading posts on the shores of Hudson Bay and further inland. Competition with other traders was violent, resulting at times in open warfare. In 1821 the Hudson's Bay Company merged with its largest rival, the North West Company, and in 1870 it surrendered its territorial rights to Canada for



The oldest house still standing in Canada was built in 1637 in Quebec. It is now a museum.



This train was one of thousands bringing homesteaders to Western Canada during the settlement of the prairies.

£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 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.

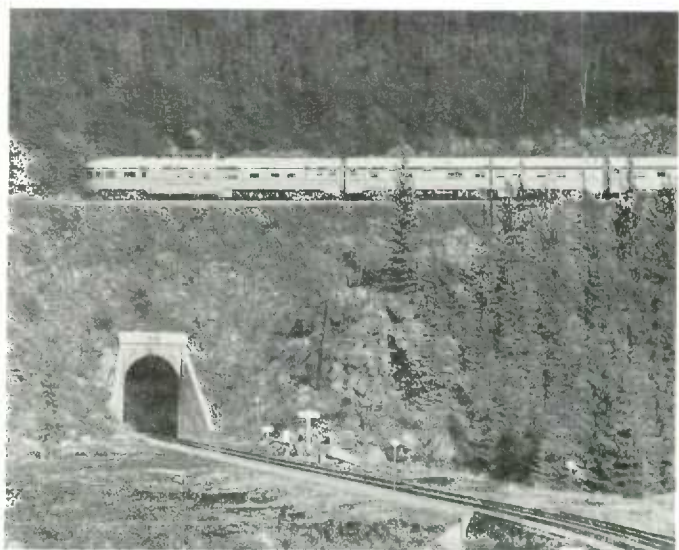
Over the years, the resources of the forests had been developed: lumbering for export and shipbuilding became important industries.

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, 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;



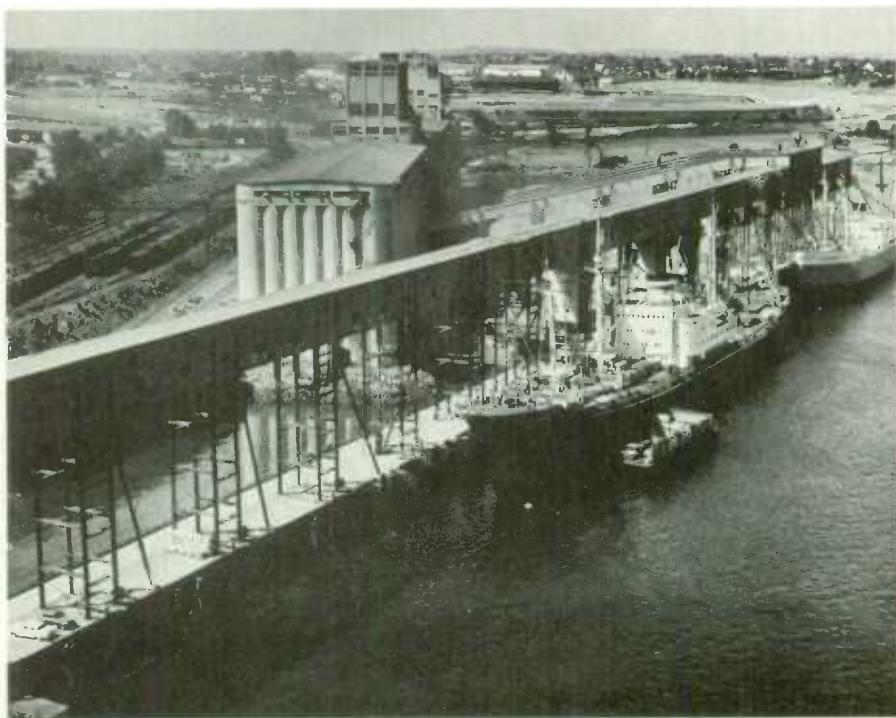
In sharp contrast to the train on the opposite page is the sleek modern diesel which, a few minutes before this picture was taken, entered the famous spiral tunnel below.

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

Wheat is Canada's second greatest export surpassed only by newsprint. Canada has almost one third of the world's wheat acreage.



Since the earliest days of settlement, the woods have provided one of the mainstays of the Canadian economy. Canada is the world's greatest producer and exporter of newsprint and the second largest producer of pulp.



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 \$36,844,000,000 in 1961; personal income from \$9,719,000,000 to \$28,049,000,000.

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 244,007,849 barrels in 1962. Natural gas has also been exploited extensively and 955,526,300 Mcf. were produced in 1962. Oil and gas pipelines were installed to carry these fuels 38,450 miles east and west and to the United States.

A vast inflow of non-resident capital has contributed greatly to Canada's 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 concentrated in the resources and manufacturing industries. It accounts for 63 p.c. ownership and 75 p.c. control of the petroleum and natural gas industries; 59 p.c. ownership and 61 p.c. control of the mining industry; 51 p.c. ownership and 57 p.c. control of manufacturing.

Gross value of manufactured products has increased from \$13,817,526,000 in 1950 to \$23,747,000,000 in 1960, although the number of employees has

increased only from 1,183,297 to 1,295,000, due to progress in automation and a significant trend toward the production of durable goods. Leading industries, by value, are pulp and paper, petroleum products, non-ferrous metal smelting and refining, slaughtering and meat packing, and motor vehicles.

In agriculture the trend is toward consolidation of farms into large units, increased mechanization and intensive specialization of such crops as apples, potatoes, poultry and dairy products. In recent years the number of farms and farm workers has declined but production per man-hour has shown a remarkable increase.

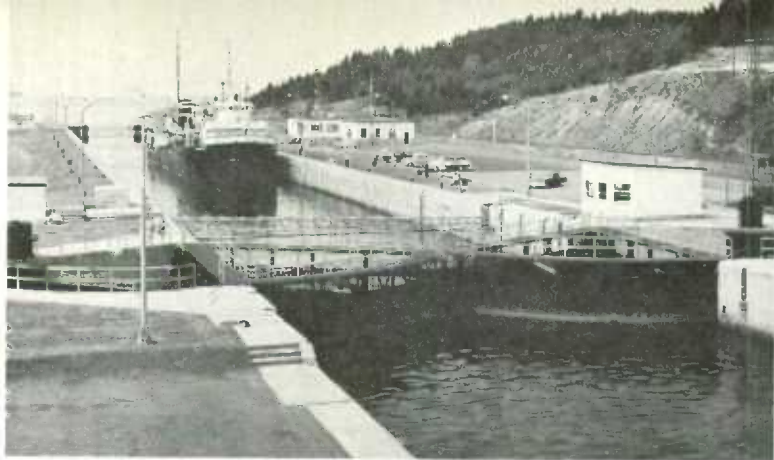
The most important development in the field of transportation was the construction of the St. Lawrence Seaway and power projects. Formally opened in 1959 by Queen Elizabeth and President Eisenhower, this Canadian-American project enables ocean-going vessels to sail right into the Lakehead twin cities of Port Arthur and Fort William and provides Canada with an additional 1,200,000 hp. of electric power. Both the Canadian National and the Canadian Pacific railways introduced new, more efficient rolling-stock and maintenance equipment, and retired all their steam engines, replacing them with diesel locomotives.

There has been a tremendous increase in air transit. Passenger miles have increased more than ten-fold from 257,945,385 in 1947 to 3,157,518,367 in 1961, and the number of aircraft from 1,837 in 1947 to 6,196 in 1962. The largest air service, with 92 aircraft, retired its last piston engine aircraft in 1961 in favour of turbine power.

Hydro-electric power has been developed intensively and has more than doubled in the last decade alone. More thermal-electric capacity is being developed as sources of hydro-electric power become more remote. Between 1947 and 1962 the net generating capacity of thermal stations increased from



A compressor station in the pipeline system bringing natural gas from the prairies to Eastern Canada.



A Seaway freighter passing through the man-made Canso Causeway between Mulgrave and Port Hawkesbury, Nova Scotia.

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 recent years, much thought has been given both to the development and to the conservation of Canada's resources, both human and material. The conservation of renewable resources, such as soil, water, forests, wildlife, fish and recreational facilities, was the subject of the "Resources for Tomorrow" Conference held in Montreal in October, 1961.

In the field of human resources, two notable programs were initiated. The Canada Council was established in 1957 "to foster and promote the study and enjoyment of, and the production of works in, the arts, humanities and social sciences" and \$100,000,000 was made available, half for capital grants to universities and the income from the other half for scholarships, studentships and bursaries to individuals and organizations. In 1960, a new Technical and Vocational Training Assistance Act was passed, providing for the Federal Government to contribute 75 p.c. of the costs of capital expenditure on trade and technical schools as well as 75 p.c. of the costs of training unemployed persons.

Today Canada, with 0.6 p.c. of the world's population, produces more newsprint, nickel, asbestos and zinc than any other nation; is second in world output of hydro-electric power, pulp, uranium, platinum, aluminum, gold and oats; third in production of sawn lumber and silver. It stands 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.



The mace—symbol of the authority of the House of Commons—is placed on the Clerk's table by the Sergeant-at-Arms whenever the Speaker is in the chair. It is removed to the brackets at the end of the table when the House goes into Committee and the Speaker leaves the chair.

Government

Canada is an independent nation, with a democratic parliamentary system of government. Queen Elizabeth II, who stands as a symbol of free association among the nations of the Commonwealth, is, as Queen of Canada, the head of the Canadian State. Parliament consists of the Queen, the Senate and the House of Commons. Senators are appointed on a regional basis for life, and members of the House of Commons are elected by the people of Canada for maximum terms of five years. The executive power is exercised by the Cabinet, chosen by the Prime Minister from

among his parliamentary supporters. He and his Cabinet colleagues are collectively responsible to the House of Commons and can remain in office only so long as they command the confidence of that House.

Canadian government has evolved from the earliest form—company rule—through despotic royal rule, military rule and civilian rule by law in the 17th and 18th centuries to representative government by royal appointment and, finally, to the present form of elected representative government responsible to the electors at large.

The modern Canadian federal state was established by the British North America Act of 1867, which united the three British North American provinces of Canada, New Brunswick and Nova Scotia into one country, divided into four provinces: Ontario, Quebec, New Brunswick and Nova Scotia. British Columbia entered the Union in 1871 and Prince Edward Island in 1873. The provinces of Manitoba (1870), Saskatchewan and Alberta (1905) were created out of portions of the territories formerly held by the Hudson's Bay Company and admitted to the Union in 1870, and Newfoundland entered the Union in 1949. Canada now consists of ten provinces and the remaining northern territories, not included in any province, now known as the Yukon Territory and the Northwest Territories.

While the British North America Act is popularly regarded as the Constitution of Canada, it is not an exhaustive statement of the laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other statutes of the United Kingdom Parliament (e.g., the Statute of Westminster, 1931), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the demise of the Crown, the Governor General, the Senate, the House of Commons, electoral districts, elections, Royal Style 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.

The 25th Parliament opened on September 27, 1962, following the election of June 18, and was dissolved on February 5, 1963. The date set for the election of the 26th Parliament is April 8.

Here the new Speaker of the House is being installed. His chair is an exact replica of the chair at Westminster which was destroyed during the bombing of London in 1941. Incorporated in it are portions of oak from London's Westminster Hall and from Lord Nelson's flagship *Victory*. Above the Speaker's chair, members of the Parliamentary Press Gallery watch the ceremony.





In June 1962 the Queen Mother came to Canada to participate in the centenary of the Black Watch (the Royal Highland Regiment of Canada) of which she is Colonel-in-Chief. Here she presents the Queen's Colours.

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. Canada's international status is further reflected on pp. 59-64.

The Parliament of Canada

Federal legislative authority is vested in the Parliament of Canada, consisting of the Queen, the Senate and the House of Commons. Both the

House of Commons and the Senate must pass all legislative Bills before they receive Royal Assent through the Governor General. Both bodies may originate legislation, but only the House of Commons may introduce Bills for the expenditure of public money or the imposition of any tax.

The Queen. Her Majesty Queen Elizabeth II is Queen of Canada. She is also Head of the Commonwealth and symbolizes the association of the member countries. In 1952 it was decided by the Commonwealth prime ministers meeting in London to establish new forms of title for each country. Since 1953 the title of the Queen, so far as Canada is concerned, is "Elizabeth the Second, by the Grace of God of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith".

Sovereigns of Canada since Confederation in 1867 are as follows:

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

The Governor General. The personal representative of the Queen in Canada is the Governor General, appointed by Her Majesty on the advice of her Canadian Prime Minister for a term of approximately five years. He exercises the executive authority of the Queen in relation to the Government of Canada. On the recommendation of his responsible advisers, he summons, prorogues and dissolves Parliament, assents to Bills and exercises other executive functions.

Governors General of Canada since Confederation are as follows:

<i>Name</i>	<i>Date of Taking Office</i>	<i>Name</i>	<i>Date of Taking Office</i>
Viscount Monck.....	July 1, 1867	The Duke of Devonshire..	Nov. 11, 1916
Lord Lisgar.....	Feb. 2, 1869	Lord Byng of Vimy.....	Aug. 11, 1921
The Earl of Dufferin.....	June 25, 1872	Viscount Willingdon.....	Oct. 2, 1926
The Marquis of Lorne.....	Nov. 25, 1878	The Earl of Bessborough..	Apr. 4, 1931
The Marquis of Lansdowne	Oct. 23, 1883	Lord Tweedsmuir.....	Nov. 2, 1935
Lord Stanley of Preston...	June 11, 1888	The Earl of Athlone.....	June 21, 1940
The Earl of Aberdeen.....	Sept. 18, 1893	Viscount Alexander of	
The Earl of Minto.....	Nov. 12, 1898	Tunis.....	Apr. 12, 1946
Earl Grey.....	Dec. 10, 1904	The Rt. Hon. Vincent	
H.R.H. The Duke of		Massey.....	Feb. 28, 1952
Connaught.....	Oct. 13, 1911	Maj.-Gen. Georges P.	
		Vanier.....	Sept. 15, 1959

The Privy Council. The Queen's Privy Council for Canada is composed of nearly 100 members appointed for life by the Governor General on the advice of the Prime Minister. The Council consists chiefly of present and

former Ministers of the Crown, but occasionally membership in the Privy Council is conferred on a distinguished visitor: H.R.H. The Duke of Windsor, Sir Winston Churchill, Earl Alexander of Tunis and H.R.H. The Prince Philip, Duke of Edinburgh are all members of Canada's Privy Council. The Council does not meet as a functioning body and its constitutional responsibilities as adviser to the Crown are performed exclusively by the Ministers who constitute the Cabinet of the day.

The House of Commons. Members of the House of Commons are elected in a general election usually held subsequent to the normal dissolution of Parliament by the Governor General on the advice of the Prime Minister at any time up to the end of five years after the last election. Occasionally a general election may be called subsequent to a grant of dissolution following defeat of a government measure or passage of a vote of want of confidence by the House in the government of the day.

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

Seats in the House are distributed geographically as follows:

Newfoundland.....	7	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		
Manitoba.....	14	TOTAL.....	265

Party standing in Canada's 25th Parliament, as of Jan. 1, 1963, was as follows: Progressive Conservatives, 116; Liberals, 99; Social Credit, 30; New Democratic Party, 19; vacant, 1. Five of the 265 members were women.

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 new Government House in Victoria, the residence of the Lieutenant-Governor of British Columbia.

The members of the Ministry, as at Jan. 1, 1963, are listed below according to precedence.

Rt. Hon. John George Diefenbaker.....	Prime Minister
Hon. Howard Charles Green.....	Secretary of State for External Affairs
Hon. Donald Methuen Fleming.....	Minister of Justice and Attorney General
Hon. George Hees.....	Minister of Trade and Commerce
Hon. Léon Balcer.....	Minister of Transport
Hon. Gordon Churchill.....	Minister of Veterans Affairs
Hon. Edmund Davie Fulton.....	Minister of Public Works
Hon. George Clyde Nowlan.....	Minister of Finance and Receiver General
Hon. Douglas Scott Harkness.....	Minister of National Defence
Hon. Ellen Louks Fairclough.....	Postmaster General
Hon. J. Angus MacLean.....	Minister of Fisheries
Hon. Michael Starr.....	Minister of Labour
Hon. Jay Waldo Monteith.....	Minister of National Health and Welfare
Hon. Francis Alvin George Hamilton.....	Minister of Agriculture
Hon. Raymond Joseph Michael O'Hurley.....	Minister of Defence Production
Hon. Joseph Pierre Albert Sévigny.....	Associate Minister of National Defence
Hon. Hugh John Flemming.....	Minister of Forestry and Minister of National Revenue
Hon. Walter Dinsdale.....	Minister of Northern Affairs and National Resources
Hon. George Ernest Halpenny.....	Secretary of State of Canada
Hon. Paul Martineau.....	Minister of Mines and Technical Surveys
Hon. Richard Albert Bell.....	Minister of Citizenship and Immigration
Hon. Malcolm Wallace McCutcheon.....	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 of the day. In 1927, 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 Jan. 1, 1963, was as follows: Progressive Conservatives, 33; Liberals, 59; Independent, 2; Independent Liberal, 1; vacant, 7.

While the Ministers of the Crown carry the political responsibilities of their respective departments, the federal civil service forms the staffs of the twenty departments and of various boards, commissions, corporations, bureaux and other agencies of the government. The day-to-day administration of a department is handled by a permanent head, usually known as deputy minister. As of September 30, 1962, there were 344,000 federal employees.

Provincial Government

Similar political institutions and constitutional usages operate in the government of the ten provinces as in that of the nation as a whole. In each province the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council, usually for a term of five years. The powers of the Lieutenant-Governor in the provincial sphere are essentially the same as those of the Governor General in the federal sphere.

The Legislature of each of the provinces comprises, in addition to the Lieutenant-Governor, a Legislative Assembly elected for a term of five years and, for Quebec only, a Legislative Council of 24 members appointed for life by the Lieutenant-Governor in Council. The franchise in provincial elections is granted, generally speaking, to every adult 21 years of age or over, although in Saskatchewan, Alberta and British Columbia the age is 18, 19 and 19, respectively. The conventions of cabinet government operate in the Legislative Assembly of each of the provinces as in the House of Commons at Ottawa. Provincial premiers and administrations as at Jan. 1, 1963, 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



The administrative building of the Municipality of the County of Halifax, Nova Scotia.

All across the country, crowded and old-fashioned local government buildings are being replaced by spacious modern structures.



The impressive City Hall at Saskatoon, Saskatchewan.

The new civic administration building presented to the city of Chatham, New Brunswick by Lord Beaverbrook and opened in September 1962. Lord Beaverbrook was a clerk in R. B. Bennett's law office in Chatham 60 years ago; since then he has had a distinguished career as statesman, publisher and philanthropist.





Montreal firemen carry out exercises at St. Helen's Island.

Territorial Government

The vast and sparsely populated regions of Northern Canada lying outside the ten provinces and comprising Yukon Territory and the Northwest Territories have attained both elected representation in the House of Commons and a measure of local self-government. The local government of Yukon Territory is composed of a Commissioner, appointed by the Federal Government, and a locally elected Legislative Council of seven members, meeting at Whitehorse. The government of the Northwest Territories is vested in a Commissioner (who is the Deputy Minister of the Department of Northern Affairs and National Resources) assisted by a Council of nine members of whom four are elected by popular franchise in the Territories and five are appointed by the Federal Government from among federal officials. The Council meets annually in the Territories and at least once each year at Ottawa which is the seat of government. 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 codes and the establishment of procedure in civil matters.

The new Municipal Courts Building at Windsor, Ontario.





The Canadian Embassy, Oslo,
Norway.



The Residence and Chancery,
New Delhi, India.



The Canadian Embassy, Mexico
City, Mexico.



The Canadian Embassy, Madrid,
Spain.



The residence of the Canadian
High Commissioner in Karachi,
Pakistan.

External Affairs

New weapons of mass destruction give heightened importance to the question of finding a solution to the problem of security for all countries in the modern world. Canada has played its full part in the search for peace and international well-being by a continuing expansion of its diplomatic service, unswerving support for the United Nations, and active participation in the Commonwealth and the North Atlantic Treaty Organization. Canada has also contributed to technical assistance and capital development programs designed to promote peace by removing economic and social ills in less developed areas of the world. The encouragement of the widest possible trade to increase the prosperity of all countries is another major Canadian objective in international relations.

Posts Abroad

At the end of October 1962, Canada was represented abroad by the following diplomatic and consular posts:

Embassies (44)

Argentina¹
Austria
Belgium²
Brazil
Cameroun³
Chile
Colombia
Congo (Leopoldville)
Costa Rica⁴
Cuba
Czechoslovakia
Denmark
Dominican Republic
Ecuador
Finland

France
Germany
Greece
Guatemala
Haiti
Indonesia
Iran
Ireland
Israel⁵
Italy
Japan
Lebanon⁶
Mexico
Netherlands
Norway⁷

Peru⁸
Poland
Portugal
South Africa
Spain⁹
Sweden
Switzerland¹⁰
Turkey
U.S.S.R.
United Arab Republic¹¹
U.S.A.
Uruguay
Venezuela
Yugoslavia

Offices of High Commissioners (12)

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

Consulates General (9)

Germany:
Hamburg
Philippines:
Manila
United States:
Boston
Chicago
Los Angeles
New Orleans
New York
San Francisco
Seattle

Consulates (6)

Duesseldorf
United States:
Philadelphia
Detroit
Portland (Vice-Consulate, Honorary)

Reykjavik
São Paulo

Military Missions (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:
United Nations

New York:
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 Canadian Secretary of
State for External Affairs
speaking at the United
Nations.

The Commonwealth

There are certain international organizations and institutions of particular interest to Canada. One of the longest-standing associations is that within the Commonwealth. It affords Canada a valuable close relationship with a group of significant nations which, despite their geographic, economic, racial, cultural and political diversity, find common ground in shared traditions and ideals. Constant consultation, co-operation in many joint undertakings and frequent friendly exchanges of views are maintained among the increasing number of sovereign members of the Commonwealth. In September 1962, the Commonwealth Prime Ministers met in London to discuss the proposed entry of Britain into the European Economic Community. For the first time the Prime Ministers of Sierra Leone, Tanganyika, Jamaica, and Trinidad and Tobago attended. The Conference also agreed to welcome Uganda into full membership in the Commonwealth upon attaining independence in October 1962. Membership in the Commonwealth is not readily defined and confers no legal rights; however, its particular value stems from a sense of goodwill towards, and responsibility to other Commonwealth countries. The bulk of Canadian economic assistance to underdeveloped areas has been directed to Commonwealth countries through the Colombo Plan, the Canada-West Indies Aid Program, and the Special Commonwealth Aid to Africa Program.

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. The primary objective of NATO is to provide a strong military deterrent and defence against any aggression within the North Atlantic area. Canada's main defence commitment continues to be directed toward the support of the NATO Alliance. Canada participates actively in the work and deliberations of the North Atlantic Council, and, in addition, provides substantial forces for the collective defence of the Canada-United States region of NATO and for the defence and deterrent forces of NATO in Europe and in the Atlantic area.

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

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



NATO has more than 200 committees and working groups composed of national representatives from all the member countries; the results of their meetings are forwarded to the member governments for approval.

The United Nations

Firm support for the United Nations is an essential element of Canadian foreign policy. Canada particularly supports United Nations peace-keeping operations, and has contributed over the years to the work of the Organization in its mediation efforts in Kashmir, Indonesia and Palestine, and in the collective United Nations action that stopped aggression in Korea. In the 1956 Middle East crisis, Canada played a significant role and continues to participate in the United Nations Emergency Force. In 1960, Canada responded promptly to a United Nations request for support for its operations in the Congo by supplying military and civilian specialists and by pledging political and financial support. In August 1962, Canada provided two 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.

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. The Eighteen-Nation Disarmament Committee is more representative than the former Ten-Nation Committee by the addition of eight non-aligned countries drawn from the main geographical areas of the world, and the resumption in March 1962 of the negotiations broken off in 1960 gave cause for satisfaction. More progress could

Extensive facilities for handling customs and immigration have been built at the Ontario end of the new \$12,000,000 International Bridge which links the Queen Elizabeth Way with the New York Thruway. The bridge spans the swirling Niagara River at Queenston and was opened late in 1962.



The United States Ambassador and the Canadian Secretary of State for External Affairs exchange instruments of ratification of the Convention between the two countries for the avoidance of double taxation and the prevention of fiscal evasion of taxes on estates.



be achieved by agreeing on the target date for the cessation of all nuclear weapons testing. Canada has consistently emphasized the dangers involved in the testing of nuclear weapons and stressed the necessity of concluding as soon as possible a satisfactory international agreement to halt such tests permanently.

Canada also participates directly in the work of the United Nations through its membership in various United Nations bodies. During 1962, 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 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.

In 1962, Canada's share of the regular budget of \$82,100,000 will be approximately \$2,200,000 (3.12 p.c.) and its peace-keeping assessment is likely to be about \$4,300,000. 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), and the United Nations Korean Reconstruction Agency (UNKRA). 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 1962 about \$18,700,000. Canada has been prompt in paying its assessed share of all United Nations costs and has shown lively interest in the financial aspects of the Organization's activities. At the sixteenth session of the General Assembly, Canada co-sponsored a resolution authorizing the Secretary-General to issue \$200,000,000 in United Nations bonds to provide working capital to

help overcome UN's serious financial crisis. Canada was the first country to announce its intention to subscribe to the bond issue and has purchased U.S. \$6,240,000.

Canada-United States Relations

Obviously Canadian relations with the United States constitute a very important element in Canada's external relations. Reflected in the day-to-day relations between the two countries are not only co-operation and mutual respect based upon each country's recognition of the sovereignty of the other but also the interdependence of their common futures. The facts of geography and easy communications have encouraged the growth of close and friendly relations, and Canada and the United States have chosen to develop and maintain a close partnership in their common defence of democratic government and individual liberties, in economic, trade and cultural relations, in scientific research and in the resolution of problems concerning waters along the boundary.

Canada and the United States are both active members of 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.

Canadian External Aid Programs

In recognition of the pressing needs of the economically underdeveloped areas of the world, Canada participates in a number of bilateral aid programs.

The first of these to be undertaken was the Colombo Plan for Economic Development of South and South-East Asia, the tenth anniversary of which was celebrated throughout member countries in July 1961. Member countries are Australia, Britain, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Federation of Malaya, Nepal, North Borneo, New Zealand, Pakistan,



The Canadian Minister of Agriculture signs for Canada at the Pledging Conference of the World Food Program, September 1962. Canada pledged \$5,000,000, one third in cash.



Colombo Plan trainees from India, Burma and Pakistan at McGill University in Montreal.

Philippines, Sarawak, Singapore, Thailand, United States of America and South Vietnam. Total Canadian Colombo Plan funds appropriated since inception amounted in 1961-62 to \$381,670,000. Up to the end of June 1961, training and observation programs had been arranged in Canada for 1,622 Asians in various fields, both academic and practical, and 186 Canadian advisers were sent to assist the governments of the countries of the Colombo Plan area on various aspects of their economic development plans. The greater portion of the funds is used for capital projects, such as the construction of hydro-electric power generation plants and irrigation dams, the erection of transmission lines, the establishment of an atomic reactor in India and a cement plant in Pakistan, as well as the development of fisheries in Ceylon and Malaya; agricultural equipment and machinery and crop-spraying aircraft have been provided to various countries; other projects include the supply of aircraft for civil aviation, telecommunication equipment and so on. Gifts of commodities form a large part of the Canadian contribution and include shipments of non-ferrous metals, wood pulp, asbestos, fertilizer and staple foodstuffs. Other donations have been in the form of education equipment and visual aids as well as hospital equipment, and a special program was undertaken in 1959 to supply medical books to 88 medical colleges in the Colombo Plan area at a total cost of \$220,000.

The Canada-West Indies Aid Program was established in 1958, when Canada undertook to provide, subject to appropriation of funds by Parliament, \$10,000,000 to the Federation of the West Indies over a five-year period. Work began in 1962 on the construction of a dock at St. Vincent at a cost of \$1,000,000, and pending projects include equipment for various ports, aid to the University College and schools, warehouses and water supply projects in a number of the smaller islands.

One of the most recent programs undertaken by Canada is the Special Commonwealth Aid to Africa Program which makes provision, subject to the consent of Parliament, for assistance to the Commonwealth countries

and territories of Africa of \$10,500,000 over a three-year period beginning in April 1961. Canada has agreed to provide an aerial mapping survey to Nigeria at a cost of approximately \$1,300,000. Other capital projects are under consideration, and it is expected that a large portion of the funds will be devoted to education assistance. In August 1961, a contingent of 26 Canadian teachers went to Africa to carry out various teaching and advisory assignments, (11 to Nigeria, 10 to Ghana, two to Kenya and one each to Gambia, Sierra Leone and Tanganyika). By the end of June 1962, 65 African trainees had been brought to Canada under this program.

The Commonwealth Technical Assistance Program, originally in the amount of \$500,000, was announced at the Commonwealth Trade and Economic Conference in Montreal in 1958; it was designed to provide technical assistance to Ghana and Nigeria and other Commonwealth countries and territories not eligible for Colombo Plan aid. It has now been largely superseded by the new Special Commonwealth Aid to Africa Program, and the amount appropriated in 1961-62 was reduced to \$120,000 for technical assistance to British Honduras, British Guiana and Hong Kong only.

Canada provided a sum of \$300,000 for the fiscal year 1961-62 for a new program of educational assistance to the French-speaking states of Africa. With the co-operation of the educational authorities of the province of Quebec, this program became effective late in 1961 and, by September 1962, 13 Canadian teachers had been sent to serve in Africa.

Under these bilateral assistance programs, recipient countries propose appropriate projects having a high priority in their economic development programs to which available aid funds might be devoted. After careful consideration and investigation of the proposals of each country, a decision is taken in Canada as to the projects which will be undertaken. The investigation of such projects, and other matters concerning the direction and administration of Canada's bilateral assistance programs, is the responsibility of the External Aid Office, which reports to the Secretary of State for External Affairs.

Canada also participates in the Commonwealth Scholarship and Fellowship Plan—a cultural exchange rather than a technical assistance program—which originated out of the Oxford Conference held in England in July 1959. For the year 1960-61, Canada made available to this program the sum of \$500,000 for the first year of operation, as a consequence of which approximately 100 scholars began their first year of study in Canada. It is expected that a total of 225 students will come to Canada under this program in 1962-63 at a cost of about \$1,000,000. The majority of these Commonwealth scholars who come to Canada under this plan will ultimately return to their home countries to teach, largely at the university level. Canada does not finance the sending of Canadian scholars abroad under this plan.

In addition to the programs described above, Canada contributes to economic and technical assistance programs of the United Nations and its specialized agencies, including the United Nations Expanded Program of Technical Assistance, the United Nations Children's Fund, the United Nations Special Fund, the International Bank for Reconstruction and Development, the International Monetary Fund, the International Development Association and the International Atomic Energy Agency.



This little school has as its pupils the children of the employees of a large farm.

for Indian schools throughout Canada, for inmates of federal penitentiaries, for the education of children of servicemen stationed overseas or on bases in Canada, and for the operation of three colleges for personnel of the Armed Forces.

Elementary and Secondary Schools

Elementary and secondary education in Canada are a provincial responsibility except for certain special fields administered by the Federal Government, such as the education of some 45,000 Indian and 2,100 Eskimo children, other children in the Yukon and Northwest Territories, inmates of penitentiaries, and families of members of the Armed Forces on military stations in Canada and abroad. The Federal Government also shares with the various provinces the financial burden of vocational education, including the cost of retraining unemployed persons.

Each province organizes and supports its elementary-secondary system of education. Nevertheless, despite provincial differences, there is a basic pattern to the various systems. Each province has established a Department of Education (Department of Youth in Quebec) operating under the direction of a cabinet minister, and has enacted a School Law or School Laws governing the establishment and maintenance of public schools, conditions of attendance, qualifications of teachers, and so on. While the provincial Departments establish the legal framework within which the whole system operates, and pay a substantial portion of the costs, the details are administered by a School Board, or Board of Education, which represents the municipality and whose members are generally elected for a specified term. School Boards are responsible for the building and maintaining of schools, the hiring of teachers, provision of pupil-transportation where necessary, and, within prescribed limits, the determination of subjects to be taught. School Boards in most provinces budget for the money required to operate the schools, and this is raised through local taxation. Education costs are always a major item in municipal expenditures, generally ranging between 40 p.c. and 60 p.c. of the total.

The public elementary and secondary school systems frequently undergo alterations and expansions such as the consolidation of small rural school

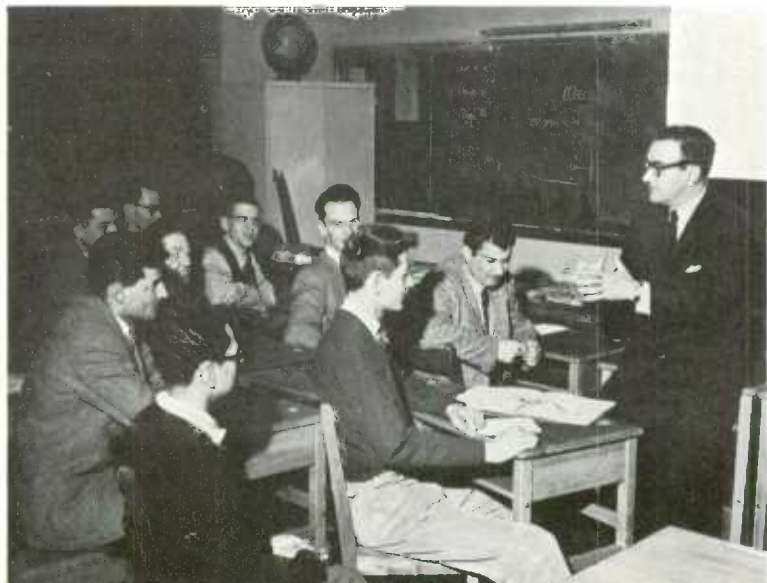
units into larger administrative units, the organizing of schools under counties, a revamping of the curriculum or the content of certain subjects such as mathematics or science, more emphasis on the "streaming" of pupils and greater provision for vocational courses. Most provinces have made some changes in their systems, often as the result of recommendations by a Royal Commission. In Quebec a major re-organization is taking place. In that province recent legislation has raised the compulsory school attendance age from 14 to 15, and has made free schooling and free text books through the elementary and secondary grades accessible to all children in the province. To encourage continuation in secondary school, a monthly school allowance (July and August excepted) of ten dollars is to be paid to the mother of every school child 16 to 18 years of age.

More than 4,000,000 students attend some 25,000 public elementary and secondary schools in the ten provinces, and another 175,000 are enrolled in more than 1,300 private schools. Most of the latter are in Quebec and the majority of these are operated by religious denominations. Some private schools operate as day schools, others as boarding schools, although most of the latter enrol day pupils as well as residents. The majority of pupils attending private schools are enrolled in the secondary grades. Annual fees may range anywhere from \$50 to \$2,000. Although private schools are in a position to offer a more varied curriculum than public schools, in general they provide the basic core of subjects necessary for entrance to universities.

Higher Education

Probably the greatest problem currently facing Canada's colleges and universities is that of increasing enrolment. There are two reasons for this. First, the age cohort now beginning to reach college age is unusually large, due to the high birth rates during and immediately following the 1939-1945

High school students take advantage of Career Day, when authorities on various professions come to give first-hand information. This visitor is describing the requirements and opportunities of architecture as a career.





The two top winners at the first Canada-Wide Science Fair, held in Ottawa in May 1962, were awarded free trips to the International Youth Science Fortnight in London, England. In 1962, 1,647 projects were shown at 19 regional fairs from coast to coast. Science fairs are sponsored by 12 professional, scientific, engineering and educational organizations.

war years. Secondly, the proportion of youth seeking admittance to university is increasing, because of a growing awareness of the material advantages that a university education brings, and the tendency of most parents to desire a better education for their children than they themselves received. Enrolment figures for recent years reflect this growth. In the academic year 1961-62, a total of 128,894 full-time students were enrolled in Canadian institutions of higher learning, compared with 114,000 the previous year. This is an increase of 13 p.c., as compared with the increase in the total population of about 2 p.c. No diminution in this enrolment growth rate can be expected for some years, and the Canadian Universities Foundation predicts that by 1970 full-time attendance at Canadian universities and colleges may reach 312,000.

To meet this challenge, during the past few years several new universities have been chartered, existing institutions are expanding their facilities, and new colleges are being formed. Ontario has led in the number of new universities established, with York University, Laurentian University of Sudbury and its several federated institutions, the University of Waterloo, and Waterloo Lutheran University. Applications for several others have been made, as well as for junior colleges. In the Atlantic Provinces the trend has been for existing universities to expand rather than for new universities to be formed, mainly because of the fact that this region already had a relatively large number of universities and colleges. In the west, Victoria College in British Columbia has been developed as a four-year college and in Alberta and Saskatchewan the provincial universities now have branches in Calgary and Regina, which will give a complete undergraduate course in several faculties. In both British Columbia and Alberta, permissive legislation has been enacted for the creation of new junior colleges.

The building up of university staffs to meet this expansion without in any way diminishing the quality of instruction, or the amount and quality of research undertaken by the staff members, is a problem which is giving university authorities many anxious moments. To retain the services of capable personnel, salaries have been raised; the median salary of university teaching staffs for 17 larger universities increased by 16 p.c. from 1958 to 1961, while that of deans increased by nearly 25 p.c. during the same period. Not only must present staff be retained, where possible, but large numbers of specialists will have to be trained to staff the expanding universities of the

future. Hence there is need for more courses at the graduate level, together with adequate facilities for research. Graduate enrolment figures indicate some progress since, during the five-year period from 1956 to 1961, full-time university and college enrolment increased by 65 p.c., while full-time enrolment at the graduate level increased by 118 p.c. Nevertheless, the number enrolled in full-time graduate courses at Canadian institutions in 1961-62 was still relatively small at 7,347, and this figure includes more than 1,000 students from outside Canada who have come to Canadian universities for further studies. Most of these will, presumably, return to their own countries after graduation, the number of which may be balanced by the number of Canadian students returning home following the completion of graduate studies abroad. Surveys have indicated that about two-thirds of Canadian students taking post-graduate courses in the United States return to take up employment in Canada, although the proportion of these who continue to make Canada their home is not known.

The expanding role of higher education poses many financial problems. Operating costs of institutions of higher learning amounted to some \$153,000,000 in 1960-61, as compared with \$80,500,000 in 1955-56. This represents an increase of 90 p.c., while, as already mentioned, full-time enrolment increased by only 65 p.c. during this same five-year period. Construction and other capital costs are expected to amount to \$500,000,000 between 1959 and 1965. To meet these heavy outlays universities draw their revenue from several sources, the major one being provincial government grants. Student fees do not exceed 30 p.c. of current operating costs, let alone money for capital expenditure; yet for the individual student, several hundred dollars per year in fees is no mean outlay. Endowments, gifts, and the proceeds from occasional fund-raising campaigns are useful supplementary sources of revenue, but no major increase in funds can be expected from these sources. The Federal Government has been investing larger amounts in the support of higher education, its contribution increasing from roughly \$14,000,000 in 1954-55 to approximately \$43,000,000 in 1958-59. It operates through such agencies as the Canada Council, the Defence Research Board, the National Research Council, and the Department of National Health and Welfare.

Prospective entrants to the University of British Columbia must take compulsory aptitude examinations in general and scholastic ability in basic subjects.





The new \$2,500,000 engineering building of the University of Waterloo which graduated its first class in its unique co-operative engineering program in 1962. Its students alternate academic terms on the campus with on-the-job training terms in industry. More than 1,000 students are enrolled in engineering, and 300 companies and government agencies participate in their employment for industrial training terms.

Federal assistance is provided through a system of annual operating grants, grants for specific building or capital equipment projects, scholarships and other awards, and contributions to university-sponsored research projects. The chief form of federal aid is the program of university grants begun in 1951-52. These grants were originally allocated to the provinces at the rate of 50 cents per capita of the population of the provinces and divided among eligible universities of each province in proportion to the number of full-time students enrolled. The rate per capita has since been raised twice, (to \$1.00 in 1956-57, and to \$1.50 in 1958-59) and assurance has been given that this will be increased to \$2.00 for 1962-63.

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.

Courses at the trade level, which include apprenticeship training, usually do not require high school graduation. The required grade level, which varies with the province or the trade, ranges from Grade 8 to Grade 11, or even Grade 12. Most of these courses are given in provincial trade schools and students may enrol full-time prior to employment or they may enrol 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 employer, registered with the provincial Department of Labour. The training itself is given mainly on the job with concurrent attendance in class either during the evening, or on a full-time basis 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 following graduation from elementary school, and attend full-time for the normal 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. Commercial subjects such as typing, bookkeeping and business law are prominent in the curriculum of most vocational high schools; but other vocational subjects, such as agriculture, home economics, automobile mechanics, drafting, etc., are also offered.

Graduates of institutes of technology are prepared to bridge the gap between skilled tradesmen and professional engineers. High school graduation is a pre-requisite for entrance to technical courses. However, some technical institutes also offer courses at the trade level. Post-secondary technical courses are relatively new in Canada; in 1960-61, there were 29 publicly-controlled institutes offering this type of training, while prior to World War II there were none outside the province of Quebec.

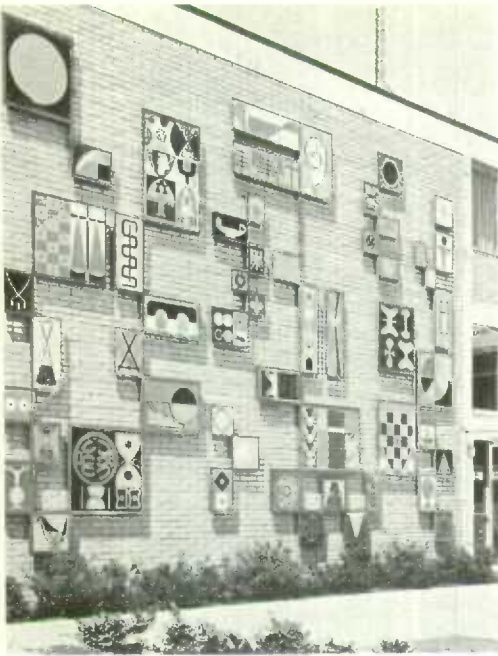
In all, close to 165,000 students were enrolled in publicly-operated vocational schools of these three types in 1960-61. Yet much vocational education is conducted under private auspices. In 1960-61, some 23,000 were reported in part-time or full-time attendance at 239 private trade schools, while 40,000 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, mention should be made of the Armed Forces. Many servicemen and cadets avail themselves of exceptional opportunities to acquire trade or technical skills which they use later in civilian life.

Students in full-time day enrolment in post-secondary technical and other vocational courses in Canada numbered 11,931 in 1962. These courses lead to employment in a general or specific field at a higher level than could be entered with high school qualifications only.



Insignia of the various faculties at the University of British Columbia done in mosaic tile form the outside decoration of one of the campus buildings.



Adult Education

Education activities grouped under this heading include some of the many ways in which persons beyond the age of compulsory schooling, not attending school full-time, take part in programs to broaden themselves intellectually, occupationally or culturally. Attendance and correspondence courses are included, some leading to a high school diploma or university degree, vocational and hobby courses, 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 various areas of the country.

For the year ending in June 1960, in 40 universities and colleges and

37 federal and provincial government departments and agencies, nearly 800,000 adults were enrolled in part-time classes and courses, an increase of 30.8 p.c. over the previous year. Attendance at public lectures and film showings exceeded 3,160,000, a sizeable increase over the previous year. In each case, part of the increase is due to improved coverage and reporting, and the figures contain some duplication of persons who enrol in two or more courses and attend more than one public lecture or other event.

Business colleges, public libraries and a wide variety of private and voluntary organizations also provide educational programs and services for adults.

Some of the outstanding educational opportunities for adults are the academic credit courses at Sir George Williams College in Montreal, the University of British Columbia, and 34 other universities and colleges; business education courses at the universities of Toronto and McGill; marriage preparation and family life education courses sponsored by the University of Ottawa; homemakers' clubs organized by the University of Saskatchewan; fine arts courses at the universities of Manitoba and Alberta; courses in music at Externat Classique de Longueuil and the University of Alberta in Edmonton; courses in religion and philosophy at the University of Alberta in Banff; in psychology, history and anthropology at the University of Toronto; and in languages and literature at McGill University.

Among the courses operated or assisted by the federal and provincial government departments were night school programs for adults in academic, vocational and other cultural subjects. Others included programs in health education offered in Newfoundland, Quebec and Manitoba; language and citizenship courses for new Canadians given in six provinces; rehabilitation

programs conducted for inmates of correctional institutions; and courses and lectures on art, history and related subjects which were offered by federal or provincial art galleries and museums.

The National Film Board and the Canadian Broadcasting Corporation, both agencies of the Federal Government, design large sectors of their programs for adult education and information on citizenship, current affairs and cultural subjects. In 1960, the National Film Board estimated that its educational films and filmstrips reached 5,630,800 Canadian adults through community organizations such as film councils, public libraries, and university extension services, in addition to showings in commercial theatres and on television. The Canadian Broadcasting Corporation estimated that approximately 53 p.c. of its radio time and 36 p.c. of its television time was given to programs of an informational or cultural nature for adults.

Statistics of Canadian Education

Type of School or Course	Total for Canada		
	Schools	Full-time Teachers	Enrolment
	No.	No.	No.
Full-Time Courses (1960-61)			
Elementary and Secondary Education:			
Public and separate schools ¹	25,619	151,396	3,993,993
National Defence schools (overseas).....	2	379	7,274
Indian schools ²	441	1,238	32,643
Schools for the blind.....	6	98	715
Schools for the deaf.....	11	264	1,987
Private schools.....	1,288	9,947	167,787
Higher Education:			
University grade.....	354	10,000	114,000
Teacher Training:			
Teachers' colleges.....	127	1,697	18,607
Faculties of education.....	1	1	1
Vocational Education:			
Trade courses (apprenticeship).....	...	...	10,897
Trade courses (pre-employment).....	...	...	28,997
High schools.....	4	4	114,952 ⁴
Institutes of technology.....	29	850	9,441
Private business schools.....	248	910	19,013
Private trade schools.....	239	426	12,110
Totals.....	28,364	177,205	4,417,464
Part-Time Courses for Adults (1959-60)			
Publicly-operated:			
Academic.....	...	...	90,756
Vocational.....	...	...	178,429
Other (social, cultural, etc.).....	...	...	323,794
Universities and Colleges:			
Academic, for credit toward a degree.....	36	...	64,110
Other (extension, etc.).....	34	...	114,680
Private business schools.....	123	...	23,902

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

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

³ The 27 faculties enrolling 10,753 students included under "Higher Education".

⁴ These pupils already included in public secondary schools. The number of schools and teachers included under "Public and Separate schools".



Music students listen to recordings in the library at the Toronto Conservatory of Music.

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.

Nearly 1,000 public libraries served 78.8 p.c. of the population, with total stock of over 14,000,000 volumes, which circulated more than 56,000,000 times. Current operating expenditures per capita on public library service amounted to 95 cents per capita in 1960. Municipal and regional libraries serve urban and rural areas, and travelling libraries are provided for more remote sections of the country.

Centralized school libraries were reported in 1,472 schools in 1960 serving centres of 10,000 population and over—more than 38 p.c. of the schools in these larger municipalities. These libraries contained about 2,500 volumes for each school, serving an average of nearly 600 pupils. Most of the secondary schools and about one in four of the elementary schools had centralized libraries.

Libraries in larger universities and colleges provided about 75 volumes and spent an average of \$55.72 per full-time student.

More than 300 government, professional, business and technical libraries provide nearly 4,000,000 volumes for the use of staff and members.

In all, nearly 5,000 full-time employees staff Canadian libraries of all types, but, despite increases in the number of graduates in library science, the shortage of professional librarians continues. In September 1961, a new library school was opened at the University of British Columbia, making a total of five library schools for Canada. In June 1962, they graduated 195 professional librarians, more than twice the number graduated each year from 1955 to 1959.

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 1961 *Canadiana* listed 11,221 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 177 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 1961-62, 14,409 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.

Conferences and Conventions

In the past two years a number of important meetings, workshops, and conferences of educationalists took place, apart from those that are normally held each year. These included a conference dealing with educational television held at Toronto in May 1961; a conference on educational research held at Macdonald College in June 1961; a conference on adult education held at Ottawa in October 1961; a Dominion-Provincial conference in November 1961 called to co-ordinate the financial statistics of education; and a conference of university officials held during the same month, to discuss urgent matters affecting Canadian universities.

Of all the conferences and conventions, however, the most noteworthy from the point of view of number of persons, scope, and impact on the general public was the second Canadian Conference on Education, held at Montreal in March 1962. With more than 2,000 delegates, this was one of the largest conventions ever held in Canada. Delegates came from all parts of the country and represented a wide cross-section of Canadian interests and occupations. Almost all aspects of education were dealt with during this five-day conference, and to expedite the discussions, a series of nine booklets had been prepared by experts and distributed in advance to delegates to form the basis of discussion both in plenary sessions and in small work groups.

There is fairly general agreement that the Conference accomplished its chief aims—to attract nation-wide attention to all aspects of education, and to underscore the important part played by education in the overall growth and development of this country. Nevertheless, conference officials, hampered by lack of funds, decided at a meeting held a few months after the conference that the continuing organization should be dissolved, with some of its functions being taken over by the committee in charge of the annual Education Week program.



Where people are unable to come to the books, libraries send books to the people.

- ☞ The Yukon Regional Library at Whitehorse supplies books to associate and branch libraries and deposit stations.
- ☞ Staff of the Provincial Library Service, a branch of the Ontario Department of Education, pack a travelling library for a rural area.



The first cheque issued by the Saskatchewan Medical Care Insurance Commission marked a milestone in the history of public health programs in Canada.

Health

During 1962, progress in health care and consideration was made by federal, provincial, professional and voluntary agencies, alone and in co-operation. New services were inaugurated for special groups within the population, such as the aged, the convalescent and the handicapped, as well as for the population as a whole.

The Royal Commission on Health Services, which began its hearings in the summer of 1961, continued to hold them and initiated detailed studies by independent experts, analyzing specific problems in health care. It expects to make its recommendations during the summer of 1963.

A milestone was reached when Saskatchewan became the first province to provide all its residents with a tax-supported insurance program designed to meet the full costs of services rendered by physicians. This program, embodied in the Medical Care Insurance Act of 1961, came into force on July 1, 1962. At that time a number of physicians refused to practise under the Act, and emergency measures were introduced to ensure that medical care was available in selected centres in the province. A number of doctors left the province, while other doctors were brought in, mostly from Britain. On July 23 an agreement was reached between the provincial government and the Saskatchewan College of Physicians and Surgeons, under which the doctors resumed the regular practice of medicine, and the Medical Care Insurance Act was amended to make it possible for doctors to practise outside the insurance program, and for certain voluntary insurance schemes to continue their operations.

The Vocational Rehabilitation of Disabled Persons Act, passed by Parliament in 1961, was implemented to aid the provinces in developing their programs for the handicapped. Treatment facilities were expanded by the opening of three modern, in-patient rehabilitation centres in Montreal, Toronto and Winnipeg. Improved co-ordination of voluntary services for the handicapped was achieved by the merging of the Canadian Council for Crippled Children and Adults and the Canadian Foundation for Poliomyelitis and Rehabilitation.

Home care services for patients who can benefit from treatment in their own homes were established in Montreal, Toronto and Moose Jaw with the co-operation of physicians, hospitals, the V.O.N. and other community agencies.

An increasing interest in medical-social problems of aging is evidenced by such research projects as the Saskatchewan Health Department's survey on the aged and long-term illness, which has used the community development

method in developing new services. The Ontario Department of Public Welfare is also making a long-term study of aging, and an Institute of Gerontology has been established at the University of Montreal.

In the field of drug control, considerable publicity was given to the birth of several deformed babies whose mothers had taken sleeping pills containing thalidomide. This drug, originating in Germany, was removed from the European market late in 1961 and from the Canadian market in March 1962, as a result of the suspicion that the birth deformities might be caused by the drug. At a federal-provincial conference held in August 1962, it was agreed that necessary medical and surgical attention and prosthetic devices for these deformed children would be provided from existing rehabilitation grants, augmented if necessary. In addition, money from the welfare grants would be provided to assist families in meeting extra costs that might be incurred in caring for these children.

Although the incidence of poliomyelitis was one of the lowest in Canadian history, the fact that one case of paralytic poliomyelitis developed for each 1,000,000 persons receiving Sabin live, oral poliovirus vaccine was considered sufficiently significant to warrant suspension of the vaccination programs in eight provinces from September to November 1962 while further investigations were conducted.

Vaccination for smallpox received an impetus from the publicity given to the return from South America of a Canadian citizen who had contracted the disease which remained undetected until his arrival in Canada.

Health Services

The various health professions, hospitals and other institutions, government departments concerned with health, voluntary agencies, teaching and

The Saint John General Hospital has just completed an extensive program of construction and renovation. It now comprises an expanded and modernized hospital, a community health service, a 118-bed nurses' residence, and the first isotope laboratory in New Brunswick.



research institutions all have fundamental roles in the development and administration of health services in Canada. 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.

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, public health 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 chiefly 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 addition, new environmental problems have emerged in the form of air pollution, water pollution, and radiation hazards, which require extensive public health research and safeguards.

Mental Illness. The wide field of mental illness constitutes the largest health problem in Canada. In 1960 total operating cost of mental hospitals was over \$125,000,000. 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.

Cancer. In the detection and treatment of cancer, specialized medical care, hospital services and an expanding public health program are closely related. The administration of provincial programs is carried on either by departments of health or cancer commissions. A notable development in recent years has been the establishment of special cancer research centres. Supported by provincial and public contributions, research laboratories exclusively for



⊗ Pollution of boundary waters by industrial waste is a concern of the Federal Government.

⊙ An industrial hygienist takes dust and radiation samples in a drift.



The new Manitoba Rehabilitation Centre for the treatment of the handicapped is one of three opened in 1962; the others are in Montreal and Toronto.

cancer have been set up in Saskatchewan, British Columbia, and Quebec, while the new Ontario Cancer Institute in Toronto provides up-to-date facilities for both treatment and research.

Services for Chronically Ill and Physically Disabled. Health and welfare agencies are constantly expanding their treatment and rehabilitation services for persons handicapped by disease or disability. Medical restoration facilities in general hospitals and separate rehabilitation centres, established in larger cities, provide assessment and treatment services including physical, occupational and speech therapy as well as personal aids such as prostheses, orthopedic appliances and wheel chairs. Such programs may include social and psychological evaluation, pre-vocational assessment and vocational counselling. Other services for disabled persons are made available by sheltered workshops and vocational counselling, training, and special job placement agencies.

To provide a broad range of specialized services the numerous governmental and voluntary agencies have established methods of co-ordinating their programs. All provinces have organized rehabilitation services, and some have instituted disabled persons registers and advisory committees on rehabilitation. The Federal Government assists financially through various health grants and under the provisions of the Vocational Rehabilitation of Disabled Persons Act. Special rehabilitation programs are provided, for war veterans, Indians and Eskimos by federal agencies, and for injured workmen by provincial workmen's compensation boards.

Progress has been made in the care of handicapped children with the assistance of crippled children's organizations. Registries of handicapped children have been established in several provinces to facilitate early case-finding and treatment. All provinces make some provision for the education of handicapped children such as the blind, the deaf, the mentally retarded and the physically handicapped in general, either through the operation of special schools or by financial grants.

