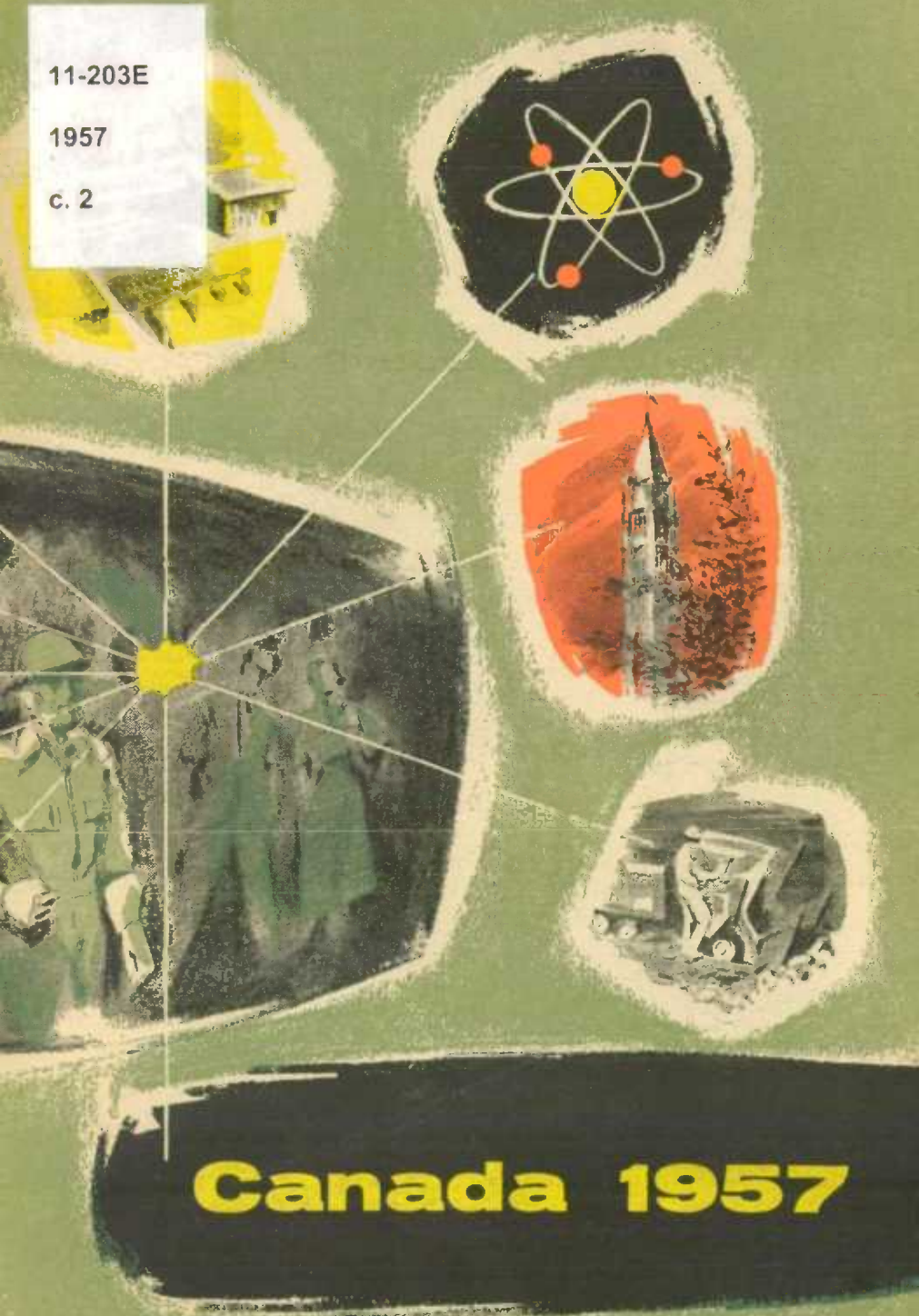
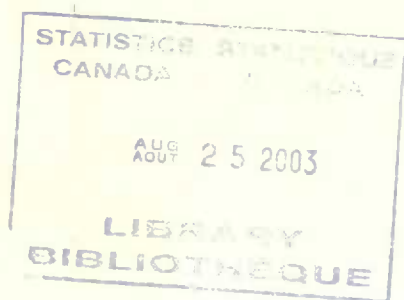


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FIX your eyes on the greatness of your country as you have it before you day by day, fall in love with her, and when you feel her great, remember that her greatness was won by men with courage, with knowledge of their duty, and with a sense of honour in action, who, even if they failed in some venture, would not think of depriving the country of their powers but laid them at her feet as their fairest offering.

Pericles



Ram River, Alberta,
by Richard Harrington

*"Here life springs glad and free and rude, and I
Shall drink it to the full, and go content."*



Prepared in the
CANADA YEAR BOOK SECTION
INFORMATION SERVICES DIVISION
DOMINION BUREAU OF STATISTICS
Ottawa

**The Official Handbook
of Present Conditions
and Recent Progress**

PUBLISHED UNDER
THE AUTHORITY OF
THE RIGHT HON. C. D. HOWE
MINISTER OF TRADE AND COMMERCE

Canada 1957

PRICE \$1.00

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1957

Foreword

THE illustrated Canada Handbook offers to the Canadian public and to the peoples of other lands a factual, annual survey of the Canadian economy set in a statistical background and illuminated with illustrations of the recent economic, social and cultural development of the nation. In text and tables, in layout and illustrations, *Canada 1957* seeks to portray the present conditions of the Canadian people, their richly endowed resources, their democratic institutions and way of life, and their dynamic economy.

Apart from its special features, *Canada 1957* draws on the same official sources of the Dominion Bureau of Statistics and the various departments of the Government of Canada that contribute to the larger reference volume, the *Canada Year Book*. The illustrations are selected from a wide range of governmental, commercial, press and private sources.

Canada 1957 is produced in the Canada Year Book Section of the Information Services Division—Miss M. Pink, Assistant Editor and Chief of the Section; Dr. C. C. Lingard, Editor and Director of the Division.

Walter E. Duffett.

Dominion Statistician

Dominion Bureau of Statistics,
Ottawa, April 17, 1957.

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Acknowledgments

Grateful acknowledgment is made to all those who supplied information for this publication. Special thanks are extended to Mr. Walter B. Herbert of The Canada Foundation for the preparation of material on "Cultural Relationships". The art work for the cover, title page and section headings was executed by the House of Engravers, Toronto.

Acknowledgment is also made to the following sources for assistance in supplying photographic material:—

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The historic beginnings of settlement on the mainland of Canada and of its expansion westward are associated with the name of Samuel de Champlain, model explorer and colonizer, dedicated to the ideal of nation-building in the vast expanses of a New World. Shifting his base from Acadia to Quebec in 1608, he and his followers swept up the St. Lawrence-Great Lakes waterways and tributaries and westward to Lake Huron with brilliant vision. Later generations of Canadian and British explorers and fur traders pursued the same vision in laying the geographical foundation of this great free nation of the North "a mari usque ad mare".

THIS NATION OF CANADA



THIS nation of Canada—ten Provinces and two vast Territories extending over an area second only in size to that of its neighbour across the polar regions—may be considered in some respects unique among the nations of the world. Its fascinating story extends back at least four centuries, to the time when the abundant cod fisheries off the Grand Banks first linked the stream of north-western European civilization to the Labrador-Newfoundland projection of the North American Continent. The geographical framework of this vast northern political entity, which the 'Fathers of Confederation' fashioned with consummate vision and statecraft only eighty-five years ago, had been roughly staked out long before as fur-trading areas by French-Canadian explorers and voyageurs and by the Northwest and Hudson's Bay Companies—united in 1821. Lords of Canada's unmatched lakes and rivers and its immense plains and forests, these self-reliant intrepid traders controlled the great expanses linking the five diverse and widely separated areas of British territory that survived the American Revolution (1775-1783), areas that awaited, in the middle of the Nineteenth Century, a set of circumstances which goaded their straggling population of less than four million people to achieve political and economic survival through the creation of a federal state.

Of these five isolated regions the most easterly comprised the present-day Atlantic Provinces of Nova Scotia, Prince Edward Island, New Brunswick and Newfoundland. While the English fished in Newfoundland waters continuously since John Cabot sighted land in 1497 and John Guy made the first formal attempt at colonization in Conception Bay in 1610, they shared both Newfoundland and Nova Scotian (Acadian) waters and inlets with French fishermen from Normandy and Brittany until the struggle for empire engulfed the region in the first half of the Eighteenth Century. Although the Treaty of Utrecht (1713) acknowledged British sovereignty over Newfoundland and Acadia (except Cape Breton), the English-French conflict continued in Acadia until 1755 and in the St. Lawrence valley until 1760. The fifty-year interval witnessed the founding of Halifax in 1749 as a British military and naval base; the expulsion of the Acadians, who declined the oath of allegiance, in 1755; and the settling of New Englanders on the vacated lands along the Bay of Fundy, of German fishermen at Lunenburg and of Yorkshire farmers at Chignecto. When the thirteen American colonies launched their

war of independence (1775-83) against Great Britain, Nova Scotia became the logical refuge for Loyalists of broken fortunes who had supported the Crown. The doubling of its population resulted in the partitioning of Nova Scotia and the establishment of New Brunswick as a separate province in 1784.

In the valley of the St. Lawrence to the west lay the second region, ceded by France to Great Britain in 1763. Here, shut off by an almost impenetrable wilderness of forest and an ice-bound waterway in winter, dwelt a people distinctively French and Roman Catholic, apart from a few thousand British and colonial merchants and soldiers at Quebec and Montreal and some Loyalist settlers in the Eastern Townships to the south.

Beyond the predominantly French though vigorously Canadian province of Lower Canada lay the third region—Upper Canada, created in 1791 following the migration of Loyalists (after the American Revolution) to the north shore of the Upper St. Lawrence, Lake Ontario and the Niagara Peninsula, and subsequently strengthened by a steady stream of settlers from the American Middle West and by hundreds of thousands of colonists from the British Isles seeking freedom from the economic dislocations of the Industrial Revolution through a new life abroad.

A thousand miles to the west lay the remote and isolated Red River Settlement, the fourth region in the east-west chain of colonies on British soil. In 1834 this little settlement reverted to the Hudson's Bay Company which held it secure against the westward movement of American settlement until it might serve as the "keystone of the arch" of Canadian transcontinental federation a generation later.

Even more remote from the Canadas was the fifth area—the mainland province of British Columbia, established in 1858 and extended five years later to the 60th parallel of north latitude and east to the Rocky Mountains and subsequently strengthened by regional union with Vancouver Island in 1867. The international boundary had, of course, been extended in 1846 along the 49th parallel across the prairies to the Pacific.

Such were the five regions, isolated in a vast transcontinental imperial domain barely 100 years ago and awaiting both internal and external cohesive and coercive forces and circumstances that would weld them, in the space of less than a decade, into a Canadian federal state.

In both Europe and North America a new age was at hand, breathing industrialism, liberal democracy and nationalism. Under the impact of the doctrines of free trade and laissez faire the Mother Country abolished the old mercantile system in 1849, repealed the preferential Corn Laws and conceded "responsible government" to her British American colonies. And this apparent withdrawal of Great Britain from her North American commitments, including preparation for the transfer of the Hudson's Bay Company Territories to Canada (eventuating in 1870), drove the colonies to shake off their complacency and plan for their own political and economic future at a time when their southern neighbour was acquisitive and unfriendly.

The cumulative effect of abnormal pressures and events in neighbouring United States in the early 1860's—not the least of which was the Civil War which shattered the Anglo-American concord—served to quicken into activity the transcontinental ambitions of British Americans to preserve

their inheritance in the northern half of this Continent. Nothing but an expanding Canada could hope to hold the West envisaged by the Fathers of Confederation as a new frontier of settlement where the sons of Canadians and of new immigrants could make their homes and build whole provinces plentifully rich in resources for a thriving new national economy. Nothing but a political union of the scattered regions and provinces could ensure strenuous colonial efforts at self-defence and end the cloud of uncertainty.

Moreover, these political pressures and impulses towards union were matched by propitious timing in the economic sphere. The Industrial Revolution was also at hand with its first railways and tiny ships and factories. British American manufacturing, commercial and railway interests saw in political union the means of establishing an economic base strong enough to support the costly national enterprises of steam and steel. The building of the Intercolonial Railway to link Canada and the Maritime Provinces and the carrying out of the ambitious design of a transcontinental railway through British territory might now, in the new circumstances, be realized.

But the potency of all these impulses was strengthened by another incentive with its roots in the cultural division of the people of Canada. The legislative union of Upper and Lower Canada in 1841 had sought to combine two societies—partly Protestant and partly Roman Catholic and confronted with problems of religious organizations and endowments and of education derived from two philosophies with distinct ethnic and linguistic traditions—into a single province with equal representation for Canada West and Canada East in both the provincial legislature and the provincial cabinet. When more than twenty years of close divisions between balanced political parties resulted in short-lived governments and virtual deadlock, federalist-minded Canadian leaders harmonized their differences in a coalition

The prosperity of Montreal, that most beautiful and modern of business cities, has not destroyed its old world atmosphere. Close to the waterfront are the reminders of a past replete with romance, faith, determination and courage. Part of the foundation of the Church of Notre Dame de Bonsecours dates back to 1657 and the structure itself to 1771—its name perpetuates the gratitude of the French colonists for deliverance from the Iroquois.





A Hudson's Bay Company fort at Nanaimo on the east coast of Vancouver Island, a relic of the middle 1800's when that Company reigned supreme in the vast territory stretching from Hudson Bay to the Pacific and from the 49th Parallel to the Arctic Ocean. Vancouver Island itself was given to the Company by Royal Grant in 1849, on condition that it be colonized.

government in 1864, invited themselves to the Charlottetown conference ostensibly called to consider legislative union of the Maritime Provinces and persuaded the delegates to move on to Quebec where in October of the same year they hammered out the seventy-two Resolutions which, with substantial revision at the Westminster Palace Hotel conference in 1866, were to form the constitutional basis of a Canadian transcontinental federal union that one day would be able to stand alone.

Such were the impulses, ambitions, forces and events that prompted the passage by the Imperial Parliament of the British North America Act of 1867, uniting federally Canada East and Canada West (renamed Quebec and Ontario), Nova Scotia and New Brunswick into "One Dominion under the Name of Canada". Then, with unmatched speed and momentum the Canadian nation expanded westward across the Continent to the Pacific. The acquisition by Canada of Rupert's Land and the North-West Territories enabled the Red River Settlement to receive provincial institutions under the name of 'Manitoba' in 1870; permitted the pledging of a transcontinental railway linking the Pacific with the Canadian East, thereby bringing British Columbia into the Union in 1871; laid the land basis for the adoption of a free-homestead policy for the Canadian prairies that in conjunction with the completion of the Canadian Pacific Railway brought wave upon wave of settlers into the Territories in such numbers as to justify the creation of the two Provinces of Alberta and Saskatchewan in 1905. The garden Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

Canada evolved the foundations of nationhood peacefully and piecemeal. Building upon the British inheritance of parliamentary institutions which

it adapted, along with the application of refined federal principles, to a vast new land of scattered communities and diverse peoples, Canada gradually expanded the scope of responsible cabinet government from its initial application to purely local and internal issues (1848) until with growing momentum it added the sovereign functions of external trade, diplomatic negotiations and representation abroad, the formation of foreign policy, the making of peace and war, and brought the functions of the Governor General into alignment with those of the Crown in Great Britain. The Canadian Citizenship Act passed in 1947 and the appointment in 1952 of a Canadian Governor General, which required merely the advice of the Prime Minister of Canada, served to climax the Canadian experiment in nation-building.