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

Hospital Morbidity, by Disease Group, Age and Length of Stay, 1960¹

(Rate per 100,000 population)

Disease Group	Age Group						Average Stay in Hospital
	All Ages	- 15	15-24	25-44	45-64	65 +	
All diseases	17,748	18,630	17,292	16,947	14,194	25,271	10.6
Infective and Parasitic Diseases.....	208	317	197	142	130	179	15.8
Neoplasms.....	824	132	362	815	1,531	2,783	18.2
Allergic, Endocrine System, Metabolic and Nutritional Diseases.....	387	201	189	292	660	1,150	15.7
Diseases of the Blood and Blood-Forming Organs.....	73	69	30	38	79	261	15.6
Mental, Psychoneurotic, and Personality Disorders.....	261	40	204	407	467	297	17.0
Diseases of the Nervous System and Sense Organs.....	683	626	257	336	760	2,555	24.2
Diseases of the Circulatory System.....	1,141	219	219	658	2,097	5,734	21.9
Diseases of the Respiratory System.....	2,507	5,071	1,387	966	1,141	2,300	6.5
Diseases of the Digestive System.....	1,929	1,502	1,554	1,704	2,609	3,463	9.9
Diseases of the Genito-Urinary System.....	1,235	430	1,021	1,741	1,665	2,160	9.3
Deliveries and Complications of Pregnancy, Childbirth and the Puerperium.....	3,302	6	9,207	7,439	60	—	5.8
Diseases of the Skin and Cellular Tissue.....	357	390	415	292	322	421	8.6
Diseases of the Bones and Organs of Movement.....	483	172	288	544	860	1,001	19.9
Congenital Malformations.....	137	305	102	56	35	25	16.4
Certain Diseases of Early Infancy.....	72	221	..	—	—	—	12.8
Symptoms, Senility, and Ill-Defined Conditions.....	333	300	254	277	381	670	9.3
Accidents, Poisonings, and Violence.....	1,347	1,218	1,561	1,188	1,306	2,085	11.3
Supplementary.....	2,468	7,410	45	52	91	186	6.9

¹ Excluding Quebec, Alberta, Yukon and Northwest Territories.

.. Less than 1.

Hearing defects in children may go unnoticed for years. Audiometer tests are carried out in many schools to detect hearing loss early.





This little Canadian, awed by her first social event, is one of 6,600,000 for whom family allowances are paid from birth to their 16th birthdays.

Welfare

Welfare programs in Canada are mainly conducted by provincial and municipal governments and by voluntary agencies. The role of the Federal Government is primarily that of providing consultant and financial assistance, although it provides welfare services to those for whom it has a statutory responsibility—Indians, Eskimos, present and past members of the Armed Services, and so on.

The provision of material aid which, a few years ago, was the principal function of welfare agencies, is now regarded almost as a last resort and emphasis has shifted to counselling, rehabilitation and prevention. Services have broadened also, from those designed to help people in demonstrable need to such programs as public housing, job counselling and the encouragement of amateur sport.

During 1962 the first grants were made under the \$5,000,000 program initiated in 1961 by the Federal Government for the encouragement of fitness, recreation, and amateur sport. The first meeting of the 30-member National Advisory Council on Fitness and Amateur Sport was held early in the year to make recommendations on the best use of the grants available. Grants have been made to assist participation in international and national competitions.

Two developments of particular interest took place in Ontario and Quebec. The Government of Ontario gave first reading to an Act to provide for the extension, improvement, and solvency of pension plans and the portability of pension benefits. During September 1962 public hearings were held in Toronto to receive briefs from interested associations and persons who wished to suggest changes in the Ontario Bill. In December 1961, the Quebec Government appointed a Study Committee on Public Assistance to conduct an independent study on the present system of public assistance in the province of Quebec. This Committee during 1962 has been studying the rates of assistance that are provided, the methods that have been established for co-operation between public and private agencies in this field, and the measures that have been adopted to achieve the rehabilitation of people

in receipt of assistance. As a result of its work, the Committee is expected to make recommendations regarding legislation and administrative procedures.

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

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

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 are given on pp. 95-97.

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

For old age assistance and disability allowances, total annual income may not exceed \$1,140 for a single person, \$1,980 for a married couple and \$2,340 for a married couple, one of whom is blind. For blindness allowances it may not exceed \$1,380 for a single blind person, \$1,860 for an unmarried blind person caring for a dependent child, \$2,340 for a married couple when one spouse is blind and \$2,460 for a married couple when both are blind.

Programs are administered by the 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.



The Polio Clinic at Fredericton, N.B., is one of the few Canadian hospitals to have scholastic facilities for handicapped children. Lessons in both English and French are given to 60 young patients.

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.

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. Homemaking 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,

One of 33 new homes for the aged built in the last ten years in Ontario jointly by provincial and local governments, this modern, home-like building caters to residents who need normal care, bed care or special care. In 1962, 945,000 people of 70 years or more received federal old age pensions.



children may be made wards of child welfare agencies either temporarily pending the improvement of home conditions or permanently where a return to the home is not envisaged. Action to transfer the guardianship of children from a parent to an agency is taken only on court authority.

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

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

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

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

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.



On May 31, 1962, the Governor General laid a wreath at the South African War Memorial in Ottawa to celebrate the 60th anniversary of the signing of the Peace of Vereeniging which ended the South African War. Veterans of this war are in the background.

Veterans Affairs

The review of the terms of the Veterans' Charter, begun in the autumn of 1957, was brought to a tangible conclusion by the passage in April 1962 of Bill C-80, amending the Veterans' Land Act. In all, 17 Bills were enacted to bring up to date various benefits for veterans, and most of these Bills were reviewed by the Standing Committee on Veterans Affairs, established in 1958.

Five of the 17 Bills were dealt with during the 5th Session (1962) of the 24th Parliament. They amended the Veterans Insurance Act, the War

Service Grants Act, the Civilian War Pensions and Allowances Act, the Children of War Dead (Education Assistance) Act and the Veterans' Land Act.

The principal change in the first two was to extend to October 31, 1968, the period during which application may be made for Veterans Insurance and Re-establishment Credit; Part XI was added to the Civilian War Pensions and Allowances Act to make certain specified civilians—merchant seamen, Newfoundland Overseas Foresters, Canadian Fire Fighters, etc.—eligible for benefits similar to War Veterans Allowances; education allowances for the children of war dead were raised, and provision was made to extend the training period beyond four academic years under certain circumstances; and the benefits of the Veterans' Land Act were increased and extended to assist veterans still further to settle on the land and to build their own homes. The final application date for qualification under this Act was also set at October 31, 1968.

During 1962 a new 300-bed wing at Westminster Hospital, London, was completed and officially opened; a Veterans Pavilion, long sought by Newfoundland veterans, was added to St. John's General Hospital; and planning continued for the modernization of Queen Mary Veterans Hospital in Montreal.

As of June 30, 1962, 183,473 disability and dependant pensions were in payment, 77,110 dependants (mainly widows and orphans) were in receipt of War Veterans Allowances, there were 51,882 active Veterans' Land Act accounts, and about 68,000 veterans still had more than \$10,250,000 in unclaimed re-establishment credit. By September 30, 1962, approximately 2,850 children of the war dead had been assisted of which 1,000 were still in training.

On July 2, 1961, a commemorative service was held at the Beaumont-Hamel Memorial, Somme, France, and a new building, containing reception facilities for visitors to the Memorial and a plaque honouring the men of the Royal Newfoundland Regiment, was officially opened. At dusk that evening a new and improved illumination system for the Vimy Memorial was inaugurated, making this majestic monument to Canada's war dead a landmark by night as well as by day.

For the second consecutive year, the Minister of Veterans Affairs presided at Canada's Remembrance Service abroad at the Vimy Memorial. While in Europe for this purpose, he also participated in a Remembrance Service in Groesbeek Cemetery, near Nijmegen in Holland, and at the Menin Gate Memorial in Ypres, Belgium.

For each of these ceremonies Canada's NATO brigade provided a Guard of Honour and a military band.

On May 31, 1962, the 60th Anniversary of the Signing of the Peace of Vereeniging, which ended the South African War, was marked by a national ceremony in Ottawa, and by local ceremonies in Vancouver, Regina, Winnipeg and Saint John. A similar ceremony was held in Edmonton on May 21. In each instance the events included a Remembrance Service and a dinner, and in Ottawa the Governor General dedicated the South African War Book of Remembrance, containing the names of 267 Canadians who died in South Africa and 16 who lost their lives in the Nile Expedition in 1885. The Book has been placed temporarily in the Memorial Chamber of the Parliament Buildings.

Canadians have a strong sense of public service and many thousands contribute their time and talent to support a wide variety of programs.

In charge of the packing of Arctic char is one of a number of university students who work in the Arctic without pay during the summer.



One of 1,350 volunteer weather observers who measure temperature and precipitation twice daily for the federal Department of Transport.



Volunteers assist doctors in child health centres.

Many organizations co-operate in teaching children safety practices.



Canadians at Work

A striking upward movement took place in the annual earnings of Canadian wage earners between 1951 and 1961. In this ten year interval median annual earnings for all wage earners increased from \$1,863 to \$3,104.

In 1961 over 40 p.c. of male wage earners earned \$4,000 a year or more compared to about 5 p.c. in 1951. For women, who tend to be concentrated in less highly paid jobs, the proportion in the \$4,000 and over group increased from less than 1 p.c. to over 7 p.c. Moreover, the proportion of women earning \$2,500—\$3,000 increased from about 4 p.c. in 1951 to about 27 p.c. in 1961.

Percentage Distribution of Wage Earners, by Earnings and by Sex
1951, 1961

Wage Interval \$	1951		1961	
	Males	Females	Males	Females
Less than 500.....	7.3	19.0	4.8	13.4
500—1,499.....	20.5	45.5	10.4	24.2
1,500—2,499.....	39.1	31.3	13.2	28.1
2,500—3,999.....	27.5	4.0	29.9	26.8
4,000—5,999.....	4.1	0.2	29.3	6.3
6,000 and over.....	1.5	—	12.4	1.2

Earnings are closely related to levels of educational attainment. Recent surveys show that persons completing high school had average annual earnings about one and a half times as great as persons who did not complete elementary school. Earnings of persons with university degrees were more than one and a half times those of high school graduates.



25 p.c. of Canada's workers are engaged in service occupations. One of the most important forms of service is the maintenance of equipment, from painting a ship to repairing the bucket of a huge ore shovel.



Percentage Distribution of Individuals, by Income Groups and by Educational Level, 1961

Income Group	No Schooling	Some Elementary School	Finished Elementary School	Some High School	Finished High School	Some University	University Degree
\$							
Under 500.....	9.6	7.7	6.1	10.3	5.9	9.0	2.8
500—1,499.....	64.3	37.2	28.2	18.5	17.3	16.5	7.4
1,500—2,499.....	9.4	19.3	16.4	16.3	17.2	14.3	8.0
2,500—3,999.....	9.4	23.0	26.0	24.6	26.6	20.0	18.5
4,000—5,999.....	6.0	11.2	19.5	23.8	21.8	26.0	20.9
6,000—9,999.....	1.3	1.6	3.6	5.8	8.7	11.2	29.6
10,000 and over..	—	0.2	0.4	0.7	2.4	3.2	12.8
Average income..	1,387	2,110	2,666	2,971	3,449	3,700	6,261

The higher earnings levels of 1961 compared with 1951 were associated with a substantially higher educational level for all persons in the labour force. Between these years the percentage of males with 9 years or more of schooling increased from 45 to 55 p.c. For females, who traditionally stay in school longer than males, the proportion in this category rose from 66 to 70 p.c. in the same period.

Years of Schooling, Percentage Distribution by Sex, 1951, 1961

Years of Schooling	1951		1961	
	Males	Females	Males	Females
0—4.....	8.3	3.0	7.1	3.6
5—8.....	46.7	31.0	37.3	26.3
9—12.....	35.6	52.7	40.1	51.6
13+.....	9.4	13.3	15.5	18.5

25 p.c. of Canada's workers are also engaged in manufacturing. Plants processing foods and beverages comprise one fifth of all Canada's manufactures; the textile industry is also an important employer.





The increasing mechanization in agriculture has shrunk the farming proportion of the labour force to less than 12 p.c.

Recent studies of the characteristics of the unemployed indicate the importance of education as a factor in finding and retaining employment as Canada has become increasingly industrialized. In a 1960 survey it was found that almost half of unemployed men failed to finish primary school. Expressing the problem of lack of education in relation to unemployment in another way, the rate of unemployment for persons who had not finished primary school was more than twice as high as the general rate. The handicap of inadequate education was particularly acute in the case of young persons who also were likely to be lacking in work experience. For persons under 25 years of age who did not finish primary school, the unemployment rate was over 30 p.c. at a time when the general rate was less than 9 p.c.

Unemployment Rates According to Level of Education

	Percentage of Labour Force Unemployed			
	All Ages	Under 25	25-44	45 and over
Did not finish primary school.....	18.7	30.3	19.3	13.5
Finished primary but not secondary school.....	8.0	13.8	6.3	5.9
Finished secondary school or better.....	2.7	4.5	2.2	2.3
Average unemployment rate.....	8.9	14.2	7.6	7.2

To assist persons to overcome the handicap of inadequate education, an expanding program of technical and vocational training is being offered by

provincial governments in co-operation with the Federal Government. In 1961 over 16,000 unemployed persons were referred to such programs by the National Employment Service.

Unemployment Insurance

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

All persons employed under a contract of service are insured unless specifically excepted. Exceptions include such employments as agriculture, domestic service, school teaching and those employed on other than an hourly, daily, piece or mileage basis with annual earnings exceeding \$5,460. Persons employed on an hourly, daily, piece or mileage basis are insured regardless of earnings level. As of June 1960 it was estimated that about 80 p.c. of non-agricultural paid workers came under the scope of the Act. Equal contributions are required from employers and employees, the specific amount to be determined by the weekly earnings of the employee. The Federal Government adds one fifth of this total and pays administration costs. In order to protect, in some measure, the standard of living of the wage-earner when unemployed, the weekly benefit rate is related to the weekly contribution which varies between defined earnings classes. The contribution schedule contains 12 classes, ranging from 10 cents where weekly earnings are under \$9.00 to 94 cents in respect of weekly earnings of \$69.00 or over. Maximum weekly benefit rates are \$27.00 to persons claiming at the single person rate and \$36.00 for those with dependants. Maximum entitlement in dollars is a function of previous contributory employment and the



16 p.c. of the working force are employed in trade. Here a couple of small customers have forgotten their business at a shopping centre in entrancement at the fascinating fountain arrangement.



8 p.c. of Canada's workers are engaged in transportation—the endless moving of goods and people from one place to another.

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, 1961 to May 19, 1962, some 40 p.c. of the benefit periods established were classed as "seasonal benefit periods".

Estimates of the Insured Population under the Unemployment Insurance Act, August 1961—August 1962

	Total	Employed	Claimants
	No.	No.	No.
1961—August 31.....	3,939,000	3,709,700	229,300
September 29.....	3,913,000	3,683,800	229,200
October 31.....	3,940,000	3,671,300	268,700
November 30.....	4,023,000	3,637,000	386,000
December 29.....	4,139,000	3,537,800	601,200
1962—January 31.....	4,158,000	3,459,500	698,500
February 28.....	4,161,000	3,442,300	718,700
March 30.....	4,144,000	3,456,500	687,500
April 30.....	4,064,000	3,499,500	564,500
May 31.....	3,889,000	3,625,100	263,900
June 29.....	3,954,000	3,739,700	214,300
July 31.....	3,976,000	3,764,000	212,000
August 31.....	3,945,000	3,746,300	198,700

During the 12 months ending September 1962 a total of 2,243,000 initial and renewal claims for benefit were filed at local offices. On the average, 417,600 persons were on claim at the end of each month during this period. Benefit payments amounted to \$410,900,000. For the 12 months ending September 1961 comparable data were 2,623,000 claims filed, 513,500 claimants and payments amounting to \$513,500,000.

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

Important features of the National Employment Service operations are the employment counselling service to those entering or re-entering employment, the counselling and selective placement service to handicapped workers and the specialized employment service to employers and workers in the executive and professional fields. During the year ending September 30, 1962, the 200 local National Employment Service offices effected placement of 1,300,000 workers in vacancies listed with National Employment Service by employers. Included in this total were 70,100 placements which involved movement of workers to employment in other than their area of residence. In the same period 196,000 counselling interviews were accorded workers entering or re-entering the employment market.



Construction employs about 7 p.c. of the labour force. The tremendous increase in suburban housing in recent years has made necessary the laying of many miles of trunk sewers.

Average Weekly Hours and Wages of Hourly-Rated Wage Earners in Specified Provinces and Industries, 1946, 1961 and 1962

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 1962 ¹ from		Change in Average Wages in 1962 ¹ from	
	1946	1961	1962	1946	1961	1962	1946	1961	1946	1961
	No.	No.	No.	\$	\$	\$	p.c.	p.c.	p.c.	p.c.
Industry							(Decline indicated by minus sign)			
Mining.....	42.7	41.8	42.0	37.53	89.08	91.53	-1.6	0.5	143.9	2.8
Manufacturing.....	42.7	40.6	40.9	30.15	74.27	76.58	-4.2	0.7	154.0	3.1
Durable goods.....	42.8	40.9	41.3	33.00	81.36	83.91	-3.5	1.0	154.3	3.1
Non-durable goods.....	41.8	40.3	40.5	26.92	67.87	69.72	-3.1	0.5	159.0	2.7
Construction.....	38.4	40.3	40.7	29.53	79.93	83.76	6.0	1.0	183.6	4.8
Services ²	43.1	38.7	38.4	20.08	41.27	41.91	-10.9	-0.8	108.7	1.6
Provinces—Manufacturing										
Newfoundland.....	..	40.1	40.8	..	68.39	68.11	..	1.7	..	-0.4
Prince Edward Island...	45.8	40.7	42.1	20.93	48.11	49.76	-8.1	3.4	137.7	3.4
Nova Scotia.....	43.4	40.4	40.9	29.86	64.48	66.77	-5.8	1.2	123.6	3.6
New Brunswick.....	45.2	40.8	41.5	29.19	64.56	66.99	-8.2	1.7	129.5	3.8
Quebec.....	44.6	41.5	41.7	28.95	68.25	70.55	-6.5	0.5	143.7	3.4
Ontario.....	41.8	40.5	40.9	35.53	78.09	80.55	-2.2	1.0	126.7	3.2
Manitoba.....	42.1	39.7	39.8	33.60	68.43	69.86	-5.5	0.3	107.9	2.1
Saskatchewan.....	41.9	38.9	39.0	29.54	76.67	77.97	-6.9	0.3	163.9	1.7
Alberta.....	42.1	39.7	40.0	30.52	77.89	79.36	-5.0	0.8	160.0	1.9
British Columbia.....	40.3	37.7	37.8	34.30	84.17	85.95	-6.2	0.3	150.6	2.1

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.



The primary industries other than agriculture employ only 3.2 p.c. of the working population. The average miner works 42 hours a week and earns \$91.53.



The importance of adequate training for special careers is recognized in the provision of facilities for acquiring this training. McGill University is the first in Canada to establish a Department of Meteorology. Average income for university graduates is almost twice that of high school graduates.

Labour Legislation

Canada's industrial development in this century has led to the enactment of a body of labour law establishing minimum terms and conditions of employment and dealing with the collective bargaining relationship between employers and trade unions. Most such laws in Canada are within the provincial field of responsibility, but federal labour laws apply to an important group of interprovincial 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. In 1962 Prince Edward Island issued its first minimum wage orders, setting a minimum rate of \$21 a week for waitresses in Charlottetown and Summerside. Most female workers in restaurants are now covered by minimum wage orders in all provinces, the minimum rate for experienced waitresses varying from 35 cents an hour in Newfoundland to from 77 to 85 cents an hour in the cities of Alberta and Saskatchewan, depending on the length of the work week. Minimum wage rates are also set for most other types of employment in most provinces, except that in Ontario and Nova Scotia minimum rates are not set for men and in New Brunswick they are set for men in only some industries.

Wage security laws aimed at ensuring that an employee will be able to collect his wages when due and without excessive collection costs are in effect in some provinces. In 1962 British Columbia enacted the Payment of Wages Act which, like the earlier legislation it replaced, requires wages to be paid not less often than twice a month. In addition, it establishes a simpler procedure for collection of unpaid wages and for dealing with disputed wage claims.



To familiarize the public with its policies and operations, the National Employment Service sets up exhibits at conventions, exhibitions and fairs all over the country.

Equal Pay Acts in eight provinces, and a federal law applying to industries subject to regulation by Parliament, declare the principle of equal pay for men and women for substantially similar work and establish 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, the 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 six 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. Three provinces (Alberta, British Columbia and Ontario) set daily and weekly limits (8 hours in a day and 44 or 48 in a week). Two (Manitoba and Saskatchewan) establish maximum regular working hours and provide that an overtime rate of one and one-half times the regular rate must be paid for time worked in excess of these hours. In some other provinces a legislative standard of hours is set for certain classes of employees.

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

years' service with the same employer. The New Brunswick legislation applies only to mining, construction, and the canning and packing industries.

Legislation setting minimum standards to be observed in industrial work places so as to secure the safety and health of employees and providing for a system of inspection has been in effect for many years, but changing conditions and processes make frequent revision necessary. In 1962 three provinces, Ontario, Manitoba and New Brunswick, took steps to deal more effectively with accident hazards in the construction industry. A Labour Safety Council was established in Ontario to keep the various safety Acts of the province under review and to advise the Minister of Labour where improvement is necessary.

Compensation for injuries sustained in work accidents or for disablement caused by an industrial disease is provided under a workmen's compensation law which covers most employees in each province. Compensation is paid at the rate of 75 p.c. of average earnings, subject to the provision that earnings above a specified maximum may not be taken into account. The ceiling on annual earnings varies from one province to another, ranging from \$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 awarded fixed monthly amounts. Compensation and medical aid are paid from an accident fund to which employers are required to contribute and which provides a system of mutual insurance. Federal laws provide compensation for certain seamen and for employees of the federal public service.

Another important field of labour legislation consists of the federal and provincial Acts dealing with the right of workers to join trade unions, the obligation of an employer to recognize and deal with a representative trade union, and 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 this provision 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 the 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 certified a union as the bargaining agent of the employees there is an obligation upon 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 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.



This class in mechanics in the new Technical Institute in Moncton, N.B. is only one of thousands of classes across Canada engaged in the training or re-training of skilled workers. Federal financial support has stimulated construction of technical school facilities.

If during negotiations for a collective agreement the parties fail to reach agreement, they must make further efforts with the assistance of a government conciliation officer, and, if the difference still remains unsolved, it may be referred to a tripartite conciliation board. Not until all the procedures prescribed for reaching a settlement have been tried 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 and policemen, are subject to special provisions for dispute settlement. For these employees, if agreement cannot be reached on wages and working conditions, the issues are determined by final and binding arbitration. Legislation in British Columbia in 1962 made provisions for settlement by arbitration of disputes between the new provincial Hydro and Power Authority and its employees.

Over the past ten years in Canada, a number of steps have been taken 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. 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 Ontario discrimination is also prohibited in the renting of apartments in buildings with more than six units. 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 for administering the Code as well as for a promotional and educational program.

Labour Organizations

At the beginning of 1962 approximately 1,423,000 workers from Newfoundland to British Columbia belonged to labour unions. Close to 74 p.c. of the organized workers were represented by unions affiliated with the

Canadian Labour Congress. Of the unions within the CLC, a large group belonged also to the American Federation of Labor and Congress of Industrial Organizations in the United States. Approximately 7 p.c. of union members, nearly all of them in the province of Quebec, were in affiliates of another central body, the Confederation of National Trade Unions. The balance of union membership was represented either by organizations independent of a central labour congress, or by unions not affiliated with a central labour body in Canada but linked with the AFL-CIO.

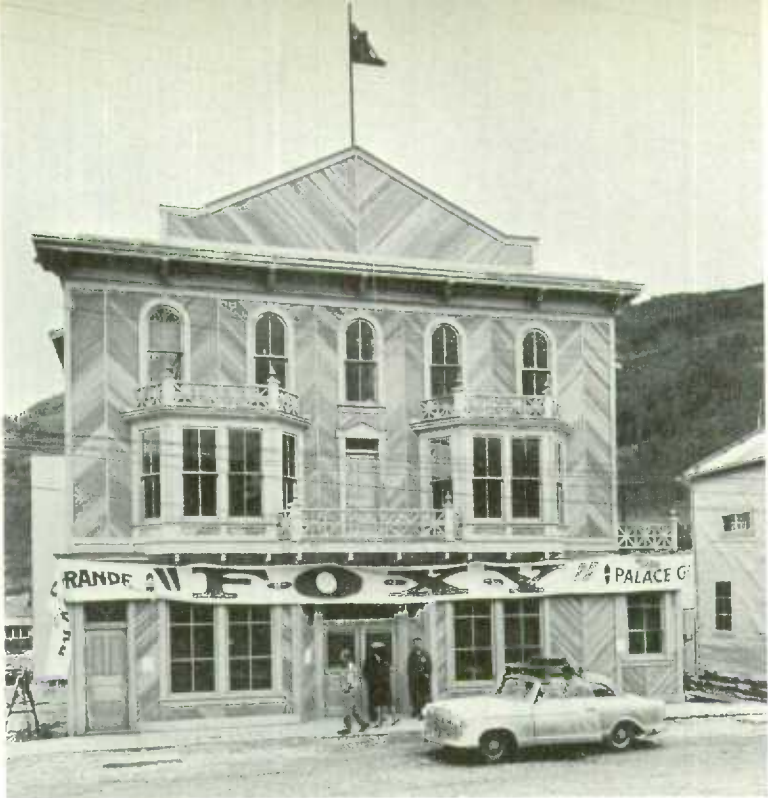
Of the 1,423,000 union members in Canada in 1962, more than 1,000,000 were in international unions, which have branches both in Canada and the United States and in most cases belong to central labour bodies in both countries. In January 1962, 85 of the 108 international unions active in Canada were affiliated with the CLC as well as the AFL-CIO, 10 belonged only to the AFL-CIO, and 3 to the CLC. The remaining 10 international unions, with 118,000 members in total, had no affiliation.

Canadian workers belonging to national unions numbered 335,000 at the beginning of 1962. Of this total, shared by 51 unions, 156,000 were members of 18 national unions affiliated with the CLC, and 96,000 belonged to the 13 federations within the CNTU. The remaining 20 unions, with 83,000 members in total, were without affiliation.

Taken together, international and national unions had nearly 1,360,000 members within their ranks in a total of 159 organizations ranging in size of their Canadian membership from under 10 members to the 82,000 reported by the United Steelworkers of America. The United Brotherhood of Carpenters and Joiners of America, with 59,000 members, remained second in size, closely followed by the 57,000 strong International Union, United Automobile, Aerospace and Agricultural Implement Workers of America. Among national unions, the National Union of Public Employees, with nearly 50,000 members, continued to rank first for the fourth consecutive year, ahead of the 34,000-member Canadian Brotherhood of Railway, Transport and General Workers.



A class for union stewards given at the Canadian Labour Congress Summer School.



The Palace Grande Theatre in Dawson City, Yukon, which was completely rebuilt and reopened after half a century for the first Gold Rush Festival held July 2 to August 25, 1962. The Broadway musical "Foxy" was given its premiere at the Festival.

The Arts

The development of the arts in Canada to-day reflects a geographical and cultural pattern as well as the changes which have come to a rapidly-growing country. The existence of two dominant cultural traditions has led naturally to a certain diversification of artistic endeavour, encouraged further by a widely-dispersed population. As there are several metropolitan centres across the country, so there are several important focal points for artistic activity.

Since the Second World War, economic growth has provided all Canadians with greater means for the practice and enjoyment of the arts and the influx of immigrants from many countries has increased both the audience and the pool of available talent. Each new event in the artistic life of the country has aroused greater interest and with it has come more substantial financial support from public and private sources. All provincial governments provide some assistance through various departments, agencies or educational institutions for the arts, amateur and professional, within their borders. In 1962, the Ontario Government announced that it would set up an Arts Council specifically for this purpose; a similar agency was established in Quebec in 1961 and Saskatchewan has long had its Arts Board. At the national level, the Canada Council devotes nearly half the income from the

\$50,000,000 fund with which it was endowed by the Federal Government in 1956 to the encouragement and diffusion of the arts throughout the country. The Council was also given \$50,000,000 for the construction of university buildings devoted to study in the arts, the humanities and social sciences. Among the additions to university campuses have been new quarters for the University of Alberta's Banff School of Fine Arts and the Edward Johnson Building, opened in 1962, to house the Faculty of Music of the University of Toronto. All this means greater opportunities for Canadian artists to train for and make a career at home.

Festivals

The Stratford Festival has made a practice of casting stars of international reputation in leading roles. This policy did not change basically in its tenth season but for the first time all the stars were Canadians and many of them earned their star status at Stratford. Christopher Plummer returned from a strenuous season with the Royal Shakespeare Theatre in England's Stratford and London to play *Macbeth* in a production directed by Peter Coe. Lady Macbeth was Kate Reid, whose many previous Stratford appearances have won her a devoted following among Festival-goers. Michael Langham's gay and colourful production of *The Taming of the Shrew* had Miss Reid in the title role with John Colicos as Petruchio. Stratford perennials William Hutt and Bruno Gerussi played Prospero and Ariel in *The Tempest*, while Mr. Colicos reappeared as the grotesque and misshapen Caliban in a production directed by George McGowan.

The Festival offered one of its rare non-Shakespearean dramatic productions in 1962, an English version of the French romantic classic *Cyrano de Bergerac*. The great virtuoso part of Cyrano was played by Mr. Plummer. Douglas Rain, celebrating his tenth season along with the Festival, appeared as the poetic baker, Ragueneau.

New attendance records were made during the fifteen-week season, the longest yet, when the 2,258-seat Festival Theatre was filled on the average to 94.5 p.c. of capacity.

A scene from "Look Back in Anger" by the Travelling Players of Halifax, winners of the Dominion Drama Festival for 1962.





A performance by Jeunesses musicales du Canada at its Mount Orford Music Camp near Sherbrooke, Quebec, which runs three two-weeks summer schools. This organization, known in English as Musical Youth of Canada, was established in 1949 and has 75,000 members under 30 years of age in 80 cities across the country.

The music season was also very successful with a program that had many adventurous aspects. Ballet held the Festival Theatre stage for the first time with *Time Cycle* written by the modern American composer Lukas Foss and choreographed by the National Ballet Company's Grant Strate. Co-directors of the music program, pianist Glenn Gould, violinist Oscar Shumsky, and cellist Leonard Rose, appeared in most of the Sunday concerts. The Saturday morning concerts of chamber music given by members of the Festival orchestra also developed a sizeable audience.

Mainstay of the music program for the past few years has been the Gilbert and Sullivan operettas. *The Gondoliers* was chosen this year and was staged by the young Canadian director Leon Major. Like its predecessors, this lively piece was shown on CBC television after the close of the Festival.

In Vancouver the fifth International Festival ran from July 11th to August 18th. The opera this year was *The Magic Flute* with Mattiwilda Dobbs as Pamina, Maria Kallitsi as the Queen of the Night and the young Canadian baritone, Bernard Turgeon as Papageno. Leon Major and Mavor Moore, who respectively directed and starred in *Caesar and Cleopatra* at Toronto's Crest Theatre, went to Vancouver to take part in the Festival's production of the same play. The third attraction actually produced by the Festival was *Beauty and the Beast*, directed by Joy Coghill of British Columbia's hardy travelling troupe, the Holiday Players. Visiting companies included the Comédie Française, Japan's Bunraku puppet theatre and the Bayanihan Dancers from the Philippines. The Stratford Festival's productions of *H.M.S. Pinafore* and *The Pirates of Penzance*, which have toured widely in England and the United States, also turned up in Vancouver for the Festival.

The Montreal Festival featured mainly local companies and Canadian artists familiar to Montreal audiences. Le Théâtre du Nouveau Monde provided the Festival's dramatic presentation, Shakespeare's *Richard II*, in a French translation by Jean Curtis. The opera chosen to highlight the 1962 season, *Così fan tutte*, brought back to Montreal many Canadian singers who have been appearing in opera houses in Europe and the United States. Marguerite Lavergne returned from Salzburg to sing Fiordiligi, André Turp, Robert Savoie, and Joseph Rouleau from Covent Garden and Marguerite Gignac from San Francisco. Three chamber operas by Canadian composers were also performed: *The Fool* by Harry Somers; *Une Mesure de Silence* by Maurice Blackburn, and *Le Magicien* by Jean Vallerand.

The fifteenth anniversary of L'Orchestre des Petites Symphonies was celebrated during the Festival by a concert at La Comédie Canadienne. In the same theatre French composer Olivier Messiaen joined Yvonne Loriod in a two-piano recital of his own works. Finally La Comédie Canadienne played host to a festival within a festival, four days of contemporary jazz by Canadian and foreign groups.

Music

In April 1962, the Montreal Symphony became the first professional symphony orchestra from Canada to play in Europe. Under resident conductor Zubin Mehta and associate conductor Jacques Beaudry, the orchestra gave eight concerts in the Soviet Union, one in Vienna, and two in Paris. Montreal pianist, Ronald Turini, and the young soprano from Toronto, Teresa Stratas, were featured in most of the programs. Special grants from the Canada Council, the Arts Council of the Province of Quebec and the Montreal Arts Council financed the tour. Packed halls in Leningrad and Moscow showed their approval in traditional Russian fashion with rhythmic applause. In Vienna, critics and public matched this enthusiasm for a performance which was perhaps the highlight of the tour.



Coffee houses have become an informal stage for poets, musicians and artists. Folk-singing is very popular with the generally young audiences.

Another Canadian orchestra was acclaimed outside Canada later in the year. The National Youth Orchestra followed its summer session in Toronto by a miniature tour to Stratford, St. Catharines, and Buffalo, New York. In the latter city's famous Kleinhan's Hall the audience gave this astonishing group a standing ovation. Each appearance in concert demonstrates dramatically what can be achieved by devoted young players who have the opportunity to work together under expert teachers. Since only two brief study sessions are possible each year the virtually professional standard of this orchestra is all the more remarkable.

Many of these young people will undoubtedly make a career of music. Fortunately the opportunities for orchestra players continue to show gradual improvement. The major and fully professional orchestras in Toronto and Montreal are planning to extend their regular seasons. Calgary and Edmonton are adding to their shared nucleus of professional musicians. The Vancouver Orchestra has again toured the interior of British Columbia and the Halifax Symphony made one of its periodic visits to Newfoundland. An innovation was the introduction of a regular subscription series in Ottawa by the Montreal Symphony Orchestra. These concerts are sponsored by the Ottawa Philharmonic Society which two years ago found that the financial burden of maintaining its own professional orchestra was beyond its resources. All these specific projects received special assistance from the Canada Council.

The most interesting event of 1962 so far as chamber music is concerned was the début of the Canadian String Quartet in January. Formed in 1961 with the assistance of a grant from the Canada Council for a period of preparation, this group is in residence at the University of Toronto. Violinists Albert Pratz and Bernard Robbins, violist David Mankowitz, and cellist George Ricci

Scene from "The Gondoliers" which played at the Stratford Festival in 1962, was later seen on television.





A scene from the Canadian Opera Company's production of "Carmen".

were all on the staff of the University's Faculty of Music, although Mr. Ricci has since left Toronto and the Quartet; he was replaced in the fall by Laszlo Varga.

Other chamber groups are active throughout the country and two of them left their metropolitan homes to tour extensively in 1962. Montreal's Baroque Trio gave 12 concerts in the Maritimes as well as making excursions to centres in Ontario and Quebec. The Maritimes also welcomed Toronto's Hart House Orchestra under the direction of Dr. Boyd Neel. These tours were not the first by either of these ensembles, but they proved once more a rewarding experience both for artists and audiences, whether they were meeting for the first time or renewing their acquaintance.

One of the general and continuing problems of music in Canada was the subject of a conference held at Regina in June under the sponsorship of the University of Saskatchewan with the aid of a grant from the Canada Council. There is a serious lack of competent string players in Canada and a shortage of good teachers. The First National String Conference was called to discuss this situation. Chairman of the conference was Dr. Boyd Neel, Dean of the Faculty of Music of the University of Toronto and conductor of the Hart House Orchestra. Delegates from many parts of the country discussed the training of string players in schools, universities and conservatories, provision of scholarships, opportunities for performing groups and a variety of related topics.

Opera

The year 1962 demonstrated with brimming box offices the existence of an increasing audience for opera in Canada. Because of the heavy expense and the scarcity of suitable facilities, it is difficult to satisfy this growing public. Nevertheless the situation is much improved in recent years. Toronto, Montreal and Vancouver enjoy brief but regular seasons and the Toronto-based Canadian Opera Company makes extensive tours.

The Vancouver Opera Association is the youngest of the three producing organizations, having offered its first professional production in April, 1960.

This year its spring production was *Rigoletto*, conducted by Mario Bernardi and with Napoléon Bisson in the title rôle. Attendance for the week was well over 90 p.c. *Tosca* was presented in October,—again to near-capacity audiences,—under the direction of Otto-Werner Mueller. Napoléon Bisson also starred in the Montreal Opera Guild's *La Traviata*, which opened Canada's opera year in January.

The Canadian Opera Company's Toronto season was for the second year presented at the O'Keefe Centre. The four operas offered were *Madame Butterfly*, *Rigoletto*, *Hansel and Gretel* and *Die Walküre*. Teresa Stratas returned to the company to sing *Butterfly* and Louis Quilico to sing *Rigoletto*, a rôle for which he is becoming increasingly well-known.

A special production sponsored by the Canadian Conference of the Arts at the O'Keefe Centre in May attracted considerable attention. The great Canadian contralto, Maureen Forrester, made her professional operatic début in Gluck's *Orpheus and Eurydice*. The production was that designed for the Vancouver Festival by Donald Oenslager and Hanya Holm and presented in 1959. Members of the National Ballet and the Canadian Opera Company participated in the O'Keefe Centre production.

But the opera audience extends beyond the large metropolitan centre. Small communities in Canada are learning to value their access to the Canadian Opera Company's travelling troupe which regularly brings them portable versions of the world's great operas. This year the company toured the East in the spring and the West in the autumn with Puccini's *La Bohème*. This pleasing and ingeniously compact production was given some 80 performances.

Ballet

Ballet in Canada seems to have reached a plateau, where the emphasis is on consolidation and steady evolution. After the dramatic developments which have taken place in little more than ten years—the creation of new companies,



Ballet students at the
School of Fine Arts at
Nelson, B.C.



The Royal Winnipeg Ballet introduced three new ballets at home and on tour in 1962.

the lengthening of the performing season, extensive touring throughout North America—it may indeed be time to settle down.

There are three professional companies in Canada, each with its own aims and personality. The Royal Winnipeg Ballet has the longest history by virtue of its amateur origins in 1939. Les Grands Ballets Canadiens is the youngest and was originally formed to perform on television. The National Ballet began its twelfth season this year. It is a larger company, Toronto-based, which tours with a 40-piece orchestra and includes in its repertoire the great ballet classics. To preserve their existence as companies for at least half the year, all three tour widely, dipping into the United States market wherever it is convenient and profitable to do so.

Although it has the longest history of the three, the Royal Winnipeg is generally noted for its youthful exuberance, a characteristic which seems entirely appropriate for a western company. In 1962 this quality set off the traditional polish and skill of two Russian soloists who danced with the company in Winnipeg and the major cities of the West. Rimma Karelskaya and Boris Hohlor of the Bolshoi Ballet won many friends and admirers among both the company and the public. Another guest this year was American choreographer Agnes de Mille who gave the company a new ballet with a Scottish theme, *The Bitter Wierd*. Other works introduced into the repertoire during 1962 were George Balanchine's *Pas de Dix* and Brian Macdonald's pas de deux, *Prothalamion*. Less newsworthy than guest artists and new ballets but an important step in the development of the Company was the engagement of a 12-piece touring orchestra to replace the two pianos which had been used in all but the largest cities.

In March, Western Canada had its first chance to see Les Grands Ballets Canadiens from Montreal. Making its way to Vancouver via Fort William, Winnipeg, Regina, Saskatoon, Edmonton, Calgary and Vernon, the company



Scene from "The Seven Witches of Long Point" by the Folklore Theatre of Canada. Based in Toronto, the 35-member company adapts Canadian folklore and legends for the stage, puts on Christmas shows and in 1962 made its first tour, to Nova Scotia.

returned through the United States, playing in Washington, Montana, Minnesota, the Dakotas, Iowa, Rhode Island and Massachusetts. The company returned to Eastern Canada in the fall for the tour which began its 1962-63 season. Several new ballets were introduced during the year, including *Jeux d'Arlequins*, with choreography by the company's artistic director, Ludmilla Chiriaeff, and *La Fille Mal Gardée*, choreographed by Edward Caton.

Largest of these three companies, the National Ballet is also the most widely travelled. In Canada the lack of adequate theatre facilities has led the company to concentrate on playing for extended periods in those cities which have theatres which can house both artists and audience. The Toronto season ran for four weeks and the company spent a week in London. Another week was divided between Montreal and Ottawa while single performances were given in other Ontario and Quebec cities. In March and April the National Ballet ranged widely through the southern United States. Although the National Ballet is perhaps best-known as the only touring company offering major works from the classical repertoire, it also performs modern ballets. This year an important addition was George Balanchine's *Concerto Barocco*. This abstract ballet, a master-work of the great choreographer, proved to have wide appeal.

Theatre

The past year has been full of signs and portents for the English-language theatre. There are stirrings of new life beyond Toronto and the Festivals, with plans for new professional theatres in Halifax and Vancouver. The Halifax group has acquired a theatre christened The Neptune in honour of North America's first theatrical performance, the marine masque *Le Théâtre de Neptune*, given in 1606 by Marc Lescarbot on the shores of the Annapolis basin. A Vancouver company might well be housed in the delightful Queen Elizabeth Playhouse which was opened in March as an adjunct to the Queen Elizabeth Theatre. Calgary's Allied Arts Centre also has an attractive new theatre where it is hoped to present semi-professional productions during the 1962-63 season.

In the meantime Toronto remains the most active centre for English-language theatre, particularly if Stratford is considered as a kind of extension of Toronto, where many of the company live and work during the rest of the year. Many of them also appear occasionally at the Crest Theatre, which has survived for eight years the uncertainties of Toronto theatrical life. The success of the year at the Crest was *Caesar and Cleopatra* directed by Leon Major and designed by Jay Hutchison Scott. Toby Robbins and Mavor Moore led the cast. The Crest's 1961-62 season was abbreviated to make room for *Spring Thaw*, the unfailingly successful annual review which this year extended the spring season well into summer.

A well-established summer theatre, The Red Barn, moved to Toronto in March to open the attractive new 200-seat theatre designed by architect Irving Grossman for the Central Library. The Red Barn presented three plays in alternation during the course of the season. The program was nicely balanced with Sheridan's *The Rivals* and two plays of the avant-garde, Genêt's *The Balcony* and *One-Way Pendulum* by N. F. Simpson. After a summer season at Jackson's Point and Orillia, The Red Barn returned to the Central Library to offer two one-act plays by Ionesco, Samuel Beckett's *Happy Days* and *Mrs. Warren's Profession* by Shaw.

A less happy event of the theatrical year in Toronto was the brief appearance in January and February of the Civic Square Theatre. In a bold gesture, the Casino, a well-known burlesque house, was converted for the legitimate theatre and a program of modern European and Canadian plays was announced. Unfortunately, the support forthcoming was sufficient for only two productions.

Winnipeg's Manitoba Theatre Centre, which has been evolving from amateur to fully professional status, is now well on the way towards its goal. The Centre is also trying to forge links with other parts of the country, bringing in actors from Toronto and from the National Theatre School. A varied program was offered during the year. Highlights of the spring season were *Waiting for Godot*, *The Boy Friend* and a musical satire of Canadian life, *Look Ahead!*, by Len Peterson. The Centre also arranged a tour of several Manitoba towns for a mystery-comedy *We Must Kill Toni*. The 1962-63 season opened with a revue, *Bonfires of 1962*, and continued with a comedy *Once More With Feeling* and Ibsen's *An Enemy of the People*. The Centre also produces a studio series of experimental plays and operates its own theatre school.

Le Théâtre du Nouveau Monde has no theatre of its own, but has entered its 12th successful year, in spite of a fire early in 1963 which destroyed its property shop.





A scene from the English version of "Bousilles et les Justes", a play by Gratien Gélinas which was an outstanding success in its original French. This photograph is from the television presentation.

French-language professional theatre is concentrated in Montreal and it continues to demonstrate astonishing vitality and variety. Le Théâtre du Nouveau Monde carried over into 1962 one of its most successful productions, *L'Opéra de Quai' Sous*. This production, designed by Robert Prévost, followed the original version of the famous musical play by Berthold Brecht and Kurt Weill and ran for a commendable 60 performances. Jean Gascon led the company in Shakespeare's *Richard II* which opened with the Montreal Festival in the summer and later introduced the TNM's own season at the Orpheum.

Le Rideau Vert ended a successful season at its new home, the Stella Theatre, with Feydeau's light classic *La Puce à l'oreille* which ran for 50 performances. The artistic triumph of the 1961-62 season was Claudel's *Partage de Midi*, whose four demanding rôles were filled by the company's artistic director Yvette Brind'amour, Gilles Pelletier, Albert Millaire and Gérard Poirier. Early in the 1962-63 season Giraudoux's *Pour Lucrèce* also earned critical acclaim and proved popular with Montreal audiences.

La Compagnie Canadienne du Théâtre-Club honoured the late Albert Camus in 1962. During its five-week spring season at La Comédie Canadienne, the company presented his *Caligula* and his translation of William Faulkner's *Requiem for a Nun*. *Requiem* was revived in the fall, together with the children's plays *Le Menteur* and *L'Ours et le Pacha*. Le Théâtre de L'Égrégore staged successfully a little-known Chekhov in February, *Ce Fou de Platonov*. This company spent its summer in the Laurentians north of Montreal and offered several plays not normally considered light summer fare. Among them were Ionesco's *The Lesson* and the strange *Ubu-Roi* written by Alfred Jarry when still a student. La Poudrière on St. Helen's Island was, as usual, the only company operating in Montreal during the summer, outside the Montreal Festival. Among the younger companies the new Centre-Théâtre made an impression with a French version of O'Casey's *Red Roses for Me* and the amateur company, Les Apprentis-Sorciers, attracted much attention with Vauthier's unusual *Capitaine Bada*.

The co-lingual National Theatre School entered its third year in 1962. Although the first class will not graduate until 1963, students have already made individual appearances which show the School's capacity to attract and train young Canadian actors. Martha Henry became a premature graduate when she appeared at Stratford as Miranda in *The Tempest*. Heath Lamberts made good use of his summer holidays by earning fine reviews for his performance in *The Red Eye of Love* at Toronto's Village Playhouse. Miss Henry, her husband Donnelly Rhodes and Mr. Lamberts were joined by Gary Files for a tour of Winnipeg high schools sponsored by the Manitoba Theatre Centre early in the autumn. The program was called *Shakespeare Goes to School* and included scenes from several Shakespearean plays. The enthusiasm of these young actors was conveyed to the students, little younger than themselves, who entered eagerly into discussions with the cast about the plays and Shakespeare. Mr. Rhodes and Mr. Lamberts also taped television performances during their "vacation" and two of the French-speaking students, Isabelle Jean and Réjean Lefrançois earned leading roles in a television production of Jean Anouilh's *Antigone*. Before long these pioneers will be joined by other young actors from the School and no doubt opportunities will also be found for the directors and designers who will graduate with the first acting class next year.

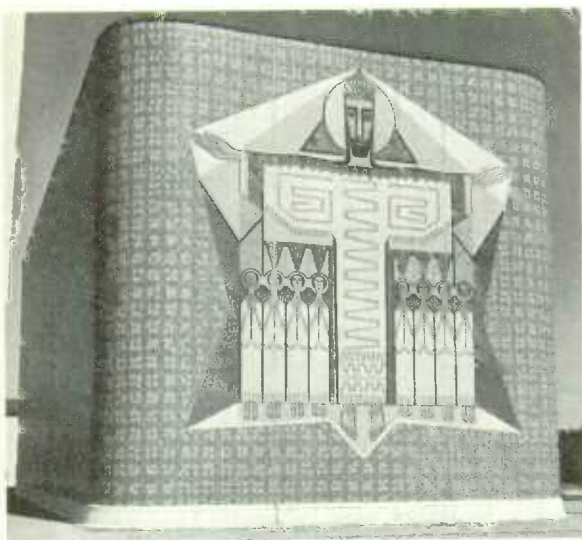
An introduction to Shakespeare for young people was also offered by the Stratford Shakespearean Festival in 1962. Several universities in Ontario and Quebec were visited by a distinguished company featuring such well-known Stratfordians as Kate Reid, Douglas Rain, Bruno Gerussi, William Needles and Eric Christmas. The program, devised and written by Michael Langham, presented a company in rehearsal who discussed in the first performance aspects of Shakespearean comedy. The second performance offered scenes from the comedies with a commentary by William Needles. In Quebec Le Théâtre Universitaire Canadien also assumed the responsibility of introducing students to good theatre, touring widely with *Le Cid* and *Antigone*.

The senior touring company in Canada is the Canadian Players. Two companies operated during the 1961-62 season, one which travelled across Canada and another which played mainly in the United States. The Canadian company gave 111 performances of *Julius Caesar* and *Saint Joan* in 69 centres. The second company presented *King Lear* and *The Lady's Not for Burning* in 56 centres; these were the productions seen the previous year in Canada. In the fall of 1962 a tour of *Twelfth Night* and *Arms and the Man* opened in Toronto and toured widely in Eastern Canada. Since its formation in 1954 by actors from the Stratford Festival, this company has done remarkable work in bringing the live theatre to many parts of the country.

Visual Arts

The National Gallery of Canada is more than a showcase for the art of the ages; it is an educational force for the whole country. Through its Exhibition Extension Services Branch the Gallery circulated over 40 exhibitions last year to more than 200 centres. The Gallery also engaged lecturers whose services were also available to interested sponsors. Among the exhibitions circulating in 1962 was the Fourth Biennial of Canadian Art which opened in Ottawa the previous year. Another contemporary exhibition

Religious art is experiencing new expression in both traditional and modern forms. A unique exhibition of religious art held in Toronto early in 1963 placed on exhibit many abstract paintings, sculptures and architectural models as well as silver and bronze liturgical items.



A mosaic mural above the front entrance of the church of St. Paul's College at the University of Manitoba at Fort Garry.

Jesus comforts His afflicted mother in Dora de Pedery Hunt's carving of the Fourth Station of the Cross, one of 14 plaques in the new chapel of the Convent of the Ursuline Sisters in Chatham, Ontario.



Sculpture entitled "Mother and Child No. 3" by Tom Taylor of Nova Scotia.



This mural, 11' X 15', was painted by Aba Bayefsky for the main entrance of the Beth El Synagogue in Toronto.

which opened in 1962 introduced five painters from Regina, only one of whom had previously been widely known. A show of contemporary Canadian sculpture also opened during the year. Circulating these exhibitions of contemporary Canadian art gives Canadians in widely separated parts of the country their best opportunity to find out what artists elsewhere are doing.

The National Gallery also co-operates with other Canadian galleries to organize major exhibitions of paintings from Canada and other countries. Thus in 1962 an important exhibition of 17th and 18th century French painting, appropriately entitled "The Heritage of France", visited Ottawa, the Montreal Museum of Fine Arts and the Art Gallery of Toronto. Le Musée de la Province de Québec joined the others to mount an impressive retrospective of the work of the late Paul-Emile Borduas, founder of the influential automatist school of Montreal and widely known in Canada and abroad as one of our finest abstract painters.

Another Canadian painter well-known in Europe and formerly associated with Borduas is Jean-Paul Riopelle. The National Gallery chose to make its contribution to the 1962 Venice Biennale a one-man show by Riopelle. The quality of the work of this fine artist was recognized by the award of the UNESCO prize. Another major exhibition of contemporary Canadian art was organized for display in Poland; 60 paintings by 15 of the more prominent young artists were included. "L'Art au Canada" was the subject of the art exhibition held during the 13th Festival of Bordeaux in France. M. Georges-Emile Lapalme, Minister of Cultural Affairs for the Province of Quebec, opened the exhibition, which illustrated the history of the arts in Canada and the content of Canadian collections; a number of museums and galleries co-operated in putting this show together. At the Festival of Two Worlds in Spoleto, Italy, representatives of the Government of the Province of Quebec organized an exhibition, "Twenty-five Years of Painting in French Canada".

From co-operatives like the Focus Gallery in Edmonton to the major dealers in Toronto and Montreal more outlets are being found for Canadian art, more meeting places for artist and buyer. In the past few years a wider interest in painting and graphic art has developed and collecting is no longer the prerogative of the well-to-do.

Business and government have also become patrons. In Vancouver the municipally-owned Queen Elizabeth Playhouse, opened in March, features a mural by Toni Onley. The Canadian Imperial Bank of Commerce made a dramatic addition to Montreal's Dominion Square when it placed in front of its new building a piece of sculpture by Britain's Henry Moore. A growing number of corporate patrons and architects are taking an interest in the allied arts of painting and sculpture.

Writing

One of the most interesting events in the literary year so far as English Canada was concerned was the appearance of an anthology from The Taniarack Review, entitled *The First Five Years*. It is a selection of short stories, poems and essays by a variety of writers and includes a number of translations of poems by French-Canadian poets.

The Governor General's Awards announced in February 1962 were for books published in 1961. Among the winners were, for English poetry, *Acis in Oxford*, by Robert Finch and, for English fiction, *Hear us, O Lord, from Heaven Thy Dwelling Place*, a collection of short pieces by Malcolm Lowry. The latter was a posthumous award to the English-born novelist who settled near Vancouver and spent his most productive years on the British Columbia coast. The non-fiction award in English was for *The Ascent of Life*, a philosophic study of the theory of evolution, by T. A. Goudge.

Among the books of poetry in English which earned a favourable reception in 1962 was *The Sun is Axeman* by D. G. Jones. The Ryerson Press published an unusual kind of anthology *Poetry '62*; none of these poems, English or French, had appeared in print before. The book was an interesting mixture of styles and viewpoints, representing mainly the new young poets but including some of the well-established. Irving Layton edited a collection of poems intended to show that Canadians are not emotionally ice-bound; *Love, Where the Nights are Long* is illustrated with line drawings by Harold Town and the limited edition was designed by Frank Newfeld. A collection of poems by A. J. M. Smith, well-known as both critic and poet, also appeared in 1962.

A number of interesting new novels appeared in 1962. Brian Moore, a former Governor General's Award winner, published *An Answer From Limbo*, set in New York. Popular television writer Arthur Hailey brought out his first novel, *In High Places*, which imagined a union between Canada and the United States in the face of a nuclear war. Other novels which attracted favourable comment were Hugh Garner's *The Silence of the Shore* and *Four Days* by John Buell. W. O. Mitchell re-appeared after a long silence with *The Kite*. Short stories have always been a favoured medium for Canadian writers. This year two collections were particularly prominent, *Flying a Red Kite* by Hugh Hood and *The Kissing Man* by George Elliott. In a special category, and deserving special mention was Jay Macpherson's rendering of the Greek myths, *Four Ages of Man*.

A notable achievement for Canadian authors and publishers during the year was the first general exhibition of Canadian books at the Frankfurt Book Fair. This West German exhibition is perhaps the most important showcase of its kind in the world. While there had been a showing of books in French in 1961 and individual publishers had also taken part, no widely representative and independent display had previously been organized. With the help of a grant from the Canada Council and the co-operation of the Book Publishers Association and L'Association des Editeurs Canadiens, Mr. H. E. Heinemann of Montreal put the Canadian exhibit together. The books were selected by a jury composed of Dr. W. Kaye Lamb, National Librarian of Canada, M. Claude Hurtubise of L'Association des Editeurs Canadiens, and Mr. Robert Fulford, then book reviewer and art critic for the *Toronto Star*.

Literary production in French Canada is still dominated quantitatively speaking by fiction and poetry, but the work which created the greatest stir during 1962 is a collection of essays by Jean Le Moyne, entitled *Convergences*. This work, which throws new light on the sources and evolution of the French-Canadian mentality, earned for its author the Governor General's Award for



Wide radio and TV coverage was given to the Real World of Women Conference sponsored by the CBC in September, 1962. Five hundred people, mostly women, spent four days discussing the changing role of women in today's society.

literature, the *Prix du Grand jury des lettres*, and the first prize for literature in the literary and scientific competition of the Province of Quebec. In addition, it has placed him at the top of the list of Canadian writers. A book of maxims and thoughts entitled *Le scandale est nécessaire*, by Pierre Baillargeon, has also been well received.