Moreover, in the building of a sovereign nation in North America possessing distinctive political institutions and without resort to revolution or civil war but through the application of moderation, compromise, toleration and resourcefulness in the face of diversity, Canada gave to the British people and to the world a unique manner of nationhood that has since come to maturity in every part of the Commonwealth. Indeed, from the international aspects of the Canadian experiment there has evolved, through its formative experiences, a sort of 'entente' or working union of sovereign nations, a Commonwealth of Nations, in which the mechanics of colonial subordination have been completely supplanted by equality of status and free association among its members, by freedom of choice and decision in respect to their responses to the tensions and challenges of the modern world, by broad loyalties and common interests and aspirations, and by devotion to the ideals of peace and freedom for all mankind.

Canada's External Relations

The rapid expansion of Canada's diplomatic and consular force is a measure of the increasingly important role the nation has been playing in international affairs since the end of World War II. From a total of 32 officers in the Department of External Affairs serving in Ottawa and at seven diplomatic missions abroad in 1939, the Department in 1957 had 364 officers of whom 150 were in Ottawa and the remainder abroad at 60 posts. Remarkable internal expansion has made it economically possible for Canada to assume larger international responsibilities but at the same time pressure of external developments and the Communist threat to world peace has necessitated closer association with other free nations and the assumption of more specific international obligations even with respect to areas such as the Middle East where there may appear to be few direct Canadian interests.

Briefly, the basic objectives of Canada's foreign policy are the avoidance of conflict and, in the economic field, the development of the widest possible area and volume of trade on a multilateral basis. The principal elements of the policy have been membership in the Commonwealth of Nations, in the United Nations and in the North Atlantic Treaty Organization as well as maintenance of close relations with the United States of America.

The Commonwealth.—Since 1945 perhaps the most constant element of Canada's association in the Commonwealth has been its relationship with the United Kingdom which, while changing, has lost none of its long-standing close and friendly character. Such changes as the accession of Newfoundland,



Vietnamese students are instructed in the use, care and maintenance of agricultural machinery at Laval University Agricultural School, Ste. Anne de la Pocatière, Que.

the discontinuance of appeals to the Judicial Committee of the Privy Council and common membership in NATO have been logical developments in a natural and historical evolution.

One of the more dramatic Commonwealth initiatives has been the establishment of the Colombo Plan for aid to materially under-developed countries in southeast Asia. From its beginning in 1950 to April 1957 Canada has made \$162,400,000 available to the Plan. These contributions have helped member countries with a number of capital projects including, in India, the Mayurakshi and Kundah hydro-electric and irrigation developments, and the Canada-India atomic reactor; in Pakistan, the Ganges and Warsak irrigation and power projects, and the Canada Cement plant; and in Ceylon, a large-scale fisheries development program. Canadian experts have been sent to south and southeast Asia and a large number of scholars from that area have received training in Canada in agriculture, engineering, medicine, business and public administration, and a wide variety of other fields. The present membership in the Colombo Plan includes: Australia, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Malaya and British Borneo, Nepal, New Zealand, Pakistan, the Philippines, Thailand, the United Kingdom, the United States and Vietnam.

The United Nations.—Canada has been active in all phases of the work of the United Nations since 1945 when she participated in the drafting of the United Nations Charter at San Francisco. Then, as now, Canada shared the conviction that this world organization was essential to international security and progress and that Canada must be willing to assume its full share of responsibility for maintaining the peace and for promoting the well-being of the postwar world through the United Nations.

When lack of great power unanimity prevented the UN from dealing effectively with problems of international security, the urgent need for effective collective action to preserve the peace prompted Canada to take an active part in the creation of the regional defence arrangements of NATO. But, important as that organization has become to Canadian security, support for the UN remains a basic feature of Canada's international policy.

In 1948 and 1949 Canada played her part as a member of the Security Council in mediating the disputes in Kashmir, Indonesia and Palestine. At the time of the invasion of South Korea in 1950 Canadians looked to the UN to answer with decision this greatest challenge to its principles, and promptly joined in the collective UN action that defeated aggression there. During the Middle East crisis in the latter part of 1956, Canada assumed a leading role in UN actions which resulted in the cease-fire in Egypt, in the formation of the UN Emergency Force for the Middle East and in negotiations aimed at a long-range settlement of the complex problems in that area.

Canada's contribution in 1956 to the regular budgets of the UN and its specialized agencies amounted to \$3,000,000. In addition, a contribution of \$3,000,000 went to such special UN programs as UN Children's Fund, the UN Relief and Work Agency for Palestine Refugees in the Near East, the UN Refugee Fund and the UN Expanded Technical Assistance Programme. These financial contributions have been reinforced by the provision of training facilities in Canada for UN Fellows and by sending abroad Canadian experts under UN auspices.



The Hon. Lester B. Pearson, Secretary of State for External Affairs of Canada, addressing the emergency session of the United Nations General Assembly called for November 1956 to debate the Hungarian situation.

UN Emergency Force Commander, Major-General E. L. M. Burns of Canada, inspecting the Canadian force at Aber Suweir, Egypt.



NATO.—The primary objective of NATO is to provide a strong military deterrent to any aggression within the North Atlantic area. This co-operative deterrent comprises a powerful strategic bomber force, supported by ground and naval forces, maintained in readiness to blunt an attack for long enough to permit the West's retaliatory forces to carry out their role. As part of Canada's contribution, the Royal Canadian Navy has earmarked warships for the defence of coastal waters in the Canada-U.S. region and for the NATO naval forces under the control of the Supreme Allied Commander, Atlantic (SACLANT); a Canadian infantry brigade group is on duty in Germany under the Supreme Allied Commander, Europe (SACEUR); and twelve squadrons of the RCAF serve at bases in France and Germany, also under SACEUR. Canada is also co-operating closely with the United States in providing forces and facilities for the security of the North American region.

Since its inception in April 1950, the Canadian Mutual Aid Program has resulted in the provision of military assistance to Canada's NATO allies to an amount of over \$1,400,000,000. At Dec. 31, 1956, a total of 2,241 pilots and 2,237 navigators had graduated under the NATO aircrew training plan carried out at RCAF establishments in Canada.

The role of NATO also encompasses non-military co-operation. Parties to the Treaty have agreed to strengthen their free institutions, promote conditions of stability and well-being and seek to eliminate conflict in their economic policies.

The United States.—The fact that Canada is a neighbour of the most powerful nation in the free world has an important bearing on the formulation and execution of Canadian foreign policy. Since the end of the second world war there have emerged a growing number of problems of common concern to the two countries—problems related to the joint defence of the North American area of the North Atlantic Treaty and to the construction of continental defence installations in the Canadian North; co-operation in research and experimental projects; trade and economic relations; and boundary waters, including the development of the St. Lawrence Seaway.

Missions Abroad.—At the end of 1956 Canada was represented abroad by the following Missions:—

Embassies (33)			Legations (4)	
Argentina	Germany	Peru	Czechoslovakia	
Austria	Greece	Portugal	Finland	
Belgium	Haiti	Spain	Lebanon	
Brazil	Indonesia	Sweden	Poland	
Chile	Israel	Switzerland		
Colombia	Ireland	Turkey		
Cuba	Italy	U.S.S.R.		
Denmark	Japan	United States		
Dominican Republic	Mexico	Uruguay		
Egypt	Netherlands	Venezuela		
France	Norway	Yugoslavia		
Officers of High Commissioners (7)		Consulates General or Consulates (12)		Permanent Delegations and Missions (4)
Australia	Brazil:	United States:		
Ceylon	São Paulo	Boston		Berlin (Military Mission)
India	Germany:	Chicago		Geneva (United Nations)
New Zealand	Hamburg	Detroit		New York (United Nations)
Pakistan	Philippines:	Los Angeles		Paris (North Atlantic Council and Organization for European Economic Co-operation)
South Africa	Manila	New Orleans		
United Kingdom		New York		
		Portland		
		San Francisco		
		Seattle		

Money alone is not the solution to the problems of the under-developed countries of the world. Indeed it would be of little assistance without skilled personnel to plan and implement the necessary programs and to teach the people of these countries to make the best use of their land, water and human resources.