An impressive number of first novels or novels by young authors who had already shown signs of ability appeared. Yves Thériault earned the Governor General's Award with his novel *Ashini* and the new Camille Roy Prize with *Le vendeur d'étoiles*. This latter award was shared with Suzanne Paradis, author of *Il ne faut pas sauver les hommes*. Adrienne Choquette was awarded the *Prix du Grand jury des lettres* for her novel *Laure Clouet*. Other novels published during 1962 include *Le Poids de Dieu*, by Gilles Marcotte, *L'Aquarium*, by Jacques Godbout, *Un homme en laisse*, by Jean-Paul Filion, and *L'Interrogation*, by Gilles Choquette. Several novels of French-Canadian authors were translated, among others *Le temps des jeux*, by Diane Giguère (*Prix du Cercle du Livre de France*, 1961); *Le libraire*, by Gérard Basset; and *Tête blanche*, by Marie-Claire Blais.

The recent re-publication of the *Journal* of Saint-Denys Garneau shows the part which this poet continues to play in the poetic awareness of Canada. New volumes of poetry include *Sémaphore*, by Gilles Hénault, *Demain les herbes rouges*, by Jean-Paul Filion, *Recours au pays*, by Jean-Guy Pilon, *Plages*, by Jean Ménard, and *Le temps premier*, by Gatien Lapointe, which won the *Prix du Club des poètes* for 1962.

In general, French-Canadian writers do not seem to be attracted by the theatre, perhaps because of the difficulty experienced in staging their works. Exceptions are *Le dernier beatnik*, by Eugène Cloutier, and *Qui est Dupressin?*, a detective drama, written by Jules Dérôme and staged during the year by the Égrégore theatre.

Literary publications furnish an important outlet for French-Canadian literature. Among these publications, *Écrits du Canada français* occupies a place by itself both from the standpoint of the number and quality of the



Almost 1,000 CBC employees across Canada were directly involved in the most ambitious radio and television coverage of a national election June 18, 1962. This was "Election Central", the co-ordinating centre of the election news.

works produced and from that of their diversity. With the aim of presenting "a true panorama of French-Canadian literature", *Écrits* has already published 14 volumes containing eleven plays, two novels, thirty short stories and narratives, fifty poems, in addition to various literary papers.

The passage of a publication insurance bill in the Province of Quebec, the opening of Quebec House in Paris, the award of a new fiction prize by the magazine *Liberté*, the success achieved by Canadian exhibitors at the Book Fair of Frankfurt, and certain agreements concluded between Canadian and French publishing houses are the most recent events affecting the future of French-Canadian literature.

Radio and Television

Since the opening program from Canada's first radio station was beamed into a few Montreal homes in 1919, the role of radio and television programs in the daily living of the average Canadian family has grown to startling prominence. Today, with radio service reaching into 96 p.c. of Canadian homes, its programs are being listened to by the family, or some member of it, for an average of two hours and 20 minutes a day. A good television signal now reaches more than 83 p.c. of homes, where it is watched an average of four hours and 45 minutes each day.

Huge physical problems of distance and geography had to be overcome to achieve the present coverage. With the majority of Canada's people in communities that stretch along a 4,000-mile southern frontier, through seven

time zones and a variety of topographical and climatic conditions between Atlantic and Pacific, and with others scattered northward over thousands of square miles to the shores of the Arctic Ocean, some 320 radio transmitters with 15,000 miles of land lines and 85 TV transmitters with 8,500 miles of microwave circuits are required to serve them.

The development of such a popular and powerful force of inexpensive and instantaneous mass communication to a community, a province, a region or the whole nation, has been accomplished by a unique combination of private and public enterprise. The publicly-owned Canadian Broadcasting Corporation maintains 39 radio stations and 14 television stations from coast to coast. In addition, there are 242 privately-owned radio stations and 57 privately-owned TV stations. Many of the private stations carry CBC programs. By the beginning of 1963, nine major cities were being served by CTV Television Network Limited, a new privately-owned network.

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

A scene from the documentary film on Guiana produced by the CBC for Intertel, an international television federation formed by TV organizations in Canada, Britain, Australia and the United States. Its aim is to promote a wider knowledge of contemporary world affairs and a better mutual understanding of world problems.



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 highlight of broadcasting in Canada in 1962 was the marking of 10 years of Canadian television. Exclusive use of the Telstar communications satellite on September 6, the 10th anniversary of the opening of Canada's first TV station CBFT in Montreal, brought greetings from member broadcasting organizations in Eurovision across the Atlantic to the Canadian Broadcasting Corporation's English and French television networks. Special transmission facilities from Andover, Maine, the North American Telstar receiving station, were organized for the occasion.

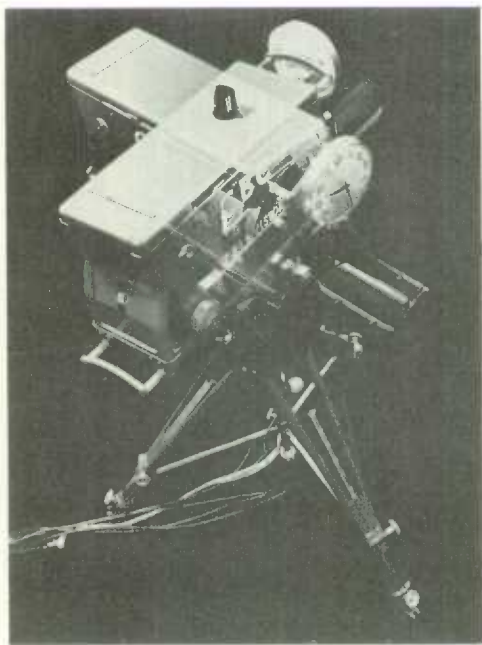
In 10 years the CBC television service has grown to comprise the longest networks in the world, stretching over 4,000 miles from St. John's, Newfoundland, to Victoria, British Columbia.

In radio, the highlight of the year was the consolidation of the two CBC English radio networks, Trans-Canada and Dominion, into one CBC Radio Network which began operations on October 1, 1962. The implementation of the new network was the culmination of studies begun by the Corporation in 1957. Plans for consolidation were completed in December, 1960, following studies carried out by CBC engineers.

A reduction in the budget of the Canadian Broadcasting Corporation was made in the last six months of the fiscal year ended March 31, 1963. The cutback was related to the Government's economy program. A wide range of projects designed to improve and extend the national broadcasting service in television and radio, in French and in English, from coast-to-coast,

was postponed during this period. All capital projects not underway or not fully committed were subject to postponement. A smaller cutback in operations resulted in suspension of the CBC FM radio network and work on the Emergency Broadcasting Plan, and general tightening of departmental budgets.

Austerity measures did not affect programming as the CBC continued to develop programs to serve all tastes. Combined CBC radio and television facilities display some 200,000 programs a year, about half of these CBC-produced, the remainder originating outside of Canada or from other Canadian sources.



North America's first automatic television camera is controlled from the transmitter booth by a lone operator. It can be made to pan, zoom and tilt and produces a high quality picture and smooth camera movement.



The Jester 'Patapouf' is a favourite on the French children's show, "Cocou".

In continuing its policy of recalling events in Canada's historical past, the Corporation scheduled new historical programs on radio and television during the 1962-63 fall and winter season. The CBC scheduled a new National Film Board series on television dealing with the lives of political leaders in the years prior to Confederation in 1867, and a four-part CBC series about the War of 1812.

The greatest concentration of technical equipment and manpower for coverage of a federal election in Canada was assembled by the CBC for coverage of Election Night, June 18, 1962. For the first time in the history of Canadian broadcasting the CBC, through its Northern Service, brought national and local free-time political radio broadcasts to the Canadian North.

Three pickups from Canada appeared in the first full scale television program to be transmitted from North America to Europe via the Telstar satellite on July 23. The Corporation provided transmissions from the International Bridge at Niagara Falls, from the Stratford Festival and from Dufferin Terrace next to the Chateau Frontenac in Quebec City.

CBC program policy serves a two-fold purpose. Besides fulfilling audience wants and needs, the Corporation develops talent in all fields. Actors, writers and performers—all are given opportunities to expand their creative talents through media which offer audiences of a size not possible in Canada through other outlets. During the fiscal year ended March 31, 1962, some 20,000 Canadian artists, musicians and performers of all kinds appeared on CBC radio and television.

CBC International Service. The Canadian Broadcasting Corporation operates its International Service to provide information abroad by means of a wide variety of programming in several languages. Its administrative and production centre is in Montreal, and its shortwave transmitters at Sackville, New Brunswick.

Shortwave programs are transmitted daily to Europe, Latin America, Africa, the Caribbean area and Australasia in the following eleven languages—English, French, German, Spanish, Portuguese, Czech, Slovak, Russian, Ukrainian, Polish and Hungarian. The shortwave schedule includes news bulletins, news commentary, talks, interviews, press reviews, and various features on cultural and business activities in Canada.

The International Service also provides broadcasting organizations in other countries with music and spoken-word transcriptions and relays. In music, works by Canadian composers and performances by Canadian musicians are made available in a variety of categories including serious, popular, jazz and folk music. Dramas, talks, documentaries and other features are included in a wide range of spoken-word transcriptions in English, French, Spanish and Portuguese. News and special events programs are relayed upon request. In the field of television, the International Service makes some filmed items available on a regular and special basis.

To keep listeners posted, a printed Program Schedule, giving times and frequencies, is distributed periodically. Since the start of International Service, more than 450,000 letters, cards, and reception reports have been received; replies to letters are frequently supplemented with printed information about numerous facets of life in Canada.

CBC Northern Service. The Northern Service of the Canadian Broadcasting Corporation was established in 1958 to meet the needs of the widely scattered but growing population of Northern Canada.

Igor Stravinsky conducts a full performance of his *Symphony of Psalms* as part of a 90-minute birthday tribute to the 80-year-old composer in June, 1962.





A Colombian educator and diplomat is interviewed during the Canadian Conference on Education in Montreal in March 1962 for the Latin American Section of the CBC International Service.

Sixteen radio stations in the Yukon, the Northwest Territories and Labrador, as well as in northern Manitoba, Saskatchewan and British Columbia provide national and regional programming for listeners in the larger towns and settlements.

Listeners in the more remote areas are able to hear the daily shortwave broadcasts of the Northern Service beamed from the CBC's transmitters at Sackville, N.B.

Regular broadcasts are made in Indian and Eskimo languages in addition to French and English.

The Private Stations. Canada's 260 private radio and television stations provide about 1,500,000 hours of programming every year. Even the newest of the independent television stations programs about 3,000 hours annually and many of the radio stations program 24 hours a day, 365 days a year.

Most of Canada's privately-owned radio and TV stations are members of the Canadian Association of Broadcasters, a non-profit association dedicated to improving broadcasting locally, regionally and nationally.

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

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



A discussion on mercy killing occupies one program of Telepoll, CTV's opinion program of the air, which conducts opinion polls by telephone.

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

"Report from Parliament Hill" has been carried now for 18 years by some 85 radio stations.

Private radio and TV broadcasters work closely with their local civic and municipal leaders. On the national scene, they work with such groups as the Canadian Centennial Committee, the Canadian Conference on Education, the Canada Council, and the Dominion Drama Festival. The C.A.B. is the major sponsor of the 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 C.A.B. at the university level. Private broadcasters were also instrumental in setting up the Radio Sales Bureau and the Television Sales Bureau to produce valid research material on the two industries.

The tremendous expansion in radio and television in recent years has provided a stimulus and a challenge to the broadcasting industry. Since 1960, 13 new private radio stations and 13 new private television stations have gone on the air.

Films

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

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

The National Film Board was established by the Federal Government in 1939 to produce films, filmstrips and still photographs which reflect the life and thought of Canada, and to distribute them both in Canada and abroad. During the fiscal year 1961-62, it produced 393 motion pictures, and its films, at home and abroad, were seen by audiences estimated at several hundreds of millions.

The 393 films completed during the year included 94 original productions, 91 revisions and adaptations, 85 films in foreign language versions, 50 newsreel stories and 73 other items such as film clips. In the same period the Board also completed 59 filmstrips and issued 26 photo feature stories. Additions to the still photo library brought the total number of prints on file to 157,000.



A Hollywood beautyician gives beauty hints and fashion tips on CTV's afternoon show, "Here's Looking at You".

The Canada At War series of films, produced during 1961-62, was one of the major projects undertaken by the Film Board. The six-and-a-half hour series, divided into 13 half-hour chapters, presents the history of Canada's participation in World War II as an entity and in chronological order.

A more remote but nonetheless important period of Canadian history was covered in five films made during the year; these were devoted to important events in the lives of John A. Macdonald, Georges-Etienne Cartier, Charles Tupper, Alexander Galt and Louis-Hippolyte Lafontaine. The Board now has produced eleven films in its series on Canadian history.

In 1961-62 the Board put into distribution 21,808 prints of its films and 37,425 prints of its filmstrips. There was a noteworthy increase in the use of NFB films on television, particularly in those countries where television is relatively new. Bookings of the Board's films into Canadian theatres reached a total of 5,402, considerably more than the year before. Abroad, there were 18,835 bookings of NFB films into theatres.

Film awards won by the Board during the year totalled approximately 50 from film festivals in various parts of the world. The number of awards won by NFB now has passed 500.



A scene from "Word Games", a film in the Vancouver Discovery series, in which the world of a four-year-old boy, with its newly-significant sights and sounds, is portrayed. This film was voted the best Canadian television film at the Canadian Film Awards.

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,

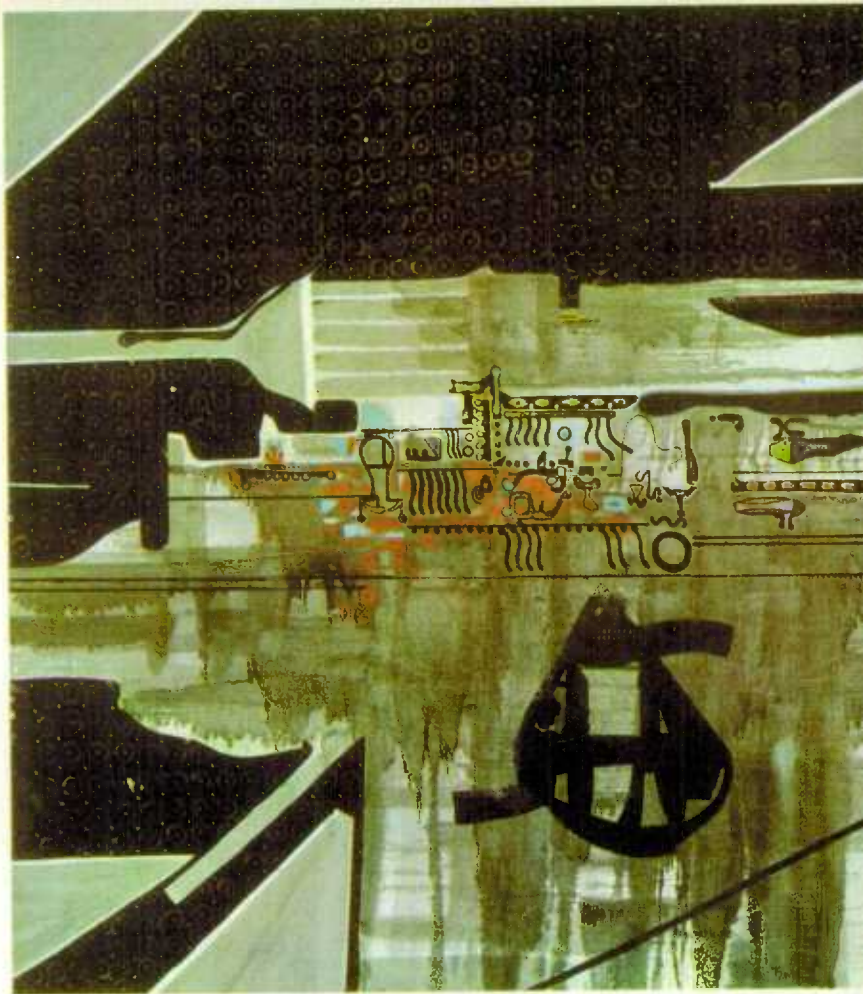


One of the hazards of film-making on location is the inevitable assembly of fascinated observers.

however, are financed and directed by private enterprise. One of the most active of these is the Canada Foundation. Among the more important professional cultural organizations maintaining membership in the Canadian Conference of the Arts are the Royal Architectural Institute of Canada, the Canadian Authors' Association, La Société des Écrivains Canadiens, the Federation of Canadian Artists, the Canadian Music Council, the Canadian Handicraft Guild, Canadian Guild of Potters, Canadian Group of Painters, Canadian Society of Painter-Etchers and Engravers, Sculptors Society of Canada, Canadian Society of Graphic Arts, Canadian Society of Landscape Architects and Townplanners, the Arts and Letters Club, the Canadian Ballet Association and the Canadian Society of Creative Leathercraft.

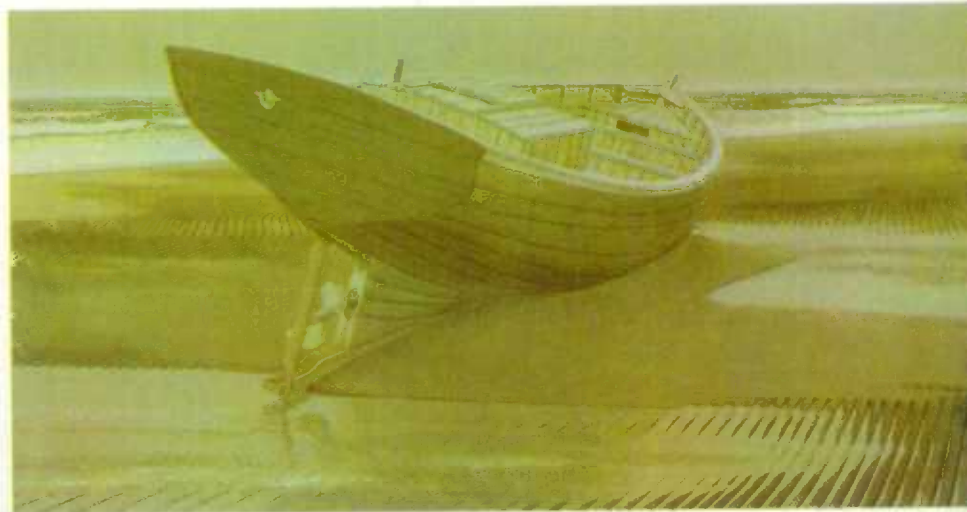
UNESCO

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



Tyranny of the Corners—Suchay Sei, by Harold Town. 1962. Oil on canvas, 72"x78".

Boat in Sand, by Christopher Pratt. 1961. Serigraph 14"x26".



Representative Canadian works
recently acquired by the National
Gallery of Canada.

Florence—the Duomo, by Alistair
Bell. 1960. Drawing with water
colour and chalk, 22 $\frac{1}{2}$ "x16 $\frac{1}{2}$ ".



Golgotha, by Gerald Trutsky.
1960. Oil on canvas, 55"x82 $\frac{1}{2}$ ".





The \$4,200,000 Bedford Institute of Oceanography was opened October 25, 1962, at Bedford, near Halifax, N.S. Tied up at the dock is the research ship *Baffin*, flagship of the hydrographic fleet. The Institute will serve as a centre for Canadian activities in hydrography, oceanography, geophysics, chemistry and geology for the Atlantic and sub-Arctic regions. The sea will be studied as a source of food, a factor in defence and a reservoir of minerals.

Scientific Research

Co-operation has become the key word in scientific research. Almost all major research projects in Canada tend to show increasing interdependence of industrial, university, and government laboratories; in addition, it has become easier to undertake concerted research efforts, since the pure theorist and the engineer have learned to collaborate more and more, very much like composer and conductor; and finally, in a world rapidly shrinking—precisely because of this joint impact of science and technology—Canada's scientific co-operation with other nations is inevitably expanding.

Space research is the obvious example. The successful launching of Canada's "Alouette", on September 28, 1962, was an historic event; for the first time, a country other than the U.S.S.R. and the U.S.A. had a satellite in orbit.

Crossed flags, symbolic of co-operation between Canadian and American scientists, were clearly visible on the mighty rocket as it left the California launching pad to lift its load of Canadian instruments into space.

Britain also contributed to the success of the venture: two of the thirteen information gathering sites are located in Britain. Data are being fed into a

computing centre in Ottawa, where results will be analyzed for the free use of scientists of all nations.

Scientists, engineers and technicians of Canada's Defence Research Board share with Canadian aircraft and electronics firms the main credit for a job well done.

Oceanography is another case in point: while Canadian support of marine studies has had a long and honorable history, it is only in the past five years that a multi-million dollar program has been launched to build a fleet of oceanographic vessels in Canada, to set up a special Institute of Oceanography, and to conduct a recruiting drive for university graduates with specialization in mathematics, physics, chemistry, and engineering.

All the major maritime nations are taking part in these new ventures; throughout the world some 50 research ships are constantly plying the seas employing about 600 specialists, while something like five times this number are studying the results of this "field work" in laboratories ashore.

For the first time, systematic exploration of the sea between Labrador and Greenland is being undertaken, with 14 nations, including the Soviet Union, collaborating; the project is under the direction of the International Commission for North Atlantic Fisheries (ICNAF) of which Canada is a member.

Geodesy, geophysics, and geology—"earth sciences" in the literal sense—are receiving their strongest impetus in Canada from an international program known as the Upper Mantle Project, which started in January 1962 and is to last until December 1964. The upper mantle is remote from man, since it stretches from a depth of about 25 miles down to some 500 miles, but it is of great practical importance: it is in this zone that the forces are set up which control conditions within the earth's crust—the mountains and volcanoes, the earthquakes and faults, the types and location of minerals.

The Department of Mines and Technical Surveys, which is chiefly responsible for Canadian co-operation in this project, is allocating some of this work to universities and is speeding up its own research plans. A single

Tests carried out by the Alberta Research Council have proved that solids can be successfully transported in pipelines. Here a capsule is being introduced into the pipeline near Edmonton.





example may serve to illustrate this speed-up: to obtain adequate information on earth tremors it is necessary to have seismic stations with standard instrumentation spaced uniformly at intervals of about 500 miles; this remarkable undertaking will be completed within the next two years instead of the five or six originally envisaged.

A curious sense of urgency was added recently when it became apparent that seismic studies could be used as a reliable means of detecting and identifying underground nuclear tests. In a joint British-Canadian venture, three experimental stations of this type have already been set up; only twenty of the new stations might be needed in a world-wide nuclear detection network, instead of the 180 stations that had been demanded at test-ban talks.

Pure chemistry has provided science in Canada with what can only be described by the generally overworked term "a break-through": Dr. Neil Bartlett, assistant professor of chemistry at the University of British Columbia, succeeded in overthrowing one of the most respected rules of chemistry, which states that a group of elements known as "inert gases" will not react with other elements to form compounds. Working with remarkably simple equipment, Dr. Bartlett has shown that one of these gases, xenon, will form stable compounds. As a result, chemistry textbooks will have to be revised.

The remarkably simple equipment used by Dr. Bartlett in his epoch-making achievement must not overshadow the fact that he was able to draw on the resources of one of the most modern university laboratories which, when completed in the fall of 1963, will have cost more than \$1,600,000. The same university is spending \$1,731,780 to house the department of electrical engineering; the building is one of six which is being constructed on a 15-acre site for the faculty of applied science; another contract has been let for a \$1,200,000 addition to the physics building. And all this in a single university, taken at random!

Canada's Alouette research satellite relays data on the ionosphere, cosmic rays, noise and other conditions six hours a day. It obeys 40 commands sent from the ground and is expected to remain in orbit for centuries.

In universities all across Canada, the extent to which building of science facilities was emphasized in the five years to 1960-61 may be shown by the fact that, of the expenditures clearly classified by reporting institutions, 68 p.c. were for instruction and research facilities, including 43 p.c. for science, 16 p.c. for arts. According to the reports of 25 universities and colleges, the pattern in the succeeding five years will be similar but with relatively less for science facilities (36 p.c. instead of 43 p.c.), somewhat more for libraries (6 p.c. as compared with 4 p.c.) and considerably more for student residences (18 p.c. as compared with 13 p.c.).

Finally, as far as the present state of industrial research in Canada is concerned, the amount of research done by industry for itself is fast becoming as great here as it is in older industrial countries. In a very short time, at the present rate of increase, industrial research expenditure should equal that of the Federal Government.

Canadian Patents and Development Limited. This company was set up in 1948 to handle all patent matters for NRC; it has since taken over similar work for other government departments and many Canadian universities. This year, 39 p.c. of the cases originated within NRC, 47 p.c. came from other federal government agencies and departments, and the remaining 14 p.c. came from universities and provincial research institutions.

During the year, 107 patent applications were filed; 150 patents issued in 13 countries.

Interest in the activities of the Company by both Canadian and foreign industry has increased. The Patents Handbook, which lists the inventions held by the Company, now has a distribution of over 2,000. Many more representatives from industry have found it advantageous to visit the Company's offices to examine inventions in detail and discuss licensing arrangements. Approximately 86 p.c. of the visitors have been from Canadian companies, and the remaining 14 p.c. have come from foreign countries, including the United States, England, Italy, South Africa and Argentina. The growing emphasis on good products of Canadian design has, no doubt, contributed to the increased interest of Canadian industry in the research results available through the Company.

It is the policy of the Company to offer all of its cases first to Canadian industry; 80 p.c. of the licences granted this year were entered into with Canadian firms for the production of goods in Canada.

National Research Council. The most diversified program of civil research in Canada is carried out by the National Research Council.

"To undertake, assist, or promote scientific and industrial research"—these nine words constitute the core of the terms of reference in the Act of Parliament by which, in 1917, the National Research Council of Canada was first called to life. It has played a vital role, ever since, in advancing science both nationally and internationally.

To undertake research, NRC serves as a national science laboratory with nine divisions (Applied Biology, Applied Chemistry, Pure Chemistry, Applied Physics, Pure Physics, Building Research, Mechanical Engineering, Radio and Electrical Engineering, and the National Aeronautical Establishment), two Regional Laboratories (in Saskatoon and Halifax), and smaller installations at various locations, including the Arctic.



Believed to be the first of its kind in the world, this rigid foam radome is a cover for radar antennas. It protects the antennas but allows radio waves and radar beams to pass through.

To assist research, NRC's program of grants and scholarships is the main source of direct aid to scientific research in the universities. Moreover, much of the work at NRC is carried out at the request of, or in collaboration with, industry; a free technical information service is provided by NRC with the co-operation of the provincial research agencies; and direct financial assistance has recently become available through NRC for expansion of existing research or initiation of research by industrial concerns in Canada.

To promote research, NRC fulfills a variety of functions: it sustains "associate committees" in more than 30 fields of scientific inquiry, ranging from aerodynamics to wildlife research; it publishes the six *Canadian Journals of Research*; it maintains a national library of science; it supports Canadian membership in international scientific unions; it provides scientific attachés for the Canadian embassies in London, Paris, and Washington; it gives special grants to scientific organizations and congresses in Canada; and, through Canadian Patents and Development Limited, it makes inventions from government laboratories and Canadian universities available to industry.

Of the hundreds of research projects handled in NRC's laboratories, many deal with fundamental problems that are hard to describe in every-day language; it must be kept in mind, nevertheless, that basic science represents the backbone without which the organization would collapse in the long run. At the same time, much of the work at NRC is of immediate application; for example, investigations requested by industrial groups or carried out under contract for individual companies, range from electronics to building construction, from acoustics to food preservation.

In applied biology, tests made in co-operation with a truck manufacturer and the Department of Fisheries have resulted in an improved cooling method for frozen food trucks. A modified air-jacket circulation system, originally developed for cold storage warehouses, can now be installed in new trucks as they are built, with little increase in cost and without loss of load space. Appropriate alterations on existing trucks can also be made economically.

In applied physics, one of the most spectacular developments has been the Helava plotter—a revolutionary device for making maps from aerial photographs. The instrument has already made a startling impact on the mapping world, but its full possibilities are by no means known. Twenty-five instruments, in a very elaborate version for defence purposes, have been ordered by the U.S. government at a unit price of \$250,000. A much simpler version for civilian use is now being produced at prices competitive with traditional plotters of infinitely less versatility.

In the Atlantic Regional Laboratory, a request by the Department of Mines of Nova Scotia has lead to the development of an inexpensive and compact device, operated by a miner's battery, which automatically warns the user of dangerous concentrations of combustible gases underground.

In the Prairie Regional Laboratory, nutritional studies carried out in co-operation with the Food and Drug Directorate at Ottawa, are contributing to the rapid disappearance of prejudice against using rapeseed oil in edible products. Studies are continuing on an undesirable factor of the seed which may make it difficult to process the oil for edible uses. The long-range objective is to assist plant breeders in developing nutritionally improved varieties free from any undesirable features.

In mechanical engineering, co-operation with medical doctors has produced an apparatus for the rapid suturing of large and small blood vessels. On November 13, 1962, this "surgical stapler" underwent its first clinical use. The instrument is of simpler design and is, at the same time, potentially more versatile than the only other automatic suturing device, developed by Russian engineers and subsequently adapted by scientists in the United States.

In NRC's National Aeronautical Establishment, examples of aid to industry abound. Months of analysis and testing have been spent on a prototype light aircraft with which it may be possible to recapture some of Canada's own market for this type of aircraft. An extensive series of tests was made on a railway ore car under operational conditions. A small Canadian company has been helped to start production of the N.A.E. "aircraft crash position indicator"—a device which should find markets both inside and outside Canada. A lengthy analysis was made of the economics of logging by means of helicopters.

All in all, this brief survey serves to show once again that now, more than ever, the key word in scientific research is—co-operation!

A power auger is used to drill a hole through the ice on the Yukon River to gauge water flow.





The University of Manitoba is one of Canada's major educational institutions, situated on a beautiful campus. Much medical research is done in universities.

Medical Research

Much of the fundamental medical research in Canada is carried out in universities, where advances are continually being made in such sciences as anatomy, physiology, biochemistry, pharmacology and genetics, on which the practice of medicine is based. In addition to the investigations undertaken in basic science departments, research is carried out in special institutes and departments of Canadian universities such as the Charles H. Best Institute and the Connaught Medical Research Laboratories at the University of Toronto, the Collip Department of Medical Research at the University of Western Ontario, the Institutes of Microbiology and Hygiene and of Experimental Medicine and Surgery at the University of Montreal, and the Montreal Neurological Institute and the Allan Memorial Institute of McGill University, all of which have achieved international reputations in their particular fields of endeavour.

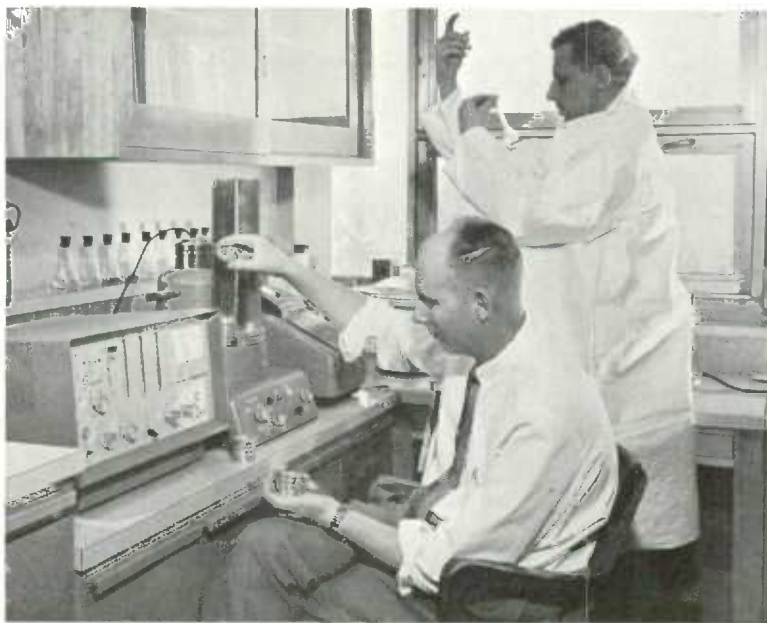
Clinical research, both fundamental and applied, is also carried out in hospitals affiliated with universities, in mental hospitals and in the hospitals operated by the federal Department of Veterans Affairs; the latter are particularly well suited to the study of chronic diseases or conditions requiring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

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

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

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

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



At the Central Experimental Farm's Soil Research Institute, scientists measure the amount of Strontium 90 in plant extracts.

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

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

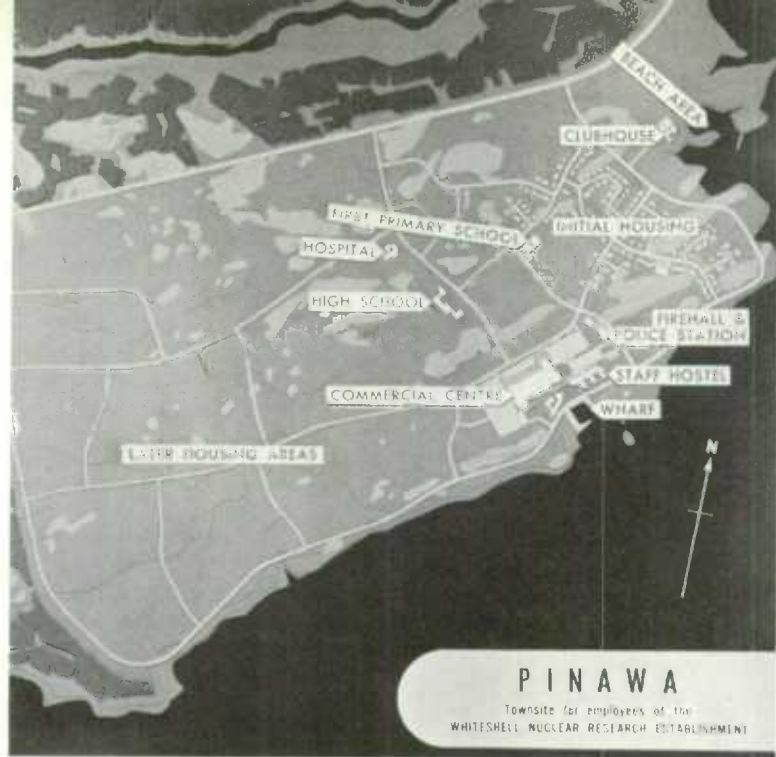
In 1960 the Medical Research Council was established by the Federal Government to support research in the broad field of medical science through grants-in-aid and the provision of personnel support. During the year ending March 31, 1962, 96 programs were being supported on a term basis and 224 grants were made on an annual basis, renewable on application, for a total of \$2,289,555; 50 grants totalling \$385,279 were made for the purchase of special major equipment needed in the research programs; 60 Medical Research Fellows and 24 Medical Research Associates received \$474,814.

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

While it is difficult to establish a total figure for the direct contribution to medical research made by all agencies, it is estimated that the amount available for grants and personnel support for the current year will be approximately \$12,000,000, or approximately 65 cents per capita of the population.

Large-scale culture of algae enables scientists at the National Research Council to study toxic effects. The algae are grown in 300 nine-litre bottles illuminated by fluorescent lamps placed between the rows.





The architect's model of the town of Pinawa being built for employees of the Whiteshell Nuclear Research Establishment of Atomic Energy of Canada Limited, 60 miles northwest of Winnipeg.

Atomic Energy

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

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



An aerial view of Canada's first nuclear power station which went into production on June 4, 1962. Known as the Nuclear Power Demonstration Station (NPD), it is located on the Ottawa River near Rolphton, Ontario, and has an electrical output of 20,000 kw.

maximum of 15,900 tons of uranium oxide in 1959, deliveries have since fallen steadily; this fall reflects the fall in demand from Canada's main customer, the United States.

For the greater part, the mining operations themselves are conducted by private companies, and activities in this sphere are at present in an unsettled state. Atomic energy activities in many countries originated as and have been characterized by a rapid expansion of mining operations to supply uranium for military uses. This growth has been accompanied by an inherently much slower technological development toward harnessing nuclear energy for electrical power generation—a development that will eventually lead to the time when the principal uses of uranium will be civilian rather than military. Unfortunately for the mining industry, the demand in support of military uses is falling off before the civilian program can make use of the full production capacity. The situation in Canada has been relieved to some extent by stretching out to 1966, without increase in total supply, contracts that would have expired in 1962. Nevertheless, many of the less economic mines have had to close down.

In contrast to that of the uranium industry, the picture of AECL activities is much brighter and it now seems that, in certain areas, economic nuclear power generation will be achieved in Canada within relatively few years. From the diverse reactor types that can be conceived for power generation, AECL chose the heavy-water-moderated, natural-uranium reactor as being the most suitable under Canadian conditions. Of the many reasons for this choice, the principal one is that heavy water permits a very high burn-up of the fuel in a single pass through the reactor; this, combined with

the low cost of natural uranium, results in a very low total fuel cost. In fact, the Canadian nuclear power program is unique in that it aims for such a high burn-up that used fuel elements may be discarded as waste rather than put through expensive recovery processes for extraction of plutonium and unburned uranium. Of course, heavy-water natural-uranium reactors do have disadvantages, not the least being their high capital cost. However, in Ontario, where the publicly owned utility (the Hydro Electric Power Commission of Ontario) can borrow money at low interest rates, and where large base-load stations are required, the component of power cost due to capital is tolerable. Under these special circumstances, it is probable that a second CANDU type reactor, incorporating capital economies resulting from the experience gained in the construction of the first, would generate electricity at a cost competitive with conventional stations.

The first electricity to be produced by a nuclear power plant in Canada was sent into the transmission lines of Ontario Hydro on June 4, 1962. Three weeks later the plant, known as the Nuclear Power Demonstration Station (NPD), reached its full power output of 20,000 kilowatts.

This historic event took place when there was a growing interest around the world in the Canadian approach to nuclear power. In addition to putting the prototype power reactor into service, Canada had a full-scale plant, known as the Douglas Point Nuclear Power Station, well under way. This station, which has a reactor known as CANDU designed on the same general principle as the NPD reactor, will produce 200,000 kilowatts of electricity when it goes into operation in 1965.

Construction is proceeding on the 200,000-kw. Douglas Point Nuclear Generating Station on the shore of Lake Huron. The reactor will be housed in the domed building and the turbine-generator will be in the building under construction. The structure at the upper right is a coffer dam for the construction of the cooling water intake tunnel.



The NPD plant is a joint project of Atomic Energy of Canada Limited, Ontario Hydro and Canadian General Electric Company Limited. The Douglas Point plant is being built by AECL with the co-operation of Ontario Hydro.

In the international field, close ties are kept with the United States Atomic Energy Commission and the United Kingdom Atomic Energy Authority, both of which have representatives permanently at Chalk River. An agreement with the United States provides for the free exchange of all technical data on heavy-water-moderated reactors and commits the USAEC to spend \$5,000,000 in the United States on research and development related to reactors of Canadian design. More or less formal collaboration has also been established with the International Atomic Energy Agency, the European Nuclear Energy Agency, and with Euratom, as well as with France, India, Japan, Pakistan, Sweden, Switzerland and West Germany. In India, the inauguration of the Canada-India Reactor in January 1961 was followed in August by the two countries agreeing to undertake a joint study of the cost of building, in India, a nuclear power station similar to CANDU.

AECL operates Canada's main atomic research and development centre at Chalk River, Ontario, and is building a second centre on the shores of the Winnipeg River, 65 miles northeast of Winnipeg, Manitoba. The latter, known as the Whiteshell Nuclear Research Establishment, will have 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 2,200, 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 are used for nuclear power experiments, for fundamental research and to produce radioactive isotopes and plutonium. The NRU reactor was the first one in the world to be refuelled routinely while the reactor continues to operate.

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, there are 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.

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



This mobile cobalt-60 irradiator is used to irradiate various foods with gamma rays to increase their shelf life. It has been used at various places in Eastern Canada to irradiate potatoes to inhibit sprouting.

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.

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

Although the CANDU-type reactor shows great promise, it represents only one stage in the evolution of power reactor technology, and an appreciable effort is being devoted to more advanced systems which would have a higher efficiency than CANDU, and would be suitable in even larger sizes. With the demand for electricity in Ontario currently growing at more than 200,000 kilowatts capacity per year, these very high power reactors will fill a definite need by the time they are developed, and as much as 400,000 electrical kilowatts from one reactor may be desirable.



Development of the prairie oil-fields is of the greatest significance to the postwar economy. Production of crude oil and natural gas liquids is expected to exceed 800,000 barrels a day in 1963.

Industry in Canada

The Economy

The year 1962 was one of economic expansion, compared with the mild set-back that occurred in 1960-61. Gross national product, which measures the value of the nation's output of goods and services, was running close to 9 p.c. above the level of 1961¹. Although all the components of income and expenditure showed significant increases, an important element in the comparison is the very much higher crop estimate compared with the poor crop in the previous year. Prices continued to advance somewhat more than in 1961. Prices of both exports and imports rose sharply, reflecting the decline in the exchange rate of the Canadian dollar that occurred in mid-1961 and again in the spring of 1962. Thus the volume of production was up less than 8 p.c. If agriculture is excluded the increase in the volume of production is reduced to about 6 p.c. There was an improvement in the market for labour, with an increase in employment and a reduction in unemployment.

Supported by rising personal income, consumer spending continued to rise as did government expenditure. Spending for capital goods, which had been lagging, picked up, particularly purchases of machinery and equipment. Exports of goods and services rose sharply but imports rose even more in value, reflecting the improvement in economic activity in the North American

¹Figures are based on a comparison of nine months' data.

economy and the fall in the exchange rate of the Canadian dollar. In the third quarter of the year additions to stocks in the hands of businessmen added a further stimulus to economic recovery.

These changes in the pattern of demand were accompanied by changes in the magnitude and direction of income flows. Labour income continued to rise and corporate profits were up substantially. Other components of income were also higher, with the biggest increase in farm income, reflecting a much better crop than in the previous year. The flows of income between the private and the government sectors were also affected by the improvement in economic activity as well as by administrative changes between the years. The deficit of revenue over expenditure for all levels of government combined was considerably lower.

The Components of Demand

Personal spending rose more than 5 p.c. in 1962, compared with an increase of 10 p.c. in income at the disposal of consumers for spending. Thus there was a considerable rise in personal saving. The rise in personal disposable income is partly accounted for by the exceptionally large Wheat Board payments to farmers.

In contrast to 1960 and 1961 the market for consumer durable goods was buoyant. The gain in purchasing was 7 p.c., compared with no change in 1961 and a drop of 2 p.c. in 1960. The largest contribution came from the 13 p.c. advance in purchases of cars.

The expansion of the economy is dependent on the exploitation of new sources of power—hydro-electric, thermal or nuclear. Here work is proceeding on the Grand Rapids Dam in northern Manitoba.

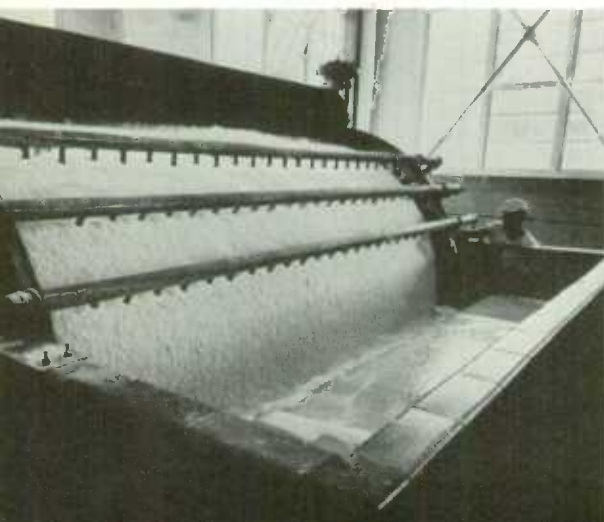




An open-pit nickel mine at Sudbury.



A copper mine in Newfoundland.



Loading lumber for export at a Vancouver dock.

Bleached pulp flows over the rollers.

Laying pipeline for the overland transportation of oil.



During 1962, increases were recorded in exports of nickel, woodpulp, petroleum, copper, iron, aluminum and lumber.

Gains in purchases of non-durables amounted to 5.5 p.c. Increases in spending were widespread among the items, the introduction of the Ontario Sales Tax being a contributory factor. Expenditure on consumer services rose 4.5 p.c.

Spending for capital goods rose 7 p.c. in 1962, which was 1 p.c. higher than businessmen's intentions as expressed at mid-year. The greatest rate of increase was in purchasing of machinery and equipment which was up 10 p.c. While housing starts turned down during the course of the year, the high rate of starts at the beginning of the year kept outlays for housing 7 p.c. higher than in 1961. Expenditure for non-residential construction was higher by 4 p.c.

Turning to investment in business inventories, additions to stocks made little contribution to recovery until after the middle of the year. Stocks in the hands of manufacturers and retailers were increased while wholesalers reduced their stocks.

The progress of recovery in the United States was important among the factors contributing to an almost 9 p.c. rise in exports of goods and services. At the same time, imports of goods and services rose somewhat more, producing a somewhat larger deficit on Canada's current trading account with the rest of the world in the nine months period.

Crude petroleum and iron ore were outstanding among the export commodities showing higher sales but there were good gains in aluminum products, lumber and timber, woodpulp, nickel and copper. Sales of uranium ores and concentrates, wheat and newsprint declined. So far as imports were concerned, automobiles and parts, non-farm machinery and electrical apparatus are prominent among the commodities for which purchasing was higher. Somewhat less than half of the increases on both sides was ascribable to higher export and import prices, reflecting the change in the foreign exchange value of the Canadian dollar.

Government expenditures continued to provide support to the level of economic activity. Outlays for goods and services were up nearly 8 p.c., the highest rate of increase being at the municipal level.

Income Flows

The quickening in economic activity was reflected in income flows. Personal income moved parallel with national income and income at the disposal of consumers for spending rose more than personal income.

With the improvement in employment opportunities and the further rise in wage rates, labour income rose 6.5 p.c., compared with less than 4 p.c. in 1961. The rise in income in 1962 in the various major industrial groups was uneven, with relatively large increases in manufacturing, construction, and finance and service.

As is usual in the course of cyclical expansion, corporate profits advanced sharply in 1962; they were at record levels and 14 p.c. above the level of the previous year. Almost all industries experienced higher profits. Dividends paid to non-residents fell about 5 p.c., so that corporate profits as measured for national income purposes, that is, before taxes and after dividends paid abroad, rose about 18 p.c. Various types of other investment income rose by 5 p.c.



During 1962, increases were recorded in the production of non-residential construction, such as plants and roads; machinery; and wheat.



Much the largest gain in income was in the farm sector. Most of the 60 p.c. rise is attributable to the 1962 crop of grains, which is estimated to have been higher than the previous crop by \$560,000,000. Income of unincorporated business non-farm advanced by 8 p.c., with the largest increase being in retail trade.

Production, Employment and Prices

The patterns of production and employment mirrored the expansion of demand outlined earlier. Prices increased rather more than in the previous year, partly because of the decline in the exchange rate of the Canadian dollar.

Among the goods-producing industries, both manufacturing and mining output advanced by 9 p.c., with the durable component of manufacturing rising by a significantly larger amount. This increase was largely a result of the recovery of the more cyclically sensitive industries from the 1960-1961 cycle which reached its trough in the first quarter of 1961. Construction increased by 4 p.c.

The service-producing industries increased by over 4 p.c. Higher than average output increases occurred in the electric power and gas utilities and in the more cyclically sensitive trade and transportation, communication and storage industry groups. The remaining service industry divisions continued to expand, showing an increase of approximately 3 p.c. each.

Associated with the gain in production in the first nine months' comparison was a 3.2 p.c. increase in employment. Agriculture was the only major industry to show a decline in employment. As in the recent past there were better gains in employment in the service-producing industries than in the goods-producing industries. The service group—public, community and recreational, and other services—with an advance of 5.5 p.c. showed the largest increase of all the industries. Unemployment in 1962 averaged 6.1 p.c. of the labour force compared with 7.8 p.c. in 1961.

Prices rose somewhat more than 1 p.c., compared with an increase of less than 1 p.c. in 1961. Prices of both exports and imports rose sharply as a result of the declines in the exchange rate which occurred in mid-1961 and again in the spring of 1962. Machinery and equipment, which has a high import content, showed a significant increase in prices.

The main filtration plant at Toronto. Government expenditure for goods and services is an important segment of gross national expenditure at federal, provincial and municipal levels.



Source of Personal Income, Selected Years 1939-61

(Millions of Dollars)

Source	1939	1946	1950	1957	1959	1960	1961
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	16,018	17,463	18,119	18,884
Less: Employer and employee contributions to social insurance and government pension funds.....	-35	-149	-256	-590	-651	-735	-781
Military pay and allowances.....	32	340	137	476	496	509	550
Net income received by farm operators from farm production ¹	412	1,034	1,156	1,026	1,123	1,188	909
Net income of non-farm unincorporated business.....	475	1,072	1,439	2,008	2,192	2,190	2,249
Interest, dividends and net rental income of persons.....	570	817	1,268	2,141	2,551	2,742	2,850
Transfer payments to persons:							
From government (excluding interest).....	229	1,106	1,030	2,076	2,756	3,121	3,343
Charitable contributions by corporations.....	6	12	25	36	42	44	45
Personal Income.....	4,290	9,719	13,428	23,191	25,972	27,178	28,049

¹ This item differs from item five of the table on p. 153 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 1939-61

(Millions of Dollars)

Disposition	1939	1946	1950	1957	1959	1960	1961
Personal Direct Taxes:							
Income taxes.....	62	711	612	1,693	1,744	1,978	2,126
Succession duties and estate taxes.....	28	54	66	126	130	158	146
Miscellaneous.....	22	31	62	98	213	221	232
Total Personal Direct Taxes.....	112	796	740	1,917	2,087	2,357	2,504
Personal Expenditure on Consumer Goods and Services:							
Non-durable goods.....	2,186	4,829	6,711	10,402	11,303	11,699	12,139
Durable goods.....	312	596	1,451	2,430	2,678	2,667	2,694
Services.....	1,486	2,606	3,864	7,240	8,514	9,001	9,420
Total Personal Expenditure on Consumer Goods and Services.....	3,984	8,031	12,026	20,072	22,495	23,367	24,253
Personal Saving:							
Personal saving excluding farm inventory change.....	140	878	583	1,327	1,466	1,439	1,606
Value of physical change in farm inventories.....	54	14	79	-125	-76	15	-314
Total Personal Saving.....	194	892	662	1,202	1,390	1,454	1,292
Personal Income.....	4,290	9,719	13,428	23,191	25,972	27,178	28,049
Personal Disposable Income¹.....	4,178	8,923	12,688	21,274	23,885	24,821	25,545

¹ Personal income less total personal direct taxes.

National Income and Gross National Product, Selected Years 1939-61

(Millions of Dollars)

Item	1939	1946	1950	1957	1959	1960	1961
Income							
Wages, salaries and supplementary labour income.....	2,601	5,487	8,629	16,018	17,463	18,119	18,884
Military pay and allowances.....	32	340	137	476	496	509	550
Corporation profits before taxes ¹	521	1,269	2,118	2,581	2,997	2,807	2,850
Rent, interest and miscellaneous investment income.....	301	581	890	1,980	2,281	2,390	2,529
Accrued net income of farm operators from farm production.....	362	1,056	1,322	1,026	1,118	1,194	937
Net income of non-farm unincorporated business including independent professional practitioners.....	475	1,072	1,439	2,008	2,192	2,190	2,249
Inventory valuation adjustment.....	-56	-254	-374	-78	-130	-55	-86
Net National Income at Factor Cost.....	4,236	9,551	14,161	24,011	26,417	27,154	27,913
Indirect taxes less subsidies.....	734	1,270	2,000	3,861	4,251	4,446	4,643
Capital consumption allowances and miscellaneous valuation adjustments.....	637	998	1,913	4,009	4,159	4,293	4,349
Residual error of estimate.....	29	31	-68	28	-43	35	-61
Gross National Product at Market Prices.....	5,636	11,850	18,006	31,909	34,784	35,928	36,844

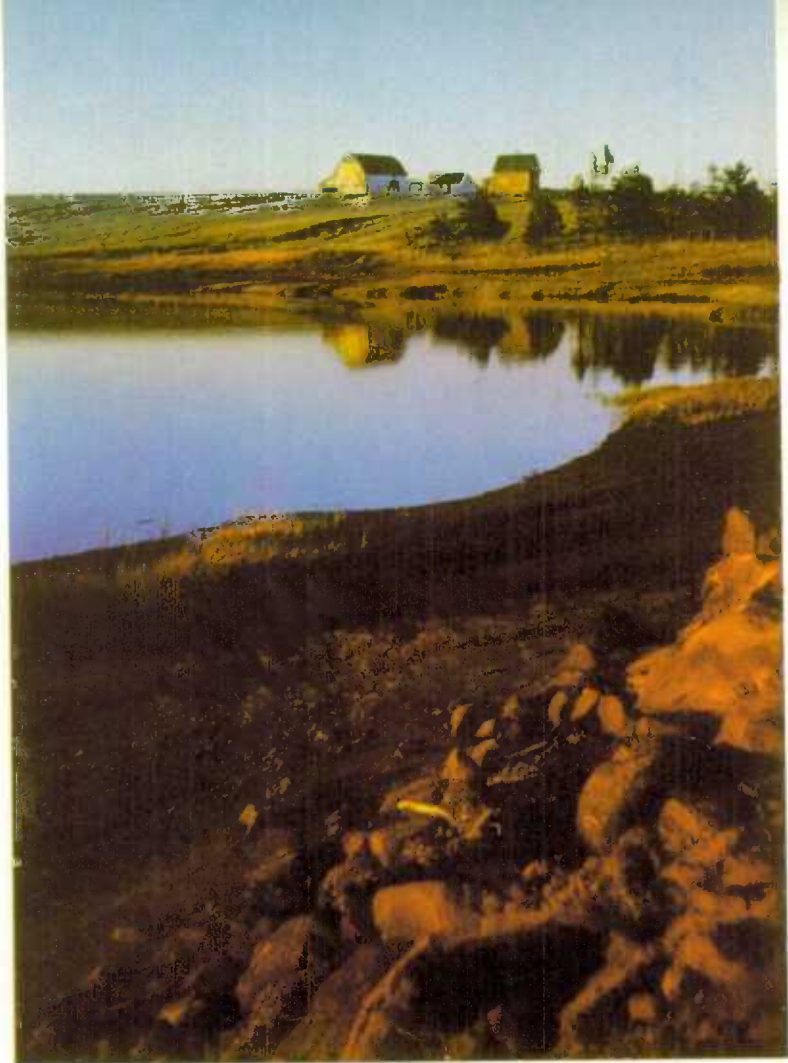
¹ Excludes dividends paid to non-residents.

Gross National Expenditure, Selected Years 1939-61

(Millions of Dollars)

Item	1939	1946	1950	1957	1959	1960	1961
Personal expenditure on consumer goods and services.....	3,984	8,031	12,026	20,072	22,495	23,367	24,253
Government expenditure on goods and services ¹	683	1,796	2,344	5,722	6,449	6,683	7,183
Business gross fixed capital formation ² :							
New residential construction.....	174	368	883	1,409	1,734	1,443	1,458
New non-residential construction.....	164	435	1,042	3,103	2,589	2,577	2,647
New machinery and equipment.....	254	585	1,423	2,823	2,571	2,672	2,388
Value of physical change in inventories:							
Non-farm business inventories.....	101	360	399	305	414	274	209
Farm inventories and grain in commercial channels.....	181	-27	151	-74	-64	85	-447
Exports of goods and services.....	1,451	3,210	4,183	6,391	6,683	7,022	7,578
Less: Imports of goods and services.....	-1,328	-2,877	-4,513	-7,813	-8,131	-8,160	-8,487
Residual error of estimate.....	-28	-31	68	-29	44	-35	62
Gross National Expenditure at Market Prices.....	5,636	11,850	18,006	31,909	34,784	35,928	36,844

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.