Cambodian woman learning Canadian-style fish filleting from a Canadian fisheries advisor in Indo-China.

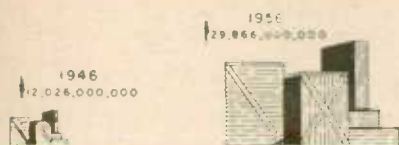


This nurse supervising practical training in a hospital at Patna, India, is one of the many Canadian nurses, doctors and technicians who are working with the World Health Organization in widely scattered parts of the world. Excellent teaching facilities in Canada are also made available for the post-graduate training of doctors and nurses from under-developed countries.

Canadian electrical equipment and engineering services are being utilized for the Warsak Dam project which will provide 160,000 kw. of electric power for West Pakistan.



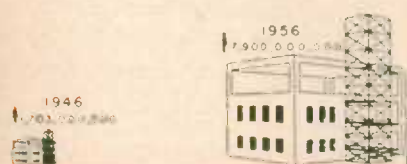
NATIONAL PRODUCT



PERSONAL INCOME



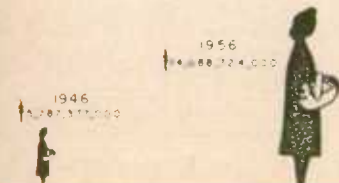
CAPITAL EXPENDITURE



ELECTRIC POWER GENERATED



RETAIL SALES



of industrial maturity as it shares with its southern neighbour the latest innovations in scientific and managerial and technical skills as applied to new industrial processes, new energy resources, new means of transport, new structural materials and new metallic minerals. The discovery of new resources in abundance and the application of technological innovations have led to the creation of whole new industries, adding diversification to Canada's output and reducing the country's excessive dependence on raw-material production. At the same time, the long-utilized resources—such as the forests and the water powers of the Precambrian Shield—have also been put to new productive uses. It is when viewed against an awareness of progressive development on a broad economic front, including the older staples, that Canada's tremendous recent growth appears hardly less than sensational.

A fundamental factor in Canada's recent growth and future potential as an industrial power may be noted in the wealth and variety of its energy resources—its coal, water power, petroleum, natural gas and potentialities of nuclear power. That Canada's rich coal resources of some 98,000,000,000 tons (of which half are classified as recoverable by present techniques of mining) have not contributed generally to the development of heavy industry is largely because those coal deposits are located so far distant from concentrations of population, particularly those of the St. Lawrence lowlands which import a large portion of their requirements from the nearer coal fields of the United States. Only in the Cape Breton area of Nova Scotia with its proximity to Atlantic shipping has Canadian coal been a principal energy source.

On the other hand Canada's major centres of population and industry are happily relatively close to its largest resources of water power—whether in

Ontario, Quebec or British Columbia. Moreover, under current technological developments, which permit the economic transmission of electricity over difficult terrain and for great distances, Canada's widely distributed water power resources, as presently explored and recorded, are sufficient to permit a hydro-electric turbine installation of 66,000,000 h.p. While Canada's installed hydro-electric capacity comprises only 28 p.c. of its recorded resources, its output of 18,403,048 h.p. is second only to that of the United States in total amount and second only to that of Norway on a per capita basis. Yet construction work now under way indicates the addition of 4,000,000 h.p. by 1958 including 1,100,000 h.p. from the St. Lawrence power project, while vast reserves of undeveloped water powers of the Precambrian Shield and of mountainous British Columbia constitute valuable assets for future development.

Although richly endowed with cheap hydro-electric power technically indispensable as fuel or energy for such industries as pulp and paper and aluminum and base-metal smelting, Canada possesses also vast resources of petroleum and natural gas in its extensive interior plains region stretching from the United States border into the Northwest Territories. Estimates of recoverable reserves of petroleum—"life blood of a nation"—in 1956 were over 3,000,000,000 bbl. and that of natural gas 22,500,000,000,000 cu. feet; but the present rate and distribution of discovery is such as to make estimates out of date almost as soon as published. Indeed, actual and potential markets for Canadian oil and gas in Western Canada, in the Toronto and Montreal industrial areas, in the Pacific Northwest and North Central States of the United States are such that exploration for and development and production of these energy resources are likely to be progressively accelerated in the

MINERAL PRODUCTION



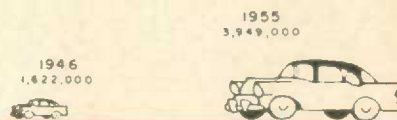
NEWSPRINT PRODUCTION



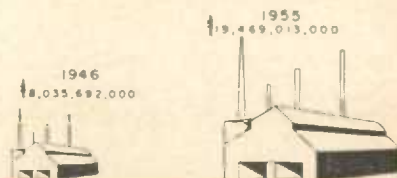
NEW DWELLINGS COMPLETED



MOTOR VEHICLE REGISTRATIONS



GROSS VALUE OF MANUFACTURES





Canada is moving confidently into the nuclear power age. "NDPR", the first plant, is now under construction on the banks of the Ottawa River. When completed in 1959, this station will generate 20,000 kwh. of electricity and will provide valuable information for nuclear developments on a much larger scale.

immediate future. These markets are secured through a 1956 operational Canadian oil pipeline mileage of 5,800 and a natural gas pipeline mileage of 5,500 (including only 200 of the 2,200 miles of the trans-Canada gas pipeline under construction) with a 1956 throughput of 170,000,000 bbl. of oil and 173,260,000,000 cu. feet of natural gas. Moreover, a sustained market expansion in the foreseeable future may be anticipated through a full realization of the strategic location of Western Canada's oil (and gas) producing area—in close proximity to the markets of United States with which Canada's economic and strategic fate is inexorably linked, and sheltered from the perils and instability of overseas tanker supply.

Canada is a world leader in the newest and most spectacular of energy resources, possessing uranium ore reserves estimated at the end of 1956 to total 225,000,000 tons, with a uranium content of 237,000 tons. While nuclear energy may be expected to become industrially competitive with other forms of energy at a later stage than would be the case with countries deficient in hydro-electric power or oil, Canada has nevertheless begun the construction of an atomic power station for the purpose of experimenting in the new technical field of electric power generation through the use of nuclear fuels. In the meantime Canadian high-grade uranium concentrates being produced at the rate of 3,300 tons per year are expected to approximate a 15,000-ton output by mid-1958 when 24 concentration plants will have been brought into operation. Thus Canada stands as a major world source of this vital energy of the future and among the leaders in atomic research for industrial purposes.

No less significant than energy resources in placing Canada among the great industrial nations is the variety and wealth of its mineral resources and the rate at which these are being proved and brought into production. Less than one-third of the nation's land area has undergone geological reconnaissance mapping and even a much smaller area on a scale adequate for mineral

exploration. Nonetheless, vast potential resources of mineral wealth have been indicated and the application of the latest methods of scientific and technological research is constantly bringing rich new discoveries to light and extending the accessible areas of mineral development.

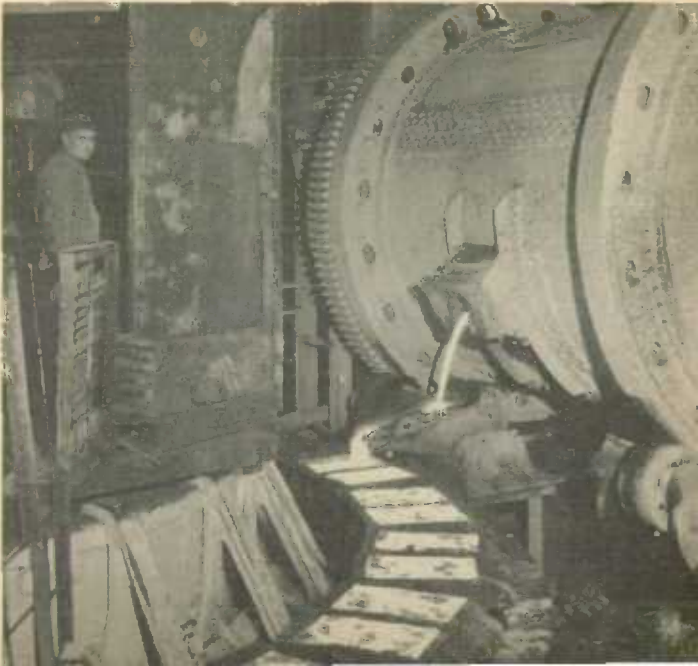
While the rapid expansion of the mining industry—highlighted by the tremendous increases that have occurred in the production of iron ore and petroleum—is outlined elsewhere in this volume (pp. 69-83), some measure of its significant growth and importance may be observed in the following table.

Canadian Mineral Production, 1945-56

Mineral		Av. 1945-49	1955	1956	1956 as p.c. of 1945-49	Canadian Production as p.c. of 1955 Free World Production	Canada's World Rank 1955
Copper.....	'000 tons	230.3	325.9	353.3	153.4	10	4
Nickel.....	"	119.5	174.9	177.9	148.9	82	1
Gold.....	'000,000 oz.t.	3.3	4.6	4.4	133.3	17	2
Zinc.....	'000 tons	244.9	433.4	423.6	173.0	15	2
Iron ore.....	"	1,923.3	16,283.0	22,526.0	1,171.2	5	—
Lead.....	"	167.9	204.7	186.6	111.1	10	4
Asbestos.....	"	595.7	1,063.8	1,038.9	174.4	84	1
Gypsum.....	"	2,275.7	4,667.9	5,192.8	228.2	—	—
Petroleum.....	'000 bbl.	11,470.5	129,440.2	170,569.2	1,487.0	—	7

That Canada's mineral production has doubled in value within six years to an estimated \$2,100,000,000 in 1956 is indicative not only of the great expansion currently taking place in the Canadian economy but also of the fact that Canada possesses in major quantities many basic and new metals that are in short supply in other industrial nations—particularly the United States. Indeed, the strong demands of the United States for a widening

*Anode casting wheel in
a copper refinery.*



variety of minerals—copper, lead, zinc, iron ore and petroleum—in which it is no longer self-sufficient, and the fact that these resources are close at hand in a politically and economically sound Canada, have been among the major dynamic forces effecting the rapid postwar growth of the Canadian economy. Much of the impetus in the current growth of Canada may be attributed to the inflow of investment capital, technical skills and research from the United States to Canada's extractive resources industries.

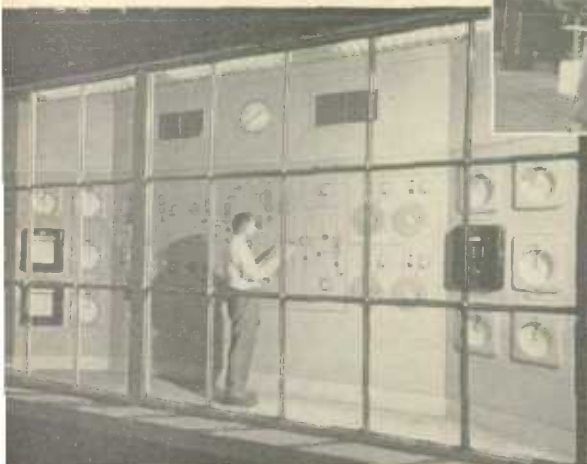
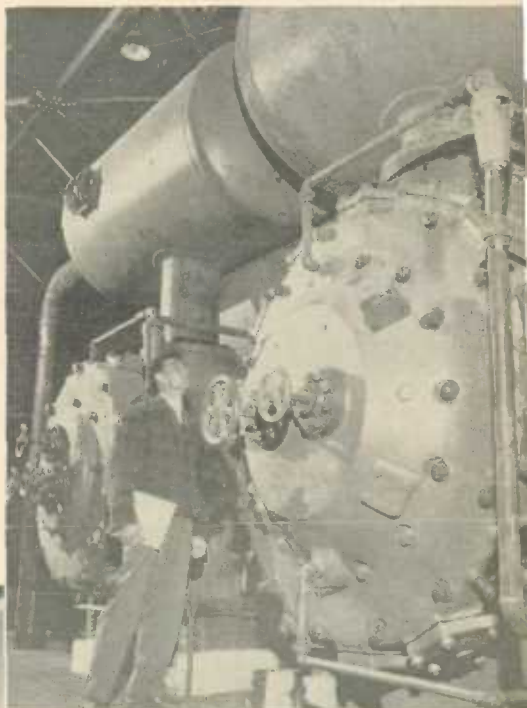
The remarkable growth of capital investment in the construction sector of the Canadian economy from over \$2,000,000,000 in 1947 to an estimated \$6,702,000,000 in 1956, and comprising during the period from 14 to 22 p.c. of the gross national product, has greatly increased Canada's industrial, commercial and transportation facilities and contributed to the housing needs of its rapidly growing population. Marked increases in industrial capacity have been attained through the provision of new plant construction, machinery and equipment embodying the latest technological improvements—particularly in such manufacturing industries as pulp and paper, automobiles, electrical appliances, petro-chemicals, electronics and in the great resource industries of mining, smelting and refining in which the technical skills and experience of United States engineers and corporation management have been most influential. Moreover, the investment in new mines, in oil fields and related industrial projects, and in new transportation facilities to frontier regions is bringing about substantial shifts in Canada's economic geography, thereby broadening the distribution and diversification of industry and greatly strengthening the national economy.

The tremendous postwar extension of Canada's transportation facilities—railway, truck, airway, pipeline and/or waterway—holds a fundamental place in the nation's recent surge of industrial growth. Canada's two world-renowned transcontinental railway systems have in recent years been pushing branch lines northward into potentially rich mining regions, as have numerous other railways such as the Quebec North Shore and Labrador, the Ontario Northland, the Northern Alberta and the Pacific Great Eastern Railways. Highway construction has mounted with the marked increase in automobile and truck registrations of 114 p.c. between 1947 and 1955. Through the use of aircraft the frontiers of industrial development have expanded by a series of discontinuous leaps northward from established centres serving as springboards for further advance into otherwise inaccessible regions. The present supply of all oil refineries from Vancouver to Sarnia through Canada's crude oil pipeline systems—particularly the Interprovincial Pipeline from Edmonton to Sarnia and the Trans Mountain Pipeline from Edmonton to Vancouver, together with the Westcoast Transmission Company gas pipeline from the Peace River region to Vancouver and the Trans-Canada gas pipeline from Alberta via an all-Canadian route to Toronto and Montreal—are making Canada self-sufficient in oil and facilitating the use of some of the tremendous available supplies of natural gas, offsetting the fuel deficiencies of Ontario and Quebec, materially assisting Canada's balance of payments, greatly strengthening the energy base for Canadian industrial growth, and bringing about important structural changes in the economy of the Prairie Provinces and northern Ontario through the establishment of ancillary industries utilizing these new material and fuel resources.

Perhaps the most symbolic measure of Canada's industrial strength and new-found confidence as a nation is the construction of the St. Lawrence Seaway which will, by the spring of 1959, provide navigation for ocean-going vessels into the heart of the Continent. Along the 2,280 miles of deep inland waterway will go a vast east-west movement of Quebec-Labrador iron ore while the traditional west-east movement of grain, foodstuffs and raw materials to Europe will be greatly augmented by bulk cargoes of newsprint, lumber and pulp to the United States carried by large lake freighters—one of the most economical methods of modern transportation. Indeed, it would

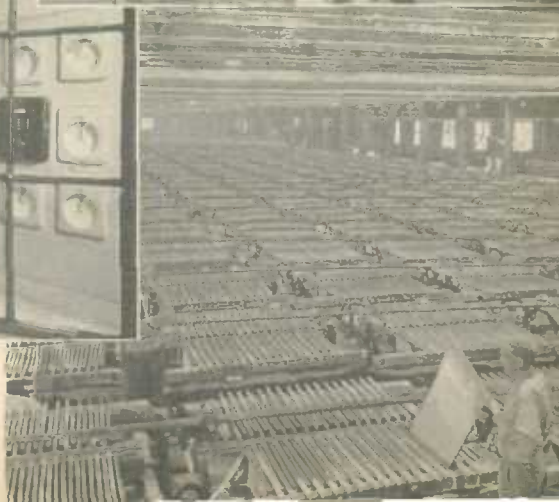
The chemical and mining industries have long been intimately connected. Such minerals as copper, lead, zinc, sulphur, talc and barite are important raw materials of the chemical industry and, vice versa, chemicals are of major importance in the separation and refining of ores. Each process has its own problems and as the range of metallic and non-metallic minerals grows so grows the number and complexity of chemical processes. Demands for heavy chemicals like sulphuric acid, nitric acid, sodium chlorate, muriatic acid and ammonia are being met and provision made for potential requirements.