Agriculture

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

Technological improvements and the growing use of power equipment have caused agriculture to become more commercialized. A greater interdependence with the rest of the economy has resulted. Farmers today are using increased quantities of products from industry such as commercial

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

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

Scattered across the nation are 480,903 farms, according to the 1961 Census. A farm was defined in this census as 'a holding of one acre or more with sales of agricultural products during the past 12 months valued at \$50 or more'. There are, therefore, many small farms which do not provide sufficient income to support farm families. Many of these so-called farms are merely rural residences and the owners are employed in walks of life other than farming. In 1961, 127,610 or 26 p.c. of farms had less than \$1,200 income from the sale of farm products. Many of these would be 'part-time' farms.

The number of farmers does not necessarily correspond to the number of farms because many people occupying farms have main occupations other than farming. The labour force survey of June 1961 estimated that there were 415,000 farm operators in the population plus 145,000 family workers and 127,000 paid workers.

There is little arable land in Newfoundland but in the coastal areas some outport farming is carried on.



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

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

The chief characteristic of agriculture in the Prairie Provinces is the emphasis on grain production. Cattle and sheep ranching have long been established in southeastern Saskatchewan, southern Alberta and the foothills of Alberta and 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.

British Columbia has wide variations in soil, climate and agricultural possibilities. In the Lower Fraser Valley general mixed farming and dairying are the chief types of farming. The high interior flatlands support grazing of



The harvesting of wild rice by bending the plants over the side of the canoe and beating the rice grains off with a stick provides supplementary income in parts of Manitoba and Ontario. About 98 p.c. of the crop is exported to the United States where it is regarded as a delicacy.



National and international ploughing matches test the skill of farmers as they compete for trophies.

cattle and sheep, while in the interior mountain valleys in southern British Columbia irrigation has transformed the land into rich fruit growing areas. Far to the north in the Peace River country, farming conditions are more like the northern Prairie Provinces areas where grain growing and mixed farming predominate. On Vancouver Island crops not cultivated elsewhere in Canada can be grown. Here fruit and vegetables, flowering bulbs and seeds are all grown commercially.

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

Farm Income

From the standpoint of the farmer, agricultural production is undertaken for two basic reasons: (1) to satisfy directly a part or all of his need for food and other products of the farm, such as wool and wood, and (2), to provide something which he may sell in order to obtain those goods and services required for family living and for production which he is unable or unwilling to supply directly himself. The farm value of those products sold off the farm

is designated as farm cash income from farming operations; at the present time this component of farm income also includes: deficiency payments made under the provisions of the current farm price support program of the Federal Government, cash advances on farm-stored grains in the Prairie Provinces, and Canadian Wheat Board grain participation payments in the year in which payments are made rather than the year in which earned. The value of those products retained for home consumption, together with the imputed rental value of the farm house, is called income in kind. In addition to these two forms of income, farmers in Western Canada receive payments made under the provisions of the Western Grain Producers' Acreage Payment Plan and the Prairie Farm Assistance Act. Payments of this kind are not associated directly with farm production and are set forth in a separate component called "supplementary payments". The total of cash income from farming operations, income in kind and supplementary payments is considered to be realized gross income; the term "gross" is used to indicate that no allowance has been made for the costs of production.

In some years farm production may exceed the amounts sold and the excess must be stored on farms until final disposition can be made. Although this excess is not immediately realizable as income, it does represent a potential income for the future and as such it is considered as a part of total gross income from farming operations for the year under consideration; under these circumstances total gross farm income from farming operations is the sum of realized gross income and the value of additions to farm-held stocks of agricultural produce. From time to time, farmers may consume and sell during a year more than they produce by drawing on inventories accumulated from previous years. Even under these circumstances, realized gross income is still calculated by adding together cash income from the sale of farm products,

income in kind and supplementary payments. However, estimated total gross income from farming operations is calculated by deducting from realized gross income the value of the amount of the accumulated stocks from previous years which entered into consumption and sales; since these stocks were considered as part of farm income in the year of accumulation, they must be subtracted from realized gross farm income in the year of final disposition in order to avoid counting them twice. The deduction of farm operating expenses and depreciation charges from realized gross farm income and total gross farm income provides estimates of realized net farm income and total net farm income from farming operations.



Plastic tubing is taking the place of the open pail for catching maple sap. In 1962, 2,832,000 gallons of maple syrup and 781,000 pounds of maple sugar were produced.

Net Income of Farmers from Farming Operations, 1959-61

Item	1959	1960	1961
	\$'000	\$'000	\$'000
1. Cash income.....	2,791,190	2,781,538	2,958,545
2. Income in kind.....	344,464	352,043	353,478
3. Supplementary payments.....	22,087	77,204	35,766
4. Realized gross income (1 + 2 + 3).....	3,157,741	3,210,785	3,347,789
5. Operating and depreciation charges.....	1,884,578	1,907,720	2,006,867
6. Realized net income (4 - 5).....	1,273,163	1,303,065	1,340,922
7. Value of inventory changes.....	-73,800	16,539	-307,247
8. Total gross income (4 + 7).....	3,083,941	3,227,324	3,040,542
9. Total net income (8 - 5).....	1,199,363	1,319,604	1,033,675

The more important contributions to the increase in farm cash income between 1960 and 1961 were made by wheat, flaxseed, fruits, vegetables, tobacco, cattle, calves, dairy products, poultry products and Canadian Wheat Board participation payments. Offsetting these gains to some extent were greatly reduced returns from potato sales, a substantial net repayment of cash advances on farm-stored grains in Western Canada, and lower income from oats and barley.

Income in kind is estimated at \$353,500,000 for 1961, slightly above the revised figure of \$352,000,000 for 1960. Increases in the value of consumption of meats, fruits and vegetables, and the imputed rental value of farm dwellings more than offset a decline in the value of consumption of potatoes, dairy products and forest products.

In addition to the above cash income, farmers in Western Canada received supplementary payments totalling \$35,800,000 during 1961, as against \$77,200,000 a year earlier. During 1961, these payments consisted almost entirely of disbursements under the provisions of the Prairie Farm Assistance Act, whereas in 1960 they included, not only P.F.A.A. payments, but also payments made under the provisions of the Western Grain Producers' Acreage Payment Plan and the Federal-Provincial Emergency Unthreshed Grain Assistance Policy. During 1961, potato growers in Prince Edward Island received approximately \$390,000 for losses sustained as a result of fusarium rot in the 1960 potato crop.

During 1961, farmers' outlays for the operation of the farm business and allowances for depreciation on buildings and machinery reached the record high level of just over \$2,000,000,000, about five p.c. above the \$1,900,000,000 estimated for a year earlier.

The most important decrease in farmers' outlay for any single item of expenditure was for gross farm rent. From \$69,300,000 in 1960, it declined to \$54,100,000 in 1961, almost entirely as a result of the significant drop in grain production in the Prairie Provinces and the consequent smaller share-rent payments. Repairs for machinery was the only other item included in the estimates of expense for which farmers' expenditures were noticeably less in 1961 than in 1960.

During 1961, Canada's livestock population continued to increase but stocks of grain on farms declined drastically as a result of the sharp drop in the production of grain in the Prairie Provinces.

For 1961, total farm net income, which takes into account changes in farm inventories of grains and livestock, is estimated at \$1,033,700,000, nearly 22 p.c. below the estimate of \$1,319,600,000 for 1960 and the lowest since 1957 when total farm net income was estimated at \$1,058,300,000. Although the increased farm operating expenses and depreciation charges contributed to the decline in total farm net income between 1960 and 1961, most of the reduction can be attributed to the drastic reduction in the production of prairie grain crops in 1961 and the consequent drop in the year-end inventories of grain on farms.

Cash Income from Farming Operations, by Province, 1959-61

Province	1959	P.C. of Total	1960	P.C. of Total	1961	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	28,307	1.0	29,141	1.0	24,207	.8
Nova Scotia.....	42,766	1.5	44,046	1.6	45,701	1.6
New Brunswick.....	43,759	1.6	48,106	1.7	42,164	1.4
Quebec.....	420,276	15.1	415,265	14.9	444,992	15.0
Ontario.....	855,542	30.6	869,329	31.3	899,974	30.4
Manitoba.....	230,772	8.3	223,149	8.0	242,136	8.2
Saskatchewan.....	564,179	20.2	550,751	19.8	598,055	20.2
Alberta.....	481,141	17.2	474,700	17.1	527,836	17.9
British Columbia.....	124,448	4.5	127,051	4.6	133,480	4.5
Totals.....	2,791,190	100.0	2,781,538	100.0	2,958,545	100.0

This flourishing greenhouse is in Yellowknife, N.W.T., where the demand for nursery plants in spring is brisk.





Chinese market gardens are tended from sunup to sunset; this one is in Burnaby, B.C.

Field Crops

A wide range of growing conditions was experienced throughout Canada during the 1962 season, but despite set-backs in some areas due to drought, and in other areas due to excessive moisture, the season was generally satisfactory. The satisfaction is immeasurably enhanced when considered against a background of practically insuperable odds against the production of average crops in the Prairie Provinces at planting time. The 1961 season was the driest on record and as a result moisture stored in the soil to supplement 1962 seasonal rainfall was non-existent over wide areas of this most important grain-producing region. Some favourable signs, such as heavy snow storms during the winter, indicated the drought might be breaking but the months of April and May were dry over most of Saskatchewan and southern Alberta. This was in sharp contrast to the eastern half of Manitoba and northern Alberta where rain fell in abundance and confronted the farmers with a difficult task of getting seed in the ground.

Farmers in the Prairies had been warned to prepare for a relentless campaign against the expected ravages of an onslaught of grasshoppers during May and June of 1962. The 1961 season had been ideal for building up the egg population and extending the areas where outbreaks could occur. It was during this critical period that farmers may have received some indication that nature would be working on their side this year. The weather remained cool during these months and plant growth was vigorous. Many eggs failed to hatch and roadside and headland vegetation was, in many cases, sufficient to meet the voracious appetites of those insects which did hatch. This, combined with efficient use of chemical sprays, kept damage from this source to a minimum.

A large area in Saskatchewan and parts of southern Alberta remained dry during the summer months. Spreading from this hard core of drought,

moisture conditions ranged from ideal in parts of southeastern Saskatchewan, southwestern Manitoba and central Alberta to those sections in eastern Manitoba and northern Alberta where rainfall was excessive. Even in the drier areas, and in sharp contrast to the previous season, temperatures remained cool and crops made maximum use of the available moisture.

At harvest time it appeared that luck had once again run out. Many crops were slow in maturing and frost at the normal time would have caused significant damage. Although the weather was unfavourable during much of the period from mid-August to mid-September and light frosts did occur, the reduction in quantity due to these adverse conditions was small, although some reduction in quality did take place. The spell of adverse weather was followed by an exceptionally fine "Indian summer" which ripened late crops and made it possible for farmers to take off the bulk of the harvest in dry condition.

Crop prospects had many ups and downs in Eastern Canada. A very early spell of hot spring weather in Ontario and Western Quebec was followed by drought, which in turn was followed by good rains. Apart from the first cut of hay, other field crops survived these stresses and produced excellent yields. The eastern part of the country suffered from too much moisture during most of the growing season. Crops were late in maturing and much difficulty was experienced at harvest time. The weather in British Columbia was generally cool during the spring months but crops developed well and average yields for most crops were above those of a year earlier.

Huge peat bogs in Agassiz Provincial Forest in Manitoba have been brought into production. The land is cleared and harrowed, and the dry moss is sucked up by the vacuum machines shown lined up. Drainage trenches carry off excess moisture.





The railway line runs through miles of wheatland and at each stopping place ranks of grain elevators are silhouetted against the prairie sky.

Canadian wheat supplies in 1962-63, reflecting a substantial increase in production which more than offset a sharp decline in carryover stocks, are about 7 p.c. greater than in the previous year. The carryover at July 31, 1962 of 395,700,000 bushels, combined with this year's production of 557,600,000 bushels, placed total supplies at 953,200,000 bushels for the current crop year. Should disappearance into export and domestic channels approximate 470,000,000 bushels, year-end carryover would be in the vicinity of 483,000,000 bushels.

Canada's 1961-62 crop year clearances of the five principal grains, together with exports of bagged seed wheat and wheat flour, totalled 413,700,000 bushels compared with the 1960-61 figure of 412,900,000 bushels and the ten-year (1950-51—1959-60) average of 417,600,000. The 1961-62 shipments were made up of 322,800,000 bushels of wheat in bulk, 3,300,000 of bagged seed wheat, 32,000,000 of wheat flour (expressed in terms of wheat equivalent), 2,700,000 of oats, 36,700,000 of barley, 4,400,000 of rye and 12,000,000 bushels of flaxseed.

Compared with last year's totals, exports of wheat, oats and rye increased while those of wheat flour, bagged seed wheat, barley and flaxseed declined.

Increased shipments to China, the Federal Republic of Germany, Poland and East Germany more than offset reduced exports of wheat to Italy, Japan and Britain. Czechoslovakia did not enter the Canadian wheat market in 1961-62 after receiving 12,100,000 bushels in 1960-61. Britain, however, remained as Canada's leading purchaser of wheat, with exports to that destination amounting to some 73,700,000 bushels in 1961-62 compared with 78,600,000 in the preceding year. Clearances to China, at 72,000,000 bushels, were more than double the 1960-61 total of 34,700,000. Japan was the third largest market for Canadian wheat, receiving 48,000,000 bushels compared with 54,000,000 the previous year. The Federal Republic of Germany



A field of potato plants in bloom in New Brunswick.

boosted imports of Canadian wheat from 33,000,000 in 1960-61 to 43,900,000 in 1961-62. Shipments to other major markets in 1961-62, with 1960-61 figures in brackets were as follows, in millions of bushels: Poland, 12.3 (5.7); Belgium and Luxembourg, 11.5 (12.2); East Germany, 8.0 (1.9); Switzerland, 8.0 (7.3); Venezuela, 4.7 (2.7); Italy, 3.9 (14.9); Philippines, 3.9 (1.0); Netherlands, 3.6 (6.6); and India, 3.5 (4.0). In total, these thirteen markets accounted for 92 p.c. of the 1961-62 overseas clearances of wheat.

Exports of wheat flour during 1961-62 went to 50 countries with shipments to Britain amounting to the equivalent of 12,300,000 bushels and representing 38 p.c. of the crop year total. In 1960-61, exports of Canadian wheat flour to Britain were the equivalent of 13,200,000 bushels and accounted for 37 p.c. of the total.

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

The initial payment set by the Wheat Board in the 1960-61 crop year was again \$1.40 per bushel basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. The initial payment for No. 1 C.W. Amber Durum was also \$1.40 per bushel. The 1960-61 pool account was closed on March 30, 1962 with producers averaging about \$1.80 per bushel for No. 1 Northern wheat.

Estimated Area, Yield and Production of Principal Field Crops, 1961 and 1962

Crop	Area		Yield per Acre		Production	
	1961	1962	1961	1962	1961	1962
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	25,316,000	26,892,900	11.2	20.7	283,394,000	557,554,000
<i>Winter wheat</i>	561,000	450,000	35.6	35.1	19,981,000	15,795,000
<i>Spring wheat</i>	24,755,000	26,442,900	10.6	20.5	263,413,000	541,759,000
Oats for grain.....	8,542,700	10,591,100	33.2	46.6	283,965,000	493,610,000
Barley.....	5,529,000	5,287,100	20.4	31.4	112,640,000	165,888,000
All rye.....	560,800	667,500	11.6	18.9	6,519,000	12,644,000
<i>Fall rye</i>	471,600	570,200	12.5	20.0	5,903,000	11,381,000
<i>Spring rye</i>	89,200	97,300	6.9	12.9	616,000	1,263,000
Flaxseed.....	2,075,400	1,414,600	6.9	11.1	14,318,000	15,685,000
Mixed grains.....	1,565,700	1,521,600	39.2	47.4	61,310,000	72,186,000
Corn for grain.....	400,100	421,300	73.0	76.0	29,208,000	32,025,000
Buckwheat.....	57,500	45,300	21.2	24.8	1,217,000	1,122,000
Peas, dry.....	66,300	49,800	15.7	16.6	1,040,000	827,000
Beans, dry.....	65,700	65,400	20.2	21.8	1,325,000	1,423,000
Soybeans.....	212,000	221,000	31.3	29.9	6,631,000	6,608,000
			cwt.	cwt.	cwt.	cwt.
Potatoes.....	303,700	284,100	145.0	157.5	44,031,000	44,742,000
			lb.	lb.	lb.	lb.
Mustard seed.....	120,800	121,000	310	602	37,500,000	72,900,000
Rapeseed.....	710,300	404,500	790	786	561,000,000	318,000,000
Sunflower seed.....	33,900	21,200	801	755	27,157,000	16,000,000
			tons	tons	tons	tons
Tame hay.....	12,229,000	12,370,000	1.70	1.82	20,813,000	22,536,000
Fodder corn.....	360,100	367,200	11.26	12.01	4,054,000	4,409,000
Field roots.....	26,700	26,400	10.79	10.68	288,000	282,000
Sugar beets.....	84,949	85,054	13.02	12.68	1,105,708	1,078,563

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



A recent innovation in Prince Edward Island is the introduction of tobacco as a commercial crop. Here a field of tobacco is being cultivated.



Dozens of different fruits and vegetables are shown in this exhibit.

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 extensively in the southern part of the Okanagan Valley in British Columbia.

The total value of fruit crops in Canada was estimated at about \$54,000,000 in 1961. In the districts where these fruit crops are produced, sales make up an important part of the agricultural income. The 1962 apple crop, estimated at 18,100,000 bushels, about 6 p.c. greater than in 1961, was the largest since 1955 when 19,100,000 bushels were picked. The 1962 crops of pears, apricots, sweet cherries, grapes and blueberries were also above those of 1961. Growers of the other fruits, however, picked smaller crops in 1962 than in 1961.

In addition to the tree fruits, strawberries and raspberries are cultivated on a commercial scale in Prince Edward Island, Nova Scotia and New Brunswick, Quebec, Ontario and British Columbia. Raspberries are also grown in

commercial quantities in the mainland Maritime Provinces, Quebec, Ontario and British Columbia. British Columbia fruit growers also produce loganberries on a commercial scale in the lower mainland and on Vancouver Island. Grapes, too, are grown quite extensively in the Niagara district of Ontario and on a smaller scale in British Columbia.

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

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

Vegetables. In 1962 an estimated 214,750 acres were planted to commercial vegetable crops in Canada. The principal canning crops—beans, corn, peas and tomatoes—totalled 134,740 acres in 1962 compared with last year's 130,300.

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 Fruit Produced, 1958-61, with Averages 1953-57

Fruit	Average 1953-57	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	16,099	14,729	17,294	23,147	23,077
Pears.....	2,506	2,986	2,355	3,344	3,101
Plums and prunes.....	1,126	1,194	1,020	970	1,257
Peaches.....	5,496	5,761	5,444	6,137	6,674
Apricots.....	350	443	464	674	626
Cherries.....	3,053	3,736	2,523	3,219	4,710
Strawberries.....	5,420	5,264	4,711	5,734	5,318
Raspberries.....	2,996	2,655	2,781	3,126	2,587
Grapes.....	3,434	4,867	4,034	4,899	4,325
Loganberries.....	150	134	184	163	167
Blueberries.....	2,723	2,365	2,710	2,383	1,823
Cranberries.....	..	..	..	..	102
Totals.....	43,353	44,134	43,520	53,796	53,767

.. Not available.

Livestock

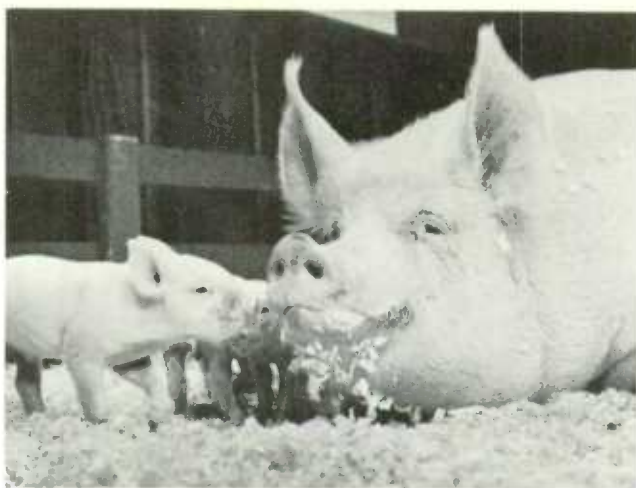
Almost all but the most specialized farms in poultry, fruit or vegetable production keep meat animals of which cattle are the most widely distributed. In 1961 cattle were reported on 78 p.c. of farms; pigs on 46 p.c.; and sheep on only 8 p.c. The trends to fewer but larger farms are also common to the livestock situation. While a smaller proportion of total farms maintained livestock in 1961 than in previous years, the larger number of animals, especially cattle, indicates increasing specialization on many farms.

The number of horses on farms in Canada has dwindled to about 500,000, only about one seventh of the total in 1921 when horses were still the chief source of farm power. However, cattle numbers remained fairly stable, near 8,500,000, from 1921 to 1951, but increased about 40 p.c. during the last decade when a sequence of good crops and limited outlets for grain coupled with rising demand for beef stimulated cattle production. The increase has been almost entirely in beef-type cattle. Milk cow numbers, about 3,000,000, remained near the 1951 level. Increased milk production per cow has been more than sufficient to meet the dairy product requirements of an increasing population. Dairy cattle predominate in the eastern provinces which account for about 73 p.c. of the milk cows in Canada while about 82 p.c. of the total number of beef cows are on farms and ranches in the west. Increasing emphasis on beef production, however, is common to all regions. Exports of live cattle and beef are principally to the United States. Price levels are normally very closely related to those in the United States.

Hog production is common to most farming areas in Canada with Ontario and Alberta leading in volume of production. Bacon-type hogs are produced and carcasses are graded under rigid government grade standards at all plants operating under government inspection and in plants 'approved' for hog grading. To keep Canada free of the more serious livestock diseases the government has followed the practice of destroying infected herds with



Three of Canada's 71,000 members of 4-H clubs, in which young farm people learn the modern techniques of all phases of farming. The 4-H Pledge: My Head to clearer thinking, My Heart to greater loyalty, My Hands to larger service, My Health to better living.



compensation to owners at the earliest detection. A successful campaign against hog cholera was fought in 1962. Rigid import and quarantine regulations are enforced to prevent introduction of diseases.

Sheep are raised on much fewer farms than either cattle or hogs, and production is only about one half as great as 30 years ago. Per capita consumption of mutton and lamb is low. Even so, much of the supply is imported. Policies to stimulate sheep production are being pursued.

Mechanization and automation are being increasingly applied to livestock production and marketing. Hay and forage crop harvesters of advanced design are in widespread use. Self-feeders and automated equipment for movement of silage and grain are used in many feedlots. In Ontario electronic equipment has been introduced for selling market hogs through a central selling agency. Under this system widely distributed buyers bid through an electric broadcast repeater on each lot of hogs assembled at marketing yards. These bids are automatically recorded at the central selling agency.

Estimated Meat Production and Consumption, 1960 and 1961

Item		1960 ¹	1961	1960 ¹	1961
		BEEF		VEAL	
Animals slaughtered.....	No.	2,438,400	2,477,700	1,190,600	1,273,000
Animals exported.....	"	242,142	474,319	30,712	28,820
Meat production ²	'000 lb.	1,249,455	1,285,425	137,749	150,337
Total domestic disappearance.....	"	1,233,213	1,254,190	135,745	150,326
Per capita consumption.....	lb.	69.2	68.8	7.6	8.2
		PORK		MUTTON AND LAMB	
Animals slaughtered.....	No.	8,134,600	8,026,000	839,500	863,000
Animals exported.....	"	6,781	27,611	3,154	2,529
Meat production ²	'000 lb.	1,033,097	1,031,339	35,929	37,108
Total domestic disappearance.....	"	984,920	975,090	56,806	67,060
Per capita consumption.....	lb.	55.3	53.5	3.2	3.7
		OFFAL		CANNED MEAT	
Production.....	'000 lb.	97,548	98,380	66,681	84,928
Total domestic disappearance.....	"	86,713	84,741	133,612	99,082
Per capita consumption.....	lb.	4.9	4.6	7.5	5.4

¹ Preliminary.

² Production from animals slaughtered in Canada, basis cold dressed weight excluding offal and, in the case of pork, fats and offal.



An automatic feeding silo on an Ontario dairy farm.

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 1961 there were 2,987,000 milk cows on 308,000 farms, excluding Newfoundland. In 1951 there were 2,904,000 cows on 453,400 farms. Thus, while the total number of milk cows remains about the same as a decade ago, increasing specialization in milk production is indicated. Farm output of milk increased about 26 p.c. from 15,300,000 pounds in 1951 to 19,200,000 pounds in 1961. 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.

Combined with increasing urbanization and population growth, developments in dairy science and technology have effected many changes in the dairy factory system of processing milk and cream which commenced in this country almost 100 years ago. At the turn of the century, some 3,600 dairy factories produced 36,000,000 pounds of butter and 221,000,000 pounds of cheese; whereas in 1961, 1,000 factories made 352,000,000 pounds of butter and 130,000,000 pounds of cheese. In other segments of the industry, commercial sales of milk and cream, amounting to 5,800,000,000 pounds in 1961, were about 40 p.c. greater than in 1951 and almost four times similar sales in 1920. New developments in concentrated milk products, such as instant skim milk powder, will no doubt affect to a certain extent the future sales of fresh fluid milk. The domestic consumption of instant powder amounted to almost 42,000,000 pounds in 1961.

The increasing distribution of milk through food stores, farm bulk milk coolers, tank and refrigerated transport, are only a few of the major changes which have taken place in the methods of distribution and transportation of milk and milk products.

Per capita consumption of milk and its products in whole milk equivalent averaged over 1,000 pounds per year till 1957, but declined each succeeding

year to 921 pounds in 1961. This has resulted in raising the excess of total milk production over total domestic consumption from a position previously near balance.

The total farm value of all milk produced in 1961 amounted to \$617,000,000. Of this amount, \$534,000,000 was farm cash income from the sale of milk, cream and farm butter representing 18 p.c. of total farm cash income from all farm products.

Dairy Production, by Economic Area, 1959, 1960 and 1961

Economic Area and Year	Total Milk Production ¹	Milk Used in Fluid Sales ¹	Products Manufactured ²			
			Butter		Cheddar Cheese	Ice Cream Mix
			Creamery ³	Farm ³		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....1959	1,101,554	370,624	18,180	1,560	1,957	1,432
.....1960	1,063,598	378,953	16,088	1,468	1,733	1,542
.....1961	1,086,634	385,407	17,305	1,460	1,402	1,555
Que. and Ont.....1959	12,226,531	3,793,845	214,508	1,943	102,842	12,722
.....1960	12,443,469	3,871,191	209,127	1,658	105,131	12,699
.....1961	13,047,494	3,915,640	233,825	1,285	113,004	13,144
Prairies.....1959	4,018,074	995,354	88,623	6,618	2,152	3,717
.....1960	4,100,469	1,025,976	90,128	5,985	2,539	4,064
.....1961	4,193,836	1,033,340	94,588	5,179	2,360	4,357
B.C.....1959	840,578	462,040	4,267	411	705	2,138
.....1960	877,887	475,261	5,060	416	969	2,175
.....1961	917,302	479,500	5,880	360	1,168	2,361
Totals.....1959	18,186,737	5,621,863	325,578	10,532	107,656	20,009
.....1960	18,485,423	5,751,381	320,403	9,527	110,372	20,480
.....1961	19,245,266	5,813,887	351,598	8,284	117,934	21,417

¹ Preliminary.

² Not included in this table are: whey butter, with a production of 2,722,000 pounds in 1959, 2,965,000 pounds in 1960, and 3,869,000 pounds in 1961; other cheese with 11,464,000 pounds, 12,373,000 pounds and 12,436,000 pounds, respectively; and concentrated milk products with 583,244,000 pounds, 614,223,000 pounds, and 662,312,000 pounds, respectively.



The famous Canadian cheddar cheese is one of the principal dairy products exported.



Poultry and Eggs

Between 1956 and 1961 the proportion of farms keeping chickens decreased from 64 p.c. to 55 p.c. Although there are still a large number of small flocks in Canada an increasing proportion of chickens is in specialized poultry-farm enterprises. Of the 69,600,000 chickens on farms at June 1, 1961, 5.7 p.c. were in the Atlantic Provinces; 18.6 p.c. in Quebec; 35.5 p.c. in Ontario; 32.1 p.c. in the Prairie Provinces; and 8.1 p.c. in British Columbia. Rate of lay has increased steadily from 147 eggs per laying hen in 1945 to 197 in 1961.

Substantial increases in broiler chicken and turkey output have occurred in recent years. Estimates of poultry meat available for consumption in Canada indicate an increase in per capita consumption from 19.8 pounds (eviscerated weight) in 1945 to a record 31.4 pounds in 1961. During this period the per capita consumption of turkey meat alone rose from 2.6 to 7.7 pounds.

Government grades set the standards for market poultry and eggs. All poultry slaughtered for export or inter-provincial trade and an increasing portion of the output for local trade is slaughtered and processed under government inspection.

Summary of Supply, Distribution and Consumption of Poultry Meat and Eggs in Canada, 1961

(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.....	25,805	14,877	10,573	72	283	6,030
Production ¹	567,744	416,387	143,831	3,400	4,126	427,077
Imports.....	16,214	10,284	4,532	—	1,398	4,707
Total Supply.....	609,763	441,548	158,936	3,472	5,807	437,814
Exports.....	257	150	7	110	—	6,512
Stocks at Dec. 31.....	38,553	18,969	19,106	80	398	3,720
Domestic disappearance.....	570,953	422,429	139,823	3,292	5,409	427,582
Less used for hatching.....	—	—	—	—	—	17,843
Domestic consumption.....	570,953	422,429	139,823	3,292	5,409	409,739
Per capita consumption.....	31.4 lb.	23.2 lb.	7.7 lb.	0.2 lb.	0.3 lb.	22.5 doz.

¹ Production estimates do not include Newfoundland.

Furs

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

Number and Value of Pelts Produced, by Kind, 1960-61

Kind	Number	Value	Average Value
		\$	\$
Wildlife:			
Squirrel.....	2,099,046	834,126	0.40
Muskrat.....	1,745,576	1,179,642	0.68
Beaver.....	399,459	4,725,877	11.83
Ermine (weasel).....	197,948	175,223	0.89
Rabbit.....	186,318	122,381	0.66
Mink.....	178,784	2,331,241	13.04
Fox—White.....	51,995	1,013,413	19.49
Other.....	28,612	55,175	1.93
Lynx.....	42,016	449,900	10.71
Marten.....	39,009	205,607	5.27
Raccoon.....	25,266	44,685	1.77
Other (badger, bear, coyote, fisher, otter, skunk, wildcat, wolf, wolverine).....	35,233	565,055	...
Totals, Wildlife	5,029,262	11,702,325	...
Ranch-raised:			
Chinchilla.....	9,067	118,416	13.06
Fox.....	2,034	20,340	10.00 ¹
Mink.....	1,204,077	16,888,441	14.07
Nutria.....	3,134	12,536	4.00 ¹
Other.....	22	...	...
Totals, Ranch-raised	1,218,334	17,039,733	...
Totals	6,247,596	28,742,058	...

¹Estimated. ... Not available. ...Not applicable.





The Pasquia Land Settlement Project near The Pas, Manitoba is a unique federal-provincial venture into land reclamation. The building of dams, 57 miles of dikes, 69 miles of drains and 126 miles of roads has made 130,000 acres of former floodland available for farming.

Government and Agriculture

Canadian agriculture was in the forefront of international events in 1962 through its close identification with the World Food Program approved by the Food and Agriculture Organization and by the United Nations. Canada had first proposed the program under the title of World Food Bank and had actively pressed its adoption. By the fall of 1962, the plan had progressed to the stage of a pledging conference at which member nations made their commitments to the program in cash and kind. Canada pledged \$5,000,000, one third in cash.

A major food producer, Canada reported exports of wheat and flour totalling 358,000,000 bushels during the 1961-62 crop year. This was the third highest amount exported from this country and was shipped to almost 100 nations. The Canadian Wheat Board, a crown agency responsible to the Minister of Agriculture, is intimately concerned with the export sales of prairie grains.

On the domestic scene, effect was given to the Agricultural Rehabilitation and Development Act. Pilot projects were launched and agreements reached with provincial governments for plans involving alternative uses of marginal land, soil and water conservation and other means of generating new income in the rural areas of Canada.

Co-operation between the federal and provincial agricultural authorities has always been close and another bond was forged during the year with the creation of the Agricultural Economic Research Council as a national body to sponsor agricultural economics and sociological research programs financed by both levels of government and other sources.

The main purpose of the agricultural departments maintained by Canada and its provinces is the giving of aid and advice to farmers. The activities

of the federal Department include research, promotion, regulation of marketing of farm products, and assistance ranging through rehabilitation, loan facilities and price support. Much of the work is carried out in conjunction with provincial departments and through a network of federal establishments across the country, directed mainly from Ottawa.

Research and Regulation. In research, the Department seeks to solve practical farm problems by the use of fundamental scientific probing of all aspects of soil management, and crop and animal production. These tasks are carried out by nine research institutes, ten regional research stations, five research laboratories, 27 experimental farms, two forest nursery stations, one experimental fur ranch and 20 substations, some of the last-named being in the Yukon and Northwest Territories.

The major research groups, the institutes, are concerned with the breeding, nutrition and management of animals and poultry; disease control in plants and breeding of superior varieties; processing and storage of fruit and vegetables, dairy products and other foods to meet modern needs; control of pests, weeds and diseases by various methods.

There are also research units dealing primarily with regional problems such as cereal diseases, the reclamation of marshes and peat bogs, shelter-belt trees, soil erosion, dryland agriculture and the growing of special crops.

Departmental services are also used to combat livestock diseases, to inspect and grade farm products and to promote sound policies for crop and livestock improvement.

A 40-year campaign against bovine tuberculosis has been successful. Eradication of brucellosis from Canadian cattle herds entered its sixth year and was more than half completed. Analytical and diagnostic services are provided not only for domestic stock but for wildlife. In mid-1962, for instance, the Department suppressed an outbreak of hog cholera and also engaged in combating anthrax in a wild buffalo herd in the Northwest Territories.

Government has for many years encouraged the increase of purebred livestock. Such stock is being more and more used to produce commercial crossbreds of hybrid vigour. At the same time, farmers are constantly urged to use only good quality seed for planting.



Students at a veterinary college watch as a cow's foot is X-rayed.

Regulatory work includes enforcement of laws governing the sale of feeds, fertilizers, pesticides and many other products purchased by farmers; the inspection of imported shipments which might bring new hazards to his production; and the inspection of meat passing over national or provincial borders.

Assistance to Farmers. In addition to educational and publicity programs carried out on behalf of the farmer, financial measures have been enacted to stabilize the industry.

The Farm Credit Act makes ample long-term credit available to competent farmers seeking to own or acquire farm units that can be operated profitably. Between October 1959 and the end of August 1962, 16,858 farmers had borrowed about \$190,000,000 under this legislation. Farm Improvement Loans are also available for equipping, improving and developing farms.

Under the Crop Insurance Act, provincial governments can and do receive assistance from the Federal Government for insuring many crops against failure or loss.

Legislation exists for aiding the farmer in other ways, especially in securing a fair return for his investment and labours. Chief among these are the Agricultural Stabilization Act which offers permanent price support to nine major commodities—cattle, hogs, sheep, cheese, butter, eggs, and also wheat, oats and barley that are produced outside the jurisdiction of the Canadian Wheat Board. Support is authorized for other farm products when deemed necessary by the Federal Government.

Other measures have been enacted to aid the western grain producer, notably the Prairie Farm Assistance Act (for crop failure through natural causes), the Prairie Grain Advance Payments Act (to advance money on grain to be marketed because there is no space at the elevators), and special legislation for grain unthreshed before winter and for acreage payments to augment receipts for grain.

Irrigation and Land Conservation. A major water conservation program ranging from dugouts for stockwatering to reservoirs for irrigation and domestic purposes is carried out by the Canada Department of Agriculture through the Prairie Farm Rehabilitation Administration in co-operation with the three prairie provincial governments. More than 1,500,000 acres of land have been brought or are being brought within reach of irrigation systems in southern Alberta and Saskatchewan, and more than 2,000,000 acres of community pastures have been developed in Saskatchewan and Manitoba on land unsuitable for grain production. Recently the jurisdiction of PFRA was extended to include all farming areas in the three provinces and an emergency well-drilling program was added to the services provided.

PFRA undertook irrigation work in British Columbia in connection with the re-establishment of war veterans. Extensive land reclamation has also been carried out in Manitoba. The branch has a large construction schedule constantly in hand, the biggest single item being the building of the \$184,000,000 South Saskatchewan River Dam in Saskatchewan which will create a large inland sea in that semi-arid region.

In Eastern Canada, the Maritime Marshland Rehabilitation Act led to extensive reclamation of valuable farm lands in New Brunswick and Nova Scotia, mostly carried out and financed by the federal agency.



Canada's only brucite mine at Wakefield, Que. Magnesium hydroxide from this mine is used in the manufacture of refractory brick. Canada has a great variety of non-metallic minerals; in 1961 their production totalled more than \$200,000,000.

Mining

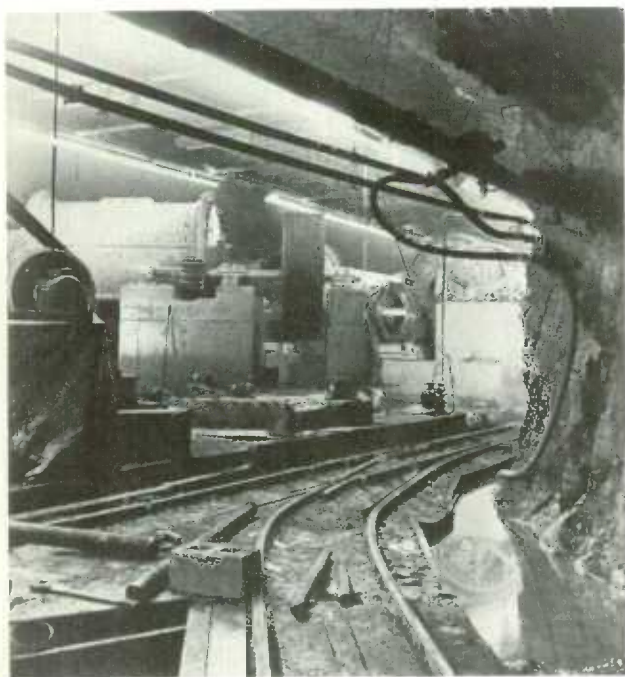
Canada's mineral and mineral-based industries in 1962 continued the steady growth and diversification that has characterized them since 1959, following a period of rapid growth from the beginning of the decade. From 1950 to 1959 the value of production increased from \$1,045,000,000 to \$2,409,000,000, an average annual increase of nearly 9 p.c. In 1961 output had risen to \$2,582,300,000 and preliminary statistics indicate a record output of about \$2,843,000,000 in 1962, or an increase of about 10 p.c.

The story of discovery and development of mineral deposits from the Atlantic Provinces to British Columbia and from the Canada-United States border northward to the vast stretches of the Yukon and Northwest Territories has been of epic proportions and captured man's imagination since the beginning of the century. The story continues to unfold with new mineral wealth being discovered, explored and brought into production each year. That Canada is richly endowed with a large share of the world's mineral resources no one can deny. Resources of many minerals are more than ample for domestic requirements long into the future with a large surplus available for export.

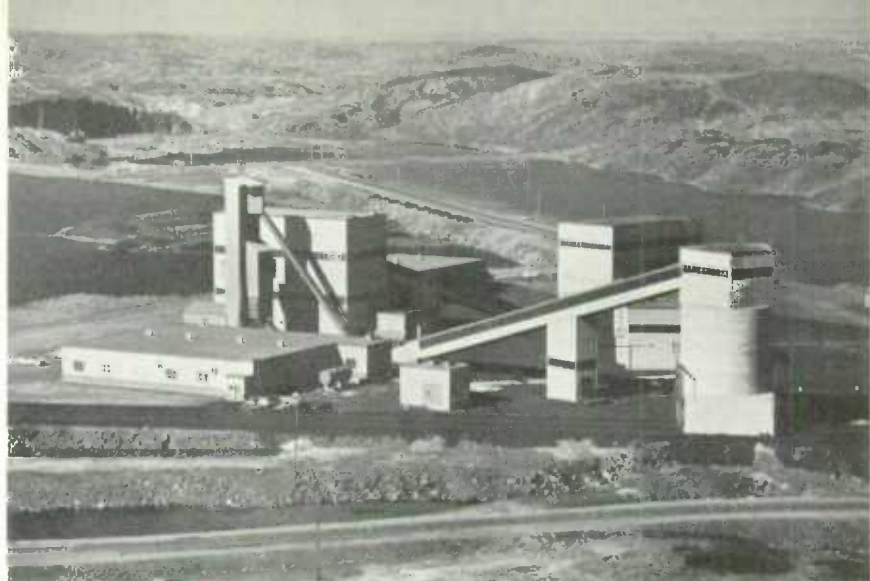
Tremendous impetus has been given the industry since World War II by the oil and gas discoveries in western Canada; the development of huge iron ore deposits in Labrador and Quebec and smaller ones in Ontario and British Columbia; the discovery and development of large deposits of nickel in Manitoba, uranium in Ontario and Saskatchewan, and potash in Saskatchewan; the extraction of sulphur from natural gas in the western provinces; the development of copper, lead and zinc deposits in all the producing provinces; and by increased production of asbestos from long-established and new mines in the Eastern Townships of Quebec and from new mines in Ontario and British Columbia. Establishment of mineral processing facilities to the primary product stage has kept pace with mineral developments.

Canada has attained a prominent position in world production of a large number of minerals. It leads the Free World in the production of nickel, asbestos, platinum and platinum metals; is second in uranium, zinc, gold and cadmium; is third in silver, gypsum and barite; and stands high among world producers of iron ore, copper, petroleum, natural gas, lead and several other commodities.

The steady growth of the industry is reflected in capital investment. The mid-year estimate for capital and repair expenditures of the mineral industry in 1962 was \$609,000,000, up \$48,000,000 from expenditures in 1961. These figures include only direct expenditures in mining and quarrying, associated milling and beneficiating plants, and oil and gas wells. They do not include expenditures on ferrous and non-ferrous smelting, refining or fabricating facilities nor expenditures in other industries that are largely dependent on the mineral industry such as petroleum refining, natural gas processing, transportation (railroads, pipelines, roads, etc.), and hydro-electric power developments directly attributable to mineral developments.



An underground copper crushing and concentrating mill—the first of its kind in Canada—went into production in 1962, 8,000 feet inside a mountain 40 miles west of Victoria, B.C., thus eliminating haulage of ore $1\frac{1}{2}$ miles to the portal. The entire production of this mill is sold to Japan under a four-year contract.



Headframe and surface plant of the new copper and nickel mine at Copper Cliff.

Exports of Mineral-Based Products, by Classification, 1961

	Raw Material	Semi- processed	Fully Manu- factured	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Iron and its products.....	142.6	84.1	368.5	595.2
Non-ferrous metals and their products.....	405.0	724.7	79.8	1,209.5
Industrial minerals and their products.....	272.1	126.7	31.7	430.5
Totals.....	819.7	935.5	480.0	2,235.2

Exports of Mineral-Based Products, by Destination, 1961

	United States	Britain	Other	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Iron and its products.....	322.9	50.4	221.9	595.2
Non-ferrous metals and their products.....	551.0	321.5	337.0	1,209.5
Industrial minerals and their products.....	322.5	14.2	93.8	430.5
Totals.....	1,196.4	386.1	652.7	2,235.2

Minerals and mineral-based industries have become increasingly important to Canada's trade position. Exports of minerals and their products increased from \$812,000,000 in 1950 to \$1,755,000,000 in 1961, an increase of 116.3 p.c. Canadian exports in total for those two years increased in value from \$3,118,000,000 to \$5,756,000,000, or 84.6 p.c. If fully manufactured goods of mineral origin, valued at \$480,000,000 in 1961, are included, then the value of mineral-based exports becomes 38.8 p.c. of all exports.

Exports of Mineral-Based Products in Relation to Total Trade, 1960 and 1961

	1960		1961	
	\$'000,000	p.c.	\$'000,000	p.c.
Raw material.....	773.9	14.8	819.7	14.3
Semi-processed.....	906.1	17.2	935.5	16.2
Fully manufactured.....	487.2	9.2	480.0	8.3
Totals.....	2,167.2	41.2	2,235.2	38.8
Total exports of all products.....	5,266.4	100.0	5,755.5	100.0

The mineral industry in 1962 experienced its third year of mixed production trends. Output of nearly all the major minerals increased from 1961 with the most notable advances being made by petroleum, natural gas and iron ore; uranium, lead and gold experienced declines of about 10 p.c. Iron ore shipments increased substantially during the first half of the year owing to a high steel operating rate in the United States. This declined about mid-year and production cutbacks were announced by some shippers to that market; similar reductions were announced for British Columbia shipments of iron ore to Japan. Nickel output remained at near-capacity rate to October 1 when a production cut of 13 p.c. effective October 1 was announced by The International Nickel Company of Canada, Limited. Production of crude petroleum and natural gas has increased at a faster rate in the past several years than the output of other mineral commodities.

Canada's Mineral Production, by Type and Per Capita Value, 1950, 1955-62

Year	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 [†]	1,480	566	797	2,843	153.10

[†] Preliminary.

As a result of the continuing development and diversification of the country's mineral resources many facets of the Canadian economy have benefited. Practically all railroad construction completed since World War II, amounting to 1,343 miles, has been the direct result of mineral resource developments. Of the 3,500,000 cars of revenue freight loaded in 1961, nearly 1,300,000 cars carried minerals or processed products of the mineral industry. To serve Canada's fast-growing petroleum and natural gas industries a network of pipelines for gathering and transmission of oil and gas



The beneficiation complex of the Carol Project at Labrador City, Newfoundland, showing the crusher house, ore storage, the mill and loading facilities, and the pelletizing plant. This tremendous project is designed to open-pit mine per year 19,000,000 tons of crude ore, grading 37 p.c. iron, beneficiate the ore to produce 8,000,000 tons of concentrate grading 66 p.c. iron, of which 6,000,000 tons will be pelletized. The project employs automation to a degree not known before in Canada and for the first time adopts fully automatic ore trains, jet-piercing drills, 100 p.c. use of slurry explosives and 100-ton capacity ore trucks.

has been built. The capacity of steel pipe and tube plants, capable of making up to 42-inch-diameter pipe, is now over 2,100,000 tons a year. The development of mineral resources has generally required the building of complete new towns far removed from settled areas. This has provided employment for many people in ancillary and service industries since about six people are employed in secondary manufacturing, transportation and service industries for every person directly employed in a mining operation. As Canada's frontier advances ever northward, new roads are built and hydro-electric power resources are developed. New areas that are settled become a base for resource development of all kinds.

Metallic Minerals

Production in 1962 of \$1,480,000,000 was 7 p.c. above the previous year. The increase was due mainly to higher shipments of iron ore, nickel and zinc. Declines occurred in uranium, gold, silver and lead. In value of output, nickel continued to be the leading mineral with copper, iron ore, uranium, gold and zinc following in that order.

Nickel production of 232,000 tons was about the same as the previous year. The world nickel market remained firm but increasingly competitive in 1962, since deliveries to United States stockpiles were completed early in the year. A Senate committee was set up in the United States to enquire into that country's stockpiling program and hearings continued through most of the year; no announcement was made concerning disposal of the 115,000,000 pounds of nickel considered surplus to United States stockpile requirements.



A 3-mile ropeway which travels $1\frac{1}{4}$ miles underground from a depth of 2,000 feet and $1\frac{3}{4}$ miles overland carrying ore to the processing plant in 3-ton buckets.

Canada's four leading copper producers in 1962 were at Sudbury in Ontario, at Flin Flon in Manitoba, near Merritt, British Columbia, and in Ontario's Manitouwadge area. Shipments commenced from seven new copper mines—two in New Brunswick, one in Quebec and four in British Columbia—and development work continued toward early production on eleven others in four provinces. Despite cutbacks at certain mines of up to 15 p.c. from early 1961 operating rates, copper output in 1962 increased 4 p.c. from the record 439,088 tons of 1961. An increasing proportion of Canadian copper output is being sold to Japan, Britain and west European countries although sales to United States customers remain firm.

Iron ore shipments in 1962 at 27,898,000 tons were sharply higher than the 20,359,000 tons of 1961 and exceeded the all-time high of 24,488,000 tons of 1959. Shipments were valued at \$264,600,000 compared with \$188,000,000 in 1961. The increase came mainly from two operations that commenced shipments in 1960 and 1961 and were approaching their designed capacities in 1962. These were Caland Ore Company Limited in the Steep Rock Lake area of northern Ontario and Quebec Cartier Mining Company at Gagnon, in Quebec. Iron Ore Company of Canada commenced shipments of high-grade concentrates from its Wabush Lake, Labrador, operation at Labrador City in July and Carol Pellet Company began construction of a 5,500,000-ton pellet plant adjoining Iron Ore Company's 7,000,000-ton-a-year concentrator at Labrador City. Initial shipments of pellets from that plant are scheduled for 1963. Wabush Mines, a company formed by Canadian, United States, West German and Italian interests, continued development of its mine and plant near Labrador City and railway and dock facilities at Point Noire on the St. Lawrence River. Production is scheduled to commence in 1964-65.

In Ontario, Jones & Laughlin Steel Corporation proceeded with mine development and construction of a 1,000,000-ton-a-year concentrator and pellet plant, southeast of Kirkland Lake. INCO was tripling the size of

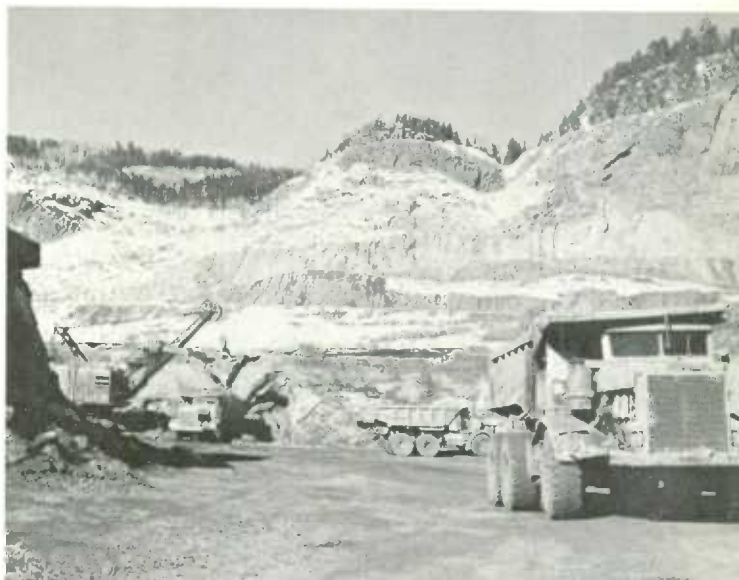
its iron ore pelletizing plant near Sudbury to 900,000 tons of pellets a year and Falconbridge Nickel Mines in the same area began shipments of iron oxide, recovered as a by-product in the treatment of nickeliferous pyrrhotite, at a rate of 100,000 tons a year. Lowphos Ore Limited, north of Sudbury, began construction of a pelletizing plant with a capacity of 700,000 tons a year. In British Columbia, three properties commenced production of magnetite concentrates; one mine closed when ore reserves were exhausted. All ore from that province in recent years has been exported to Japan.

Uranium production continued to decline in 1962 under the stretch-out plan for uranium oxide (U_3O_8) deliveries by Eldorado Mining and Refining Limited, the Federal Government agency, to the United States Atomic Energy Commission (USAEC). Production of 8,400 tons valued at \$151,000,000 was 12 p.c. lower than in 1961. Canadian reserves of uranium in Ontario and Saskatchewan are the largest in the world but industrial applications for uranium have not developed as rapidly as expected and stocks for military purposes are sufficient, so that uranium operations generally are being conducted far below capacity.

Despite a much higher Royal Canadian Mint purchase price of gold at about \$37.50 a troy ounce compared to the \$35.44 paid in 1961, production of gold declined from the 4,425,820 ounces valued at \$156,851,060 produced in 1961. What appears to be the first major gold discovery in Canada in many years was made by INCO geologists at Contwoyto Lake in the Northwest Territories. The company proceeded with detailed examination by means of mapping, surface trenching and diamond drilling.

The United States import quotas on lead and zinc which became effective in the last quarter of 1958, and the continuing world oversupply of these commodities, still remain of primary concern to Canadian producers. Despite marketing problems, Canadian production of zinc was much higher than the 416,000 tons valued at \$104,000,000 produced in 1961. Production of lead declined about 10 p.c. from the production of 230,000 tons valued at

To expose the iron orebody of this open pit mine 130 miles west of the Lakehead, it was necessary to dredge and pump 162,000,000 cubic yards of lake bottom material three to four miles away to another lake. The original lake elevation was at the treeline which shows on the tops of the rock knobs in the background. The \$66,000,000 Caland Project shipped more than 2,000,000 tons of iron ore during 1962.



\$47,000,000 in 1961. Four lead-zinc producers, three in Quebec and one in Nova Scotia, commenced shipments in 1962 and one mine in the Noranda area of Quebec was closed.

Several projects were begun that will be of particular significance in Canada's future mine production and processing of lead-zinc ores. Probably the most important was the start of construction of the 438-mile railway from Grimshaw in northwestern Alberta to Hay River on the south shore of Great Slave Lake, Northwest Territories, and from there to Pine Point where there are large high-grade lead-zinc reserves. Production is scheduled to begin in 1966. Also of great importance was the start of construction of an electrolytic zinc reduction plant at Valleyfield, Quebec, that will have an annual capacity of 73,000 tons. A third project was the announcement of plans for bringing the zinc-lead-copper deposit near Bathurst, New Brunswick, to production in 1963 at a rate of 3,000 tons of ore per day. British Columbia produces about 80 p.c. of Canada's lead and 50 p.c. of the zinc. Canada has long been a leading exporter of lead and zinc with the chief markets being the United States and Britain. Several other countries also import lead and zinc in the form of concentrates and refined metal.

Aluminum production in Canada is second only to that of the United States among world producers; its production is not included as part of the Canadian mineral industry as all the bauxite (aluminum ore) and alumina are imported. All aluminum smelters in Canada are close to tidewater and to large low-cost sources of hydro-electric power. Smelter capacity is 872,000 short tons a year; production in 1961 was 666,173 tons of which only 127,015 tons were consumed domestically. World markets are becoming more competitive each year.

Non-metallic Minerals

Notwithstanding the rapid growth in asbestos production in the U.S.S.R. and competition from that country, Southern Rhodesia and the Republic of South Africa in European markets, Canada maintained her dominant position as the major supplier of asbestos to world markets. For the third consecutive year the industry set a production record, about 4 p.c. higher than the 1,173,695 tons of fibre, valued at \$129,000,000, produced in 1961. About 93 p.c. of Canada's output comes from 13 mines in the Eastern Townships of Quebec, about 4 p.c. comes from a mine near Matheson, Ontario, and the balance from a mine in northern British Columbia.

Renewed production of potash, an essential fertilizer ingredient, began in Saskatchewan at Esterhazy about mid-year. Production from the \$50,000,000 operation is expected to reach its 1,200,000-ton annual capacity early in 1963. It will be the largest potash mining and processing plant in the world. Several other companies are expected to enter producer's ranks by 1965 from the 10- to 12-foot-thick potash horizon that contains the largest, highest-grade potash reserves in the world.

With development of the natural gas fields in the western provinces, Canada is becoming a major producer of elemental sulphur. Most elemental sulphur is used in Canada by the pulp and paper industry of Ontario and Quebec with lesser amounts being consumed in making sulphuric acid for a

variety of industrial purposes. Sulphur recovery capacity from plants in western Canada in 1962 was about 7,200 tons a day or 2,500,000 tons a year.

Several other non-metallic minerals, notably titania, salt, sodium sulphate and barite, continued the steady growth of the past few years. Output of gypsum, more than 80 p.c. of which comes from Nova Scotia, fluctuates with demand from the construction industry. Construction of wallboard and plaster plants keeps pace with growth in domestic demand.

Structural material output, embracing sand and gravel, stone, cement, clay products and lime, showed a slight rise in value from \$323,000,000 in 1961 to \$330,000,000 in 1962, reflecting increased activity in the building and heavy construction industries. At the end of 1961, rated annual capacity of cement plants was 51,800,000 barrels, or about 9,100,000 tons.

Fuels

In February 1961, the Federal Government announced its 'National Oil Policy', designed to achieve increased domestic production of crude oil and natural gas liquids on a voluntary basis. The goals of that policy were set at an average of 640,000 barrels a day for 1961 and 800,000 barrels a day by the end of 1963. An average of 643,016 barrels a day of liquid hydrocarbons was attained in 1961, preliminary figures indicate that about 740,000 barrels a day were produced in 1962, well on the way toward the target of 800,000 in 1963. The output was raised by increasing sales for domestic consumption, particularly to Ontario refineries, and by a rise in exports to north-central and northwestern United States. About 70 p.c. of 1962 production came from Alberta, 25 p.c. from Saskatchewan, 4 p.c. from British Columbia and the remainder from Manitoba, Ontario and the Northwest Territories.

Canada ranks high among nations that are large consumers of mineral fuels. The climate necessitates relatively high consumption for home and industrial heating purposes; the nation's many processing and manufacturing industries also consume sizable quantities. In 1961, crude oil received at Canadian refineries totalled 290,408,011 barrels of which 157,182,263 were of domestic origin and slightly more than 133,000,000 barrels were imported

Coal-stripping in Saskatchewan, a surface mining operation. The production of coal has been diminishing as fuel for industrial, railway and home heating has been changed to oil or gas. However, it now seems stabilized at between 10,000,000 and 11,000,000 tons a year.





☞ A close-up of a large diamond bit ready to be set on its reamer shell. Diamond drilling is used in exploratory work and for blast-hole drilling in mines. Diamond drillers drill more than 1,000 miles a year, a distance equal to that of Ottawa to Winnipeg or Vancouver to Yellowknife.

☞ The search for "black gold" continues unremittingly. This oil drilling rig is near Calgary.

from Venezuela, the Middle East and Trinidad and consumed in Quebec, the Atlantic Provinces and Ontario.

Although production of petroleum reached three successive record highs starting in 1960, the rate of output was only about one-half of the industry's capacity to produce. Discoveries of recoverable reserves of crude oil have more than kept pace with the industry's increased production and at the end of 1961 such reserves amounted to 4,173,569,000 barrels, 13.5 p.c. above the 1960 year-end total.

Mineral Production of Canada, by Province, 1961 and 1962¹

Province or Territory	1961		1962 ¹	
	Value	Per cent	Value	Per cent
	\$		\$	
Newfoundland.....	91,618,709	3.6	98,261,813	3.4
Prince Edward Island.....	606,644	0.1	796,043	0.1
Nova Scotia.....	61,693,156	2.4	62,859,039	2.2
New Brunswick.....	18,804,385	0.7	24,904,991	0.9
Quebec.....	455,522,933	17.6	519,145,596	18.3
Ontario.....	943,669,456	36.5	902,133,708	31.7
Manitoba.....	101,489,787	3.9	159,038,359	5.6
Saskatchewan.....	215,977,233	8.4	236,577,640	8.3
Alberta.....	473,480,540	18.3	578,821,732	20.3
British Columbia.....	188,542,078	7.3	229,427,347	8.1
Northwest Territories.....	18,145,162	0.7	17,701,145	0.6
Yukon.....	12,750,304	0.5	13,316,782	0.5
Totals.....	2,582,300,387	100.0	2,842,984,195	100.0

¹ Preliminary.

Mineral Production of Canada, by Kind, 1961 and 1962

Mineral	Unit of measure	1961		1962 ¹	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	1,331,297	469,948	1,819,876	642,416
Bismuth.....	lb.	478,118	957,625	375,345	739,705
Cadmium.....	lb.	1,357,874	2,172,598	2,153,448	3,703,931
Calcium.....	lb.	99,355	100,881	104,850	102,438
Cobalt.....	lb.	3,182,897	4,751,533	3,441,746	6,382,502
Columbium (Cb ₂ O ₅).....	lb.	62,229	65,619	967,000	953,756
Copper.....	lb.	878,175,084	255,157,626	917,180,648	283,133,249
Gold.....	troy oz.	4,473,699	158,637,366	4,155,210	155,446,407
Iron ore.....	ton	20,359,003	187,950,047	27,898,713	264,608,450
Iron, remelt.....	ton	...	14,720,064	...	7,035,921
Lead.....	lb.	460,869,392	47,054,765	381,217,587	37,816,785
Magnesium.....	lb.	15,270,618	4,307,570	16,469,917	4,611,576
Molybdenum.....	lb.	771,358	1,092,201	797,452	1,228,672
Nickel.....	lb.	465,982,868	351,261,720	464,136,039	385,224,707
Platinum, group.....	troy oz.	418,278	24,534,349	453,526	28,085,528
Selenium.....	lb.	430,612	2,798,978	506,015	2,799,929
Silver.....	troy oz.	31,381,977	29,580,651	29,955,465	34,897,604
Tellurium.....	lb.	77,609	376,404	61,211	367,466
Tin.....	lb.	1,119,350	727,578	685,414	447,469
Uranium (U ₃ O ₈).....	lb.	19,281,465	195,691,624	16,862,823	151,425,006
Zinc.....	lb.	832,008,584	104,749,879	914,287,984	110,628,845
Totals, Metallics.....			1,387,159,036		1,480,282,362
Arsenious oxide.....	lb.	419,300	16,772	186,250	7,950
Asbestos.....	ton	1,173,695	128,955,900	1,223,509	132,060,710
Barite.....	ton	191,404	1,799,119	229,271	2,165,862
Diatomite.....	ton	214	8,817	62	2,468
Feldspar.....	ton	10,507	229,626	10,000	220,000
Fluorspar.....	ton	...	1,990,200	...	1,870,184
Garnet.....	ton	80	3,200	50	2,000
Graphite.....	ton	1	146	...	...
Grindstone.....	ton	10	2,000	10	2,000
Gypsum.....	ton	4,940,037	7,750,748	5,183,911	9,033,148
Iron oxides.....	ton	808	68,199	821	61,332
Lithia.....	lb.	536,190	392,871	484,500	650,000
Magnesian-dolomite and brucite.....	ton	...	3,064,403	...	3,395,824
Mica.....	lb.	1,816,160	125,377	1,525,300	100,868
Mineral waters.....	gal.	364,933	208,709	367,000	212,800
Nepheline syenite.....	ton	240,320	2,572,469	281,100	3,383,700
Peat moss.....	ton	224,031	7,295,087	232,445	7,669,367
Potash, (K ₂ O).....	ton	...	...	...	2,121,073
Pozzolana.....	ton	...	2,000	...	5,000
Pyrite, pyrrhotite.....	ton	517,258	1,830,566	532,082	1,703,225
Quartz.....	ton	2,194,054	3,152,882	2,010,104	3,556,724
Salt.....	ton	3,246,527	19,552,006	3,606,811	23,185,423
Soapstone and talc.....	ton	48,116	690,630	46,794	674,910
Sodium sulphate.....	ton	250,996	4,016,625	250,739	4,040,001
Sulphur in smelter gas.....	ton	277,056	2,708,110	286,566	2,777,262
Sulphur, elemental.....	ton	394,762	7,287,881	668,126	8,903,209
Titanium dioxide, etc.....	ton	...	16,723,743	...	7,779,329
Totals, Non-metallics.....			210,467,786		215,584,368
Coal.....	ton	10,397,704	70,052,683	10,257,892	68,527,459
Natural gas.....	M.cu.ft.	655,737,644	68,421,918	955,526,300	97,912,950
Nat. gas by-products.....	bbl.	...	27,292,959	...	46,818,065
Petroleum, crude.....	bbl.	220,848,080	487,560,242	244,007,849	583,592,912
Totals, Fuels.....			653,327,802		796,851,086
Clay products (brick, etc.).....	ton	...	36,982,948	...	37,738,198
Cement.....	ton	6,205,948	103,923,644	6,786,229	113,864,118
Lime.....	ton	1,415,290	19,217,371	1,380,624	17,628,001
Sand and gravel.....	ton	170,750,947	104,654,132	167,328,097	118,228,032
Stone.....	ton	48,938,804	66,567,668	45,270,476	62,808,131
Totals, Structural Materials.....			331,345,763		350,266,379
Grand Totals.....			2,582,300,387		2,842,984,195

¹ Preliminary.² Includes pyrophyllite.

... Figures not available.

... Figures not appropriate or not applicable.



A skid loader can pick up logs in the stump area without need for road preparation and transfer them to main haul roads. This load is composed of poplar logs.

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 and pulp and paper industries, the forests control water run-off and prevent erosion, provide shelter and sustenance for wildlife, and recreational facilities for people.

Of the total forest area of Canada, about 56 p.c., covering an area of nearly 1,000,000 square miles, is considered to be productive, i.e., capable of producing continuous crops of wood of commercial value. About three-quarters of this area is accessible; it is comprised of 55 p.c. softwood, 21 p.c. mixed wood and 12 p.c. hard wood, the remainder being unclassified. There are more than 150 tree species in these forests, 31 of them conifers.

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

administers the forests in nearly 1,500,000 square miles of land area in the Yukon and Northwest Territories.

Through appropriate management the productivity of the forest can be maintained indefinitely or even increased. Depletion by cutting, fire, insects, disease and natural mortality tends to reduce the volume of the growing stock, but average annual utilization, about 3,400,000,000 cu. ft. in 1960, together with losses by fire, are still much less than the annual growth of the forests. Nevertheless, the drain on the forest is increasing, prompting governments and industry alike to plan for greater productivity by more intensive forest management, by harvesting over-mature forests and by restoring forest cover on millions of acres which were denuded by fire and overcutting, or which were cleared for agriculture and later abandoned. There is now much more efficient utilization of timber cut. More pulp and paper is produced from a cord of wood today than even a few years ago, and the use of more species brings greater returns per acre of woodland. More commercial products like alcohol, tanning liquor, road binders and turpentine are made from what were formerly waste materials in the production of pulp. The manufacture of rayon and cellulose products, plastic wood products, fibreboard, laminated wood and wood particle products is permitting the utilization of inferior grades of wood and species of trees.

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 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.

Forest Industries

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

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

Woods Operations. The harvesting of the forest crop has become in most areas of Canada a highly mechanized operation with methods varying according to the terrain and character of the forest. Because of the rugged terrain, the large size of the trees, and the nature of the integrated operations, logging



The war against Dutch elm disease is carried into the air as a helicopter sprays jets of insecticide.

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 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 1960 amounted to 3,405,417,000 cubic feet of solid wood, with products valued at \$806,488,488. 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 97 p.c. of the timber cut in 1960 was processed to some degree in Canada. Estimates of output for 1961 indicate a decrease of about 129,000 cubic feet over the 1960 figure.

With regard to volume of production of primary wood products, in 1960 logs and bolts were the most important products in Canada as a whole and in British Columbia, Alberta, Nova Scotia, the Yukon, and the Northwest Territories in particular. Pulpwood was most important in all the other provinces except Saskatchewan and 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 1961 stands at 7,875,000,000 ft.b.m., a decrease of about 1.7 p.c. of the 1960 figure of 8,012,226,000 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 12.5 p.c., and the Atlantic Provinces for 6.5 p.c. These respective percentages have not changed substantially from those for the previous year.

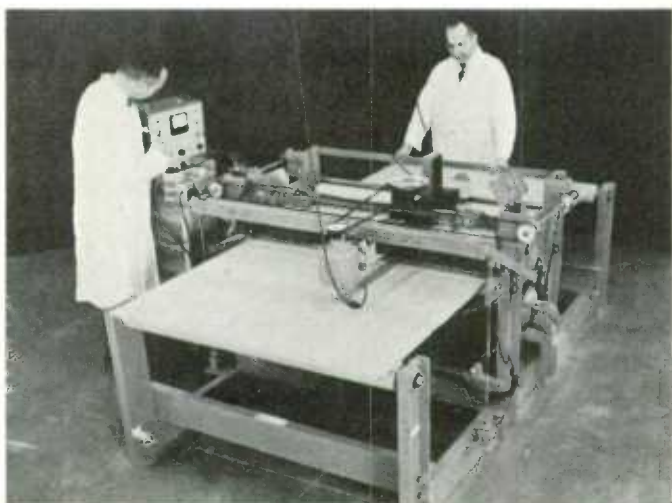
Canadian sawmills vary greatly in size and in product. A very few, located in coastal British Columbia, are capable of cutting up to half a million board feet of lumber in a single shift. Others are small enterprises, often only turning out five or six thousand feet a day. Spruce is the leading species, 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.

There were 5,277 active sawmills of all kinds reporting in 1960, a drop from 5,678 in 1959. They employed 45,270 employees who earned \$147,174,000 in salaries and wages. The industry produced 8,012,226,000 ft.b.m. of lumber with a gross value of \$512,262,000. About 57 p.c. of this production was exported at a value of \$344,390,000.

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 1960 there were 25 mills making pulp only, 26 were making paper only and 77 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 77 p.c. of the wood pulp manufactured was converted to

Sheets of veneer leaving the dryer are checked electronically for blisters and other defects by a sonic flaw detector developed by the Forest Products Research Branch of the Department of Forestry.



other products in Canada; the remainder was shipped abroad. Newsprint accounted for about 75 p.c. of all paper products manufactured and over 95 p.c. of all paper products exported in 1960. Canadian production of paper, paperboard, and building board in 1960 was 8,923,000 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. 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.

Principal Statistics of the Pulp and Paper Industry, 1940, 1958, 1959 and 1960

Item	1940	1958	1959	1960
Establishments No.	103	128	127	128
Employees	34,719	64,084	65,028	65,642
Salaries and wages \$'000	56,074	307,415	322,311	344,410
Gross value of factory shipments	298,035	1,394,679	1,498,042	1,578,727
Value added by manufacture	158,231	702,951	759,492	811,547
Pulp produced '000 tons	5,291	10,137	10,832	11,461
\$'000	149,005	703,366	744,940	772,626
Paper produced '000 tons	4,319	8,081	8,550	8,923
\$'000	225,837	1,044,640	1,106,071	1,167,040
Pulp exported '000 tons	1,069	2,219	2,450	2,600
\$'000	60,930	285,449	311,252	325,122
Newsprint exported '000 tons	3,243	5,683	5,913	6,190
\$'000	151,360	690,209	722,601	757,930

Wood-Using Industries. This group includes the industries, other than the pulp and paper industry, that use wood as their principal raw material: sawmills, 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 1960 these industries employed 40,755 persons (41,673 in 1959) and paid out \$155,707,000 (\$152,061,000 in 1959) in salaries and wages. The gross selling value of their products was \$476,434,000 (\$509,606,000 in 1959). Of this amount the sash, door and planing mill industry accounted for \$229,835,000 (\$255,451,000 in 1959) and the veneer and plywood industry for \$135,494,000 (\$141,573,000 in 1959).

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 1960 this group comprised 453 establishments (432 in 1959), employed 29,791 persons (29,203 in 1959) and distributed \$114,204,000 in salaries and wages (\$108,053,000 in 1959). The gross value of factory shipments was up to the record value of \$549,380,000 (\$527,714,000 in 1959).

This new \$40,000,000 bleached sulphite pulp mill in Cape Breton, N.S., went into operation early in 1962 and produces more than 375 tons a day.



The installation of facilities to manufacture the first sawdust pulp in Canada is part of the \$35,000,000 expansion program currently under way at this large integrated pulp and paper mill on Vancouver Island, B.C.



Production began in December 1961 at this new waterboard factory at Hudson Bay, Sask. Tough, waterproof building board is made, not of wood waste like ordinary particle board, but of green poplar logs.





Winnipeg goldeye, an epicurean delicacy found in the lakes of Manitoba.

Fisheries

In 1962 Canadian fishermen improved on their fine record of the previous year.

On the Atlantic cod has been much more plentiful than last year and the weather has been more favourable to lobstering, while herring, although scarce on the Nova Scotia grounds, have been very plentiful in Quebec. On the Pacific there has been such a heavy run of pink salmon that even by working round the clock canneries in some areas were unable, for a time in July, to keep up with the catch the boats were unloading. The 1962 pack of pink salmon is already the second heaviest on record and is expected, when finished, to be the biggest British Columbia has ever produced. In addition, value of the spring halibut catch was ahead of the previous year by more than \$1,500,000 and herring prices have been maintained at higher levels than in 1961.

Canada's fishermen annually take some 2,000,000,000 pounds of fish and shellfish from the salt and freshwater areas of the Atlantic and Pacific coasts and from the rivers and lakes of the inland provinces. The marketed value of this catch, of which two-thirds is exported, is more than \$200,000,000. Canada ranks second among the fish exporting nations of the world, surpassed only by Japan.

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

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

The salmon catch comprises five species: sockeye, pink, chum, coho, and spring. These fish are caught as they return from the sea to their streams of origin to spawn and die. The fish congregate off the mouths of their rivers and move into them in heavy concentrations. Commercial salmon fishing is restricted to tide-water and is divided principally into two efforts—the

net fishery by seine and gillnet for the canneries which take three-quarters of the salmon catch, and the troll fishery for the fresh fish market.

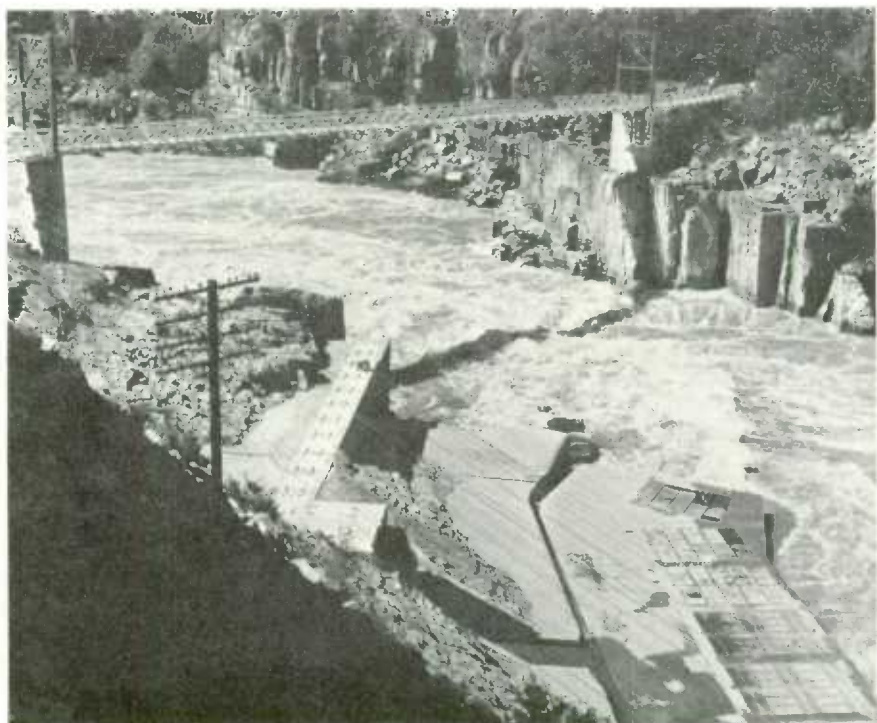
The main herring stocks move inshore in the fall and winter, spawn in the spring and then return to summer feeding grounds offshore. Only small stocks remain on the fishing grounds throughout the year. As a result, the bulk of the catch is taken from October to March. Fishing is by purse seine and the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

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

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

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

The cod banks in the Atlantic off Newfoundland are utilized by fishermen from many parts of the world. Besides cod, they yield other groundfish, mainly haddock, redfish, plaice and flounders. About two-thirds of the cod catch is landed in Newfoundland.



Hell's Gate Canyon on the Fraser River near Spuzzum, B.C. In the foreground intricate fish-ladders enable the salmon going upstream to spawning grounds to conquer the turbulent rapids.



Baited with herring and weighted with rocks, lobster traps are secured to a line before being dropped overboard into waters on the south coast of Prince Edward Island.

◊ Oysters are loaded into crates at low tide, Shediac, N.B.

Although the majestic schooner fleets have all but disappeared, modern trawlers and draggers fish the banks in all seasons to supply mixed ground-fish to the fresh plants in their home ports. These produce fresh and frozen fish and fillets as well as frozen fish blocks to meet North American demand. The frozen blocks are the raw material of the now important fish stick industry.

Lobsters, with their relatively high unit prices, are the main source of income for fishermen in Prince Edward Island and New Brunswick. They also contribute about one-third of the value of the Nova Scotian catch. Most of the catch is marketed alive, fresh boiled or as fresh or frozen lobster meat. The rest is canned.

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

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

The Department of Fisheries. The development of the fisheries demands a management program based on sound scientific research, with constant emphasis on conservation, new and improved fishing and processing techniques, and greater diversification of the fishing enterprise as a whole. The federal Department of Fisheries is charged with these responsibilities and its planning is based on scientific, economic, sociological and other factors in order to provide the optimum sustainable yield.

On the Pacific, efforts to establish a regular tuna fishery are being helped along by Departmental technologists at work on designs for the special freezing equipment needed in this highly modernized operation. In Newfoundland, where inshore cod fishermen cannot fish in early spring or late

fall unless they have handy supplies of bait, the Department this year extended its bait distribution service to eight new areas. It further served fishermen of this province by assigning its new million-dollar multi-purpose vessel, the "Cape Freels", to guard their fishing grounds, thus bringing its patrol fleet in this area to 14 vessels. And wherever on the Atlantic coast cod fishermen are, with the co-operation of their provincial governments, studying the possible advantages of gillnetting as a substitute for handlining and trawl fishing, the federal Department is also lending a hand. Its technologists are studying reactions of cod to netting of various colours, vibrations and odours and also are testing the relative efficiency of available types of mechanical net-lifters when used to haul in a catch of such heavy fish as cod.

Improvements in fishing methods in recent years have greatly increased the threat to fish stocks. With the object of improving and, where possible, increasing the supply of fish in Canadian and adjacent waters, the Department limits fishing seasons and methods of capture and its 79 vessels off both coasts and on inland waters patrol the fishing grounds to make sure that closed areas are not commercially fished, that craft are properly licensed, are not fishing more than the regulation length of nets or using nets with too small a mesh, and that they avoid waste by carrying enough ice to get their catch to port in salable condition. The Fisheries Research Board of Canada also maintains a fleet of 16 vessels of various sizes for its scientific investigations off both Atlantic and Pacific coasts as well as on inland and Arctic waters.

An inspection service is also furnished by the federal Department. It is designed to ensure that no low-grade product reaches the market to destroy the high-quality reputation which has been established by the majority of Canadian fish processors. Inspection is required by law before any of the

A seiner completes a "set" off the coast of British Columbia.



following fish products can pass through Canadian export points: all salted, smoked or pickled fish; all fresh or frozen whitefish; all British Columbia canned salmon and canned herring; all Newfoundland canned lobster and salmon. The list includes several of Canada's most important fish exports. Incidentally the same service protects the Canadian consumer with systematic inspection of all canned fish entering this country from abroad.

A further inspection service is available to fish freezing plants. Products which meet the standards of the Canadian Government Specifications Board are stamped with a maple leaf emblem which indicates top quality.

Fisheries Statistics. Fish landings by Atlantic Coast fishermen in 1961 were somewhat smaller than those of the two previous years. Unusually heavy spring ice floes in the Gulf of St. Lawrence and Cabot Strait, which blockaded the ports in the Gulf area and Atlantic Coast of Nova Scotia, were contributing factors. However, with a strong export demand for frozen groundfish, fishermen received higher prices for their catch with the result that they had a better-than-average year. Lobsters, cod, haddock, scallops and herring, in that order, were the most valuable species.

The Pacific Coast fisheries returned to normal in 1961 after the lean years of 1959 and 1960. Larger salmon landings, the majority of which went into



In Newfoundland between October and May about 25 schools for fishermen are held where they gain expert knowledge of engineering, navigation, gear and methods. These schools are financed jointly by the provincial and federal governments.

the canned pack of 1,400,000 cases, were valued at \$26,152,000. A rejuvenated herring fishery was brought about by improved world markets for herring meal and double the previous year's catch. Although halibut landings were some 3,000,000 pounds lighter than those of 1960, firm markets and higher prices per pound resulted in the fishermen getting 21 p.c. more for their efforts.

The inland fisheries in 1961, with increased landings of most major species and excellent export markets for chilled and frozen fish, combined with firm prices, had another successful year.

Quantity and Value of Landings of the Chief Commercial Fish, 1959-61

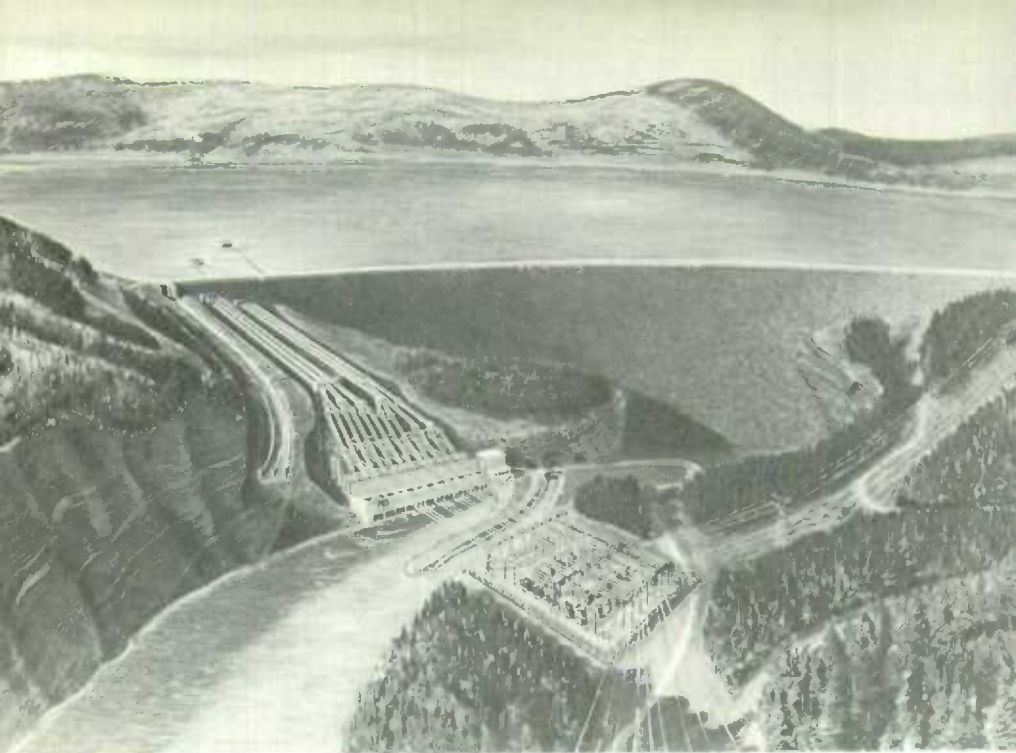
Kind of Fish	1959		1960		1961 ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
Atlantic Coast	1,362,259	58,436	1,370,322	59,763	1,230,548	59,004
Cod.....	639,138	17,023	604,621	16,538	516,861	15,646
Haddock.....	111,997	4,970	95,126	3,685	118,395	4,647
Halibut.....	6,424	1,687	6,618	1,712	6,143	1,668
Herring and "Sardines".....	238,916	3,279	246,329	3,682	193,369	2,756
Lobsters.....	45,714	17,387	51,517	18,031	47,547	18,054
Mackerel.....	9,451	579	13,138	724	14,118	694
Rockfish.....	40,618	977	46,859	1,172	56,216	1,458
Salmon.....	3,956	1,453	3,577	1,461	3,466	1,417
Swordfish.....	6,703	1,383	3,890	1,342	3,196	1,238
Other.....	259,342	9,698	298,647	11,416	271,237	11,426
Pacific Coast	613,597	34,995	335,040	27,962	635,550	38,778
Halibut.....	23,799	4,398	27,161	4,379	24,951	5,316
Herring.....	444,032	7,355	187,675	2,178	448,433	4,589
Salmon.....	105,680	20,503	75,153	18,401	121,634	26,152
Other.....	40,086	2,739	45,051	3,004	40,532	2,721
Inland	117,212	12,103	123,098	12,764	123,073	12,450
Pickering (blue).....	50	15	5	1	2	1
Pickering (yellow).....	12,906	2,994	13,888	3,017	13,346	2,455
Whitefish.....	24,696	3,548	27,093	3,497	27,184	3,814
Other.....	79,470	5,546	82,112	6,249	82,541	6,180
Totals	2,093,068	105,534	1,828,460	100,489	1,989,171	110,232

¹ Preliminary.

Landings and Values of All Fishery Products, by Province, 1959-61

Province or Territory	Quantities Landd			Value of Products		
	1959	1960	1961 ¹	1959	1960	1961 ¹
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Newfoundland.....	562,228	573,771	503,079	31,675	33,783	33,119
Prince Edward Island.....	42,025	42,283	36,664	5,961	7,261	6,046
Nova Scotia.....	423,273	430,310	439,662	50,480	51,753	55,374
New Brunswick.....	227,994	232,662	147,925	28,367	33,130	26,379
Quebec.....	112,954	98,851	109,174	7,856	7,622	8,131
Ontario.....	48,984	47,600	54,951	5,475	5,006	6,464
Manitoba.....	31,052	31,944	30,658	6,689	7,035	6,214
Saskatchewan.....	12,550	14,530	14,515	2,596	2,830	3,166
Alberta.....	12,664	15,856	11,317	1,684	2,021	1,701
British Columbia.....	613,597	335,040	635,550	67,062	53,983	78,758
Northwest Territories.....	5,747	5,613	5,676	1,146	1,075	1,179
Totals	2,093,068	1,828,460	1,989,171	208,991	206,099	226,531

¹ Preliminary.



Work has begun on the \$880,000,000 Peace River power project 500 miles northeast of Vancouver. First delivery of power is scheduled for 1968; generating capacity will reach 3,200,000 kw. upon completion of the project as shown in this drawing.

Electric Power

Canada's rich heritage of energy resources is found in many forms—falling water, wood, coal, petroleum, natural gas, and nuclear fuels. The abundance of these resources and the manner in which they have been developed have enabled Canada to rise to second place among the countries of the world in per capita production of electricity.

Most of Canada's electric power needs have been 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. At the end of 1962, more than 27,100,000 hp. of hydro-electric capacity had been installed in Canada. More than 73 p.c. of this total lies in the industrially important St. Lawrence River-Great Lakes region which, in Canada, forms a wide band along the southern extremities of Quebec and Ontario. These provinces, along with British Columbia, rank highest in available potential water power and, as would be expected, have developed the largest blocks of hydro-electric capacity.

In the last few years, there has been a change in the traditional source of electric power supply in Canada. As many of the large water power sites in Canada still awaiting development are relatively remote from existing demand areas, they cannot be developed economically at the present time. Therefore

planners have had to look elsewhere for sources of power to meet today's growing demands and the vastly increased demands of tomorrow. The result has been a substantial increase in the number of thermal-electric generating units put into service in almost every part of Canada. At the end of 1962, the country's total installed thermal-electric capacity exceeded 5,700,000 kw.

Coal is the most common fuel for the thermal-electric plant in Eastern Canada, while large amounts of oil and natural gas are utilized in addition to coal in Western Canada. The use of nuclear fuels for the production of electric power has been the subject of intensive research in Canada for a number of years and, in June 1962, the Nuclear Power Demonstration Station in Ontario produced Canada's first nuclear thermal-electric power. This station is the forerunner of the large nuclear stations which are expected to be of major importance to Canada's power economy in the future.

Research in the field of long-distance transmission is being accelerated for the purpose of making more effective use of the various electric power sources. In 1962, a federal-provincial conference was convened to consider the problems involved, not only in the transmission of electric energy to load centres from remote power developments, but also in the possible formation of a national power grid.

Atlantic Provinces

Of the four Atlantic Provinces, only Newfoundland, which includes Labrador, derives the major part of its electrical energy from water power. In 1962, the centre of activity in the province's electric development lay in Labrador, where a 120,000-hp. installation was completed at Twin Falls on the Unknown River. This new capacity has boosted the province's total hydro-electric capacity to 504,025 hp., more than 80 p.c. of the total of both hydro and thermal-electric capacity installed in Newfoundland. The Twin

Assembling the compressor stator casing on a gas turbine for generating electric power. These are used to power 1,100 kw. sets for the RCAF Pine Tree installations. Advantages are freedom from vibration, low maintenance, elimination of cooling fluids and few wearing parts.





The Courtenay Bay steam plant at East Saint John, New Brunswick. The first 50,000 kw. unit joined the provincial transmission system in 1962; plans provide for an ultimate capacity of 300,000 kw.

Falls development, with an ultimate capacity of 300,000 hp., is one of three subsidiary projects which may be put into effect prior to development of the proposed 4,000,000-hp. project on the main channel of the Hamilton River at Grand Falls. In contrast, the largest hydro-electric installation in the province at present is the 156,000-hp. plant at Deer Lake on the Unknown River.

Prince Edward Island has little hydro-electric potential and depends almost exclusively upon thermal power. Most of the latter is generated at the 32,500-kw. station at Charlotte-

town and a smaller station at Summerside. The addition of 2,200 kw. at the Summerside plant in 1962 brought the province's total installed thermal capacity to 39,900 kw.

In Nova Scotia, the presence of ample supplies of coal has fostered the development of thermal-electric facilities, such as the large plants at Halifax, Trenton, Glace Bay and Sydney. At the same time, however, the province's water power resources have not been neglected with the result that the province now has 398,800 kw. of thermal-electric capacity and 204,538 hp. of hydro-electric capacity. Planning of several hydro-electric projects is expected to lead to the installation of 22,000 hp. and possibly a further 90,000 hp. in the years ahead.

New Brunswick's total hydro-electric turbine capacity was increased to 309,726 hp. in 1962 by extensions to the facilities at Beechwood on the St. John River and at Milltown on the St. Croix River. Preliminary studies are being carried out in connection with a possible 600,000 hp. development on the St. John River at Mactaquac. New Brunswick has a total thermal-electric generating capacity of 300,640 kw. The thermal station at Courtenay Bay, largest in the province with a present installation of 50,000 kw., is designed for an ultimate total capacity of 300,000 kw.

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 capacity of 12,816,845 hp. It is interesting to note that all of this total has been installed in the St. Lawrence River basin in Quebec with some 10,000,000 hp. located on the main river and on four major tributaries. Moreover, many years of development still lie ahead before the full potential of this great river system in Quebec will be fully exploited. The Beauharnois

plant on the St. Lawrence River, with an installed capacity of 2,161,000 hp. which can eventually be expanded to 2,234,700 hp., is the largest single hydro-electric plant in Canada.

Elsewhere in the St. Lawrence River system, the Carillon hydro-electric station on the Ottawa River went into service in 1962 with an initial turbine capacity of 240,000 hp. An additional 480,000 hp. will be installed at this station in 1963, and by the end of 1964, the ultimate capacity of 840,000 hp. will be realized. Construction is going ahead on the development of the huge Manicouagan-Outardes project, involving the harnessing of the headwaters of the Manicouagan and Outardes Rivers, both of which empty into the St. Lawrence River near Baie Comeau. One of the interesting features of the project will be the massive, multi-arch concrete dam, 4,000 feet long and 650 feet high, to be constructed at the Manicouagan 5 site. This structure will take eight years to complete and will create a reservoir with a surface area of 800 square miles. The power-producing capacity of the Manicouagan-Outardes scheme will total more than 5,000,000 hp. Electric power from this complex will be transmitted to load centres at 700/725 kv., the highest transmission voltage presently planned for long-distance transmission anywhere in Canada.

Although Quebec possesses immense untapped water power resources, a reflection of the nation-wide trend to thermal power development is beginning to be seen. The province's total thermal capacity of 123,580 kw. at the end of 1962 will be more than tripled before the end of 1965 when a 300,000-kw. thermal-electric station is brought into operation near Sorel.

For some time, the Government of Quebec has been considering the possibility of acquiring the assets of 11 of the province's privately-operated

The main construction camp at Manicouagan 5, the giant dam which is the key installation in the colossal Manicouagan Outardes hydro-electric development. Located 135 miles north of Baie Comeau, Quebec, the dam will be of the buttressed, multiple-arch type and will be 650 ft. high, 4,000 ft. long and will require an estimated 2,600,000 cu. yds. of concrete.



electrical utilities. At the elections in November 1962, the people of Quebec gave to the government of the province a mandate to bring these companies under public ownership.

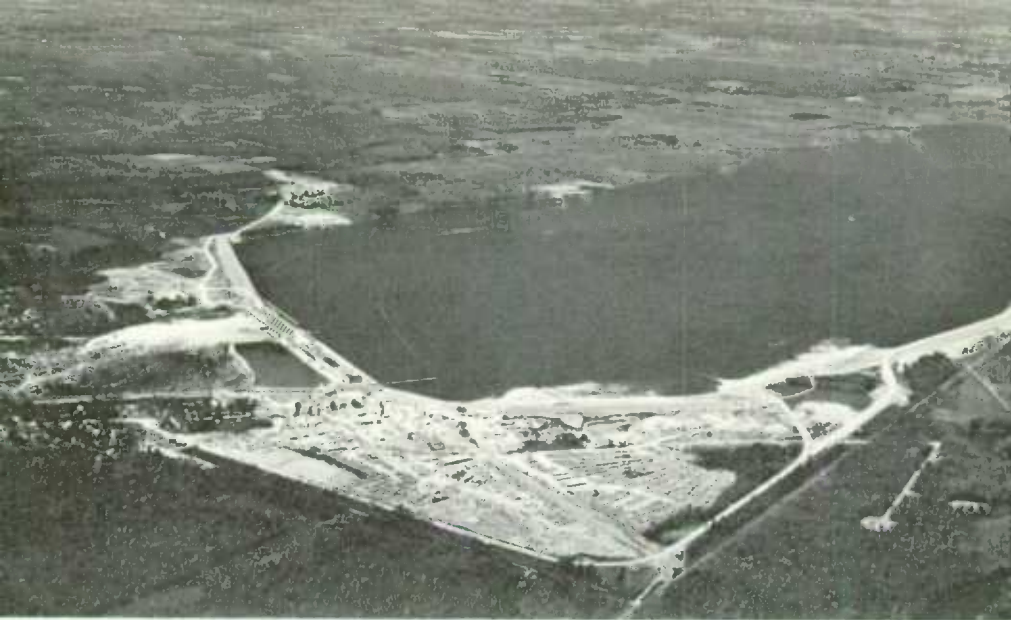
Ontario

Ontario is surpassed only by Quebec in total installed hydro-electric turbine capacity, and follows Quebec and British Columbia in terms of total available water power resources. However, Ontario's total of 2,343,700 kw. of installed thermal-electric capacity far exceeds the corresponding total for any other province in Canada and is rapidly increasing.

The province has almost 8,000,000 hp. of installed hydro capacity. Of this, some 4,400,000 hp., or over half, is concentrated at nine sites on the St. Lawrence and Niagara Rivers and on the Welland Canal. For the first time in many years there was no increase in hydro capacity. This pause in the development of Ontario's water power resources can be attributed largely to the consistently high rate of construction of hydro facilities which had resulted in the development of most of the sites considered economic. Improved methods of power transmission have, however, led to the investigation of a number of sites, previously considered too distant from load centres. As a result of these investigations, one hydro power site on the Abitibi River and two on the Mattagami River are at present under development, and preliminary construction will start soon at a third site on the Mattagami River. These developments, which will have a total installation of over 1,500,000 hp., are the Otter Rapids site on the Abitibi River, which will provide 480,000 hp., and the Little Long, Harmon, and Kipling sites, all on the Mattagami River, with 336,000 hp., 376,000 hp., and 376,000 hp. respectively. Other potential power sites on rivers in the James Bay watershed are being investigated. Possible developments on several rivers in the southwestern and northwestern regions of the province also are being considered.

To help meet the constantly growing demands for electricity, the province is placing increasing reliance upon thermal-electric generation, and in 1962 installed 320,000 kw. which included 300,000 kw. at the mammoth Lakeview steam plant overlooking Lake Ontario. By the end of 1967, Lakeview is scheduled to have a generating capacity of 1,800,000 kw. The other 20,000 kw. of thermal capacity became available in 1962 with the completion of the Nuclear Power Demonstration (NPD) Station at Rolphton. This is the first nuclear thermal-electric power to be generated in Canada, and the successful operation of the NPD plant is a matter of considerable interest to power engineers, not only in Canada, but in many other parts of the world. Experience gained in the development of the NPD unit is being used in the design of the 200,000-kw. nuclear-electric station, now under construction at Douglas Point on the shore of Lake Huron. A conventional thermal plant will go into operation at Fort William in 1963 with 100,000 kw. of generating capacity.

There is considerable interest in Ontario in the development of pumped-storage installations such as the pumping-generating station at Niagara Falls. The units at this station can be used either as pumps or as generators. When operating as pumps in off-peak periods, the units use surplus power from the Sir Adam Beck plant to raise water to a reservoir at a higher level. The



The Carillon hydro-electric power plant on the Ottawa River went into production in 1962. Its ultimate installed capacity will be 840,000 hp.

process is reversed during periods of peak power demand and the units, operating as generators, are driven by water from the reservoir. Plans are being made to build a station of this type near Collingwood, where the storage reservoir would be filled by the use of off-peak power from the Douglas Point Nuclear Station. In this way, the best use would be made of the power produced in the nuclear station, which is designed to operate continuously at or near full capacity.

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. In contrast, Alberta and Saskatchewan have relied to a large extent on thermal-electric power. It is significant, however, that of four large hydro-electric developments under construction in the Nelson-Saskatchewan Rivers basin, two are located in Saskatchewan and one in Alberta.

Most of Manitoba's present hydro-electric capacity is concentrated on the Winnipeg River which, in Manitoba, is completely developed with a total of 763,000 hp. at six generating stations. Another important development is the 210,000-hp. Kelsey hydro-electric development on the Nelson River. There was no increase in Manitoba's total installed hydro capacity in 1962 and only a small increase in total thermal capacity, but construction of the Grand Rapids hydro plant on the Saskatchewan River went ahead on schedule. Grand Rapids will go into service in 1964 with 300,000 hp.; another 150,000 hp. will be installed in 1965, and provision is being made for an eventual total capacity of 600,000 hp. Studies are being carried out on the Nelson River between Lake Winnipeg and Sipiwek Lake to obtain more detailed information on

potential power sites in this reach of the river. 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 as much as 1,000,000 kilowatts.

Power requirements in the province of Saskatchewan have been met largely by thermal-electric generating stations, most important of which are the Boundary Dam station at Estevan and the Queen Elizabeth and A. L. Cole stations in Saskatoon. Combined generating capability of the three stations is 372,000 kw. The relatively small amount of hydro capacity installed at the present time supplies power to mining areas in the more northerly parts of the province. There was no increase during 1962 in either hydro or thermal capacities, but within the next few years, the role of hydro-electric energy in Saskatchewan's power economy will become very much more important as new hydro capacity becomes available at the South Saskatchewan River Project and at Squaw Rapids on the Saskatchewan River. Although the South Saskatchewan River Project is designed primarily to impound water for irrigation purposes, hydro-electric facilities will be installed at the site. Ultimate turbine capacity of the project will be 300,000 hp. At Squaw Rapids, 187,600 hp. will be in service in 1963, another 93,800 hp. in 1964, and the development will be complete in 1966 with a total capacity of 375,200 hp.

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. There was no increase in hydro capacity in 1962, but the addition of 150,000 kw. at the Wabamun steam plant and a small increase in thermal capacity at Fort Vermilion brought the province's total thermal capacity to 818,985 kw. The Wabamun and Edmonton plants together account for well over half of this total. Installation of a 75,000-kw. steam unit at Edmonton, scheduled for May 1963, will further increase the province's total thermal capacity. Development of the Big Bend hydro-electric site on the Brazeau River is going ahead, and the plant is expected to be in service in 1964 with 200,000 hp. of turbine capacity. The height of the storage dam at Big Bend must be increased before the capacity of the plant can be developed beyond 200,000 hp.



The thermal-electric plant at Wabamun, Alberta, is fuelled by coal surface-mined nearby. This gigantic shovel takes 35-yard "bites" of coal from the seam.



The \$40,000,000 Kelsey power station on the Nelson River in northern Manitoba was built by the province to supply power to the huge nickel refinery and townsite at Thompson, 53 miles away.

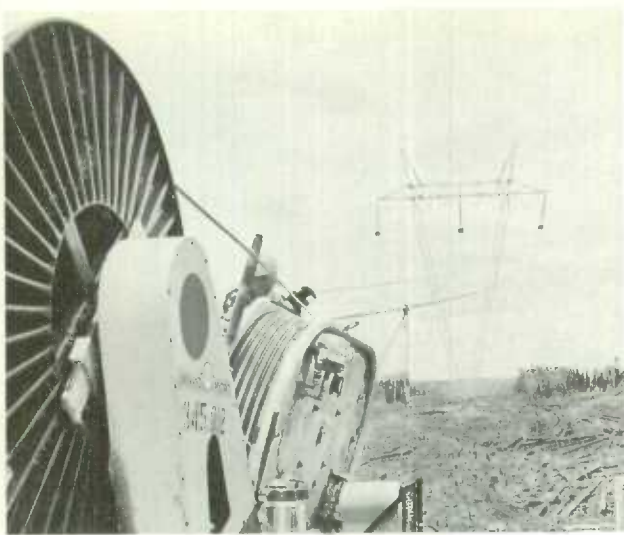
British Columbia

In March 1962, as a result of legislation enacted by the government of British Columbia, the former British Columbia Power Commission and the British Columbia Electric Company Limited were amalgamated to form the provincial government power producing and distributing agency known as British Columbia Hydro and Power Authority. The new agency operates plants with over 1,800,000 hp. of hydro capacity and about 420,000 kw. of thermal capacity.

British Columbia's many fast-flowing mountain rivers offer a wealth of opportunity for power development, and give the province a standing second only to Quebec in terms of available water power resources. In hydro-electric turbine capacity installed, British Columbia, with a total of 3,701,326 hp., is exceeded only by Quebec and Ontario.

Despite the abundance of water power resources in the province, considerable attention has been given to thermal-electric generation and, at present, the province's total of thermal capacity stands at 606,925 kw. Of this total, 184,400 kw. was installed during 1962, the installation of a 150,000-kw. unit at the Burrard plant, near Vancouver, accounting for most of this increase. Scheduled expansion of the generating facilities at Burrard will make available an additional 150,000 kw. in 1963 and a further 150,000 kw. in 1964. Ultimate capacity of the station will be 900,000 kw.

The Waneta hydro-electric station on the Pend d'Oreille River is being increased from its present 240,000 hp. capacity by the addition of a third 120,000-hp. unit, due for initial operation in April 1963.



Conductor cable for the extra high voltage line under construction in the Timmins area is fed onto the line by this tensioner, one of four working in unison with a high capacity puller. The reel holds 14,000 feet of conductor.

Plans for the future development of the Columbia and Peace Rivers are of major significance to British Columbia. The active program of investigation of the Duncan Lake, High Arrow and Mica storage developments was continued in 1962. These three developments, which constitute the basis of the Columbia River Treaty signed by Canada and the United States in 1961, would be capable of controlling approximately 20,000,000 acre-feet of usable storage in Canada. The Treaty provides that Canada would receive half of the power benefits resulting in the United States from the regulation of 15,500,000 acre-feet of this storage and half the value of the estimated flood damage prevented in the United States through operation of the projects for flood control. The Treaty has not yet been ratified by Canada.

At the Portage Mountain site on the Peace River, work is well under way on three tunnels to divert the flow of the river during construction of the dam and is to be completed in 1963. First power from the Portage Mountain hydro plant is scheduled to become available by 1968. Preliminary plans indicate a feasible installation of as much as 4,200,000 hp. at two sites on the Peace River.

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 capacity of 38,190 hp. and a number of small thermal plants with capacities totalling 1,500 kw. supply the power needs of mining operations and communities in the Yukon Territory.

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 site about 35 miles northeast of Fort Smith was investigated in 1962. Initial development of this site would add 25,000 hp. to the total of 22,250 hp. of hydro capacity at present installed in the Northwest Territories. The total thermal capacity of 17,600 kw. includes 3,252 kw. of new capacity installed during 1962. Plans for 1963 indicate an increase in capacity of 2,000 kw. at Frobisher Bay and 1,500 kw. at Inuvik.

Electric Power Statistics. The total electric energy generated in Canada in 1961 amounted to 113,221,413,000 kwh., a slight drop from the previous year. Of this total, 91.6 p.c. was produced by water power. The amount of electric energy used in Canada rose to 110,435,351,000 kwh. from 108,912,166,000 kwh. in 1960, while the amount for export had a compensating drop to 4,180,022,000 kwh. from the 1960 total of 5,493,820,000 kwh.

Canadians enjoy some of the lowest electricity rates in the world. The rate for domestic service over the past ten years has remained at about 1.6 cents per kwh., as compared to about 2.5 cents in the United States. Average monthly consumption varies greatly in different municipalities and provinces. Ontario, Quebec, Manitoba and British Columbia consumption is highest, while lower consumption occurs in the provinces of Saskatchewan, Alberta and the Maritimes, which depend on relatively high cost thermal electricity. Within the individual provinces, average monthly consumption in the specified cities and towns varies greatly; average monthly consumption reported by municipalities in Nova Scotia ranged from 134 kwh. at Springhill to 402 at Bridgewater; in New Brunswick, from 156 at Sussex to 343 at Woodstock; in Quebec, from 110 at Megantic to 709 at Chicoutimi; in Ontario, from 255 at Chatham to 665 at Fort William; in Manitoba, from 280 at The Pas to 611 at Selkirk; in Saskatchewan, from 218 at Swift Current to 320 at Regina; in Alberta, from 122 at Fort Macleod to 269 at Calgary; in British Columbia, from 333 at Cranbrook to 620 at Trail. Other places, for which separate figures are not available, may consume more or less than those listed.

Total installed electric power generating capacity in Canada at the end of the year 1961 amounted to 24,123,763 kw., of which hydro-electric equipment accounted for 19,063,102 or 79 p.c. Utilities installations were approximately 81 p.c. of the total and industrial installations, used largely to generate power for their own uses, made up the balance.

Available and Developed Water and Thermal-Electric Power, January 1, 1963

Province or Territory	Water Power			Thermal-Electric Power
	Available Continuous Power at 80 p.c. Efficiency		Installed Turbine Capacity	Installed Generator Capacity
	at Ordinary Minimum Flow	at Ordinary Six-Months Flow		
	hp.	hp.	hp.	kw.
Newfoundland.....	1,608,000	3,264,000	504,025	79,000
Prince Edward Island.....	500	3,000	1,660	39,900
Nova Scotia.....	30,500	177,000	204,538	398,800
New Brunswick.....	123,000	334,000	309,726	300,640
Quebec.....	12,557,000	23,711,000	12,816,845	123,580
Ontario.....	5,506,000	7,598,000	7,959,512	2,343,700
Manitoba.....	3,492,000	5,804,000	988,900	337,980
Saskatchewan.....	552,000	1,131,000	142,135	644,000
Alberta.....	911,000	2,453,000	414,455	818,985
British Columbia.....	18,200,000*	19,400,000*	3,701,326	606,925
Yukon Territory.....	4,678,000*	4,700,000*	38,190	1,500
Northwest Territories.....	1,367,000	1,791,000	22,250	17,600
Canada.....	49,025,000	70,366,000	27,103,562	5,712,610

* The figures marked with an asterisk reflect the effect of possible stream flow regulation based on known storage potentials.



This huge new \$12,500,000 gas processing plant 90 miles south of Edmonton can process up to 326,000,000 cubic feet of raw gas daily and can deliver 280,000,000 cubic feet of sales gas.

Manufactures

From all indications, 1962 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 total of \$25,939,000,000 or an increase of 8.6 p.c. This will be the first time in Canadian history that shipments topped the \$25,000,000,000 mark. Salaries and wages should also rise to \$5,770,000,000, an increase of 7.7 p.c. and also an all-time high. Number of employees at 1,343,000 will be 4.3 p.c. higher, but slightly below the all-time high of 1,359,000 attained in 1957.

Volume output with an 8.7 p.c. increase will match the 8.6 p.c. increase in shipments. Manufactures of durable goods should be up by 12 p.c. as compared with an increase of only 6 p.c. for non-durable or consumer goods.

Not all provinces shared alike in the phenomenal growth of manufactures during 1962. From the point of view of goods shipped, Manitoba with an increase of 10.6 p.c. experienced the greatest growth. Ontario with an increase of 10.5 p.c. came second, followed by Quebec and British Columbia with 7.4 p.c., Prince Edward Island and Nova Scotia 7.3 p.c., Newfoundland and Saskatchewan 6.3 p.c. and Alberta 3.5 p.c. New Brunswick was the only province to report lower shipments, the decline being 7.9 p.c.

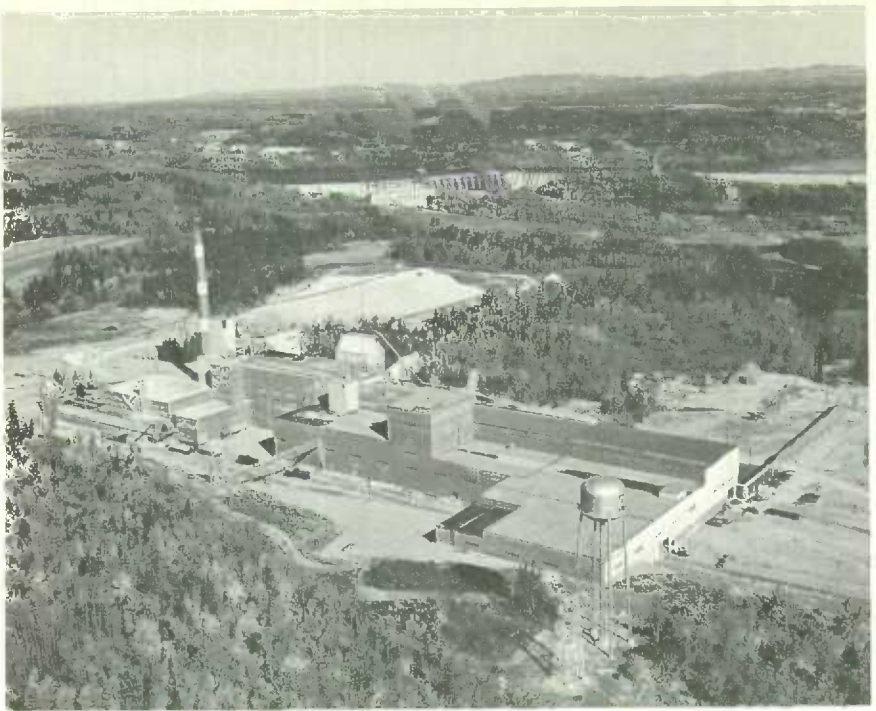
Manufacturers in 1961 operated at a somewhat higher level than in 1960. Although shipments were up only 0.6 p.c. the volume produced was 2.5 p.c. higher. There was also an increase of 2.9 p.c. in salaries and wages paid in spite of a drop of 0.5 p.c. in the number of persons employed. This follows the trend of recent years for the need of fewer employees to produce the same volume of goods. The 2.5 p.c. in the volume of manufactures as a whole was attained by an increase of 3.4 p.c. in the volume of non-durable or consumer goods as compared with an increase of only 1.4 p.c. 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 25 p.c. of the total, manufacturing a little more than 25 p.c. and service industries 40 p.c. In 1960 workers in agriculture were down to 12 p.c. as increased mechanization and better methods of cultivation made it possible to combine increases in output with a reduction in farm labour. In the same year the proportion of workers in manufacturing remained about 25 p.c. while in service industries their numbers had risen to 52 p.c. Over the past fifteen years the number of workers rose at an annual average rate of about 1.7 p.c. for all industries, by 3 p.c. for industries other than agriculture, and in agriculture employment actually declined at an annual rate of around 4 p.c.