A new ammonia plant began operations at Millhaven, Ont., early in 1957.



Control room in a sulphur dioxide plant at Copper Cliff, Ont. ▲

Tank room in the base metal smelter at Flen, Minn. ►



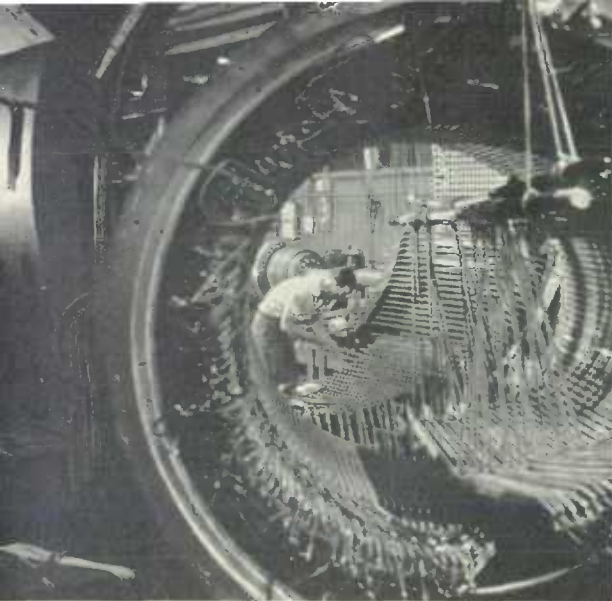


The helicopter has become an indispensable ally in the investigation and development of otherwise inaccessible areas.

now appear that a century-old Canadian dream is about to be realized as the St. Lawrence Seaway becomes not only one of the major traffic arteries of world commerce but also makes possible an ever-increasing concentration of industrial enterprise in the St. Lawrence-Great Lakes region.

Many other indications that Canada is rapidly assuming the status of a great industrial nation and has merely reached the threshold of its greatest period of expansion may be found in the subsequent pages of this handbook. Since 1951, Canada's population has grown by 14.8 p.c., its per capita disposable income from \$1,045 to \$1,239 or by 18.5 p.c., its per capita gross national product from \$1,533 to \$1,844 or by 20 p.c. and its volume of industrial production (to 1955) by over 17 p.c. An even more rapid growth has taken place during the past two years as evidenced by annual increases of 7 p.c. in the physical volume of Canadian production of goods and services and increases of 10 p.c. in the value at market prices. Canada's foreign trade, likewise a vital measure of the nation's industrial expansion, reached a new all-time peak of \$9,063,000,000 in 1955, an increase of 12.7 p.c. over the preceding year.

Possessing a strategic position in the Northern Hemisphere—fronting three oceans and sharing a common frontier with the world's leading industrial power, richly endowed with the key material and energy resources of Twentieth Century industrialism, owning one of the most varied, rapidly expanding and modern of national transportation systems which binds diverse and far-flung regions into a dynamic functioning economic and political entity, populated by an industrious and robust people recently electrified into a vibrant national consciousness by its war and postwar achievements and remarkable economic growth, and governed by democratic institutions and processes that combine the best features of individual and public enterprise in the development of a transcontinental state, Canada's industrial future among the nations appears exceptionally bright and the maintenance of a high standard of living for its people confidently assured.



Craftsmen working on a large generator for an industrial installation.

Keeping a close check on the manufacture of magnet wire which is used in the winding of relay coils, in motor armatures, and in countless other electrical devices.



Canada has come to be known as an electrical country. Developments in the mining and manufacturing industries as well as increased requirements for business, farms and homes, have created a tremendous demand for electrical equipment and apparatus. In 1956 Canada's electrical manufacturers produced goods valued at \$1,200,000,000 and employed more than 80,000 people



Automatic washing machines moving along the assembly line.



Assembling television sets.



Bay Street, Toronto
by Malak

The increasing participation of government — federal, provincial and municipal — in the daily affairs of the people characterizes the modern state, yet the true measure of the country's success is found in the ability, enterprise, faith and well-being of its citizens.

THE PEOPLE and THEIR GOVERNMENT



WHAT can be said of a people, few in number and so scattered over a vast area of land that they average only about four to a square mile, whose native cultures, rich in themselves, are traditionally diverse but who have met on the common ground of industry and stability and created in this great land—calm, rich and unspeakable in its beauty—a progressive nation of distinctive character, governed by democratic institutions combining the best features of private and public enterprise, and moving steadily onward to unknown goals.

Most of the people now living in Canada are descendants of persons who migrated to this country at one time or another since the early days of colonization and each, as he has become integrated into the Canadian social and industrial structure, has in turn become the Canadian influence for the newcomer. The earliest settlers in what is now Canada were French but before long great numbers of people began to arrive from the British Isles so that by the middle 1800's they outnumbered the French. Although in later years other ethnic groups brought variety to Canada's population, today to these two basic stocks belong more than three-quarters of its people.

The pattern of their settlement was at first influenced by the natural transportation routes, the climate and the resources from which they obtained their livelihood—today there are other influences. Heavy concentrations of population draw greater numbers to themselves but at the same time civilization is reaching out into the hinterland and for a people who have mastered their environment there are no drawbacks to building new modern communities in the wilderness. Indeed, to Canadians there are no drawbacks to any type of development no matter how amazing. In these days of rapid change, the foundations of Canada's institutions, its government and its industry have proven their worthiness—and the future belongs to those who prepare for it.

Population

MANY factors have combined in recent years to provide a strong impetus to Canadian population growth. The phenomenal industrial development and accompanying economic prosperity since World War II have been reflected in a "baby boom" which has shown no signs of receding and which has placed Canada's birth rate foremost among those of major industrial nations of the world. At the same time, improvement in the general standard of living reinforced by progress in medical research and public health measures has resulted in an appreciable reduction in the death rate. Furthermore, expanding economic opportunities have attracted immigrants to Canadian shores in increasing numbers. As a consequence, the rate of population increase in Canada has been rising steadily.

The Census of 1951 recorded 14,009,429 people as being resident in Canada. Excluding Newfoundland whose entry into Confederation in 1949 brought 348,000 persons into the Canadian community, the population of Canada on June 1, 1951 stood at 13,648,013 which was 2,100,000 or 18.6 p.c. more than the total recorded at the 1941 Census. Since 1951 the dynamics of population growth in Canada appears to have gained even greater force. The total population at June 1, 1956 was 16,080,791, an addition of more than 2,000,000 people—the largest growth in any five years of Canadian history.

Natural increase—the excess of births over deaths—contributed by far the larger portion of this increase. As in most industrial nations, the birth rate in Canada began to decline around the turn of the century. By the 1930's this decline had become quite pronounced and the birth rate reached its lowest level of 20.1 per thousand population in 1937. In the early years of the War, however, the downward trend was reversed and after the War the rate rose steeply to a peak of 28.9 per thousand in 1947. Since then it has never dropped below 27 and for the past three years has been well over 28. The death rate, in the meantime, has shown a consistent tendency to fall—from 10.1 in 1943 to 9.2 in 1951 and to 8.2 in 1954 and 1955, the lowest on record for the nation. An appreciable decline was also shown in the death rates for specific age groups, particularly among infants and the younger age groups. The consequent excess of births over deaths thus accounts for an impressive addition of nearly 1,500,000 to the population of Canada during the five years from 1951 to 1956.