New uses are continually being found for plastic sheeting. This dome, consisting of aluminum tubing covered with vinyl plastic film, protects swimmers from the elements and extends the swimming season.





This \$25,000,000 paperboard mill in Quebec went into production in 1962. It is a fully integrated mill with facilities for producing mechanical and chemical pulps which enter into the manufacture of paperboard for use in the manufacture of cartons and containers for a great variety of products. Canadian manufacturers make extensive use of packaging to protect their products and make them attractive to customers.

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 in which Canadians had acquired special skills as, for example, shipbuilding and agricultural implements.

In the succeeding period from 1871 to 1896 the industrial revolution of steel and railroads had its real impact on Canadian manufacturing. More advanced technology, corporate organization and low cost transport combined to foster a unified market and a factory-based system of specialized mass production to serve it. This period may be said to embody in many ways the main features which continue to characterize Canadian development down to the present day: expanding output based on technological advances, strong competition, and a continually increasing use of machinery and mass production techniques to reduce dependence on expensive labour.

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

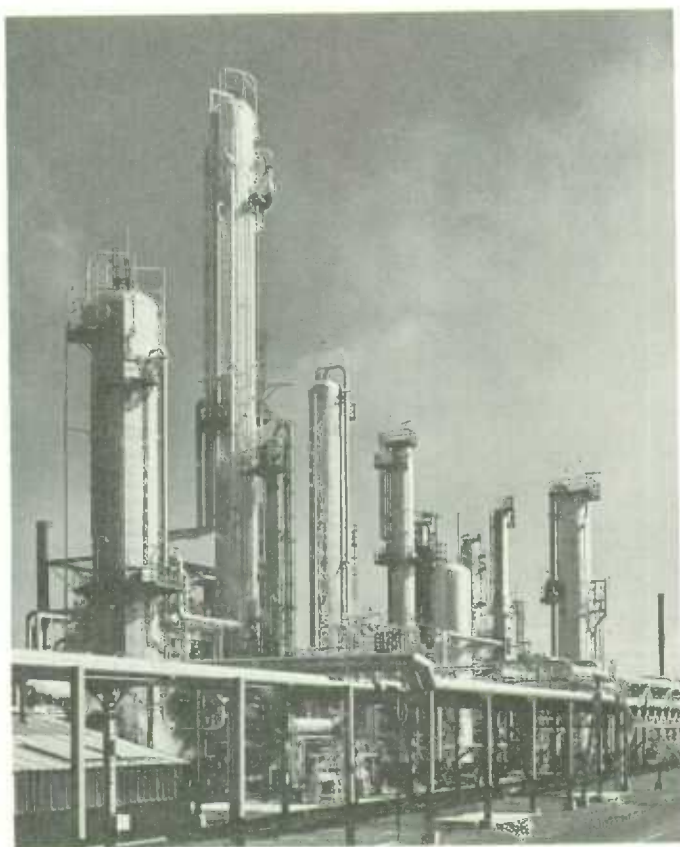
whole. A significant stimulus was given to the economy by the development of the new resource industries such as hydro-electric power, metal mining and forest products. Rising incomes and population led to an expanded net value of production for the consumer goods industries such as textiles, tobacco 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 1939 level. Tangible evidence of the permanence of these gains was provided by the fact that a substantial portion of our war-expanded manufacturing facilities found a profitable use in the 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.



Canada, which until recently imported all its benzene requirements, has become an exporter of this important petrochemical product since several Canadian companies installed benzene manufacturing facilities. This benzene plant is in Montreal East.

Moreover, within industries very different rates of growth have taken place. In primary textiles, production of woollens has failed to progress while output in synthetics is many times as great as in the pre-war period. Within the industrial classification of "products of petroleum and coal", petroleum products have risen three times as fast as coal products due among other things to their more rapidly growing demand, the discovery of Canadian resources and a successful record of cost control and technological improvement. Within the rubber industry, output of tires and tubes has risen more than four times as fast as that of rubber footwear; in the primary iron and steel industry, the growth of the market, enterprising management and new technology have led to the extremely rapid growth of many products not even produced in Canada two decades ago.

The following table gives a brief statistical summary of the growth of Canadian manufacturing industry from 1917 to 1961.

Manufacturing Statistics, Significant Years, 1917 to 1962

Year	Employees ¹ No.	Salaries and Wages ¹ \$'000	Value Added By Manu- facture ² \$'000	Gross Value of Products ³ \$'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 ⁵	1,294,629	5,207,167	10,533,209	23,747,457
1961.....	1,287,500	5,358,000	10,592,000	23,885,000 ¹
1962.....	1,343,000	5,770,000	11,500,000	25,939,000 ¹
Provinces, 1960				
Newfoundland.....	9,489	32,703	64,650	129,285
Prince Edward Island.....	1,806	4,255	8,690	30,231
Nova Scotia.....	28,606	92,280	174,808	406,182
New Brunswick.....	22,267	71,586	158,035	377,110
Quebec.....	433,949	1,620,314	3,172,770	7,206,096
Ontario.....	603,467	2,585,677	5,319,684	11,685,676
Manitoba.....	42,339	154,264	306,435	738,457
Saskatchewan.....	12,918	49,764	119,777	344,773
Alberta.....	39,157	156,340	353,198	889,658
British Columbia.....	100,507	439,368	853,836	1,936,918
Yukon and Northwest Territories.....	124	616	1,326	3,071
Canada.....	1,294,629	5,207,167	10,533,209	23,747,457
Industrial Groups, 1960				
Food and beverage industries.....	198,611	700,984	1,704,540	4,880,294
Tobacco products industries.....	9,731	38,354	117,790	334,414
Rubber industries.....	20,311	84,526	168,965	323,053
Leather industries.....	30,424	83,919	130,596	268,114
Textile industries.....	61,756	206,500	368,610	810,523
Knitting mills.....	20,765	54,051	93,360	198,160
Clothing industries.....	86,875	227,214	369,366	779,468
Wood industries.....	85,262	283,521	454,978	1,068,041
Furniture and fixture industries.....	34,206	112,660	178,494	347,981
Paper and allied industries.....	95,433	458,624	1,035,904	2,128,107
Printing, publishing and allied industries.....	73,694	322,788	586,142	865,931
Primary metal industries.....	90,025	454,583	1,047,115	2,742,520
Metal fabricating (except machinery and transportation equipment industries).....	98,505	428,738	750,665	1,432,905
Machinery industries (except electrical machinery).....	43,495	199,428	329,763	642,459
Transportation equipment industries.....	109,417	518,353	871,735	2,000,689
Electrical products industries.....	78,648	348,588	624,614	1,175,966
Non-metallic mineral products industries.....	41,606	173,438	373,071	647,462
Petroleum and coal products industries.....	14,513	85,447	279,705	1,197,968
Chemical and chemical products industries.....	54,269	253,231	747,753	1,373,467
Miscellaneous manufacturing industries.....	47,083	172,220	300,043	538,935

¹Estimated on the basis of the monthly employment survey which covers manufacturers employing 15 hands or over.

²Estimated on the basis of the percentage for 1959 of value added to shipments.

³For 1952 and subsequent years the basis of collection was "Value of factory shipments" instead of "Gross value of products".

⁴Estimated on the basis of the monthly survey of shipments by manufacturers.

⁵Figures for 1959 and 1960 were compiled in accordance with the revised "Standard Industrial Classification, 1960". Figures for 1960 also include two industries not covered in previous years.

Volume Indexes of Manufactured Products, 1945-1960

(1949=100)

	1945	1950	1955	1960	Increase 1945 to 1960
All Manufactures.....	92.9	106.2	134.7	149.3	60.7
Non-durable goods.....	88.2	106.0	130.4	151.8	72.1
Durable goods.....	99.8	106.5	139.7	146.4	46.7
Non-durable goods:					
Foods.....	98.7	104.4	125.6	147.1	49.0
Beverages.....	71.8	102.1	130.6	160.2	123.1
Tobacco and tobacco products.....	103.2	103.4	135.5	182.0	76.4
Rubber and rubber products.....	102.1	116.8	141.0	143.3	40.4
Leather products.....	114.5	95.6	106.9	111.8	-2.4
Textiles.....	87.5	112.5	114.0	122.5	40.0
Clothing, including knitting mills.....	91.4	101.3	112.8	107.9	18.0
Paper products.....	69.1	109.3	131.0	148.4	114.8
Printing, publishing and allied industries.....	67.3	101.5	127.1	146.5	117.7
Products of petroleum and coal.....	71.9	111.9	188.3	250.6	248.5
Chemicals and allied products.....	107.1	107.7	165.5	219.7	105.1
Miscellaneous industries.....	98.3	104.8	136.4	191.6	94.9
Durable goods:					
Wood products.....	77.2	108.2	136.4	136.0	76.2
Iron and steel products.....	96.3	102.5	123.8	137.3	42.6
Transportation equipment.....	157.0	108.3	145.1	130.0	-17.2
Non-ferrous metal products.....	98.8	104.0	127.5	148.3	50.1
Electrical apparatus and supplies.....	70.7	112.5	176.2	180.2	154.9
Non-metallic mineral products.....	63.7	111.0	171.1	210.9	231.1

The recovery in manufacturing production which took place in 1959 was maintained more or less during 1960. Selling value of factory shipments at \$23,747,457,083, value added by manufacture at \$10,533,208,994 and salaries and wages paid at \$5,207,167,393 were all the highest on record. The number of persons employed in 1960 at 1,294,629 fell short by 5.1 p.c. from the record attained in 1957. It is of interest to note that the value added by manufacture



Canadian tobacco manufacturers and processors turn out products to the value of over \$340,000,000 a year.



Textiles have been an important industry in Quebec for many years. Here synthetic fibres undergo yarn finishing operations.



Foods and beverages are Canada's leading secondary industry, and new processes are constantly being introduced. Instant mashed potatoes are produced in a new \$1,000,000 plant in southern Alberta.

which is the real measure of manufacturing production topped the ten billion mark for the first time in 1959.

Compared with the previous year, the value of factory shipments in 1960, after adjustments, increased by 1.8 p.c. and salaries and wages paid by 2.5 p.c. The number of employees and the physical volume of production were, however, lower, the former declining by 1.0 p.c. and the latter by 0.3 p.c. The greater decline in employment than in volume of production follows the trend in recent years for the same volume of output to be produced with fewer employees. Between 1949 and 1959 the volume of manufactured products increased by 48.9 p.c. while the number of persons employed increased only by 11.3 p.c. The increase in the salaries and wages paid in 1960 in spite of a drop in the number of employees, was due to the continuing advance in hourly and weekly earnings, a trend common to all other sectors of the economy.

An important factor in sustaining a high level of production in 1960 was the continuing high spending on capital goods, such as construction and machinery and equipment of all kinds. Total investment in capital goods amounted to \$8,262,000,000, a decrease of \$155,000,000 over 1959. Spending on machinery and equipment was \$101,000,000 higher, while spending on construction projects was \$256,000,000 lower. In spite of the higher spending on machinery and equipment, the index of the physical volume of goods produced by the machinery group of industries was 0.6 p.c. lower. The big drop in the spending on construction projects had only a moderate effect on the industries producing building materials. In the case of the lumber industry an increase in the export of timber, lumber and shingles counterbalanced the decline in the domestic spending for construction purposes, resulting in a net decrease of only 0.4 p.c. in the volume of wood products manufactured. The output of cement, however, was more severely affected,



Canadian shipbuilders have made many adaptations since the days of sail, as this modern tanker, built in New Brunswick and launched in 1962, bears witness.

production dropping to 5,787,225 tons in 1960, a decline of 7.9 p.c. Another stimulating factor in 1960 was the impact on the consumer goods industries of an increase of about 372,000 in population, with a continuing rise in wages, salaries and supplementary labour income.

Export demand for Canadian manufactured products was another strong factor in stimulating the high level of production in 1960. Exports of partly manufactured products at \$1,640,637,000 were \$186,736,600 higher than in 1959 and exports of fully manufactured goods at \$1,969,655,000 were \$109,021,000 higher. The increase in the exports of both partly and fully manufactured products amounted to 9.0 p.c. There were substantial improvements in the export of lumber and timber, shingles, wood pulp, newsprint, aluminum and its products, nickel, copper and its products, zinc, automobiles and parts, crude artificial abrasives, fertilizers, lead and lead products and non-farm machinery. At the same time declines occurred in a number of major export items which included veneer and plywood, whisky, wheat flour, farm implements and machinery, aircraft, synthetic plastics and their products and uranium ores and concentrates. The decline in the export of aircraft was particularly sharp, from \$109,112,783 in 1958 to \$24,960,067 in 1959 and \$20,745,482 in 1960, resulting in a drop of 32 p.c. in the volume output of the aircraft industry since 1957.

As already mentioned, the physical volume of production for manufacturing as a whole reached an all-time high of 149.8 in 1959 but declined somewhat to 149.3 in 1960, a drop of 0.3 p.c. Between 1959 and 1960 the volume of non-durable goods or consumer goods increased 1.1 p.c. while durable goods declined by 2.1 p.c. Since the end of the Second World War the durable goods industries experienced an almost uninterrupted expansion in production, the only exceptions being 1954, 1957 and 1958. Despite their steadier post-war expansion, the non-durable goods sector recorded an increase of only 54 p.c. between 1946 and 1956 while durable goods increased 92 p.c. This gap was narrowed between 1957 and 1960, so that for the whole period 1946-1960 durable goods expanded 83 p.c. and non-durable goods 69 p.c.

The trend of production of non-durable goods in 1960 was mixed, eight groups reporting increases and four groups declines. The net result was an increase in volume of production of 1.1 p.c. for the group as a whole as compared with 1959. The percentage increases ranged between 5.4 p.c. for chemicals and allied products to 1.2 p.c. for tobacco and tobacco products. Of the four groups reporting declines, rubber goods with a loss of 11.0 p.c. experienced the greatest drop in production. This was followed by leather goods with a loss of 7.1 p.c., clothing 4.6 p.c. and textiles 1.5 p.c. In the durable goods sector only one group, viz. non-ferrous metal products, reported

An 80-ton-per-day feed mill, built to serve the needs of one of the largest feedlot operations in the West, was recently built in Saskatchewan. The grain is steam-rolled, combined with molasses, salt, vitamins, minerals and other ingredients, mixed semi-automatically and transferred by pneumatic systems to eliminate contamination.

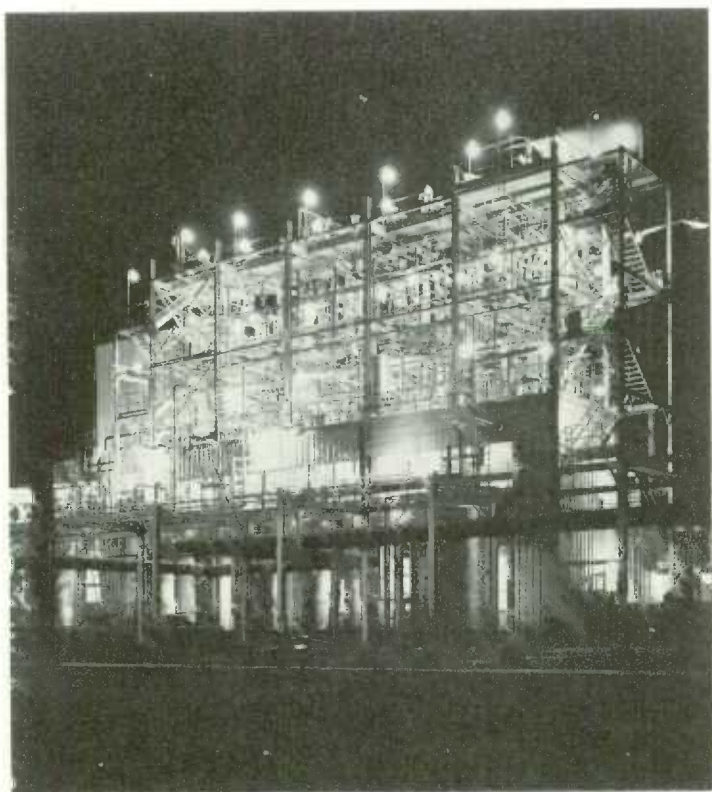


a greater volume of production in 1960, the increase being 10.1 p.c. as compared with 1959. The greatest decline of 6.7 p.c. was reported by iron and steel products, followed by non-metallic mineral products with a loss of 5.5 p.c., electrical apparatus and supplies 2.5 p.c., transportation equipment 1.1 p.c. and wood products 0.4 p.c.

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 1960 accounted for 49.2 p.c. of the total value of factory shipments. Quebec with 30.4 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. Due to the drop in the production of durable goods in 1960, Ontario suffered a decline in its share of the total while Quebec and British Columbia reported increases.

The level of manufacturing production in 1960, as measured by the number of persons employed, varied from province to province. Compared with the previous year, the greatest increase in employment—6.1 p.c.—was reported by New Brunswick. Prince Edward Island with an increase of 1.6

A night photo of an open process building producing two chemicals—adipic acid and hexamethylene diamine—used in the manufacture of nylon.



The motor vehicle industry is the fifth leading industry in Canada, serving both domestic and export markets.



p.c. was second in this respect, followed by Nova Scotia with an increase of 1.5 p.c., Saskatchewan, 0.7 p.c. and Quebec, 0.6 p.c. Manitoba suffered the greatest loss in employment of 2.9 p.c., followed by Ontario with a loss of 2.2 p.c., Newfoundland 1.5 p.c., British Columbia 1.2 p.c. and Alberta 1.1 p.c. Perhaps the most outstanding feature in 1960 was the continued expansion of manufacturing employment in Saskatchewan which increased 0.7 p.c., after a rise of 2.1 p.c. in 1959 and 2.3 p.c. in 1958, a year when all other provinces reported declines. Another feature was the gain of 2.6 p.c. in employment in the Atlantic Provinces, when other economic regions, with the exception of Quebec, suffered declines.

Ground whale meat is bagged at the whaling station at Coal Harbour, B.C. These bags are quick-frozen and shipped to mink farms. Oil and poultry feed are also obtained from whales.





Commercial explosives, used extensively in the construction industry, are made in this large plant in North Bay, Ontario.

Capital Investment

Investments are expenditures made on capital goods, which, by definition, are not bought for current consumption; they are factories, stores, hospitals, mines, office buildings, railways, power installations, pipelines, telephone lines and the tools, machinery and equipment used in producing goods or services for future consumption. The term investment, as used here, does not designate the purchase of securities.

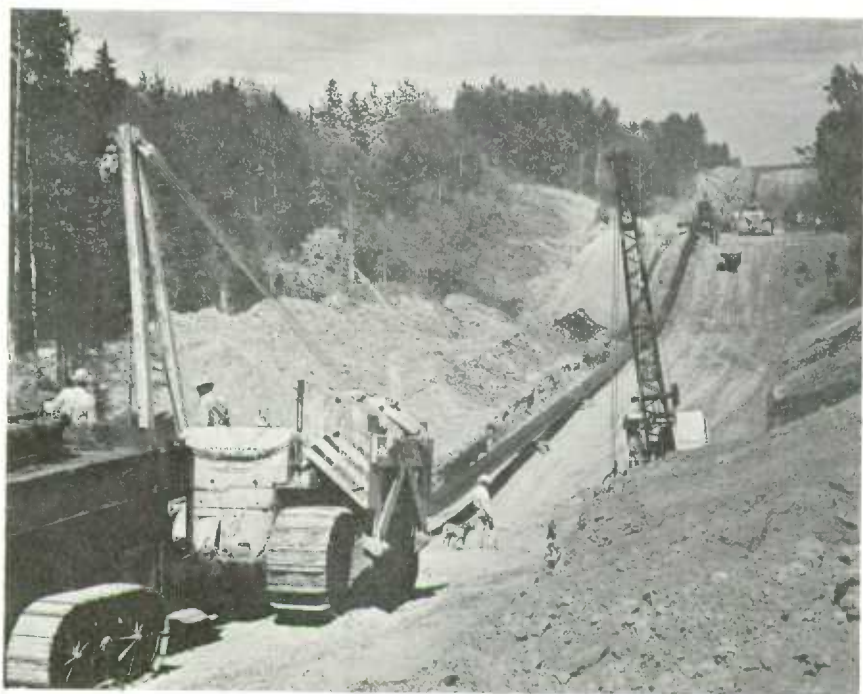
The buyers of capital goods are individuals when they buy new houses, businessmen when they acquire new plants and equipment, and governments when they make outlays on roads, canals, office buildings, waterworks.

The most recent comprehensive study of capital expenditures in Canada was conducted late in 1961. Information on the planned outlays for 1962 for new structures and acquisition of machinery and equipment was obtained from business, institutions and governments. In addition, an estimate of the expected level of expenditures for the construction of new housing was prepared. Since capital expenditure in Canada accounts for more than 20 p.c. of gross national product, variations in the total have important effects on the nation's economy. The size and value of the program is a useful

indication of the amounts of materials, labour and funds likely to be needed for its accomplishment. In addition the planned outlays as revealed by the intentions of the businessmen provide some measure of how they view the capacity and efficiency of their present productive facilities in relation to expected demand.

Capital spending by all sectors of the Canadian economy was expected to involve total outlays of \$8,600,000,000 in 1962. The accomplishment of such a program would raise total capital outlays 6 p.c. above the 1961 level. Outlays for both construction and machinery purchases were expected to be higher than the previous year. For construction an increase of above 5 p.c. and for machinery an increase of 8 p.c. were anticipated. 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 productive facilities, and should provide strong support towards a higher rate of general economic activity in 1962. Demands for both construction materials and labour should increase by about the same extent as overall construction expenditures. While a substantial proportion of the machinery requirements are normally obtained from abroad, the nature of the purchases planned for 1962 suggests that Canadian producers would obtain at least a proportionate share of the larger market.

This trunk line carries natural gas to a giant new gas processing plant at Rimbey, Alberta. The development of Canada's fuel and power industries has been an important factor of capital investment in recent years, totalling \$5,463,000,000, in the five years 1958-62.





Special equipment is employed to move tunnel liners to the South Saskatchewan dam-site, where work progresses on a \$184,000,000 irrigation and power project jointly financed by the federal and the provincial governments.

These plans of capital expenditures may have changed as the year progressed. In the event that economic conditions vary significantly from earlier expectations, investment programs may be adjusted accordingly. Unforeseen factors, such as prolonged work stoppages, may also affect the extent to which earlier plans may be accomplished.

Private and Public Capital Expenditures, by Sector, 1958-62

Sector	1958	1959	1960	1961 ¹	1962 ²
\$'000,000					
Business Capital (excluding Housing):					
Forest and Mineral Products.....	715	728	863	780	962
Fuel and Power.....	1,329	1,044	992	1,089	1,009
Trade, Finance and Commercial Services.....	705	833	875	856	840
Transportation, Storage and Communication.....	1,073	1,025	990	815	811
Other.....	1,048	1,171	1,154	1,082	1,105
Totals.....	4,870	4,801	4,874	4,622	4,727
Housing and Social Capital:					
Housing.....	1,782	1,752	1,456	1,467	1,533
Institutional Services.....	514	536	573	615	793
Govt. Depts. and Waterworks.....	1,198	1,328	1,359	1,405	1,543
Totals.....	3,494	3,616	3,388	3,487	3,869
Total Capital Expenditures.....	8,364	8,417	8,262	8,109	8,596

¹ Preliminary.

² Intentions.

The added strength expected in business investment in 1962 is about wholly accounted for by an increased rate of expansion in the mineral products industries. The sharpest increases from 1961 were anticipated for the provision of additional primary iron and steel facilities, new capacity for the primary processing of non-ferrous metals and in projects for the mining and

processing of iron ore. The levels of investment in other major sectors of business are likely to be little different from those of 1961. In the fuel and power industries a sharp decline in spending for pipelines and gas processing plants is largely offset by expanded programs for electric power generation and oil refineries. Outlays for the drilling and development of oil and gas fields are likely to approximate those of 1961. In transportation and communication a higher rate of spending was anticipated for telephone, railway and urban transit facilities, but expenditures for the acquisition of commercial aircraft would be significantly lower. Plans for commercial building involved a continuation at the high levels of 1961. Indications showed a greater emphasis on the construction of retail outlets with some decline in capital expenditures for office building.

The growth in outlays for social capital facilities was expected to show further acceleration in 1962. The major factor in this increase is the very large program of technical school construction which is being assisted by the Federal Government. Substantial increases were expected, too, in the construction of most other types of institutions including universities, hospitals and churches. Outlays by all three levels of government for such facilities as roads, public buildings, harbours and airports were planned at a somewhat higher rate than in 1961. Housebuilding activity was expected to show moderate improvement in 1962. During 1961 there had been a substantial increase in the number of new houses started which totalled 126,000 compared to 109,000 in 1960. However, completions did not keep pace with those of the previous year, declining to 116,000 from the 124,000 level of 1960. This resulted in the overall value of housing construction during 1961 being little different from that of 1960. The estimates of housebuilding expenditures for 1962 provide for a significant rise in the number of units completed and

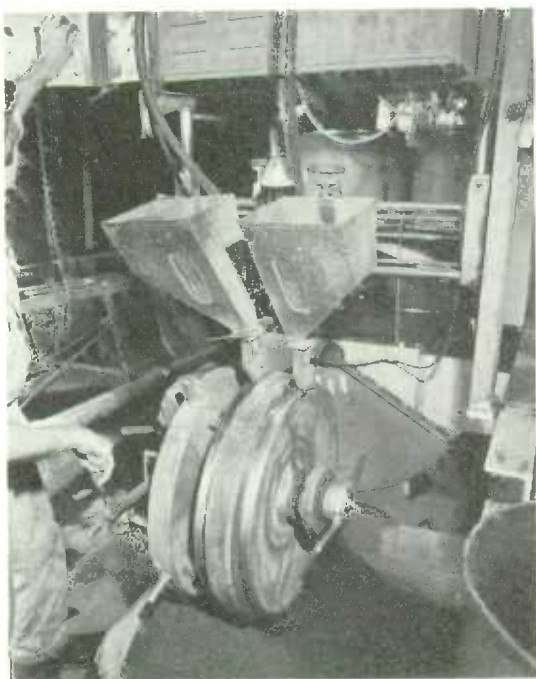
A rock-slide on a stretch of Canada's 420,000 miles of highways and rural roads. In 1961, while \$559,000,000 was spent on construction of roads, bridges and ferries, \$204,000,000 was spent on their maintenance.



little change in those started. In terms of expenditures this would mean an increase of about 5 p.c. over those of 1961.

In general the added strength in the 1962 investment program stems from the larger expenditures planned in Eastern Canada. For the Western Provinces, as a whole, capital outlays should show little change from those of 1961. With the major increases planned in manufacturing and mining investment, it is to be expected that the regions with the greatest concentration of such industries will show the most marked increase. In addition the sharp cut-backs in construction of pipelines and gas processing plants is concentrated in the Western Provinces.

Capital outlays in both Ontario and Quebec were expected to be significantly larger in 1962. In Ontario, the provision of additional steel making facilities and new oil refining capacity contribute a large part of the increase. In Quebec, new plants planned for the production of iron and steel, for non-ferrous metal refining and for chemicals help to expand the investment program. Increased activity in iron ore developments in the Labrador area gives added strength to Newfoundland's capital expenditures. Investment in all three Maritime Provinces was expected to be moderately higher in 1962. In Western Canada a significant decline in capital spending was expected in Alberta and a much more modest reduction in British Columbia. These result from the completion of very large investment programs in 1961 in the construction of pipelines and gas processing plants. In both Manitoba and Saskatchewan some increase in capital spending was anticipated.



Metal is being added to a worn bull-dozer wheel. Maintenance of heavy equipment is of major importance in construction.



Prefabrication saves time and money and is gaining in use, either in small units such as this service station carport, or in larger structures.

Private and Public Capital Expenditures, by Province, 1960-62¹

Province		Construction \$'000,000	Machinery and Equipment \$'000,000	Total \$'000,000
		\$'000,000	\$'000,000	\$'000,000
Newfoundland.....	1960	113	33	146
	1961	136	43	179
	1962	154	72	226
Prince Edward Island.....	1960	24	13	37
	1961	25	11	36
	1962	24	12	36
Nova Scotia.....	1960	166	68	234
	1961	160	74	234
	1962	177	67	244
New Brunswick.....	1960	119	61	180
	1961	106	57	163
	1962	108	64	172
Quebec.....	1960	1,327	680	2,007
	1961	1,351	602	1,953
	1962	1,465	625	2,090
Ontario.....	1960	1,828	1,028	2,856
	1961	1,832	926	2,758
	1962	2,035	1,057	3,092
Manitoba.....	1960	308	179	487
	1961	294	128	422
	1962	315	129	444
Saskatchewan.....	1960	293	181	474
	1961	311	151	462
	1962	311	168	479
Alberta.....	1960	666	280	946
	1961	734	252	986
	1962	646	262	908
British Columbia ²	1960	609	286	895
	1961	625	291	916
	1962	627	278	905
Canada.....	1960	5,453	2,809	8,262
	1961	5,574	2,535	8,109
	1962	5,862	2,734	8,596

¹ Actual expenditures 1960, preliminary 1961, intentions 1962.

² Includes Northwest Territories and Yukon.



Edmonton's Civic Centre Park built around the City Hall will include three 25-storey office buildings, a 13-storey hotel, high-rise apartments, an art gallery, a theatre, a coliseum with 11,000 seats, a courthouse, parks and fountains. The proposed 15-year project would involve more than \$100,000,000.



Charlottetown's old town square will be the site of the \$5,000,000 Fathers of Confederation Memorial Building. Besides being a national shrine, the project will also be a cultural centre, including a 1,000-seat theatre, an art gallery, a museum and a library and will include the Provincial Building where the Fathers of Confederation met in 1864.



Halifax has cleared almost 14 acres of downtown land and has called for redevelopment proposals which will "stimulate commercial and business activity and enhance the central area of the city".



In Toronto, the Provincial Government plans a \$50,000,000 complex of office buildings to house 10,000 provincial civil servants in the Queen's Park area, close to the Provincial Legislature, shown on the left. The project is expected to be completed in 1972.

URBAN REDEVELOPMENT is claiming the attention of many Canadian cities. The older ones are facing problems of slum clearance by making a large-scale attack; the newer ones are combating haphazard and sprawling city development by planning co-ordinated civic centres. Plans for urban redevelopment range from strictly utilitarian to almost romantic.

In Regina, the Wascana Centre master plan for development of a 1,000-acre site in the heart of the city calls for the building of an entirely new university to accommodate 8,000 students, new government buildings and cultural and recreational facilities, including a civic auditorium for 3,000, parks and formal gardens. It is planned that costs will be shared by the Saskatchewan Government (55 p.c.), the University of Saskatchewan (30 p.c.) and the city of Regina (15 p.c.).



In downtown Saint John an area of 57 acres covering 11 city blocks has been cleared for private redevelopment for residential or commercial use and for public housing.

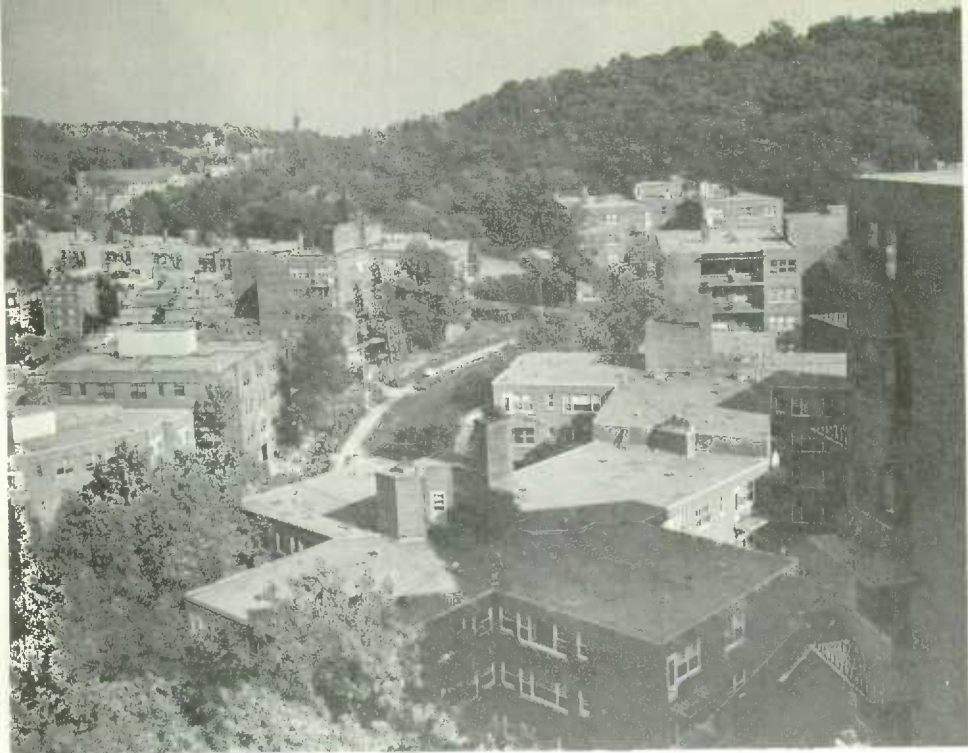


A project to raze and redevelop Ottawa's LeBreton Flats provides for a new community composed of government, commercial and residential buildings and restoration of the historic village of Richmond Landing.



Montreal's Dorchester Boulevard may be Canada's most spectacular example of downtown redevelopment, comprising hotels, financial and office buildings and both the tallest and the largest bank buildings in the Commonwealth.





Although three quarters of Canadian households live in houses, the construction of high-rise apartment buildings and composite housing projects continues at a high level. This is a low-rent housing project set in a beautiful environment in Montreal.

Housing

The need for a detailed examination of the complexities of the Canadian city and the way in which its growth and development are or should be directed became increasingly evident during 1962. Demands by many organizations and local governments for a more thorough study of urban and regional development led in mid-March to the founding of the Canadian Council on Urban and Regional Research with the Federal Government and each of the 10 provinces represented on the founding committee. Established as a facilitating body and clearing house for research in the field of urban and regional problems of growth and development, CCURR was subsequently awarded a National Housing Act grant of \$78,000 for 1963 and a Ford Foundation grant of \$550,000 to assist it in meeting its objectives during the next few years.

Apart from this and other significant developments in the research field, the volume of new house construction was maintained during the first eight months of the year at approximately the same levels that obtained in the corresponding period of 1961.

Housing starts in the urban centres of Canada in the first eight months of 1962 were up 4.6 p.c. to 61,045 dwellings, as compared with the 58,349 reported for the corresponding period of 1961.

There was a decrease in the volume of National Housing Act mortgage lending in the eight-month period. Loan approvals were for 35,946 units,

against 45,151 during the same months of 1961. Of these approvals, approved lenders were responsible for 25,956 units and Central Mortgage and Housing Corporation for 9,990.

National Housing Act loans to assist in financing the construction of rental accommodation for lower-income families and for elderly persons amounted to \$5,639,521 by the end of August. This sum helped provide 955 dwelling units.

Firm bids and requests for options in a record amount of \$60,500,000 were received in March by Central Mortgage and Housing Corporation in response to its fourth offering of NHA insured mortgage loans. It was the largest number of investors to enter bids to date. The fifth and largest offering—\$20,000,000 with acceptance limited to \$15,000,000—was announced on June 1. Owing to unsettled market conditions, the bids were returned to tenderers and the auction was postponed until further notice.

By September 1, the Government had approved a further 135 loans for municipal sewage treatment plants, involving an overall amount of \$29,600,000. These brought to 306 and \$74,000,000 the number and amount of loans approved in Canada since the National Housing Act was amended in December, 1960 to provide for municipal sewage treatment loans. In addition, at September 28, 1962, some 237 preliminary applications or enquiries had been received, with a loan potential of \$58,200,000.

During the first eight months of 1962, nine NHA loans totalling \$11,702,010 were approved to assist in financing the construction of dormitory accommodation for resident university students at Waterloo Lutheran University, McGill University, Loyola College, Collège de Rouyn, Dalhousie University, St. Paul's United College, University of Alberta (Edmonton) and Brandon College. When completed they will house some 2,700 students.

A continuation of educational grants under the National Housing Act intended to encourage post-graduate studies and research work in housing, community planning and related subjects at Canadian universities resulted in the award of 16 NHA fellowships valued at \$1,500 each for post-graduate studies in community planning.



A charming residential subdivision in West Vancouver.



Pioneer Village, a municipal low rental housing project for senior citizens in Regina, is one of 66 hostel, nursing home and housing projects built under the Saskatchewan Housing Act, which provides for financial assistance from the province for construction and maintenance. In the Village there are 100 self-contained units for couples.

A grant of \$42,550 was also made to the Ontario Research Foundation to permit continuation of a study during 1962 to improve upon methods now used for disposing of household sewage wastes. An amount of \$7,500 was granted to the Royal Architectural Institute of Canada to assist in a study of objectives and the formulation of zoning and building by-laws in residential areas, and up to \$2,800 was made available to the National House Builders Association to assist in undertaking a program of technical research in the construction of homes. The Province of Manitoba received a grant of \$7,200 to assist in a study of the construction industry and the province's population and labour force and a grant of up to \$4,250 was approved to the Metropolitan Toronto Housing Authority to assist in two housing research studies. One study is concerned with a comparison of operating costs between high-rise and low-rise construction and the other will examine the kinds of families being admitted to public housing projects in Metropolitan Toronto and what happens to them after they leave public housing.

In February, the Government of Canada and the Government of the Province of Ontario agreed that a study of public housing in Canada be undertaken under the auspices of the Ontario Association of Housing Authorities to identify the extent of the need and additional means that could be introduced.

In the field of urban redevelopment, federal authorities announced an additional contribution of \$213,700 to the City of Toronto to acquire four properties for an extension of the Moss Park redevelopment and housing project; a contribution of \$600,000 towards the cost of the Van Wagner's Beach area, Hamilton; and arrangements for a federal contribution of approximately \$2,150,000 towards the cost of acquiring and clearing 17 acres of a 27-acre area in Montreal.

On April 30, it was announced that family allowances will no longer be considered in computing incomes used for setting rents in federal-provincial public housing projects in Ontario where rents are based on family income and size of family; and that Central Mortgage and Housing Corporation had been authorized to arrange a similar agreement with other provincial governments.

Federal-provincial housing projects approved in 1962 included 88 units in Sudbury; 110 in Saskatoon; and 20 units in Weyburn, Saskatchewan.

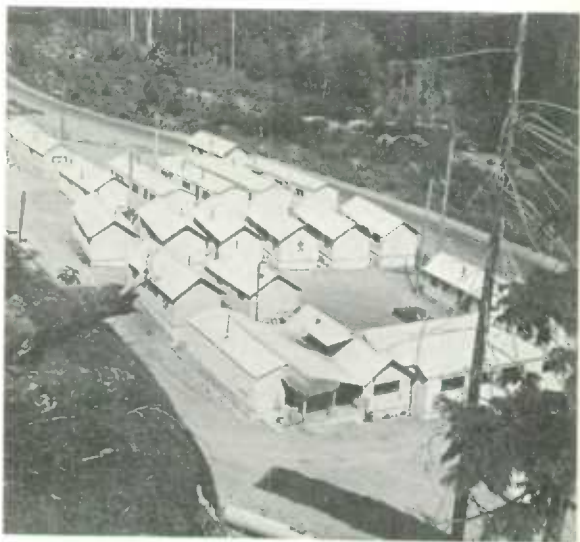
Land assembly projects were approved in Courtenay and Kingston, to provide a total of 575 residential building lots in the two communities.

Urban renewal study grants had, by September 1, reached a total of \$62,561. Grants approved in 1962 were to Fort William and Port Arthur, \$26,250; Trois Rivières, \$25,500; and Grand Falls and Windsor, Newfoundland, \$10,811. These studies are intended to identify blighted areas, determine housing requirements and provide data on which an orderly program of development, renewal or conservation, may be based.

On April 2, 1962, "Housing Standards, 1962", issued by the Associate Committee on the National Building Code, National Research Council, became effective for all housing built under the National Housing Act. Replacing earlier standards of design and structural minima, the new regulations represented more than three years' work by building experts from across the nation.

In areas remote from established centres, housing has to be provided for workers. This portable logging camp on Vancouver Island is comprised of bunkhouses, office, kitchen and dining-room, recreation hall and storage buildings.

Thompson, Manitoba, is a town planned and built for the workers in the world's second largest nickel mine. Located 200 miles from the nearest settled community of any size, it has single-family homes, duplexes and apartment buildings, schools, a hospital, a hotel, a department store and all the utilities of a modern city.





In the ceaseless battle for the consumer's dollar, merchants explore every technique of selling. This is a six-day "discount sale" held in Toronto's Maple Leaf Gardens by a group of city merchants.

Domestic Trade

The marketing of goods and services is a complicated and far-flung operation employing 40 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 52 p.c. 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 one in British Columbia. By 1960 there were 263 shopping centres with sales for that year of \$815,682,284.

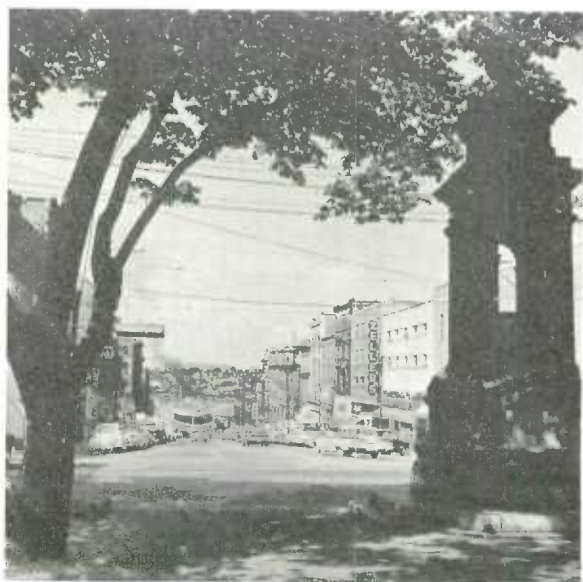
The retail chain store development continued during the decade. The proportion of sales made by retail chain stores (excluding voluntary chain groups of independent retailers) to total retail trade has increased from 16.6 p.c. in 1951 to 21.0 p.c. in 1960. Chain stores in the grocery and combination 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 1959 and 1960 the sales of specialist firms who make a business of supplying and servicing machines in various locations increased 13.4 p.c., from \$33,741,939 to \$38,250,840.

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

Known as the shortest, steepest main street in Canada, King Street in Saint John, New Brunswick, runs down to the market slip.



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 1960 there were 1,427 regular theatres and 232 drive-ins with only 117,700,000 admissions. Receipts fell from about \$94,000,000 in 1951 to \$72,300,000 in 1960.

Estimates of Wholesale Sales, 1958-61

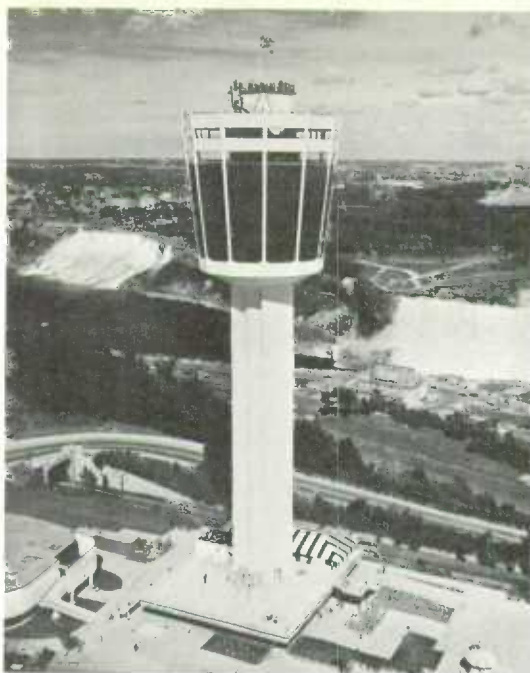
Kind of Business	1958	1959	1960	1961 ¹
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	263.5	279.5	288.4	294.0
Groceries and food specialties.....	1,385.1	1,544.5	1,649.7	1,736.0
Meat and dairy products.....	175.0	171.3	165.0	176.5
Clothing and furnishings.....	123.6	120.0	116.1	114.7
Footwear.....	33.5	37.1	38.0	39.3
Other textile and clothing accessories.....	214.8	230.2	204.6	206.6
Coal and coke.....	163.6	155.9	153.3	136.9
Drugs and drug sundries.....	198.5	216.6	221.9	235.0
Newsprint, paper and paper products.....	241.9	262.8	276.4	290.5
Tobacco, confectionery and soft drinks.....	679.2	723.4	741.1	761.0
Automotive parts and accessories.....	363.9	407.9	414.8	412.6
Commercial, institutional and service equipment and supplies.....	109.3	130.2	137.4	143.3
Construction materials and supplies including lumber.....	825.2	964.4	877.6	902.2
Farm machinery.....	68.5	84.9	73.0	71.4
Hardware.....	308.8	317.6	327.1	341.9
Household electrical appliance.....	166.4	181.4	182.7	209.3
Industrial and transportation equipment and supplies.....	709.0	779.7	748.1	757.1
All other trades.....	1,875.9	2,145.2	2,149.3	2,068.8
Totals.....	7,905.7	8,752.6	8,764.5	8,897.1

¹ Preliminary.

Canadians spend more than half a billion dollars a year in restaurants.



Opened in June, 1962, the Seagram Tower at Niagara Falls is a unique tourist attraction. It is 325 feet from the base to the flagstaff atop the seven-storey crown building; from the summit deck it is possible to see 40 miles around.



Estimated retail sales totalled \$16,663,600,000 in 1961, an amount 1.0 p.c. higher than the 1960 figure. Variety stores registered the largest increase in sales from the previous year with a gain of 5.1 p.c.

Retail Store Sales by Type of Business and by Province, 1959-61

Type of Business and Province	Sales			Percentage Change 1960-61
	1959	1960	1961 ¹	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and combination stores.....	3,287.3	3,473.9	3,571.2	+2.8
Other food and beverage stores.....	1,177.5	1,224.6	1,235.0	+0.9
General stores.....	629.8	640.4	655.1	+2.3
Department stores.....	1,420.0	1,453.5	1,499.9	+3.2
Variety stores.....	330.6	350.4	368.3	+5.1
Motor vehicle dealers.....	2,613.4	2,551.0	2,519.0	-1.3
Garages and filling stations.....	1,103.6	1,145.5	1,152.6	+0.6
Men's clothing stores.....	249.9	258.9	260.0	+0.4
Family clothing stores.....	225.8	235.3	242.2	+2.9
Women's clothing stores.....	273.2	277.0	276.4	-0.2
Shoe stores.....	155.0	168.8	167.1	-1.0
Hardware stores.....	326.4	326.3	328.1	+0.6
Lumber and building material dealers.....	492.3	435.9	433.3	-0.6
Furniture, radio and appliance stores.....	581.1	546.6	556.3	+1.8
Restaurants.....	566.7	569.4	557.0	-2.2
Fuel dealers.....	341.8	323.8	323.3	-0.1
Drug stores.....	405.1	416.0	418.5	+0.6
All other stores.....	2,104.1	2,104.8	2,100.1	-0.2
Totals.....	16,283.6	16,502.1	16,663.6	
Province				
Atlantic Provinces.....	1,361.6	1,429.7	1,449.6	+1.4
Quebec.....	3,877.6	3,944.3	4,108.9	+4.2
Ontario.....	6,218.4	6,312.7	6,337.3	+0.4
Manitoba.....	812.9	842.5	818.3	-2.9
Saskatchewan.....	950.9	938.0	900.6	-4.0
Alberta.....	1,355.1	1,366.5	1,384.7	+1.3
British Columbia (incl. Yukon and N.W.T.).....	1,707.1	1,668.4	1,664.3	-0.2

¹ Preliminary.



Night shopping is being tried out in various cities to lure customers back downtown from the suburban shopping centres.

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 1961 with 437,319 units sold for a total of \$1,290,026,000. The financing of new passenger vehicle sales by sales finance companies covered 32.3 p.c. of new car sales in 1961, the lowest proportion to date.

New Passenger Car Sales and Financing, 1954-61

Year	Sold		Financed		P.C. of Total Sales Financed	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000		\$'000		
1954.....	310,546	797,554	126,099	230,900	40.6	29.0
1955.....	386,962	1,023,351	156,191	305,069	40.4	29.8
1956.....	408,233	1,128,640	190,109	408,993	46.6	36.2
1957.....	382,023	1,087,620	171,904	385,043	45.0	35.4
1958.....	376,723	1,110,724	147,402	335,827	39.1	30.2
1959.....	425,038	1,240,961	158,022	371,392	37.2	29.9
1960.....	447,771	1,289,073	164,335	377,851	36.7	29.3
1961.....	437,319	1,290,026	141,234	330,199	32.3	25.6

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 an important stimulus to industry.

Whether or not the securing of easy credit is an advantage to the individual, the fact remains that the amount of balances outstanding on the books of selected credit holders increased more than 62 p.c. in the period 1955 to 1961 while retail sales, the source of most of this credit, increased only 27 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
(estimates of selected items), 1955-62

Date	Instalment Credit			Cash Personal Loans ¹	Total Selected Items
	Retail Dealers	Finance and Loan Companies	Total		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
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	1,393	3,182
June 30	980	841	1,821	1,487	3,308
September 30	993	834	1,827	1,536	3,363
December 31	1,088	795	1,883	1,595	3,478
1962 March 31	999	771	1,770	1,645	3,415
June 30	1,019	809	1,828	1,815	3,643

¹ Exclusive of loans extended by credit unions.

Students at a barbers' college. Personal services are an important segment of domestic trade.



Retail Prices

The Consumer Price Index. The purpose of the Consumer Price Index is to measure the movement from month to month in retail prices of goods and services bought by a representative cross-section of the Canadian urban population. For a particular item, a price index number is simply the price of the item in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the Consumer Price Index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods each month as a percentage of their prices in the base period 1949.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all index. The weights reflect the relative importance of items in expenditures of middle size urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket.

The basket and weights now used in the index are based on expenditures in 1957 of families of 2 to 6 persons, with incomes of \$2,500-\$7,000, living in cities of 30,000 population or over. The basket, weighted at 100, consists of the following components with their relative weights: food (27); housing, including shelter and household operation (32); clothing (11); transportation (12); health and personal care (7); recreation and reading (5); tobacco and alcohol (6).

Between 1949 and 1962, the index of consumer prices rose 30.7 p.c., from

A steer auction in progress. Livestock auctions are held in many places in Canada and draw large crowds of farmers, drovers and meat buyers.



100 to 130.7. 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 30.7 p.c. rise in consumer prices between 1949 and 1962 occurred in these two periods.

For the year 1962 the Consumer Price Index averaged 130.7, 1.2 p.c. above the 1961 average of 129.2. The food index rose from 124.0 to 126.2, an increase of 1.8 p.c. Health and personal care registered the largest increase, 1.9 p.c.; other 1961 to 1962 increases were housing 1.2 p.c., clothing 0.9 p.c., recreation and reading 0.8 p.c., tobacco and alcohol 1.3 p.c. The transportation index showed a slight decline of 0.1 p.c.

Consumer Price Index Numbers, 1949-1962

(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

The current trend is for the supermarket, formerly limited to the sale of food, to expand into greater variety of stock, such as drugs, paper goods, and small housewares of all kinds.





The new shopping centre at Ste. Foy, Quebec, features a completely enclosed mall, two storeys of stores, the top one reached from a balcony, a fountain, flower boxes and benches.

Wholesale Prices

The term "Wholesale Prices" refers to transactions that occur below the retail level. It has more of a connotation of bulk purchase and sale than of any homogeneous level of distribution. The General Wholesale Index includes prices mainly of manufacturers but wholesalers proper, assemblers of primary products, agents and others who trade in commodities of a type, or in quantities characteristic of primary marketing functions, are also included. In the General Wholesale Index prices are grouped according to a commodity classification scheme based on chief component materials. In addition, indexes classified according to degree of manufacture are available. In the table below, the General Wholesale Index is presented for the period 1951-62. Also presented are price indexes for two major price groups of commodities within the General Wholesale Index, namely, raw and partly manufactured and fully and chiefly manufactured. Also shown is an index for non-farm products within the Wholesale Index.

General wholesale price indexes have been calculated by most countries for many years but the question "What does a general wholesale price index measure?" cannot be given a precise answer. A retail price index can be identified with consumer expenditure, but a general wholesale index covers a much wider range; yet it is not a measure of the purchasing power of money since it does not include prices of land, labour, securities or services, except in so far as prices of these things enter into commodity prices. As a conventional summary figure, its use is as a reference level against which to observe the behaviour of particular price groups such as farm products, raw materials and building materials, for which separate price indexes have been constructed.

Recently, the Dominion Bureau of Statistics introduced a new system of "wholesale price indexes" called Industry Selling Price Indexes 1956=100 which refers exclusively to manufacturing industries. The foremost objective of this system is to provide measurements of price movements which occur in industries as defined under the Standard Industrial Classification. Thus, they are co-ordinated with the many other statistics which are organized

according to this industry scheme of classification. In addition, the system includes price indexes for the most important products of the industries concerned. There are approximately 100 industry and 175 commodity indexes published.

Movements of Wholesale Prices. The general wholesale index rose 2.9 p.c. between 1961 and 1962, from an annual average of 233.3 to 240.0. Thus in 1962 the index stood close to its historical high of 240.2 reached in 1951.

The raw and partly manufactured goods index rose 5.3 p.c. in 1962 to 223.8 from the 1961 average of 212.6, while the fully and chiefly manufactured goods index increased 1.8 p.c. to 249.0 from 244.5. The non-farm products index advanced 2.4 p.c. over the period to 244.8 from 239.1.

Selected Wholesale Price Indicators, 1951-62

(1935-39 = 100)

Year	(A) ¹ General Wholesale Index	(B) Raw and Partly Manufactured Goods	(C) Fully and Chiefly Manufactured Goods	(D) ² Non-farm Products
1951.....	240.2	237.9	242.4	233.2
1952.....	226.0	218.7	230.7	226.0
1953.....	220.7	207.0	228.8	223.3
1954.....	217.0	204.8	224.2	219.6
1955.....	218.9	209.7	224.5	225.9
1956.....	225.6	215.8	231.5	235.7
1957.....	227.4	209.4	237.9	236.0
1958.....	227.8	209.3	238.3	233.0
1959.....	230.6	210.9	241.6	236.0
1960.....	230.9	209.6	242.2	237.0
1961.....	233.3	212.6	244.5	239.1
1962 ³	240.0	223.8	249.0	244.8

¹ (B) and (C) comprise (A).

² (D) is (A) less Animal and Vegetable Products.

³ Indexes for 1962 are subject to revision.

Fashion shows feature Canadian-designed-and-made clothes for all occasions; this one presented teenage styles to a rapt youthful audience.





Indian fishermen of the John's Fishermen's Co-operative load fish aboard an aircraft at Knee Lake, Saskatchewan. They are flown to Ile à la Crosse where they are ice-packed and shipped to market by truck.

Co-operatives

The Canadian co-operative movement continued to expand during 1961. The volume of business carried on by Canada's 2,868 co-operative associations during the year ended July 31, 1961 totalled \$1,470,492,000, an increase of \$72,023,000 over the previous year.

Increasing attention is given to urban consumers among whom the movement anticipates the greatest growth in the future. There is a growing tendency for rural people to do their buying in urban shopping centres and they are evincing interest in the development of co-operatives in urban areas.

There is also evidence of growing interest in co-operation among trade unionists.

Marketing co-operatives are still the largest part of the Canadian co-operatives movement and reported sales of farm products of \$1,018,000,000 in 1961.

Sales of grains and seeds amounted to \$427,200,000, largely as a result of an increase in the Canadian total marketing of grains. Sales of dairy products amounted to \$228,500,000. Sales of merchandise and supplies by marketing and purchasing co-operatives amounted to \$392,100,000.

Federated Co-operatives, wholesale distributors for Manitoba and Saskatchewan, amalgamated with the Alberta Co-operative Wholesale Association late in 1961. It now serves some 575 consumer co-operatives and about 220,000 co-operative families west of the Great Lakes to the Rocky Mountains. Total sales for Federated Co-operatives in 1961 (before the merger) amounted to \$70,000,000.

The Co-opérative Fédérée de Québec, one of Canada's largest multi-purpose farm centrals, providing marketing, food processing and farm supply service to some 375 affiliated local co-operatives, reported a volume of business of almost \$118,000,000 in 1961. United Co-operatives of Ontario, owned and controlled by 70,000 members, reported a business of about \$76,000,000 in the same period.

Eskimo co-operatives increased from two to eight in the past year. These co-operatives are primarily of the producer type engaged in commercial fishing, graphic art and handicraft.

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. They are the Co-operative Union of Canada and Le Conseil Canadien de la Coopération.

A few Canadian universities offer courses on co-operatives. In addition, the Coady International Institute of St. Francis Xavier University provides co-operative training for students from abroad and the Western Co-operative College, in Saskatoon, for co-operative employees.

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 United States. Canadians and Americans each made roughly 30,000,000 crossings of the border in 1961. 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.

Border crossings by car at Cornwall, Sault Ste. Marie and Queenston were facilitated by the opening of new international bridges in July, October and November respectively.

The completion of the Rogers Pass section of the Trans-Canada Highway is also expected to improve automobile travel. In 1962 the World's Fair in Seattle, Washington drew many visitors to British Columbia.

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. Receipts from non-residents travelling in Canada during 1961 were estimated at \$482,000,000, surpassing 1960 receipts by \$62,000,000 or approximately 15 p.c. Moreover, if travel were considered as a commodity, receipts from its "export" in 1961 would rank third, exceeded only by total exports of newsprint (\$761,000,000) and wheat (\$662,000,000).



One of many tourist information centres where travellers may obtain maps and information on roads, accommodation and special attractions.

The United States, in addition to being Canada's leading trade customer in commodity items, also ranks first so far as the travel industry is concerned. In 1961, residents of that country made 30,500,000 trips to Canada, a gain of 800,000 or nearly 3 p.c. over the 1960 volume, while their expenditures were estimated at \$435,000,000, marking an increase of \$60,000,000 or 16 p.c. Part of the increase in the volume of traffic entering Canada during 1961 may have resulted from an exchange rate at which United States dollars were accepted at a premium in terms of Canadian currency, beginning in June and continuing throughout the remainder of the year. Total entries from the United States in the latter half of 1961 were up by 3 p.c. compared with the same period of 1960, while the first half of the year showed an increase of 2 p.c. The most significant gain occurred in the third quarter, when the premium on United States currency had its greatest effect owing to the large proportion of recreation and vacation travel.

Automobile travel accounted for the majority (24,000,000 or 79 p.c.) of the total crossings and also the largest share (between 61 and 62 p.c.) of the receipts. Aggregate non-automobile entries, although numbering only 6,500,000 or 21 p.c. of the total, accounted for \$168,000,000 or between 38 and 39 p.c. of the receipts. Motorists with visits of 24 hours or less accounted for approximately two thirds of the automobile traffic while the expenditures of the short-term group amounted to about one tenth of the receipts from motorists. On the other hand, most visits of United States residents entering Canada by plane, bus, rail and boat were of a long-term nature (over 24 hours) with transportation charges adding considerably to the cost of their travel.

Estimates of the provincial distribution of receipts from United States travellers in 1961 show Ontario receiving the majority with 56 p.c., slightly higher than the corresponding 1960 percentage. These data should be treated with reservation, however, as estimates are based on the province of entry and there is no way of telling what part of the expenditures, if any, were allotted to provinces other than the one entered. Quebec's share of receipts was the second largest, amounting to 17 p.c., while British Columbia and the Yukon Territory were third with just over 13 p.c., in both cases moderate gains compared to 1960 data. Indications were that Americans again allocated approximately 8 p.c. of their travel expenses to the Atlantic Provinces in 1961 and around 1 p.c. to Saskatchewan, while the percentages going to Manitoba (nearly 3 p.c.) and Alberta (2 p.c.) were both about 0.5 p.c. lower than in the previous year.

Canadian travel expenditures in the United States during 1961 declined by \$2,000,000 or about 0.5 p.c. to \$455,000,000 (exclusive of \$4,000,000 spent on travel to Hawaii). In comparison with payments to the United States for leading commodity imports in 1961, the amount spent on travel ranked second next to non-farm machinery and parts valued at \$512,000,000. In addition, travel expenditures exceeded the value of automobile parts, the second ranking import, by some \$163,000,000. On a quarterly basis, Canadians spent less in the United States during the second, third and fourth quarters of 1961 than in the same periods of 1960, while there was an increase in the first quarter. Generally, Canadian travel payments to the United States exhibit much less seasonal variation than American spending in Canada, which is heavily concentrated in the third quarter. Approximately 33 p.c. of Canadian



The two-storey motor hotel with swimming-pool and landscaped lawns is found almost everywhere. This is a new one in Charlottetown, P.E.I.

disbursements occurred in the third quarter compared with 55 p.c. of United States expenditures in Canada. Similarly, 20 p.c. of the Canadian expenditures occurred in the first quarter and 28 p.c. in the second, while corresponding data for United States spending were 8 p.c. and 19 p.c., respectively. There was not much difference in the proportion of travel disbursements allocated to the fourth quarter, however, amounting to 19 p.c. of the Canadian payments and 18 p.c. of the United States receipts.

Re-entries of Canadian travellers from the United States in 1961 numbered 29,300,000, a gain of approximately 1 p.c. compared with the 1960 volume. Residents returning by automobile represented 23,300,000 of the total visits, a slight decline from the year previous, but spent close to \$238,000,000 or an increase of between 2 and 3 p.c. The aggregate of non-automobile visits by Canadians to the United States in 1961 amounted to 6,000,000, marking an advance of between 4 and 5 p.c. over 1960. Expenditures of this group, however, declined between 3 and 4 p.c. to \$217,000,000, as a result of lower disbursements by all forms of non-automobile travel except plane. As in the case of United States visits to Canada, a high proportion of the Canadian travel movement comprises trips lasting 24 hours or less, accounting for 81 p.c. of the volume in 1961 and only 12 p.c. of the expenditures.

Residents returning direct to Canada from trips overseas in 1961 numbered 223,000, while an estimated 54,000 re-entered via the United States. Expenditures of the two groups were estimated at \$151,000,000 and \$32,000,000, respectively. In comparison with corresponding data for 1960, the volume of direct travel advanced by 34,000 or 18 p.c. while expenditures gained \$11,000,000 or between 7 and 8 p.c. At the same time, re-entries from overseas via the United States increased by 2,000 or about 4 p.c. and payments were up by \$7,000,000 or between 27 and 28 p.c.

Canada's balance of payments deficit on travel account with other countries in 1961 amounted to \$160,000,000, a considerable reduction of \$47,000,000 since 1960, and comprised a \$24,000,000 deficit with the United States plus a \$136,000,000 imbalance with overseas countries.

Canada ranks fifth in world trade; most of it is conducted by ship. Vessels from every country visit Canada's seaports; most of the international cargoes are carried by vessels from Britain, Norway, Liberia, Panama, Germany, Greece, Sweden and Japan.



Oranges and other fruits from the United States are being transhipped to Holland in a French ship at a New Brunswick port.

Plywood from Taiwan is unloaded in Vancouver from a ship of Formosan registry.

Aluminum ingots destined for India are loaded on a British ship at Port Alfred, Que.



Foreign Trade

Since 1958 Canada's trade with other countries has continued to rise and available figures indicate that the 1962 total will be the highest yet recorded. For the first ten months of 1962, total exports from Canada were 8.6 p.c. above those in the same part of the preceding year and were greater in value than in the similar ten months of any previous year. Imports also advanced to a new peak and for January-October of 1962 were 11.6 p.c. above the total for the same period of 1961. Part of this increase was due to the difference in the exchange value of the Canadian dollar but a significant share of the advanced values of both exports and imports could be directly attributed to the greater volume of goods moved. There was an import balance of \$36,700,000 at the end of October which by current indications may be replaced by a surplus of exports when final figures for 1962 are compiled. Summary statistics of Canada's foreign trade giving exports, imports, trade totals and merchandise balances since 1956 appear in the table below.

Exports, Imports and Total Trade of Canada, 1956-62

(Millions of Dollars)

	Exports			Imports	Total Trade	Balance of Trade
	Domestic	Re-exports	Total			
Calendar Year						
1956.....	4,760.4	73.3	4,833.7	5,547.0	10,380.7	-713.2
1957.....	4,788.9	95.3	4,884.1	5,473.3	10,357.5	-589.2
1958.....	4,791.4	102.9	4,894.3	5,050.5	9,944.8	-156.1
1959.....	5,021.7	118.6	5,140.3	5,508.9	10,649.2	-368.6
1960.....	5,255.6	131.2	5,386.8	5,482.7	10,869.5	-95.9
1961.....	5,755.5	140.2	5,895.7	5,771.1	11,666.8	+124.7
January-October						
1961.....	4,709.5	113.1	4,822.7	4,729.2	9,551.9	+93.4
1962 ¹	5,098.9	140.9	5,239.8	5,276.5	10,516.2	-36.7

Note: Figures revised to exclude settlers' effects, tourist purchases, private donations and other special non-commercial transactions.

¹Preliminary.

International Background

Since nearly one quarter of the national income and major portions of the revenues of many important industries are derived from foreign trade, developments in principal world markets are of direct interest to Canada's economy. World commerce advanced approximately 4 p.c. in 1961 over the total for 1960 and in the first half of 1962 was about 6 p.c. above the same period of the preceding year. There was a considerable expansion in trade in primary products during 1962 and the exchange of manufactured products showed a mild but upward movement. There was, however, a slow-down in the rate of increase and many industrial countries have unused production facilities and an undesirably high level of unemployment. Competition on international markets can be expected to be unusually keen in 1963 and the volume of international trade may well tend to level off somewhat during the year.

Among the major trading nations of the world, Canada in 1961 stood fifth in the total value of commodities exchanged, preceded by the United States, the Federal Republic of Germany, Britain and France. In recent years, including 1959, Canada ranked fourth but increased economic activity in France in the past three years put the value of that country's total trade above Canada's. Also in 1961, for the first time since World War II, West Germany's foreign trade exceeded that of Britain. Notable advances were made by Japan and Italy. On a per capita basis, Switzerland, Belgium and the Netherlands were the leaders in world trade then, in descending order Trinidad, Sweden, Denmark, Norway and New Zealand. Canada ranked ninth in 1961 with Hong Kong coming next. In 1957 and 1958, Canada was in second place on a per capita basis and third in 1959 but dropped to eighth in 1960. Figures for leading countries based on available statistics are recorded in the following table.

Leading Countries in World Trade, by Value of Trade and Trade per Capita, 1960 and 1961

Country	Exports, f.o.b.		Imports, c.i.f.		Total trade	
	1960	1961	1960	1961	1960	1961
Value of Trade (Millions of U.S. Dollars)						
World total¹	113,700	118,700	119,490	124,480	233,190	243,180
United States	20,584 ²	20,912 ²	16,446	16,109	37,030 ²	37,021 ²
Germany, Federal Republic	11,418	12,690	12,714	12,314	21,525	23,638
Britain	10,349	10,754	10,107	10,948	23,063	23,068
France	6,864	7,222	6,281	6,679	13,145	13,901
Canada	5,837	6,107	6,150	6,195	11,987	12,302
Netherlands	4,028	4,288	4,491	5,810	8,546	10,046
Japan	4,055	4,236	4,725	5,222	8,373	9,410
Italy	3,648	4,188	4,531	5,087	8,559	9,375
Belgium and Luxembourg	3,775	3,924	3,957	4,219	7,732	8,143
Sweden	2,564	2,738	2,899	2,921	5,463	5,659
Venezuela	2,432	2,415	2,243	2,707	4,123	4,750
Australia	1,962	2,324	2,704	2,394	4,666	4,718
Switzerland	1,880	2,043	2,293	2,131	4,126	3,963
Malaya and Singapore	2,091	1,939	2,035	2,024	3,620	3,576
Denmark	1,494	1,538	1,805	1,873	3,624	3,527
Trade per capita ³ U.S. \$						
Belgium and Luxembourg	399	412	423	492	778	864
Trinidad and Tobago	345	402	407	447	817	855
Switzerland	355	371	418	443	746	806
Netherlands	351	368	395	437	696	793
Sweden	343	363	394	406	730	750
Canada	327	335	351	391	720	739
Denmark	326	333	388	387	653	704
New Zealand	357	328	331	372	688	700
Venezuela	363	321	344	340	671	675
Norway	246	257	344	329	575	545
Finland	222	236	237	266	460	494
Germany, Federal Republic	205	224	224	260	540	475
Australia	191	221	238	258	454	449
Malaya and Singapore	245	220	242	233	483	449
Hong Kong	231	216	238	229	387	417

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 million in 1961 were excluded.

Sources: International Monetary Fund, *International Financial Statistics*, September, 1962; and United Nations Statistical Office, *Population and Vital Statistics Reports*, Series A, Vol. XIV, Nos. 2 and 3.

On the international trading scene during 1962 two factors of outstanding importance drew the main attention. One was the continuance of negotiations by Britain towards entry into the European Economic Community (Common Market); and the second was the passage of the Trade Expansion Act, 1962 by the United States which provides for free trade between EEC countries and the United States in those articles of which 80 p.c. of world production takes place in the Community and/or the United States. The first step would involve the eventual disappearance of Commonwealth preferences while the second, through the operation of international agreements may extend many new concessions to Canadian traders. In any case, the results of these two measures could have profound effects on the Canadian economy.

The European Economic Community (EEC), set up by the Treaty of Rome, came into existence on January 1, 1958 and is composed of France, West Germany, Italy, the Netherlands, Belgium and Luxembourg. By July 1962, these countries had made successive reductions totalling 50 p.c. in their tariffs against each other, except for some rates on agricultural produce, and had abolished practically all import licences and quotas between members. A common agricultural policy has been adopted and the first series of positive steps towards a common external tariff have been taken. Industrial production in the Community rose approximately 32 p.c. between 1958 and 1961, the gross national product advanced by about 21 p.c. and trade figures showed sharp increases. Approximately 8.5 p.c. of Canada's exports were consigned to these countries in 1961 and 5.5 p.c. of our imports were derived from the EEC.

A second European group, the European Free Trade Association (EFTA) was brought into being by the Stockholm Convention of 1959 and is composed of Britain, Norway, Sweden, Denmark, Austria, Switzerland and Portugal. Most of these countries have reduced their tariffs on industrial goods from member countries by 50 p.c. since 1959 and trade between members has advanced considerably. During the past year each one of these countries has declared its intention of seeking some association with EEC particularly if Britain is successful in joining the latter group. In 1961 Canadian exports to EFTA countries amounted to 18 p.c. of our exports to all countries and imports therefrom accounted for 12.1 p.c. but approximately 88 p.c. of these exports to and imports from EFTA countries were with Britain.

Canada together with the United States and eighteen European nations, is a member of the Organization for Economic Co-operation and Development (OECD) formed in December 1960. The main objectives of the Organization are to



These visitors to the Canadian Trade Fair in Lagos, Nigeria in 1962 carry shopping bags which will remind them of their day at the fair for a long time to come.

encourage economic and financial growth within member countries, to contribute to the sound expansion of the less developed nations and to work for an increase in world trade on a multilateral and non-discriminatory basis.

Most of the main world trading nations, Canada included, are associated in the General Agreement on Tariffs and Trade (GATT) and continued their efforts in 1962 towards the reduction of duties and the removal of import restrictions. New techniques for broad-line tariff reductions, better access to world markets for agricultural commodities and further aid for exports from less developed countries were studied. A Canadian-United States proposal was accepted calling for a ministerial meeting early in 1963 to stimulate a more comprehensive trade liberalization program.

In Latin America, the seven original members of the Latin American Free Trade Association (LAFTA)—Argentina, Brazil, Chile, Mexico, Paraguay, Peru and Uruguay—have been joined by Colombia and Ecuador, and Venezuela is considering adherence. The aim of LAFTA is to remove customs duties and other trade restrictions at a minimum reduction rate of 8 p.c. annually, reaching a duty-free trade level between members in 12 years. Already the duty on coffee has been eliminated and the original seven have cut their tariffs by an average of 27 p.c. on some 2,500 items of trade ranging from fruit to razor blades. In Central America, further steps were taken in 1962 towards economic integration and the establishment of a common market among the six Central American republics.

It is evident that the pattern of international commerce is being altered by these regional groups and that a considerable shift from the traditional course can be anticipated in Canadian foreign trade during the coming years. If Britain should join the European Economic Community, the competitive position of Canadian merchandise on the British market would undoubtedly



Alberta oilfield equipment is used in many parts of the world. This shipment to Libya opens still another new market.

undergo significant changes. The implementation by the United States of the Trade Expansion Act of 1962 could lead to a reduction of tariff barriers of consequence to Canadian trade. The more viable the integrated economies of European, Latin American and other bloc countries become, the greater the opportunities for Canadian goods. Continued entry into world markets on a fair competitive basis is of vital importance to Canada.

Canadian Trade Trends

The value of Canadian exports has increased each year since 1954 with particularly large gains in 1955-56, 1960-61 and 1961-62. Total exports in 1961 rose by 9.4 p.c. above the 1960 level and for the first ten months of 1962 increased again by 8.6 p.c. over exports in the same period of the preceding year. The latter was due mainly to advanced shipments to the United States, particularly of iron ore and crude petroleum. Imports increased too, rising 5.3 p.c. in 1961 over the 1960 figures and for the first ten months of 1962 advancing an estimated 11.6 p.c. over those in January-October 1961. A considerable share of this latest increment is due to additional imports from the United States although arrivals of goods from most other areas, except for Britain, also showed gains. Part of the general increase in the value of both exports and imports can be attributed to the difference in the exchange value of the Canadian dollar over the two-year period but this was not solely responsible as the physical volume of merchandise handled showed a considerable rise.

Exports. The forests, farms and mines of Canada are the principal suppliers of the main commodities for our export trade. Shipments of wood, wood products and paper, agricultural and vegetable products, and non-ferrous metals

Newsprint, Canada's leading export, is here being unloaded at the plant of *O Estado de São Paulo*, a newspaper published in São Paulo, Brazil.



and products together account for over two-thirds of total exports. In descending order of importance, newsprint, wheat, lumber, wood pulp, nickel and aluminum were the leading commodities in 1961 and exports of each were valued in excess of \$250,000,000. Increases in all but aluminum were recorded over 1960 figures and large gains were made in shipments of wheat and nickel. Exports of the following were valued at over \$100,000,000—copper, uranium, petroleum, iron ore, asbestos and synthetic rubber and plastics.

Newsprint remained the leading commodity, shipments in 1961 amounting to \$761,313,000 or fractionally more than in 1960. Wheat exports, at \$661,785,000, were 61.2 p.c. greater than in 1960, the main countries of destination being Britain, West Germany, Japan and Communist China. Lumber shipments, which had slowed down, rose by 2.5 p.c. to reach \$354,866,000 and wood pulp, at \$346,661,000 was 6.6 p.c. above 1960. Nickel and products, at \$338,457,000 were up 34.8 p.c. Exports of aluminum, copper and uranium all showed decreases in 1961 as compared to 1960 shipments. Crude petroleum rose by almost two-thirds, iron ore fell by 12.7 p.c. while asbestos increased 9.2 p.c. and synthetic rubber and plastics advanced slightly. Sales of non-farm machinery rose over 40 p.c. while those of farm machinery declined by 6.6 p.c. Exports of aircraft were almost four times as great as in 1960 and there was a continued growth in secondary manufactures.

Most of the principal Canadian export commodities showed gains during the first half of 1962. Newsprint, though still at the top of the list, was slightly below the level of sales in the same period of the preceding year. Wheat shipments increased in the early part of the year, when important gains were made in deliveries to Britain and to Communist China. Lumber sales rose 13.2 p.c. with shipments advancing to the United States, Australia and Japan but declining to Britain. Exports of wood pulp were 9.6 p.c. greater than in the corresponding six months of 1961, due mainly to larger orders from the United States. Shipments of nickel and products rose 9.4 p.c., aluminum and products increased 13.9 p.c. and copper and products slightly, while uranium fell by one-fifth. There were substantial gains in the



A Canadian-designed and produced flight simulator used in training pilots in West Germany, Holland, Belgium, Italy, Greece, Turkey, Denmark and Norway. It has a cockpit complete with all instruments for control of flight, engines, navigation, radar and weapons; it rolls and pitches as in actual flight; on a motion picture screen the trainee can see airport runways, horizon and ground targets.



A Canadian Beaver aircraft flies over Mount Kosciuszko, the highest peak in Australia.

exports of crude petroleum, iron ore and aircraft. Non-farm machinery and electrical apparatus also rose considerably. The following table reviews the changes in values of the 20 leading exports from Canada in recent years.

Principal Domestic Exports, 1959-62

Commodity ¹	Calendar Year			January-June	
	1959	1960	1961	1961	1962
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	722,271	757,930	761,313	367,601	361,960
Wheat.....	441,830	410,453	661,785	274,866	294,028
Lumber and timber.....	323,717	346,300	354,866	169,197	191,622
Wood pulp.....	311,253	325,122	346,661	169,030	185,319
Nickel and products.....	226,857	251,248	338,457	144,102	157,559
Aluminum and products.....	232,426	269,420	250,727	114,983	131,011
Copper and products.....	166,067	223,916	201,803	98,091	99,110
Uranium ores and concentrates.....	311,904	263,541	192,722	105,979	85,578
Petroleum, crude and partly refined.....	74,541	94,450	154,267	63,348	110,044
Iron ore.....	157,814	155,472	135,835	34,687	79,130
Asbestos, unmanufactured.....	110,431	120,113	131,341	39,377	41,627
Synthetic rubber and plastics materials, not shaped.....	²	109,144	111,280	55,098	47,073
Machinery (non-farm) and parts.....	48,403	67,074	96,694	44,307	56,235
Whisky.....	78,262	79,220	80,397	30,906	34,937
Aircraft and parts (except engines).....	24,960	20,745	79,432	24,797	56,864
Fish, fresh and frozen.....	66,523	68,833	72,528	29,296	31,099
Farm implements and machinery (except tractors) and parts.....	110,205	81,279	70,538	44,021	43,440
Wheat flour.....	64,903	62,239	60,783	30,717	28,404
Zinc and products.....	55,465	63,672	58,950	27,136	28,878
Electrical apparatus, n.o.p.....	32,571	47,282	55,817	24,671	33,617

¹Commodities ranked by value of exports in 1961.

²Data for 1959 not comparable.

Imports. For many years, iron and its products have accounted for over one-third of total imports and machinery and parts have headed the list of principal commodities. Automobile parts, petroleum, electrical apparatus, aircraft and parts, engines and boilers, passenger cars, tractors and parts, rolling mill products (iron and steel) and farm implements and machinery

have followed, the order of importance shifting slightly from year to year. In 1961 imports of each of these products exceeded \$95,000,000 in value.

Most of the leading import commodities showed increases in 1961 when compared with arrivals in the preceding year. Non-farm machinery and parts at \$603,097,000, by far the most valuable import, was 4 p.c. above the 1960 total. Automobile parts at \$304,487,000, imports of which had fallen off at the beginning of 1961, advanced sharply in the last part of the year, and were 2.7 p.c. above those in the preceding year. Crude and partly-refined petroleum, at \$291,170,000, rose by 4 p.c. and electrical apparatus, at \$265,260,000, advanced by 1.8 p.c. Arrivals of aircraft and parts valued at \$216,964,000 were nearly double those in the preceding year and engines and boilers, including aircraft engines, also advanced considerably. Imports of aircraft included a large element of military aircraft obtained under special arrangements as well as some purchases of commercial airplanes. Passenger car imports were approximately 29 p.c. less and rolling mill products fell about 17 p.c. Cotton fabric imports were well maintained while paper and paper-board showed a substantial increase.

During the first half of 1962, increases in imports of leading commodities were general when compared with totals for the same period of the preceding year. As usual, non-farm machinery and automobile parts were the two leaders and these showed sizable gains, 18.1 p.c. and 26.3 p.c. respectively, over similar imports in the first half of 1961. Arrivals of electrical apparatus increased almost 30 p.c. and surpassed those of crude petroleum which rose by 3.8 p.c. Imports of aircraft and parts advanced over 40 p.c. but included some \$66,000,000 of military aircraft imported under special arrangements. In the first half of 1962 arrivals of passenger cars were one third higher, engines and boilers were up and rolling mill products and plastics increased considerably. However, tractors and farm implements and machinery were less.

Principal Imports, 1959-62

Commodity ¹	Calendar Year			January-June	
	1959	1960	1961	1961	1962
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.....	585,235	579,801	603,097	292,794	345,893
Automobile parts (except engines).....	288,596	296,571	304,487	154,879	195,671
Petroleum, crude and partly refined.....	277,495	280,071	291,170	141,105	146,514
Electrical apparatus, n.o.p.....	269,402	260,473	265,260	126,850	164,193
Aircraft and parts (except engines).....	76,745	116,494	216,964	99,006	139,305
Engines and boilers.....	135,002	141,419	182,575	94,062	98,237
Automobiles, passenger.....	199,601	220,144	157,003	80,166	106,998
Tractors and parts.....	172,069	131,541	135,947	83,018	74,829
Rolling mill products.....	131,263	133,007	110,812	50,900	56,741
Farm implements and machinery (except tractors) and parts.....	101,752	97,118	95,680	62,309	59,464
Cotton fabrics.....	70,058	75,150	75,896	38,000	40,408
Paperboard, paper and products.....	68,051	68,660	75,382	35,805	40,056
Synthetic plastics, primary forms.....	61,024	64,554	71,382	34,083	38,543
Apparel (except hats) of all textiles.....	67,265	68,998	71,099	31,737	32,518
Fuel oils.....	77,903	66,853	59,789	17,870	17,469
Coal, bituminous.....	65,115	61,821	58,777	24,668	26,172
Sugar, unrefined.....	56,810	50,677	55,204	24,231	24,669
Parcels of small value.....	54,514	53,764	55,066	27,980	39,156
Bauxite and alumina for aluminum.....	31,345	39,529	52,775	20,342	25,316
Coffee, green.....	50,326	47,314	52,184	25,717	27,100

¹Commodities ranked by value of imports in 1961.

Direction of Trade

The chief change in the direction of Canada's trade in 1962 was the increased commerce with the United States, particularly in the proportion of Canadian exports directed to that country. During the first half of 1962, 59.2 p.c. of all domestic exports went to the United States compared with 53.4 p.c. in the same period of 1961. Britain purchased 14.5 p.c. of exports as compared to 16.3 p.c. in the first half of 1961 and the share of exports destined to the remainder of the Commonwealth declined to 5.0 p.c. from 6.2 p.c. The amount going to other countries dropped to 21.3 p.c. for the January-June period of 1962 as compared with 24.1 p.c. in the same six months of 1961, there being declines in the shares of exports sent to Western Europe, Eastern Europe, South and Central America which were only partially offset by an increase in shipments to Asia. Large grain sales to Communist China and the maintenance of a high level of business with Japan raised the proportion of trade with Asia to 7.4 p.c. as compared to 6.6 p.c. in the first half of 1961.

The United States provided the principal segment of all imports, increasing her share for the first half of 1962 to 70.5 p.c. from 68.0 p.c. during the same six months of last year. The proportion of imports supplied by Britain for the similar periods dropped to 9.2 p.c. from 11.4 p.c. while there were only fractional changes in the shares obtained from the remaining Commonwealth countries, at 4.5 p.c., and from other countries, at 15.8 p.c. Among the latter, 6.7 p.c. of all imports came from Western Europe, 4.4 p.c. from South America, 2.0 p.c. from Asia and 1.2 p.c. from Central America and the Antilles.

Leading Trade Partners

The United States is Canada's principal trading partner, each country being the other's best customer. Trade with Britain is second in importance and together these two countries account for approximately three quarters of Canada's international trade. Japan and the Federal Republic of Germany,



Greek stevedores carry sacks of Canadian seed potatoes ashore from barges.



Canada is the major supplier of asbestos to world markets. This is the oldest asbestos mine in Canada at Asbestos, Quebec: in recent years new mines have been opened up in Ontario and British Columbia, and large deposits of asbestos-bearing rock are under development in Newfoundland and Northern Quebec.

each purchasing over \$200,000,000 in 1961, were the third and fourth most important markets for Canadian goods in recent years. As a result of the large wheat and barley sales to Communist China beginning in 1961, that country rose to fifth position among Canada's purchasers, exports being valued at over \$125,000,000. Next in line were Australia, Belgium and Luxembourg, France, Norway, Italy and the Netherlands, each buying between \$60,000,000 and \$80,000,000 in 1961. Considerable quantities of Canadian exports also went to India, Poland, Mexico, the Republic of South Africa, Venezuela, New Zealand, Cuba, Argentina and Brazil. In the first half of 1962 there were several changes among the relative importance of Canada's customers. After the United States, Britain and Japan, Communist China, owing to augmented grain purchases, moved into fourth place, supplanting West Germany which became fifth. Australia followed but then exports to Italy surpassed those to Belgium, Norway and the Netherlands. Sales to France were off nearly one third while those to Venezuela gained sharply in the first six months of 1962.

For imports in 1961, after United States and Britain, Venezuela, the Federal Republic of Germany and Japan were the principal sources of supply. Arrivals from Venezuela amounted to over \$200,000,000 while those from West Germany and Japan were each above \$100,000,000. Following in importance, but considerably less in value, were imports from France, Italy, Belgium and Luxembourg, Saudi Arabia, Jamaica, Australia, the Netherlands,

India and the Netherlands Antilles. In the first six months of 1962 the same order of suppliers was kept by the first ten countries with some variations thereafter.

Imports from Leading Countries, 1959-62¹

Country ²	Calendar Year			January-June	
	1959	1960	1961	1961	1962
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	3,709,065	3,686,625	3,863,968	1,879,934	2,219,118
Britain.....	588,573	588,932	613,224	313,676	289,628
Venezuela.....	204,582	195,189	216,640	100,108	106,545
Germany, Federal Republic.....	123,905	126,988	136,530	63,180	70,584
Japan.....	102,669	110,382	116,607	52,575	58,525
France.....	56,940	50,121	54,280	23,523	25,278
Italy.....	37,656	42,843	49,140	19,026	23,511
Belgium and Luxembourg.....	44,786	41,401	44,780	15,750	21,694
Saudi Arabia.....	70,725	37,402	41,393	18,760	19,709
Jamaica.....	31,012	37,688	39,085	19,874	18,969
Australia.....	41,080	35,508	36,685	14,519	17,580
Netherlands.....	29,154	31,456	33,493	16,185	18,300
India.....	29,221	29,352 ³	33,465 ³	16,740 ³	18,488 ³
Netherlands Antilles.....	47,120	32,521	31,137	7,881	9,622
Brazil.....	28,479	24,883	29,081	12,553	14,525
Switzerland.....	24,514	24,343	26,102	11,322	13,129
Sweden.....	18,077	20,409	24,221	11,191	13,100
Malaya and Singapore.....	28,644	28,120	23,597	10,194	12,463
British Guiana.....	18,033	18,921	23,281	7,251	9,461
Iran.....	11,948	30,740	21,622	9,144	11,779

¹Figures revised to exclude settlers' effects, tourist purchases, private donations and other special and non-commercial transactions.

²Countries ranked by value of imports in 1961.

³Includes Damão, Diu and Goa.

Domestic Exports to Leading Countries, 1959-62¹

Country ²	Calendar Year			January-June	
	1959	1960	1961	1961	1962
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	3,083,151	2,932,171	3,109,109	1,395,965	1,737,637
Britain.....	785,802	915,290	908,837	425,363	421,940
Japan.....	139,724	178,859	231,574	105,304	104,590
Germany, Federal Republic.....	129,345	165,597	212,753	80,843	74,253
China, Communist.....	1,720	8,737	125,448	54,843	99,633
Australia.....	53,929	98,862	78,628	44,248	46,100
Belgium and Luxembourg.....	56,127	69,131	76,121	32,412	34,054
France.....	43,157	72,907	71,923	36,686	24,408
Norway.....	62,308	61,595	69,744	33,772	30,551
Italy.....	31,717	68,393	67,688	35,182	35,032
Netherlands.....	53,849	62,554	60,480	27,672	29,727
India.....	53,654	37,199 ³	43,330 ³	19,642 ³	11,110 ³
Poland.....	15,641	16,665	41,164	5,141	7,060
Mexico.....	27,633	38,023	38,529	19,176	18,011
Republic of South Africa.....	51,243	52,655	37,819	20,243	19,404
Venezuela.....	45,833	35,345	34,978	16,427	21,038
New Zealand.....	13,306	23,858	31,125	17,149	11,309
Cuba.....	15,222	13,038	31,104	15,381	5,498
Argentina.....	7,002	19,364	30,893	13,338	12,384
Brazil.....	14,148	19,755	30,076	14,970	12,077

¹Figures revised to exclude settlers' effects, tourist purchases, private donations, and other special and non-commercial transactions.

²Countries ranked by value of exports in 1961.

³Includes Damão, Diu and Goa.

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.

How do these international transactions take place? From early times man found it necessary to invent money to overcome the awkward problems of barter. Sovereign nations have developed their own currencies and monetary institutions which reflect the objectives they choose to follow. Against the framework of national monetary and economic policies, the problems of settlement and transfers internationally can be quite complex. Statements of the balance of international payments reflect all international transactions and they help to show how the processes take place.

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 have ranged between about \$1,000,000,000 and \$1,500,000,000 in each of the last seven years. 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 fluctuated considerably 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 our 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 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



The first shipment of British Columbia lumber to Spain is unloaded at the port of Barcelona.

in high and persistent deficits from transactions in goods and services were revealed starkly last year. 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. In June 1962 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 by the end of October official holdings of gold and United States dollars were higher than ever before, even apart from the special aid still outstanding.

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 about \$19,000,000,000 at the end of 1962, about \$1,000 for every man, woman and child in Canada. Canada's gross external liabilities amount to over \$28,000,000,000, 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 nearly \$10,000,000,000 of which more than \$4,000,000,000 is represented by government loans to overseas countries, subscriptions to international financial organizations and holdings of gold and foreign exchange.

Dependence on external sources for some types of capital, together with the special advantages often associated with this capital, have led Canada to a degree of foreign ownership and control of industry unique in economic history. 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 varied considerably in different branches of manufacturing. Other areas of Canadian wealth such as utilities, merchandising, housing and social capital are, of course, Canadian-owned and controlled to a much larger extent than are the petroleum, mining or manufacturing industries.

A very substantial part of foreign capital in Canada now takes the form of equity investment and, as a result of the retention of earnings, foreign investments increase each year by some hundreds of millions of dollars more than the capital actually imported. Indeed, during the post-war years the earnings accruing to non-resident investors but voluntarily retained in Canada to finance expansion have amounted to well over \$4,000,000,000. In addition, actual transfers of interest and dividends, in recent years, were of the order of \$700,000,000 annually. The significant part of the corporate profits in the Canadian economy which accrues to non-residents is a measure of the important place of foreign capital in the development of this country.



A display illustrates the varieties and uses of Canadian timber at the Ideal Home Exhibition in London in 1962.

Department of Trade and Commerce

The primary function of the Department of Trade and Commerce is the promotion of external trade, domestic commerce and industrial development. To this end the Department makes available a wide variety of services to businessmen to guide and assist them in selling their products at home and abroad, and to help them in developing new production opportunities. These services are provided by departmental officers located in Ottawa, who are specialists in the various fields of trade promotion, industrial promotion, design, standards and small business, and by a corps of Trade Commissioners stationed around the world.

In 1962, the Department's activities were intensified in all fields. In February a Federal-Provincial Trade and Industrial Promotion Conference in Montreal concluded a series of such conferences, which were held in all provinces during the previous year as a result of the 1960 Ottawa Export Trade Promotion Conference, to discuss problems related to export trade and the measure of guidance and technical assistance available to businessmen from the Department. Departmentally-sponsored Samples Shows were held in the summer in Toronto, Montreal, Winnipeg and Vancouver, to which buyers from all over the U.S.A. were flown in to view a wide variety of goods displayed by Canadian manufacturers.

The National Industrial Expansion Conference brought many of Canada's foremost businessmen to Ottawa in September to consider means of increasing economic industrial activity in Canada. Regional industrial expansion conferences, jointly-sponsored by the Department and provincial government departments, were subsequently held in Quebec, Ontario and Manitoba to consider means of achieving increased production in the regions concerned. Design seminars, sponsored by the National Design Council and the Department, were held at Waterloo, Ontario, and Winnipeg, Manitoba. At these



Some of the more than 200 Canadian businessmen who attended the Industrial Expansion Conference in September 1962 to consider means of increasing the production of processed and manufactured goods for domestic consumption and for export.

conferences, businessmen met with design experts to discuss means of applying the best design techniques to Canadian products.

In 1962, 18 Canadian trade missions were dispatched to 38 countries on six continents to explore and report to all the major Canadian industries upon the export market potential in the areas visited. The Department also organized and co-ordinated participation by Canadian firms in some 37 trade fairs abroad.

For 1963 the Department plans a substantially heavier trade promotion program. "Operation World Markets", a comprehensive, four-pronged export trade promotion campaign, took place from March 23 to May 3, 1963. It comprised a National Canadian Samples Show, held in Toronto on April 2-4, to which over 600 buyers from Britain, Ireland, Western Europe and the West Indies were flown in to be shown products available from all areas of Canada; a World Markets Machinery and Equipment Buying Mission, under which nearly 200 foreign businessmen and government officials were brought to Canada from March 23-31 to visit firms manufacturing machinery and equipment, available for export; an Export Trade Promotion Conference, held in Ottawa from April 16 to May 3, at which over 1,000 Canadian businessmen discussed export opportunities with Canadian trade commissioners from all trading areas of the world; and a Trade Commissioners' Conference, which carried out detailed group studies and discussions on special problems encountered in trading areas abroad.

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 are familiar with economic conditions in their territories and provide information on potential markets for Canadian commodities, on foreign competition, import controls, tariff provisions, shipping facilities and labelling regulations. They can assist in securing reliable agents for Canadian firms and provide introductions for visiting businessmen. Trade commissioners return home periodically and, during tours through Canada, discuss specific problems with firms seeking their guidance. These tours also enable them to refamiliarize themselves with the economic development of Canada.

Reports on conditions in their territories, market opportunities, tariff changes and specific industries of interest to Canadian firms are prepared by trade commissioners for publication in the departmental periodical, *Foreign Trade*, which also carries a wealth of other commercial intelligence of considerable value to exporters.

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 credit and political causes beyond the control of either buyer or exporter. Financing facilities are offered under Section 21A of the Export Credits Insurance Act for capital goods exports, usually connected with major projects, which require credit terms extending beyond 5 years. The maximum aggregate insurance liability authorized is \$600,000,000. Total funds available for financing are \$300,000,000.

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 Canadian 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.



American buyers examine fur hats and gloves at one of the four Canadian Samples Shows held in Toronto, Montreal, Winnipeg and Vancouver. Buyers from the United States were flown in and shown products ranging from farm machinery to pickles, from electronic equipment to vitamin pills.

The Industrial Promotion Branch works closely with industry in finding and developing new opportunities to expand production. It assembles and provides specialized information concerning detailed breakdowns of import statistics, new product opportunities, licensing arrangements, industry surveys and advises on legislation affecting business. It administers the new product program of special capital cost allowances.

The National Design Branch works closely with the National Design Council in assisting industry in fostering good design in Canadian products. For the use of industry, it maintains a National Register of designers and design facilities in Canada and a Design Index, containing an illustrated, descriptive record of Canadian products of good design. Working with industry, it has recently instituted a series of regional design seminars, conferences and exhibitions.

The Small Business Branch provides information and assistance to small business in Canada and serves as a liaison between small businesses and government. It studies the problems of small businesses and advises government and business on desirable measures to meet them. In co-operation with federal and provincial departments, it has organized a management training program on a national basis.

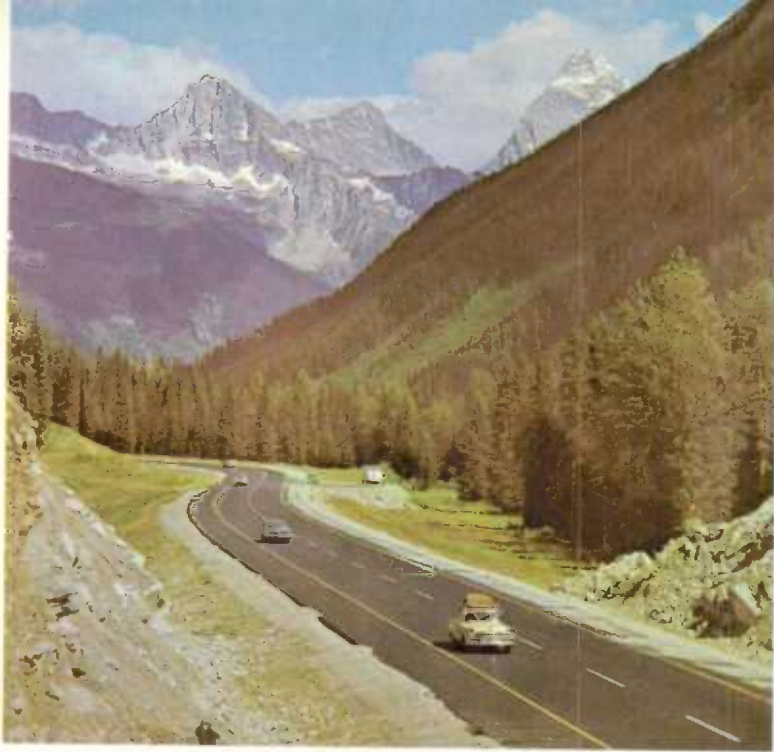
The Standards Branch is responsible for administering federal regulations pertaining to commercial weighing and measuring devices and the marking and labelling of certain products.

The Trade Services Branch administers the controls established under the Export and Import Permits Act and provides related 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 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 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 and San Francisco, and in 1962 opened a new office in London, England.

The Trade Publicity Branch is closely associated with other branches of the Department in providing information of particular interest to businessmen, at home and abroad, in an effort to stimulate the demand for Canadian products. It prepares periodicals and a wide range of publications for use by trade commissioners, at trade fairs and in connection with trade missions. It is responsible for publicity of a trade promotional character and advertising in appropriate media.

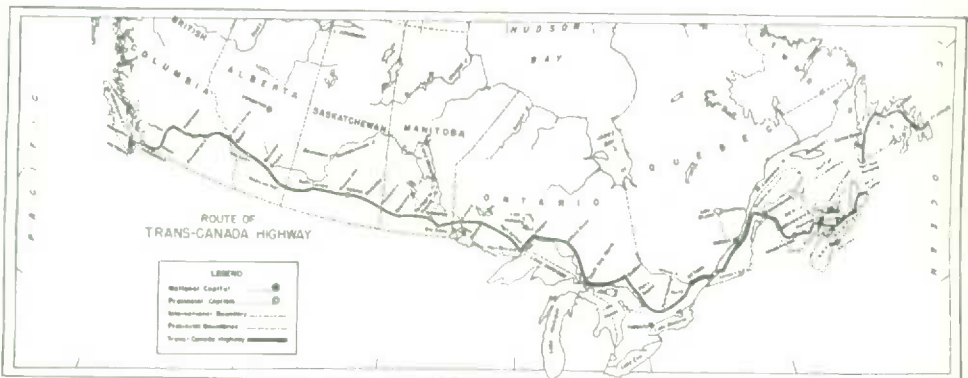


Rogers Pass, B.C., where the final link of the Trans-Canada Highway through the Rocky Mountains was formally opened on September 3, 1962, making it possible to drive from coast to coast on the Trans-Canada route, although some work remains to be done to bring the entire 4,859-mile highway up to standard.

Transportation

The movement of people and things is an integral part of any economy, and this is particularly true in Canada, the world's second largest country with a land area of 3,851,800 square miles, whose people and industries are concentrated mainly along its southern boundary stretching for 4,000 miles from east to west.

Since World War II, a revolution has taken place in Canadian transportation. Passengers have been deserting trains and buses to travel short distances by car and long distances by air. Between 1948 and 1962 the total number of intercity passenger-miles increased by 160 p.c. However, declines



of 35 p.c. and 40 p.c. in intercity passenger-miles were recorded by rail and bus transportation respectively, while travel by passenger car and aircraft increased by 175 p.c. and 640 p.c. respectively. Intercity travel by passenger car continues to be by far the most popular mode of travel, accounting for about 85 p.c. of all intercity passenger miles in 1962.

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.

Through typically rugged country, this ore-train winds its way from mine to port.





This car-tracing desk in the new 8-storey Terminal Building at Moncton, N.B., is the first of its kind to be used in Canada. Jutting out from the circular desk are four working tables, and files containing the latest information on car movements are racked on the rotating centre of the desk, readily available to each clerk.

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.

To ensure that the agencies of transportation operate with maximum efficiency, dependability and economy, the Federal Government exercises a considerable degree of control. Four bodies in particular—the Board of Transport Commissioners for Canada, the Air Transport Board, the Canadian



A fixed conveyor belt carries concentrated iron ore from stockpile to a waiting ship. The loading boom is 75 feet long and can be raised or lowered according to tide, extended and retracted to fill the hatches evenly.

The world's only pulp tanker loads shredded kraft pulp at Campbell River, B.C., for shipment to California for final processing into kraft paper.



Maritime Commission and the National Energy Board—exercise regulatory functions over most forms of public transportation, and also telephone and telegraph services.

The Board of Transport Commissioners has jurisdiction, under more than a score of Acts of Parliament, including the Railway Act and the Transport Act, over transportation by railway and by inland water, and over communication by telephone and telegraph.

Under the Railway Act its jurisdiction is, stated generally, in respect of construction, maintenance and operation of railways that are subject to the legislative authority of the Parliament of Canada, including matters of engineering, location of lines, crossings and crossing protection, safety of train operation, operating rules, investigation of accidents, accommodation for traffic and facilities for service, abandonment of operation, freight and passenger rates, and uniformity of railway accounting. The Board also has certain jurisdiction over telephones and telegraphs, including regulation of the telephone tolls of four telephone companies, and over express traffic and tolls for the use of international bridges and tunnels.

Regulation of railway freight and passenger rates is one of the Board's principal tasks. Since the end of World War II there has been a succession of applications for authority to make general freight rate increases and general telephone rate increases.

The Air Transport Board issues regulations dealing with the classification of air carriers and commercial air services, applications for licences to operate commercial air services, accounts, records and reports, ownership, transfers, consolidations, mergers and leases of commercial air services, traffic tolls and tariffs, and other related matters.

The Canadian Maritime Commission was constituted for the purpose of examining into, keeping records of, and advising the Minister of Transport on matters pertaining to Canadian shipping and shipbuilding services.

The National Energy Board, created in 1959, is the licensing and controlling authority over the import and export of energy and sources of energy, such as natural gas, oil and electric power.

Railways

Two great transcontinental railway systems operate almost all of the railway facilities in Canada—the Canadian National Railway System, a government-owned body, and the Canadian Pacific Railway Company, a joint stock corporation. These systems, though highly competitive, still co-operate in many fields where duplication of service is not profitable. Both systems, in addition to their wide-flung railway and express operations and their extensive maintenance services, conduct other transport facilities—fleets of inland and coastal vessels and ferries, ocean-going steamships, nation-wide telegraph services providing communication between all principal points of Canada with connections to all parts of the world, highway transport services, year-round and resort hotels, and extensive passenger and freight air services over domestic and international routes.

Revenues pertaining to railway operations of the two lines in Canada during 1961 totalled \$1,023,827,079, up 2.2 p.c. from \$1,001,773,679 in 1960. During the same period, railway expenses rose 1.7 p.c. to \$995,255,597 from

\$978,359,096. Revenue per passenger-mile increased slightly to an average of 3.16 cents from 3.09, while revenue per ton-mile of freight averaged 1.54 cents in 1961, in contrast to 1.51 a year earlier.

During 1961, increased emphasis by both railways was placed on improving service to the customer and the development of special types of equipment for particular traffic requirements. Piggyback operations were extended and other services developed to integrate all forms of transportation in handling merchandise traffic. Railway cars loaded in piggyback operations on the two major roads increased 11.1 p.c. to 169,650 in 1961 from 152,647 the previous year.

Incentive fare plans were broadened in 1961 in an effort to stimulate the dwindling passenger trade. Included among the services offered are the "Go Now—Pay Later" time payment plans; credit cards offering credit for railway or airline accommodation, telegraph, express, hotel and car rental services; and plans for a reduction in rates for groups travelling together and all-inclusive rates covering transportation, berths, meals and tips. "Railiners"—self-propelled diesel cars—are used effectively on short runs.

Several forms of transportation are visible in this photograph of the turning basin of the Canadian end of the St. Lawrence Seaway at Fort William, Ontario. In the foreground is a chair lift used for sightseeing in the summer and for skiers in the winter.





The harbour at Owen Sound, Ontario.

Shipping

Except for the coastal trade, the waterways of Canada—the rivers, lakes and canals—are open on equal terms to the shipping of all nations, although most of the inland trade is carried in ships of Canadian registry. During 1961, a total of 147,171 vessels engaged in international or coastwise shipping arrived at Canadian ports, compared with 153,500 vessels in 1960 and 143,953 in 1959. The total tonnage of all cargo loaded and unloaded at Canadian ports in international shipping amounted to 92,948,103 tons in 1961 compared with 89,648,401 tons in 1960. Of this tonnage, a total of 25,322,074 tons, or 27.2 p.c., was carried in vessels of Canadian registry.

Cargoes loaded for and unloaded from the United States totalled 45,581,721 tons and constituted 49 p.c. of Canada's waterborne foreign trade. Of this traffic, Canadian vessels carried 55.2 p.c.

Cargoes loaded at Canadian ports for foreign countries in 1961 rose 6.3 p.c. to 53,760,748 tons from 50,554,086 in 1960. The major commodities exported by ship in 1961 were iron ore (17,080,014 tons), wheat (10,789,054 tons), gypsum (3,866,610 tons), newsprint (2,922,384 tons), lumber and timber (2,878,388 tons), and pulpwood (1,752,445 tons).

Cargoes unloaded from foreign countries totalled 39,187,355 tons compared with 39,094,315 tons in 1960. Import shipments of bituminous coal (10,654,936 tons), crude petroleum (7,650,904 tons), iron ore (5,354,546 tons), fuel oil (3,207,041 tons), and aluminum ore (2,242,386 tons), constituted 74 p.c. of the total unloaded.

Cargoes carried in coastwise shipping (between Canadian ports) totalled 46,416,518 tons compared with 40,777,135 tons in 1960. Of this total, approximately 86 p.c. was carried in Canadian vessels, the remainder almost entirely in vessels of other British registry.

Canadian aids to navigation include adequate marking of dangerous areas by lighthouses and other marine signals, an efficient pilotage service,



The harbour of Sept Îles, Quebec, leads all Canadian ports in foreign cargoes loaded and is fourth in total freight handled. In 1951 it had a population of 1,200 and a property evaluation of \$150,000. In 1961, as a result of tremendous construction as a shipping port to handle iron ore in the newly developed iron mines in Labrador and northern Quebec, its population was 22,000 and its evaluation was \$63,000,000.

ice forecasting and icebreaking services, and radio-signal and direction-finding stations. Comprehensive federal legislation and regulations ensure a high standard of safety for navigation in Canadian waters.

Harbours

A considerable part of the goods carried in Canada, in both domestic and international trade, uses water facilities for some portion of its journey. The interchange of movement from land to water routes and vice versa is handled at many ports on the sea coasts and along the St. Lawrence-Great Lakes waterway all of which are well equipped with the necessary docks and wharves, warehouses, equipment for the handling of bulk freight, harbour railways, grain elevators, coal bunkers, oil storage tanks and dry docks.

Eight of the principal harbours are administered by the National Harbours Board, a Crown corporation responsible to Parliament for their efficient operation. Nine other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are 335 public harbours, all of which are under the supervision of the Department of Transport.

An overall construction program of the National Harbours Board and other administering agencies keeps Canadian harbour facilities in line with requirements. In 1961 this included aids for Seaway channels, new and improved wharves and transit sheds, and additions and improvements to grain elevators and other existing facilities.

Foreign and Coastwise Trade through Ports Handling over 2,000,000 Tons in 1961

Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal.....	4,202,463	6,721,523	4,259,318	5,790,059	20,973,363
Vancouver.....	7,554,582	967,086	3,059,641	3,452,261	15,033,570
Port Arthur.....	2,738,838	66,006	6,547,622	201,749	9,554,215
Sept Îles.....	7,903,160	135,522	560,759	221,917	8,821,358
Hamilton.....	107,928	6,101,350	387,577	1,191,040	7,787,895
Halifax.....	2,308,043	3,088,437	1,534,204	574,625	7,505,309
Sault Ste. Marie.....	532,388	4,106,517	341,969	771,095	5,751,969
Saint John.....	1,241,388	2,585,502	1,011,998	379,024	5,217,912
Toronto.....	346,396	1,918,887	578,411	2,235,739	5,079,433
Quebec.....	983,608	593,539	185,399	2,978,212	4,740,758
Sorel.....	1,451,599	637,254	199,662	2,056,955	4,345,470
Trois Rivières.....	1,305,941	532,871	39,057	2,133,348	4,011,217
New Westminster.....	1,189,160	139,577	1,260,658	1,363,611	3,953,006
Fort William.....	515,687	425,349	2,439,993	498,587	3,879,616
Baie Comeau.....	1,534,579	1,120,926	45,638	723,648	3,424,791
Sydney.....	113,061	361,462	1,894,815	959,902	3,329,240
Sarnia.....	139,339	689,082	1,819,537	514,558	3,162,516
Port Colborne.....	979,581	311,910	673,230	999,908	2,964,629
Port Alfred.....	452,453	2,042,811	11,554	434,645	2,941,463
Bell Island.....	2,256,809	112	336,091	20,962	2,613,974
Hantsport.....	2,153,845	3	—	500	2,154,348
Victoria.....	949,708	77,946	256,896	825,692	2,110,242

Certain of these ports, such as Sept Îles, Bell Island, Port Alfred and Hantsport serve large industrial establishments rather than large aggregations of population and their cargoes are therefore limited mainly to the movement of such heavy bulk raw materials as iron ore at Sept Îles and Bell Island, bauxite at Port Alfred and gypsum at Hantsport.

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 1961 the volume of freight carried through the St. Lawrence section of the Seaway (Montreal to Lake Ontario) totalled 23,672,825 tons compared with 20,752,161 tons in 1960 and 13,499,698 tons in 1956, the peak year prior to the opening of the Seaway in 1959.



The international time clock at the Montreal International Airport.

Subsidiary Canadian canals or branches include the St. Peters Canal between Bras d'Or Lakes and the Atlantic Ocean in Nova Scotia; the St. Ours and Chambly Canals on the Richelieu River, Quebec; the Ste. Anne, Carillon and Grenville Canals on the Ottawa River; the Rideau Canal between the Ottawa River and Lake Ontario; and the Trent and Murray Canals between Lake Ontario and Georgian Bay in Ontario. The commercial value of these canals is not great but they are maintained to control water levels and permit the passage of small vessels and pleasure craft. The Canso Canal, completed in 1957, permits shipping to pass through the causeway connecting Cape Breton Island with the Nova Scotia mainland. During 1961, 57,222,696 tons of freight passed through all Canadian canals in 25,980 vessels.