The balance of approximately 600,000 between the natural increase and the total increase in population represents the excess of immigration over emigration during the same period. This net immigration, which accounted for more than a quarter of the population increase in the 1951-56 period, was three times as high as that for the preceding ten years which amounted to 168,964 people, but of course very little immigration took place during the war years of that period. Since 783,000 immigrants came to Canada in the 1951-56 period, the apparent emigration from Canada must have been close to 200,000. Though some of these people leaving the country would be recent immigrants, most of them were Canadian-born people, so that the



Keeping an eye on Edmonton's growth is an engrossing if formidable task. This capital city of Alberta, incorporated in 1904, led a quiet, slowly expanding existence until the discovery of oil in the Leduc field in 1947. As a consequence of the exploitation of the oil and gas reserves and of the city's situation in the centre of a productive agricultural area and as the main distribution point for the many new developments to the north, Edmonton has grown by leaps and bounds. The population of its metropolitan area increased 44.5 p.c. from 1951 to 1956, the fastest rate of growth of any city in Canada.



contribution made to the population growth in Canada by the increased flow of immigration in recent years may well have approached a third of the total increase.

The recent trends in vital rates and immigration have not only affected population growth but have also considerably changed its age composition. The high birth rate together with the low death rate among children has added between 1951 and 1956 nearly 1,000,000 persons to the population under fifteen years of age, an increase of 22 p.c., and raised the proportion of this group to the total population from 30.4 p.c. to 32.5 p.c. On the other hand, the working-age group—persons from 15 to 64 years of age—increased at a considerably slower rate than the total population (14.8 p.c.), despite the fact



Montreal is Canada's largest city. The little settlement of Ville Marie of the early 17th Century has become a world-renowned commercial metropolis, vital and expanding, a happy combination of the old and the new. By 1956 the city had a population of 1,620,758, the city proper having increased 8.6 p.c. since 1951 and the fringe area by 36.8 p.c. This is perhaps Canada's most cosmopolitan city where French and English and a mosaic of other races live and work side by side.

that over 65 p.c. of the immigrants coming into Canada between 1951 and 1956 were between the ages of 20 and 49 and as much as 76 p.c. were from 15 to 59 years of age. The relative proportion of the 15-64 age group to the total was 2 p.c. lower in 1956 than in 1951 although its number increased by 939,200. Without the influx of immigrants, the proportion of this productive group would have been much lower since a large portion of it consists of the survivors of those born in the prewar decade when birth rates were at their lowest. The proportion of persons in the age group 65 years or over remained remarkably stable at slightly less than 8 p.c.

Distribution of Population by Age Groups, 1951 and 1956

(Exclusive of the Yukon and Northwest Territories)

Age Group	1951		1956		Increase, 1951-56	
	No.	p.c.	No.	p.c.	No.	p.c.
0-9.....	3,119,934	22.3	3,790,616	23.6	670,682	21.5
10-14.....	1,130,783	8.1	1,434,594	8.9	303,811	26.9
15-19.....	1,057,972	7.6	1,162,301	7.2	104,329	9.9
20-44.....	5,130,290	36.6	5,683,316	35.4	553,026	10.8
45-64.....	2,484,177	17.7	2,766,026	17.2	281,849	11.3
65 or over.....	1,086,273	7.8	1,243,938	7.7	157,665	14.5
Totals.....	14,009,429	100.0	16,080,791	100.0	2,071,362	14.8



Toronto, already a "Meeting Place" when Brûlé camped on the lakeshore three hundred years ago, has not lost that early distinction. It lies in the centre of Canada's most highly industrialized region and its outskirts encompass a third of the national market. Metropolitan Toronto, with a population of 1,358,028 in 1956, is moving closer to Montreal in numbers. Although the city proper had 1.2 p.c. fewer people than in 1951, the fringe area surged upward by 56.3 p.c.

The same social and economic forces stimulating the rapid growth of the Canadian population in recent years have also caused notable shifts in its geographic distribution. Between 1951 and 1956 the populations of all the provinces increased in number, but the magnitudes of those increases were strikingly varied. Ontario led with an impressive addition of nearly 807,391 people, though it ranked only third in percentage increase. In this respect British Columbia and Alberta came first and second, each with an increase of about 20 p.c.

The provincial percentage increases reflect both interprovincial migration and differential rates of natural increase, so that even those provinces suffering net loss of population through an excess of out-migration over in-migration still grow so long as that loss is exceeded by natural increase. The five Provinces of Saskatchewan, Manitoba, Nova Scotia, New Brunswick and Prince Edward Island actually lost population through net out-migration but still showed percentage increases in population. All other provinces gained through net migration.

Net migration accounted for more than 58.0 p.c. of the total population increase for British Columbia since 1951 and 46.5 p.c. for Ontario. Although the percentage for Alberta was lower than for those two provinces, Alberta showed a striking shift in its pattern of migration during the 1951-56 period—during 1941-51 it had suffered a slight loss through net out-migration but in 1951-56 recorded a net migration gain of 64,308 which was more than a third of its total population increase in that period. It is also of interest to



Vancouver, a jewel in a magnificent setting, is the centre of business and industry, of culture and education on the West Coast and Canada's third largest city. Its population, numbering only 27,010 at the turn of the century, has grown to 665,017. In the five years 1951 to 1956, the city proper expanded 6.1 p.c. and the suburban area 37.8 p.c.

note that the net migration gains in British Columbia and Alberta were accounted for partly by interprovincial movement and partly by immigration while the majority of migrants into Ontario appears to have been immigrants. In fact, the estimated immigrant gain in Ontario exceeded the net migration gain by a considerable margin.

Elements in Provincial Population Growth, 1951-56

Province	Population		P.C. Increase 1951-56	Natural Increase		Net Migration	
	1951	1956		No.	P.C. of 1951 Pop.	No.	P.C. of 1951 Pop.
	No.	No.					
Nfld.	361,416	415,074	14.8	52,892	14.6	766	0.2
P.E.I.	98,429	99,285	0.9	8,920	9.1	-8,064	-8.2
N.S.	642,584	694,717	8.1	63,156	9.8	-11,023	-1.7
N.B.	515,697	554,616	7.5	59,812	11.6	-20,893	-4.1
Que.	4,055,681	4,628,378	14.1	475,278	11.7	97,419	2.4
Ont.	4,597,542	5,404,933	17.6	431,913	9.4	375,478	8.2
Man.	776,541	850,040	9.5	73,651	9.5	-152	—
Sask.	831,728	880,665	5.9	85,978	10.3	-37,041	-4.5
Alta.	939,501	1,123,116	19.5	119,307	12.7	64,308	6.8
B.C.	1,165,210	1,398,464	20.0	98,006	8.4	135,248	11.6
Canada¹...	13,984,329	16,049,288	14.8	1,468,913	10.5	596,046	4.3

¹ Exclusive of the Yukon and Northwest Territories.

The rapid industrialization of a nation not so long ago predominantly agricultural has been accompanied by definite changes in the utilization of manpower and a growing movement from rural to urban areas. While the rural population has remained more or less stable in numbers, the proportion of that population to the expanding total of the country has declined steadily. In 1951 there were 8,473,458 people residing in urban places of 1,000 or more population in Canada (exclusive of Newfoundland). The percentage increase in the urban population between 1941 and 1951 was 30.3 p.c. but the increase in rural farm and non-farm population was only 3.4 p.c. The farm population actually decreased during this period by 300,000 or 9.5 p.c., while the non-farm rural population increased by 436,237 or about 20 p.c. Of particular note during this period was the increasing concentration of the Canadian population in urban centres of 100,000 or more, and the shift in the pattern of growth of the larger cities indicated by the fact that their "fringe" areas increased 68.2 p.c. while the cities proper increased only 14.5 p.c.