Civil Aviation

The great increase in the number of larger and faster jet aircraft operated by both domestic and international airlines and using Canadian airports and facilities has resulted in continuous careful study and planning to ensure that appropriate services and control are provided in the development and operation of airports, air traffic control, communications and navigational facilities, meteorological services and adequate and proper regulatory procedures in all areas. New airports at Sault Ste. Marie and Prince Rupert went into operation during the year 1961-62, and municipal airports at Timmins and Kamloops were taken over for operation by the Department of Transport. Plans were developed for the extension and strengthening of runways, taxiways and parking ramps at St. John's, Newfoundland; Sydney and Yarmouth, N.S.; Moncton and Saint John, N.B.; Toronto and London, Ont.; Yorkton, Sask.; Medicine Hat, Alta.; Abbotsford and Terrace, B.C.; Whitehorse, Y.T.; and Cambridge Bay, N.W.T.; the building of new airports at Baie Comeau, P.Q. and Powell River and Pitt Meadows, B.C.; as well as the expansion of 18 other airports.

Throughout the year a number of training courses are given or arranged by the Department of Transport in pilot training, air traffic control, meteorology, radio operation and inspection, and ice observation. Of the 3,061 private pilots licensed, 1,802 were trained under the Department of Transport's assistance plan. Eighty-two schools and 40 flying clubs took part in this program.

The number of revenue passengers transported by Canadian commercial air carriers continued to rise during 1961 to a total of 4,950,897 as compared with 4,727,415 in 1960, an increase of 4.7 p.c. The volume of revenue goods carried, however, dropped to 228,077,376 lbs. from 237,986,139 lbs., a decrease of 4.2 p.c. The six scheduled carriers, those holding a Class 1 licence to provide transportation between designated points in accordance with a schedule, carried 4,456,448 or 90 p.c. of all passengers and 125,744,000 lbs. or 55.1 p.c. of goods.

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 1961, 789,680 revenue passengers and 21,991,694 lbs. of revenue 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 smaller airlines operate non-schedule services, many of them to sections of Canada that are inaccessible by other means of transportation. They also supply such specialized services as recreational flying, aerial photography and surveying, aerial pest control and aerial advertising. Among the private pilots are a growing number of farmers who ride the range, spread fertilizer and insecticides and even do their shopping by air.

The increasing number of aircraft registered in Canada and pilot licences issued by the Department of Transport are indications of the ever growing interest of Canadians in flying. As at June 30, 1962, there was a total of 6,062 registered aircraft in the country, including 2,003 commercial and 3,877 private aircraft. The remaining 182 aircraft were government owned. In March 1962, 18,536 Canadians were holding a pilot licence of one type or another.

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

A helicopter taxi does a "rushing" business taking passengers from downtown Toronto to Malton airport, sightseeing or making short trips.





Prospecting for new mineral bodies is accomplished with greater speed and convenience since the helicopter has made it possible to reach in hours areas which would take days or weeks of travel by foot.

\$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, 1960 and 1961

	Scheduled Carriers	Non- Scheduled Carriers	Total 1961	Total 1960
	\$	\$	\$	\$
Operating revenues:				
Unit toll transportation:				
Passengers.....	183,464,645	3,425,738	186,890,383	168,718,891
Express.....	3,527,361	133,937	3,661,298	3,501,806
Freight.....	9,890,786	1,007,213	10,897,999	10,828,562
Excess baggage.....	1,247,165	80,643	1,327,808	1,847,304
Mail.....	13,089,323	778,587	13,867,910	13,794,133
Total unit toll transportation.....	211,219,280	5,426,118	216,645,398	198,690,696
Bulk transportation (charter and contract).....	6,326,844	21,393,984	27,720,828	27,199,779
Specialty and non-flying services.....	3,414,569	7,093,106	10,507,675	10,083,087
Total operating revenues.....	220,960,693	33,913,208	254,873,901	235,973,562
Operating expenses—total.....	225,558,283	31,887,249	257,445,532	237,714,284
Operating income (loss).....	-4,597,590	2,025,959	-2,571,631	-1,740,722
Net income after income taxes.....	-14,616,924	1,470,501	-13,146,423	-6,450,886
Revenue passengers carried.....	No. 4,456,448	No. 494,449	No. 4,950,897	No. 4,727,415
Revenue goods carried:	lbs.	lbs.	lbs.	lbs.
Cargo (freight and express).....	90,830,190	99,959,941	190,790,131	196,894,906
Excess baggage.....	1,091,355 ¹	446,434	1,537,789	6,458,094
Mail.....	33,822,455	1,927,001	35,749,456	34,633,139
Totals.....	125,744,000	102,333,376	228,077,376	237,986,139

¹ Excludes excess baggage carried by the two largest carriers.

Highways and Roads

The total expenditure by all levels of government on highways, rural roads and urban streets amounted to \$1,067,000,000 in 1960, representing a per capita expenditure of \$60. As in previous years the chief spending agencies were the provincial governments which accounted for 61.1 p.c. of the total expenditure in 1960. Federal government expenditures accounted for 10.9 p.c. and municipal and other agencies for the remainder.

Of the total \$1,067,000,000 spent in 1960, \$795,000,000 represented expenditures on highways and rural roads while urban streets absorbed \$272,000,000. Construction and maintenance expenses accounted for 70 p.c. and 26 p.c. respectively of highway and rural road expenditures and 71 p.c. and 27 p.c. of the amount spent on urban streets.

Total surfaced mileage of highways and rural roads rose to 276,000 miles in 1960, an increase of over 100 p.c. from the 131,000 reported in 1945. Paved roads accounted for 51,000 miles of the total with the remainder being gravel surfaced. Urban street mileage increased to 38,000 miles in the same year with just over 34,000 miles of them surfaced.

Many current major construction projects are concerned with improving the flow of urban traffic in the face of an ever increasing motor vehicle population. To ease traffic congestion, the major metropolitan areas are building limited access thoroughways such as the Metropolitan Boulevard running east and west across Montreal Island, the Ottawa Queensway and the Frederick G. Gardiner Expressway and Don Valley Parkway in Toronto. Some sections of these highways are already open to traffic.

The new Mercier Bridge over the Lachine Canal and the St. Lawrence River improves access to southern Quebec.





A bridge on one of Canada's newest "roads to resources", the Great Slave Highway. The first passenger bus to make the direct run from Edmonton reached Yellowknife in January 1962. Under construction is the Great Slave Railway, bringing steel to the lead-zinc deposits at Pine Point.

Construction of provincial and interprovincial highways has also proceeded apace. In 1960 Quebec became the tenth province to agree to participate in the Trans-Canada Highway program. With the completion of the highway through the Rockies the road was officially opened to traffic in the summer of 1962. However not all stretches of the road are yet up to standard. Target date for the completion of the whole project is now May 1964.

Motor Vehicles. For the sixteenth consecutive year motor vehicle registrations continued to increase, reaching a record 5,517,023 in 1961 compared with 5,256,341 in 1960. Of the total 4,325,682 were passenger car registrations (10 for every 42 Canadians); 1,156,979 were commercial vehicles (including 1,059,640 trucks, 19,549 buses and 77,790 other types); and 34,362 were motorcycles. Registrations by provinces and territories were: Newfoundland, 65,270; Prince Edward Island, 32,166; Nova Scotia, 206,691; New Brunswick, 145,951; Quebec, 1,183,978; Ontario, 2,126,270; Manitoba, 299,998; Saskatchewan, 349,817; Alberta, 509,298; British Columbia, 588,280; and the Yukon and Northwest Territories, 9,304.

Provincial revenues from motor vehicle registrations and licences also reached a new high at \$182,657,486, an increase of \$10,418,627 over 1960. Motive fuel tax revenues rose to \$441,633,613 derived from the sale of 3,283,000,000 gallons, most of which was consumed by motor vehicles on public roads.

During 1961, 437,319 new passenger cars were sold valued at \$1,290,026,000 as well as 74,160 commercial vehicles valued at \$261,382,000. Sales of imported British and European motor vehicles decreased for the first time in seven years to 107,208 vehicles valued at \$223,181,000, a decline of 19.4 p.c. in volume and 16.4 p.c. in value from 1960. As sales of Canadian and United States manufactured motor vehicles in 1961 increased in volume and value by 3.6 p.c. and 1.6 p.c. respectively, the share of the market held by British and European vehicles dropped sharply to 21 p.c. of the total volume

and 14.4 p.c. of the total value. The decrease in the value of the Canadian dollar probably contributed to this decline, with the increasing popularity of the compact car being another major cause.

Although the number of motor vehicle traffic accidents increased by 7.6 p.c. to 266,687 in 1961 from 247,829 in 1960, this rise should be considered in relation to the increase in the number of motor vehicles and the amount of vehicle traffic. On the basis of total accidents per 1,000,000 vehicle-miles, only a slight increase was recorded between 1960 and 1961 from 5.7 to 5.9 while deaths per 100,000,000 vehicle-miles remained unchanged at 7.6.

Motor Transport. Its spectacular growth in the years since World War II has made trucking a very important factor in the formulation of national transportation policies.

In 1960 an estimated 909,400 trucks and road tractors travelled 6,278,111,000 miles for an average distance of 6,900 miles each and carried 478,702,000 tons of goods to perform 15,602,184,000 ton-miles. Trucks for hire accounted for 55,016 or approximately 6.1 p.c. of the total trucks in 1960. They travelled 1,348,359,000 miles, carried 144,912,000 tons of goods and performed 9,984,777,000 ton-miles, or almost two thirds of the total ton-miles performed by all trucks. Revenue earned by these trucks was \$657,862,000, an average of \$12,000 per vehicle and 6.6 cents per ton-mile.

Buses on intercity and rural routes carried 54,100,000 passengers in 1961 compared with 55,600,000 in the previous year. Vehicle-miles travelled increased however to 88,400,000 from 87,900,000 in 1960 and revenues rose to \$43,000,000 from \$41,800,000. The average fare per passenger on these services was 79 cents, an increase of 4 cents from the previous year. Such a low average fare would indicate that short-distance travel was the mainstay of operation.

The new four-lane, divided highway from the Lumsden Valley to Regina, Saskatchewan. Provincial revenues from taxes on gasoline and diesel fuel and the sale of licences pay 90 p.c. of the cost of provincial highways in Saskatchewan, Ontario and Quebec.





Safe-bicycling instructions and tests and special traffic tickets for cyclists who break traffic regulations are features of the safety campaign in the Montreal suburb of St. Laurent.

Urban Transit Services. In 1961 urban transit systems carried 987,000,000 passengers as compared with 1,029,000,000 in 1960, continuing the downward trend in evidence since 1949. The continued mushrooming of subdivisions around major urban centres and the increasing rate of ownership and use of private automobiles have both created serious problems for urban transit systems, for services have now to be provided over larger areas to carry fewer passengers. As the demand to make services more flexible has increased, most systems have come to rely on the motor bus for transporting passengers while trolley coaches and street cars have lost favour to the extent that the latter are now operated only in Toronto.

Growing traffic congestion in down-town areas has led to suggestions that people should be encouraged to use urban transit systems by paying 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 being built, is the only city in Canada with a subway. However, construction of a subway line was begun in Montreal in 1962. Transit systems operating in the larger urban areas are usually municipally owned but in the smaller centres private ownership is more prevalent.

Pipelines

Pipelines are a major element in Canada's vast transportation network. Since 1950, when pipelines were a negligible factor in intercity freight traffic, growth has been so rapid that oil and gas pipelines now account for about one fifth of intercity freight ton-miles.

Until 1950 Canada was a country with large potential reserves of oil and gas landlocked in the centre of a vast continent. The nation was dependent upon imports of coal and oil for the populous areas of the west coast and the lower Great Lakes-St. Lawrence River system. Since then the world's longest oil and gas pipelines, nearly 2,000 miles in length, have been built to link the Western Canadian oil and gas fields of Alberta and Saskatchewan to major cities as far east as Montreal. In addition, two major pipelines, several hundred miles in length, cross the Rocky Mountains and supply the lower mainland of British Columbia and Pacific northwest United States. In 1961 a new 1,100-mile pipeline was completed from Alberta to California, of which 400 miles was in Alberta and British Columbia.

In the 10-year period since 1950, over \$1,300,000,000 has been spent for about 12,800 miles of oil and gas pipeline facilities. Revenues of these pipelines totalled about \$185,000,000 in 1960.

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 1960 the industry carried 316,000,000 barrels or an average of 861,000 barrels per day and the traffic was almost 18,000,000,000 ton-miles.

An oil field pump in Ontario bears mute testimony to the fact that the birthplace of the North American oil industry is still active as both a producing and a consuming region.



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

One of the largest railway tank cars in Canada is used to transport liquefied petroleum gas. The capacity of the 80-foot tank is 25,000 gallons—three times that of the regular-sized 34-foot tank car shown on the right.



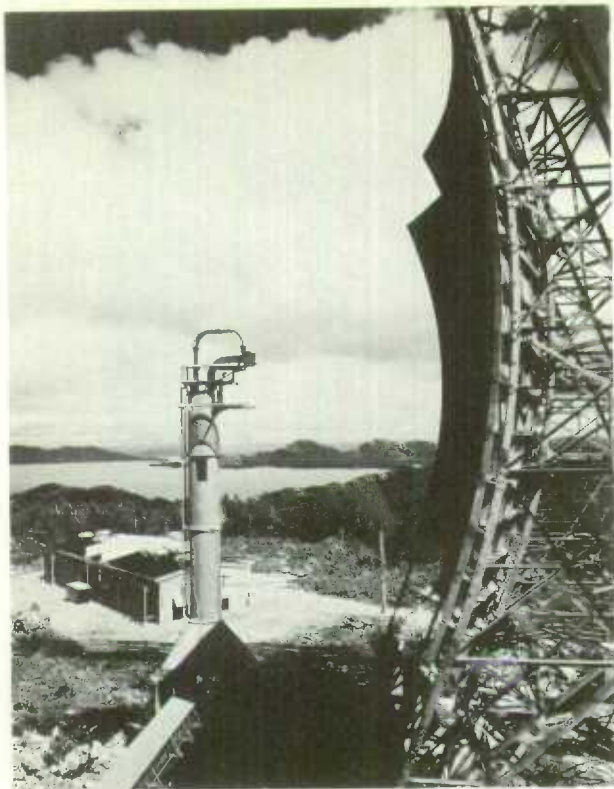


Oil pipelines deliver oil 1,900 miles from prairie fields to Ontario. This is the terminus of the pipeline at Sarnia, one of Canada's major refining centres.

about 380,000,000 Mcf., an increase of 17 p.c. from the previous year. The residential sales account for about 30 p.c. of the market, industrial 55 p.c., and commercial 15 p.c. Alberta is the largest consuming province, taking nearly 40 p.c. of the national market, followed by Ontario which consumes 35 p.c. This industry operates about 26,000 miles of pipeline of which 8,000 are distribution mains smaller than 3" in diameter.

Pipeline Transport

Year	Pipeline Systems	Pipeline Mileage		Net Receipts	Salaries and Wages	Total Assets
		gathering	trunk	'000	\$'000	\$'000
Oil Pipelines						
1955	26	887	4,192	285,111 bbls.	6,196	408,405
1956	30	1,405	4,646	373,542 "	7,930	447,801
1957	32	1,778	5,095	416,898 "	9,541	498,008
1958	32	2,000	5,147	401,751 "	9,322	510,756
1959	37	2,382	5,426	449,068 "	9,351	530,853
1960	39	2,775	5,661	470,669 "	9,639	512,806
1961	...	3,164	5,885	...	9,579	524,225
Gas Pipelines						
1959	13	298	4,110	222,601 Mcf.	6,525	733,676
1960	16	306	4,365	285,202 "	7,147	788,296
Gas Utilities						
	Systems	Pipeline Mileage	Sales		Salaries and Wages	Total Assets
			Natural Gas	Manufactured and Other Gases		
			'000 Mcf.	'000 Mcf.	\$'000	\$'000
1959	86	24,173	283,230	1,491	44,609	810,242
1960	85	26,193	325,609	2,199	43,061	888,244
1961	...	...	377,065	2,829	...	...



A feedhorn tower and feedhorn face into one of eight 70-ton parabolic antennas in a \$5,000,000 tropospheric scatter microwave system which provides communication between Alaska and the 48 states south of the border and to points on the B.C. Coast. Signals are shot six miles into the troposphere, aimed in a beam just over the horizon. A small percentage of the beam is reflected by turbulent tropospheric air, picked up by super-sensitive receivers, increased in strength and transmitted to the next station. This system went into operation in 1962.

Communications

Communications media in Canada are at present in process of intensive development. Widespread networks of telephone, telegraph, television and radio services are linked together to provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change. The familiar challenges of the country—its size, its topography, its climate, its small population—have been met with such success that today Canada possesses communication facilities and service unequalled elsewhere in the world.

Telecommunications

Rapid growth in the scope and diversity of Canada's residence and business telecommunications services continued in 1962. In the home, Canadians with new home interphone service can now answer the door or intercommunicate between rooms from the nearest telephone. In business and industry the trend towards data communication between machines developed swiftly, and both facsimile and telewriting services, which can transmit hand-written messages and sketches instantaneously over the regular telephone network, were introduced during 1962. The Bell Telephone Company of Canada also announced a new dial teletypewriter service, which can transmit messages over local or long distance telephone lines at speeds up to 100 words per minute.

Many telephone systems provide service across the nation; as of January 1, 1961, they number more than 2,550 and range in size from large shareholder-owned companies to small co-operative systems in rural districts. The privately-owned Bell Telephone Company of Canada operates throughout the greater part of Ontario and Quebec as well as in parts of Labrador and the Northwest Territories. It serves 63 p.c. of telephones in the country. The British Columbia Telephone Company, also shareholder-owned, serves 9 p.c. of the total. Four private companies cover the Atlantic Provinces and three provincially-owned systems serve the Prairie Provinces. Canada's eight largest systems are associated in the Trans-Canada Telephone System, which co-ordinates long-distance communication services on a nation-wide basis.

Canadian use of telephone service runs at a high level. During the ten years 1950-1960 the number of telephones has increased from 2,917,092 to 5,728,167—an average of one for three persons. For the past nine years, Canadians have also earned the distinction of leading the rest of the world in the number of telephone conversations per capita. The estimated number of calls on all systems in 1960 was 9,579,861,000, representing an average of 1,672 calls per telephone and 537 calls per person. Long distance calls accounted for 215,274,970 of the total, most of them to points in Canada or between Canada and the United States. Long distance service makes possible the interconnection of practically all telephones in Canada, the United States and most other parts of the world.



Teletype communication came to Yellowknife in 1962, greatly simplifying the handling of freight shipments for trucking firms.



The new teletypewriter machine is capable of transmitting 100 words per minute. A built-in telephone places the vast local and long distance telephone network at the typist's fingertips, providing immediate two-way printed communication.

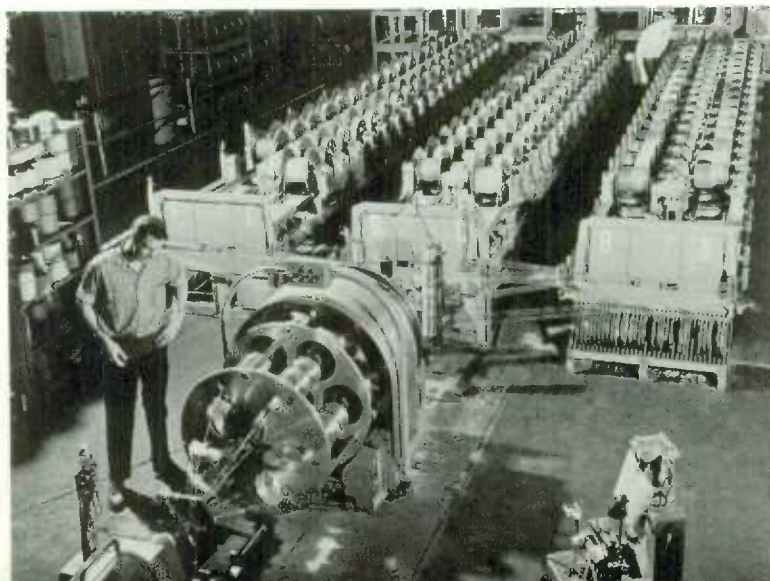
Improvement and extension of local and long distance services continue to absorb the bulk of invested money and labour. At the same time, with the development of the nation and its northward-reaching tendencies, Canadian telephone companies are being called upon to supply communications to many new and important centres of development. Within the past few years, wide reaches of the Canadian northland have been spanned by microwave, tropospheric scatter and high frequency radio systems as well as landlines.

A 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 88 p.c. of all telephones in Canada are now dial operated. In addition to dialing their local calls, many customers can also dial long distance calls. Plans call for the eventual extension of this service to overseas telephone traffic. This will be facilitated by the progressive introduction of "all number calling" throughout Canada and the United States. With "all number calling", all telephone numbers will consist of seven numerals. The new numbers will provide the additional exchange prefixes needed for expanding service and future growth, as well as being compatible with the numbering systems in virtually all overseas countries.

The world's longest single microwave radio relay network, completed in 1958 and spanning Canada from coast to coast, 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. Extensions to the original network have been made, bringing

Pairs of copper wires, individually insulated, are being stranded into units which will be cabled together to form the "core" of a telephone cable. One such cable can carry thousands of telephone conversations at the same time.





There is no problem of rock disposal at the microwave tower site being built atop Pyramid Mountain in the Rockies. Workers merely roll boulders over the edge of the peak, 9,000 feet above the Athabasca Valley. The tower will be part of the transcontinental microwave network.

long distance telephone service and television programs to many of the more remote areas of Canada.

Numerous flexible services are provided by Canadian telephone companies for business and industry. Special conference circuits can be quickly arranged. Direct lines between plants, warehouses, retail outlets and many other business and industrial locations allow rapid exchange and processing of information in various forms. Telephoto and facsimile services make it possible for graphic material to be transmitted and reproduced exactly at a distant point. Radio installations link the traveller with the regular telephone network, giving mobile service to such users as highway departments, trucking and construction firms, fire and ambulance services, police departments and oil pipeline companies. It is also expected that by spring of 1963 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. Canadian telephone companies are continuing to develop services to meet the demand for rapid and efficient transmission of data.

The growth of machine-to-machine communication has to a large extent been made possible by the introduction of data-phone data sets. These 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 re-converts 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 introduced recently provide even greater flexibility for machine-to-machine and voice calling over long distances. Wide area telephone service extends a customer's flat-rate calling to telephones within seven progressively wider zones, the largest of which includes the whole of Canada. Telpak, a new private line inter-city service, is now 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. Alternately, 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.

Nation-wide teletypewriter and leased-wire telegraph services are available through the facilities of the member companies of the Trans-Canada Telephone System. The two major railways provide similar services as well as message telegraph service throughout Canada.

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.

One of the most dramatic developments in the history of overseas communications took place on July 10, 1962, with the successful launching of Telstar, the world's first communications satellite. A miracle of compression, in which thousands of delicate electronic components are packed into a sphere rather less than three feet in diameter, the American Telephone & Telegraph Company's Telstar has carried telephone calls, data from business machines and "live" television programs between many points in North America and Europe. With the demand for overseas communications services—telephone, data and television—continuing to grow at a rapid pace, communications satellites like Telstar are expected to play an ever-increasing role in carrying this world-wide traffic. Although Telstar was the first active satellite to be successfully placed in orbit, other experimental satellites are now under development in the United States and Britain. 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.

Ship-to-shore communications on the East Coast, the St. Lawrence River and the Great Lakes is handled by the Federal Government. On the Pacific Coast the British Columbia Telephone Company operates one of the most extensive radio telephone networks in the world. The radio beams of its northern stations reach out to the Arctic Circle.

Postal Service

There were 11,401 post offices in operation throughout Canada at April 1, 1962. Seven new post offices were in operation and 40 more were under construction; 74 new post office buildings were opened to replace rented quarters.

Post office revenue continued to increase in 1962, reaching an all-time high of \$214,842,417. This was \$8,000,000 higher than last year. The volume of mail, keeping pace with revenue, also increased over the previous year. Letter carrier delivery was inaugurated in six communities, increasing the total number of calls by letter carriers to 2,999,969, more than 100,000 over the previous year. Mail was also delivered on 5,637 rural routes. The use of light vehicles by letter carriers serving outlying areas, which was introduced several years ago experimentally, has now been placed on a regular basis. There are 82 walks using this new method of door-to-door delivery.

Major mechanical handling equipment was put into service at several points, and alterations to existing installations were made at five post offices with a view to providing more rapid service. It is expected that new segregating-cancelling-facing equipment will be put into operation on an experimental basis in 1963.

A trailer being loaded with mail on the recently introduced piggyback railway service between Toronto and Quebec.



A new type of 2-cent stamped envelope was introduced during 1962 at the request of businessmen. This new envelope seals across the top like a regular envelope but has a flap along one side which allows it to be opened for postal inspection. This provides a much more convenient means of mailing circulars than was previously possible with the older type of envelopes.

Money orders issued in 1961-62 increased slightly over the previous year with 56,252,265 domestic money orders being issued for a total value of \$893,512,291. At the same time there was a decrease in the value of money orders issued in Canada for payment in foreign countries.

A study of the organization of the Post Office Department was completed during the year. It is expected that when the recommendations are carried out, there will be a further increase in efficiency and the program which was started by the centralization of the headquarters function in 1961 should be completed in 1963.

The Press

Every weekday in Canada, 115 daily newspapers are published in more than 4,000,000 copies. More than four fifths appear in the afternoon; the remainder in the morning. Of the 115, 97 are in English, 12 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 23 papers; editorial policy is, however, developed at the local level. Most newspapers have no competition in their own areas; only 9 cities have more than one paper.

In addition to the dailies, there are 915 weekly papers, of which 183 are published in French and 54 in other languages.

There are several ways of buying stamps. They can be bought in 25-cent booklets from the new electric stamp vending machine, or in \$1.00 quantities in plastic envelopes.



Six dailies and 54 weeklies are published in languages other than English or French. This Chinese newspaper office also serves as a bulletin board for undeliverable letters.



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 \$392,000,000 yearly, of which amount \$295,000,000 is realized from advertising and \$97,000,000 from sales. Printed and bound books were produced to the value of \$47,000,000 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 \$111,551,000 in 1961, and the latter \$5,630,000. Newspapers, magazines and books consumed \$66,400,000 worth of newsprint and \$28,000,000 worth of book paper in 1960. The publishing and printing industries employed more than 31,400 people whose salaries and wages amounted to \$143,000,000.

Canadian 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.

Foreign Exchange Rates as of January 2, 1963

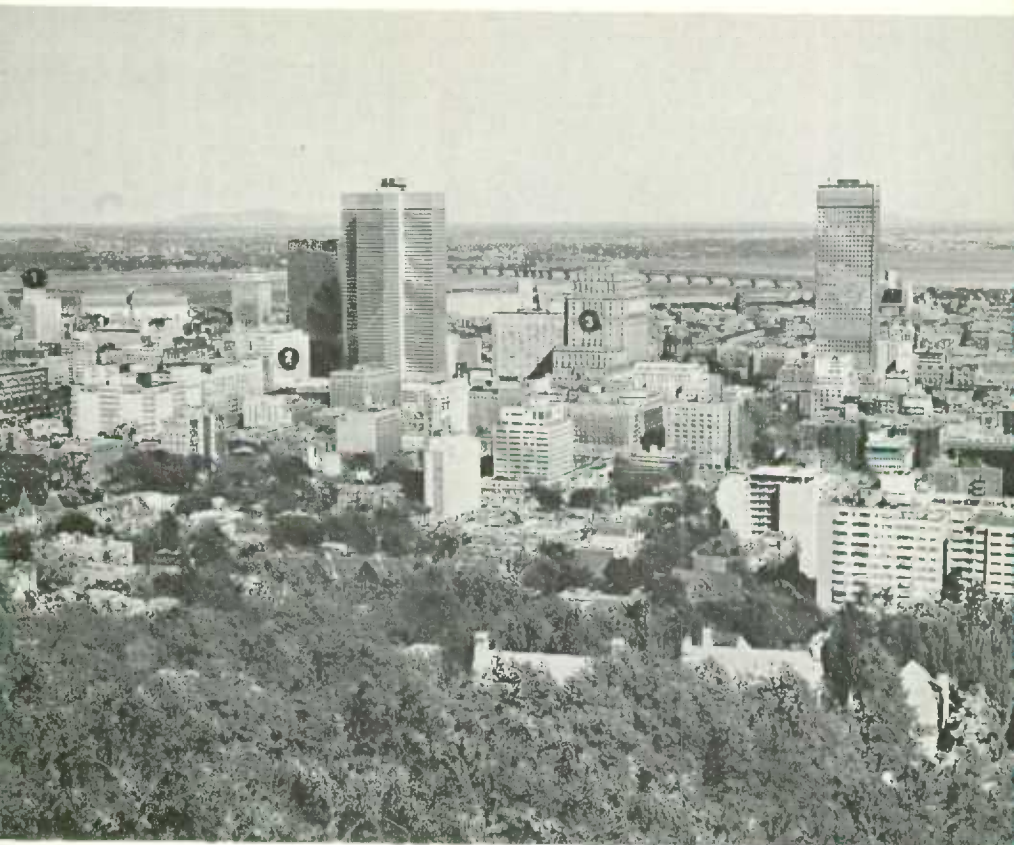
Country	Unit	Can. Dollar Equivalent	Units per Can. Dollar
Australia.....	Pound	2.4166	.4138
Belgium and Luxembourg.....	Franc	.02166	46.17
Britain.....	Pound	3.0207	.3310
France.....	New Franc	.2199	4.55
Germany.....	D Mark	.2693	3.71
Hong Kong.....	Dollar	.1888	5.30
India.....	Rupee	.2266	4.41
Iran.....	Rial*	.01454	68.78
Italy.....	Lira	.001736	576.04
Japan.....	Yen	.002993	334.11
Malaya and Singapore.....	Straits Dollar	.3520	2.84
Mexico.....	Peso	.08620	11.60
Netherlands.....	Florin	.2992	3.34
New Zealand.....	Pound	3.0001	.3333
Norway.....	Krone	.1509	6.63
South Africa.....	Rand	1.5104	.6621
Sweden.....	Krona	.2082	4.80
Switzerland.....	Franc	.2493	4.01
United Arab Republic.....	Pound	2.4783	.4035
United States.....	Dollar	1.0775	.92807
Venezuela.....	Bolivar	.2375	4.21

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. No Canadian bank has failed since 1923. On August 31, 1962 the chartered banks operated 5,294 offices in Canada and 164 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



In this picture are the largest cruciform building in the world and the tallest bank in the Commonwealth. The first is the Royal Bank Building at Place Ville Marie (named after the first settlement on the Island of Montreal in 1642) and the second is the Canadian Imperial Bank of Commerce. Place Ville Marie is a seven-acre plaza and beneath it are four levels containing almost as much space as the 48-storey tower above. Other financial institutions on Montreal's Dorchester Boulevard are (1) the Bank of Montreal, (2) the Prudential Insurance Company of America and (3) the Sun Life Assurance Company of Canada.

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.

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, the chartered banks and various government agencies, especially Central Mortgage and Housing Corporation. 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.



New concepts of functional planning are embodied in this striking concourse of a new bank. Escalators at the back lead to the next street.

Statistics of the Chartered Banks of Canada, Nov. 30, 1962

Bank	Total Assets	Personal Savings Deposits	Total Deposit Liabilities	Loans and Discounts ¹	Liabilities to Shareholders
	\$'000	\$'000	\$'000	\$'000	\$'000
Royal Bank of Canada...	5,128,750	1,702,093	4,673,709	2,350,047	311,244
Canadian Imperial Bank of Commerce.....	4,750,864	1,997,343	4,331,262	2,246,188	262,337
Bank of Montreal.....	3,977,508	1,754,657	3,683,097	2,043,339	212,132
Bank of Nova Scotia.....	2,462,305	857,695	2,304,029	1,514,057	119,546
Toronto-Dominion Bank..	2,202,013	906,523	2,040,743	1,177,330	115,280
Banque Canadienne Nationale.....	847,614	453,437	795,788	449,706	46,210
Provincial Bank of Canada	447,596	202,413	419,600	256,440	25,170
Mercantile Bank of Canada.....	100,254	1,285	93,737	65,974	5,003
Totals.....	19,916,904	7,875,446	18,341,965	10,103,081	1,096,922

¹ Includes mortgages and hypothecs insured under the National Housing Act, 1954.

Credit unions in Canada are co-operative savings and loan organizations controlled by the members. At the beginning of 1962 there were 4,697 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.

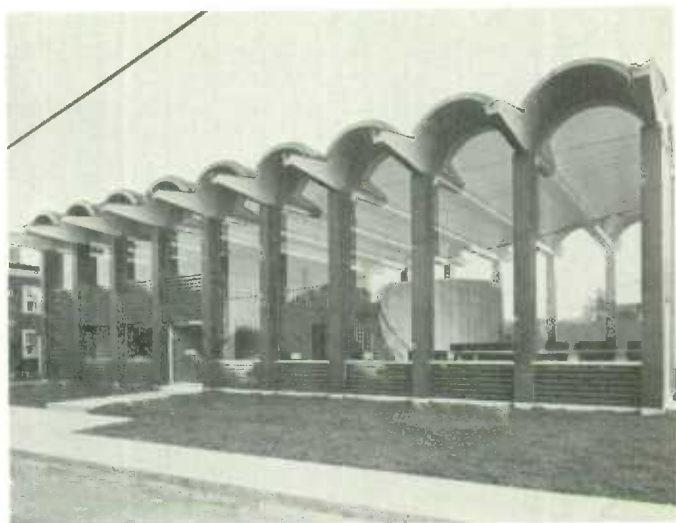
In Canada there are more than 30 trust companies doing business at more than 200 offices. Their basic function is to manage prudently the money and property entrusted to their care. They administer the estates of deceased persons, administer pension funds, manage companies in receivership, act as financial 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

This mock-up teller's wicket is used by the Career Centre of a large bank where new employees are given courses in customer relations, branch routine, telephone technique, personal grooming and bank services.



Extensive use of glass, even for interior partitions, and a scalloped roof make this new Caisse Populaire branch distinctive. Credit unions in Canada have 2,700,000 members and total savings of \$1,387,000,000.



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.

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



Sharp contrast between the old and the new is illustrated in these two buildings, one the former home and the other the new home of an insurance company.



Whether their choice is the old walled city of Quebec, with its newly-extended "Promenade des Gouverneurs" or a remote fishing camp, tourists visit Canada in large numbers. The tourist industry ranks third to newsprint and wheat as an "export" revenue and receipts from non-residents travelling in Canada in 1961 were estimated at \$482,000,000. Even so, balance of payments deficit on travel account with other countries amounted to \$160,000,000.

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 banks, investment dealers, 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 well in advance of the decennial review in 1964 of the federal law governing Canada's chartered banks.

Cargo liners which ply world-wide trade routes line the wharves of the Port of Hamilton to discharge and load cargo. In 1961, marine insurance net premiums earned totalled \$5,600,000 and net claims incurred were almost \$3,000,000.





The old citadel, round which the city of Halifax was built, has recently been restored. This national historic park attracted more than 200,000 visitors in 1960-61.

Government Finance

Government finances received considerable attention in the summer of 1962 with the announcement that, in order to improve the country's foreign exchange position, various austerity measures would be taken. The Prime Minister announced that there would be a \$250,000,000 cut in government spending in a full fiscal year. He also announced certain tariff surcharges and a reduction of duty-free tourist allowances.

Several long-range studies involving government finances are also being carried on by various royal commissions. The Royal Commission on Taxation was appointed in October 1962 "to enquire into and report upon the incidence and effect of taxation imposed by Parliament". Other royal commissions concerned, among other things, with government finances are the Royal Commission on Health Services and the Royal Commission on Government Organization.

Federal, provincial and municipal government finances in Canada are interrelated in many ways. 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 the early revenue and expenditure patterns to meet growing and changing demands.



The federal Department of Transport maintains this amphibious helicopter to perform the twin tasks of lighthouse supply and search and rescue on the British Columbia coast.

Dominion-provincial fiscal conferences have been held at approximately five-year intervals since early in World War II to work out federal-provincial tax-rental and tax-sharing arrangements and, more recently, tax-collection agreements.

The new federal-provincial fiscal arrangements, which came into effect on April 1, 1962, differ substantially from those of previous five-year periods. The "tax-rental" system, in effect since 1942, has been discontinued. The Federal Government has reduced its rates of tax in the personal and corporation income tax fields enabling the provinces to step into these fields as they see fit to do so. The federal personal income tax is to be reduced 16 p.c. in the first taxation year (1962) and one per cent more each year, up to 20 p.c. in the fifth taxation year (1966). The federal corporation income tax has been reduced by 9 p.c. of taxable income for the whole period of the new arrangements.

The provinces are not restricted to the rates of federal withdrawal from the income tax fields. For the 1962 taxation year, Manitoba and Saskatchewan have both levied a personal income tax at a rate six percentage points higher and a corporation income tax one percentage point higher than the rates of federal withdrawal from these fields. In addition, the 1962 corporation income tax rates for Ontario and Quebec continue to be two percentage points higher than the rates of federal withdrawal.

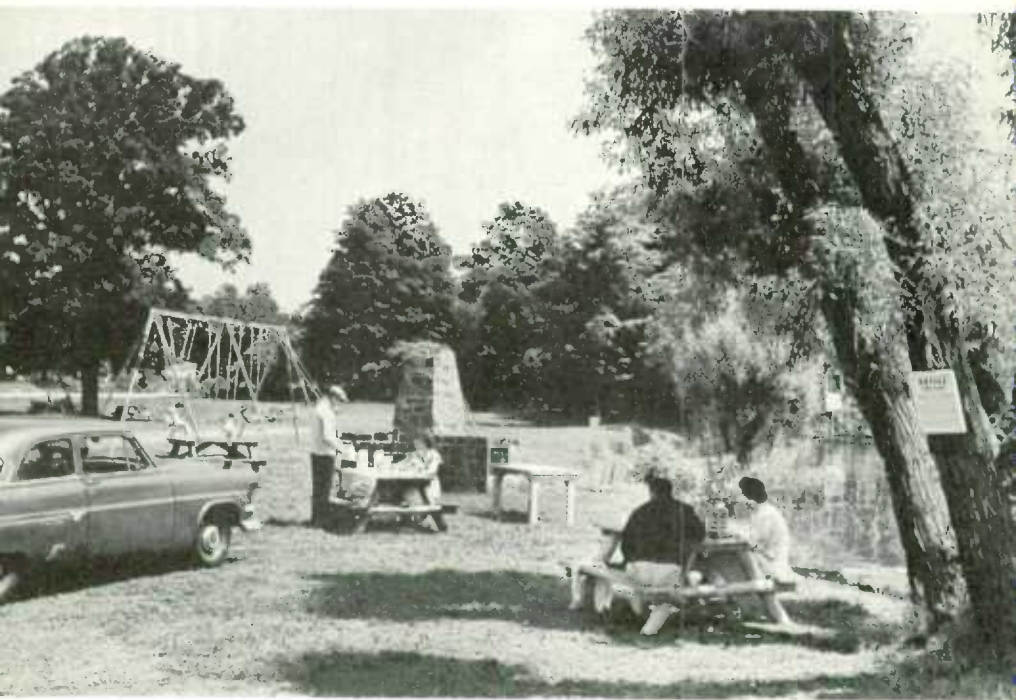
The Federal Government offered to collect (free of charge) the provincial income taxes, provided they were levied on the same basis as the federal income taxes. Quebec did not enter a collection agreement; Ontario will continue to collect its own corporation taxes; all other provincial personal and corporation income taxes will be collected by the Federal Government on behalf of the provinces.

As under the last tax-rental agreement, the Federal Government will pay to a province one half of the yield of the federal estate tax collected in the province, if the province chooses not to levy a succession duty; in the case of provinces levying a succession duty (Quebec and Ontario), the Federal Government will continue to abate its estate tax by 50 p.c.

Under the new arrangements, equalization payments will again be paid. However, the revenues to be "equalized" have been broadened to include 50 p.c. of the revenues the provinces collect from natural resources. Once again there is a stabilization clause to provide a floor below which the payments will not be allowed to drop. The Atlantic Provinces Adjustment Grants are continued for another five years at the increased level of \$35,000,000 per annum. The Additional Grant to Newfoundland of \$8,000,000 per annum is continued for the five-year period.

In addition, there are a number of other important financial agreements between the federal and provincial governments. "Conditional grants" are of increasing importance. These grants are contingent upon the provinces providing certain services at specified standards. For example, under the Hospital Insurance and Diagnostic Services Act, the Federal Government pays the provincial governments an amount equivalent to approximately half the provincial expenditures on provincially-operated hospital insurance schemes. The provinces finance their share of the costs by various means, for example, by personal premiums, sales tax or levies on municipalities.

Federal, provincial and municipal governments all maintain parks and playgrounds for family recreation and tourist enjoyment.



Federal payments to the provinces under this Act amounted to \$284,000,000 in 1961-62. The Federal Government also shares the cost of providing unemployment assistance, blind pensions and disabled persons allowances and makes contributions towards winter works, roads to resources and many other projects.

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.

Road-building and maintenance are charges of all levels of government, amounting to more than \$830,000,000 in 1961.



In most of Canada, keeping roads open in winter is a laborious and expensive job, even with mechanical snow blowers and loaders.

This machine is working on a soil-cement road, a new idea in road construction. The road surface is loosened up, well mixed with dry cement, levelled out and rolled and watered. The new surface is then treated with oil and sprinkled with sand.



Warships at HMC Dockyard, Halifax, with the hoisted white ensign. More than 28 cents of every dollar of federal revenue is spent on national defence.

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. Transactions of the Old Age Security Fund are included in the statistical presentation of "net general revenue" and "net general expenditure" on p. 306 but are not included in "budgetary" revenue and expenditure on p. 307.

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 will be 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,



Close to 13 p.c. of all government revenue—federal, provincial and municipal—is spent on formal education and vocational training.

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.

Net General Revenue and Expenditure of the Federal Government, Year Ended March 31, 1961

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—			
Income—		Defence services and mutual aid.....	1,536,011
Corporations.....	1,380,128	Veterans' pensions and other benefits.....	296,071
Individuals.....	1,940,560	General government.....	265,603
Interest, dividends, and other income going abroad.....	88,174	Protection of persons and property.....	79,187
General sales.....	990,848	Transportation and communications.....	377,005
Excise duties and special excise taxes—		Health.....	267,222
Alcoholic beverages.....	199,109	Social welfare.....	1,327,975
Tobacco.....	342,675	Recreational and cultural services.....	26,608
Automobiles.....	59,627	Education.....	64,480
Other commodities and services.....	31,805	Natural resources and primary industries.....	366,113
Customs import duties.....	498,698	Trade and industrial development.....	11,169
Succession duties.....	84,879	National Capital area planning and development.....	13,087
Other.....	1,622	Debt charges (excluding debt retirement).....	654,411
Total Taxes.....	5,618,125	Payments to government enterprises.....	149,312
Privileges, licences and permits..	23,336	Payments to provincial and municipal governments—	
Sales and services.....	57,030	Federal-provincial tax-sharing arrangements.....	480,873
Fines and penalties.....	1,877	Other.....	82,666
Exchange fund profits.....	32,536	Other expenditure—	
Receipts from government enterprises.....	108,309	International co-operation and assistance.....	81,820
Bullion and coinage.....	8,676	Postal service.....	206,694
Postal service.....	202,004	Other.....	148,767
Other revenue.....	9,720	Non-expend and surplus payments.....	520
Non-revenue and surplus receipts..	41,145	Total Net General Expenditure.....	6,435,594
Total Net General Revenue..	6,102,758		

Finances of the Federal Government, Years Ended March 31, 1868-1962

NOTE.—These figures are derived from the Public Accounts of Canada and differ from those in the preceding table. Revenue and expenditure in this table are on a gross basis and net debt here represents the excess of gross debt over net active assets.

Year	Total Budgetary Revenue	Per Capita Revenue ¹	Total Budgetary Expenditure	Per Capita Expenditure ¹	Net Debt at End of Year	Net Debt per Capita ²
	\$	\$	\$	\$	\$	\$
1868.....	13,687,928	3.95	13,716,422	3.96	75,757,135	21.58
1871.....	19,375,037	5.34	18,871,812	5.21	77,706,518	21.06
1881.....	29,635,298	6.96	32,579,489	7.66	155,395,780	35.93
1891.....	38,579,311	8.07	38,855,130	8.13	237,809,031	49.21
1901.....	52,516,333	9.91	55,502,530	10.47	268,480,004	49.99
1911.....	117,884,328	16.87	121,657,834	17.40	340,042,052	47.18
1921.....	436,888,930	51.06	528,899,290	61.82	2,340,878,984	266.37
1931.....	357,720,435	35.04	441,568,413	43.26	2,261,611,937	217.97
1941.....	872,169,645	76.63	1,249,601,446	109.80	3,648,691,449	317.08
1951.....	3,112,535,948	226.99	2,901,241,698	211.58	11,433,314,948	816.14
1952.....	3,980,908,652	284.17	3,732,875,250	266.46	11,185,281,546	773.59
1953.....	4,360,822,789	301.60	4,337,275,512	299.97	11,161,734,269	751.88
1954.....	4,396,319,583	296.15	4,350,522,378	293.06	11,115,937,064	727.15
1955.....	4,123,513,300	269.74	4,275,362,888	279.67	11,263,080,154	717.49
1956.....	4,400,046,639	280.29	4,433,127,636	282.40	11,280,368,964	701.47
1957.....	5,106,540,880	317.55	4,849,035,298	301.54	11,007,651,158	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	326.19	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

¹ Based on estimated population as at June 1 of the immediately preceding year.

² Based on estimated population as at June 1 of same year.

Revenue and expenditure of the Government of Canada reached an all-time high in the year ended March 31, 1962. The net debt reached a peak of \$13,421,000,000 at March 31, 1946, although the net debt at March 31, 1962 was nearly as high.

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, 1962 the net debt amounted to approximately 36 p.c. of the gross national product.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at March 31, 1962, amounted to almost \$16,946,000,000. The portion of the unmatured funded debt payable in Canada was 99.2 p.c., the portion payable in London amounted to 0.2 p.c. and in New York 0.6 p.c.

Provincial Finance

Net general revenue of provincial governments is expected to be \$3,095,000,000 in 1962-63 and net general expenditure \$3,480,000,000. Increased sales tax revenue, and the new federal-provincial fiscal arrangements with regard to income taxes are the major factors contributing to the higher estimated revenue. This will be the first full year for the application of the increased sales tax from 2 p.c. to 4 p.c. in Quebec effective July 1, 1961, and of the 3 p.c. sales tax introduced on September 1, 1961 in Ontario. In Saskatchewan the provincial sales tax was increased on January 1, 1962,



The new British Columbia Hydro and Power Building in Victoria. Both the B.C. Electric Company and the B.C. Power Commission are provincial government agencies.

from 3 p.c. to 5 p.c. Mainly because of the new federal-provincial arrangements, the estimated corporation income tax shows an increase of \$118,000,000, and the estimated individual income tax an increase of \$278,000,000 over the corresponding preliminary figures for the year ended March 31, 1962.

Estimated expenditure for health and welfare represents over 28 p.c. of the total, education approximately 28 p.c., with expenditure on transportation and communication, mainly highways, representing over 21 p.c. The expenditure on education reflects the provincial share of construction costs of vocational and technical training schools, the construction of which was encouraged by the offer of the Federal Government to contribute 75 p.c. of the approved capital cost up to March 31, 1963.

Net General Revenue and Expenditure of Provincial Governments, Year Ended March 31, 1963¹

Province	Revenue	Expenditure	Province	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.....	72,010	83,810	Man.....	123,890	155,240
P.E.I.....	18,680	21,150	Sask.....	184,750	183,600
N.S.....	107,800	122,210	Alta.....	276,370	281,260
N.B.....	88,930	95,620	B.C.....	345,450	364,870
Que.....	815,700	998,100			
Ont.....	1,061,020	1,174,500	Totals	3,094,600	3,480,360

¹ Estimated.

**Analysis of Net General Revenue and Expenditure
of Provincial Governments, Year Ended March 31, 1963¹**

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—		Transportation and communica-	
Income—corporations	403,081	tions (chiefly roads)	733,920
individuals	362,984	Health	681,090
Sales—general	474,845	Social welfare	305,230
motor fuel and fuel oils	465,275	Education	965,590
other	64,504	Natural resources and primary	
Succession duties	64,001	industries	209,360
Other	174,292	Debt charges (exclusive of debt	
Total taxes	2,008,982	retirement)	99,700
Government of Canada:		Contributions to municipalities	
Statutory subsidies	23,471	(unconditional)	77,680
Federal-Provincial Fiscal Ar-		Other expenditure	407,790
rangements Act:		Total net general expendi-	
Share of federal estate tax	15,278	ture exclusive of debt	
Equalization (including stabi-		retirement	3,480,360
lization)	161,246		
Atlantic Provinces Adjust-			
ment Grants	35,000		
Newfoundland Additional			
Grant	8,000		
Share of income tax on power			
utilities	6,928		
Total Government of			
Canada	249,923		
Privileges, licences and permits	569,785		
Liquor profits	203,625		
Other revenue	62,285		
Total net general revenue	3,094,600		

¹ Estimated.

A large provincial mental hospital.





Asbestos cement pipes for sewer and water systems are gaining in favour over the traditional cast iron, clay or concrete pipes. Sewer and water mains are a continuing expense of ever-growing municipalities.

Direct and indirect debt of provincial and territorial governments, less sinking funds, amounted to \$7,105,000,000 at March 31, 1961, an increase of \$697,000,000 over the previous year. Direct debt at March 31, 1961, was \$3,670,000,000 or \$201 per capita and indirect (guaranteed) debt was \$3,435,000,000 or \$188 per capita.

Municipal Finance

By authority of the British North America Act, 1867, municipal government in Canada is placed under the control of the provincial legislatures. Thus the powers of municipal governments are those given to them by the statutes of their respective provincial governments, except for the Yukon and Northwest Territories where some municipal powers have been assigned to certain localities by the Federal Government and the territorial councils.

The responsibilities delegated to municipalities, although varying from province to province, are largely those of raising revenue locally, of borrowing, and of providing the following services: roads and streets; sanitation; protection to persons and property such as policing, fire fighting, courts and local jails; certain health and welfare services; and some recreation and community services. In most provinces, the municipalities are also responsible for levying and collecting the local taxation for school purposes but exercise little or no control over school administration or finance. In most of Quebec and in some minor localities in some other provinces, the school authorities

levy and collect local taxes. In Newfoundland (except for local school tax area authorities which levy and collect school taxes in two municipalities) school boards, which are largely denominational, receive most of their funds from the provincial government.

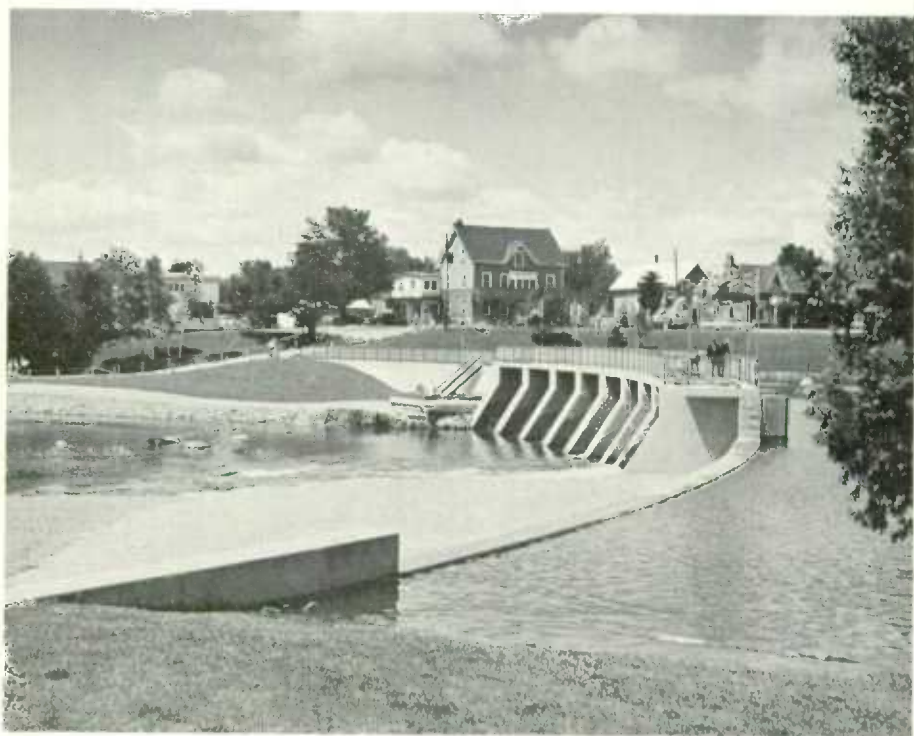
The major revenue source available to municipalities, yielding over two thirds of the total, is the real property tax. It is supplemented in varying degrees by taxation of personal property, business and other taxes, fines, licences and permits, public utility contributions and provincial grants and subsidies.

The issuance of municipal debt is limited by provincial legislation or regulations. More and more, provincial governments are aiding municipalities and schools in their capital projects by various methods, such as outright grants, loans, sharing of debt charges and assumption of debt.

For the calendar year 1960 gross current revenue and expenditure of all municipal governments in Canada approximated \$1,860,000,000. For 1961 it is estimated to be in the neighbourhood of \$1,970,000,000.

As at December 31, 1960, total direct debt of municipal governments, including activities carried on under their authority or by bodies which are co-existent with the municipalities, amounted to approximately \$4,880,000,000. It is probable that this amount was close to \$5,300,000,000 by the end of 1961.

Once the site of an old lumber mill, this dam was built by the provincial government to maintain the water level in the Lake of Bays area of Ontario, in view of the importance of the area to tourists and cottagers.



APPENDIX

Following dissolution of the Twenty-fifth Parliament on February 5, 1963, and the holding of the Twenty-sixth General Election on April 8, 1963 which returned 130 Liberals, 94 Progressive Conservatives, 24 Social Crediters and 17 New Democrats, Prime Minister the Rt. Hon. John George Diefenbaker tendered the resignation of his Ministry, effective April 22, and the Governor General called upon the Hon. Lester Bowles Pearson, Leader of the Liberal Party, to form the Nineteenth Ministry of Canada.

Members of the Nineteenth Ministry

(According to precedence and as sworn in at noon April 22, 1963)

Hon. Lester Bowles Pearson.....	Prime Minister
Hon. Lionel Chevrier.....	Minister of Justice and Attorney General
Hon. Paul Joseph James Martin.....	Secretary of State for External Affairs
Hon. William Ross Macdonald.....	Minister without Portfolio and Leader of the Government in the Senate
Hon. John Whitney Pickersgill.....	Secretary of State of Canada
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. Azellus Denis.....	Postmaster General
Hon. George James McIlraith.....	Minister of Transport
Hon. William Moore Benidickson.....	Minister of Mines and Technical Surveys
Hon. Arthur Laing.....	Minister of Northern Affairs and National Resources
Hon. Maurice Lamontagne.....	President of the Queen's Privy Council for Canada
Hon. John Richard Garland.....	Minister of National Revenue
Hon. Lucien Cardin.....	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. Julia LaMarsh.....	Minister of National Health and Welfare
Hon. Charles Mills Drury.....	Minister of Defence Production
Hon. Guy Favreau.....	Minister of Citizenship and Immigration
Hon. John Robert Nicholson.....	Minister of Forestry
Hon. Harry Hays.....	Minister of Agriculture
Hon. Rene Tremblay.....	Minister without Portfolio

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Abbreviations

bbl.—barrel
 bu.—bushel
 cu. ft.—cubic feet
 cwt.—hundredweight
 ft. b.m.—feet board measure
 gal.—gallon
 hp.—horse-power
 kw.—kilowatt

lb.—pound
 M.—thousand
 Mcf.—1,000 cubic feet (gas)
 mm.—millimetre
 oz. t.—ounces troy
 p.c.—per cent
 sq. mi.—square miles
 kwh.—kilowatt hour



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