These rural-urban shifts in the 1941-51 period continued in the subsequent five years, but at an accelerated pace. The impact of industrial expansion on the geographic and occupational movement of the Canadian population became increasingly manifest. Large-scale mechanization of farming operations for example, released a growing proportion of farm labour for non-agricultural employment, and manufacturing industries and services attracted them cityward. The population living in urban areas on June 1, 1956, numbered 10,714,855, an increase of 24.2 p.c. over the 1951 urban total. Rural population decreased from 5,381,176 to 5,365,936 or by 0.3 p.c. in the same comparison, and in 1956 represented only 33.4 p.c. of the total Canadian

Winnipeg's story is linked with the opening up of the West, with the hardy voyageurs and the fur trade. It was incorporated as a city in 1873 with a population of only 1,869. Today it is Canada's fourth largest city and is still the focal point for all transport across the country by rail, air or road. Like other Canadian cities it is spreading rapidly, its metropolitan area having a population of 409,121 persons in 1956, an increase of 15.5 p.c. since 1951.



population as against 38.4 p.c. in 1951. The decrease in farm population was even greater amounting to 7 p.c. If the higher rate of natural increase in the rural areas is taken into account, the rural-urban shift becomes even more significant.

The heavy concentration of people in the metropolitan centres was also accentuated during the 1951-56 period as was the dramatic expansion of the suburban areas of those centres. At June 1, 1956, 6,281,598 people, or more than a third of the population of Canada, were reported as residents of the 15 metropolitan areas where the increase in population during the 1951-56 period was 19.3 p.c. This means that of the national increase of about 2,000,000 during that period as much as 49 p.c. was accounted for by the increase in the metropolitan centres alone. Actually the rate of growth in most of the cities proper has slowed down and an increasingly heavier concentration of population has been taking place in the suburban areas lying outside the city limits. This applied to all Canada's metropolitan areas without exception. Thus central city population of the metropolitan areas increased by only 9.0 p.c. from 3,596,854 in 1951 to 3,919,448 in 1956, and during the same period the population residing in the fringe areas grew by 41.7 p.c. to reach 2,362,150. The proportion of the total metropolitan population increase attributed to this suburban growth amounted to 68.3 p.c. For Montreal, Canada's largest metropolis, the growth of the city proper was 8.6 p.c., and the growth of the suburban area 36.8 p.c. For Toronto, ranking next to Montreal in size, the variation was even greater—the population of the city proper decreased 1.2 p.c. while the fringe area gained 56.3 p.c. The following table shows the extent to which the growth in Canada's metropolitan areas is attributed to expanding fringe areas.

Population Increase in Metropolitan Areas, 1951-56

Metropolitan area	1951 ¹	1956	P.C. Increase		
			Metropolitan Area	City Proper	Fringe Area
	No.	No.			
Calgary.....	140,645	200,449	42.5	40.8	61.1
Edmonton.....	173,748	251,004	44.5	41.6	77.1
Halifax.....	133,931	164,200	22.6	9.0	46.7
Hamilton.....	272,327	327,831	20.4	15.0	37.8
London.....	128,977	154,453	19.8	6.7	56.9
Montreal.....	1,395,400	1,620,758	16.2	8.6	36.8
Ottawa.....	292,476	345,460	18.1	9.9	36.4
Quebec.....	274,827	309,959	12.8	4.1	25.7
Saint John.....	78,337	86,015	9.8	3.4	21.6
St. John's.....	67,313	77,991	15.9	8.0	44.8
Toronto.....	1,117,470	1,358,028	21.5	-1.2	56.3
Vancouver.....	561,960	665,017	18.3	6.1	37.8
Victoria.....	108,285	125,447	15.8	6.3	24.4
Windsor.....	163,618	185,865	13.6	1.6	46.6
Winnipeg.....	354,069	409,121	15.5	8.2	30.1
Total.....	5,263,383	6,281,598	19.3	9.0	41.7

¹ The areas for 1951 are adjusted to the 1956 boundaries.

The rate of metropolitan population growth during the period from 1951 to 1956 was highest in Edmonton at 44.5 p.c. and Calgary at 42.5 p.c. The metropolitan areas of Quebec and Saint John grew at the slowest rates of 12.8 p.c. and 9.8 p.c., respectively. With the exception of Toronto, all the central cities of the metropolitan areas gained in population, their growth

rates ranging from 1.6 p.c. in Windsor to 41.6 p.c. in Edmonton. It is interesting to note that Edmonton and Calgary showed a pattern considerably different from that of the other areas. Some of the older cities within metropolitan areas are apparently approaching the saturation point in their population growth but the city proper of Edmonton and Calgary showed more than a 40 p.c. increase between 1951 and 1956.

The above statistics clearly reveal the most rapid acceleration of urban development in Canada's history and the consequent significant growth in the importance of the metropolitan area as a functionally integrated unit of social organization. The close relationship between the central city and its fringe areas has been made possible by the growing efficiency of communication and transportation facilities.

Vital Statistics

Almost 3,000,000 people have been added to Canada's population in the decade since the end of the War. As has already been stated, natural increase contributed the major part of this increase. In the year ended June 1, 1955 alone, the Canadian population grew by 405,000 and of this, the excess of births over deaths accounted for 313,739 or 77 p.c. Since the end of World War II, the birth rate per thousand population has fluctuated around 27-28—about the same as following World War I—as compared with 20-24 between 1926 and 1946. However, the number of births each year is about double that in the 1920's and 1930's and is stabilizing at close to 450,000 a year. Most of this increase was not due to increased fertility but, as in most other industrialized countries, to an increase in married couples. Among the provinces,

The Dominion Bureau of Statistics at Ottawa is known nationally and internationally as the headquarters of Canada's Census and the source of unlimited statistical information. Mr. Herbert Marshall, under whose direction the Bureau functioned for eleven years, retired from office at the end of December 1956



Results of the 1951 Census show that 96.8 p.c. of all the people of Canada at that time were Canadian citizens, 0.7 p.c. were citizens of other Commonwealth countries, 1.7 p.c. of European countries, 0.1 p.c. of Asiatic countries and 0.6 p.c. of other countries. In 1951, 98.0 p.c. of the persons of British Isles origin and 99.7 p.c. of those of French origin owed allegiance to Canada. Corresponding percentages for other European and Asiatic countries were 89.3 p.c. and 78.7 p.c., respectively.

An applicant for citizenship is required to have resided in Canada for five years after having been admitted to Canada for permanent residence. Besides showing that he is a conscientious law-abiding citizen, he must have an adequate knowledge of Canadian history, geography, form of government and of the responsibilities of citizenship.

The Department of Citizenship and Immigration administers the Canadian Citizenship Act and provides leadership in the building of true citizenship among all Canadians. Special courts in Montreal and Toronto handle all matters pertaining to Canadian citizenship. In other centres applications for citizenship are handled by local courts or by the Registrar of Canadian Citizenship.

Immigration

The policy of the Federal Government is to foster the growth of Canada by encouraging immigration. The immigrants are drawn from countries whose people have most in common with the Canadian people, and the volume of immigration admitted is adjusted to Canada's absorptive capacity which is kept under constant review. Up to a point, immigration tends to be self-adjusting, for immigrants are not inclined to journey to a new country unless they are fairly sure of finding employment without too long a delay.

The formation of the Department of Citizenship and Immigration in 1950 reflected Canada's postwar determination not merely to add to the population but to make it easier for newcomers to establish themselves successfully in this country and overcome the initial problems that inevitably face immigrants. The Immigration Branch is responsible for all matters related to the encouragement of immigration, the inspection of immigrants, tourists and other travellers seeking entry into Canada, and the exclusion of prohibited and undesirable classes. It operates through five divisions across Canada and has offices in the United Kingdom at London, Liverpool, Leeds, Bristol, Glasgow and Belfast, and an office at Dublin, Ireland. In continental Europe it has offices at Paris, Brussels, The Hague, Stockholm, Helsinki, Oslo, Copenhagen, Berne, Rome, Lisbon, Athens, Vienna, Cologne and Hamburg. The examination of immigrants at other points is carried out through the facilities of Canadian diplomatic missions.

After five years of residence in Canada an immigrant may apply to the Citizenship Branch for citizenship. The number of applicants rose from roughly 20,000 in 1954 to 65,000 in 1956 and is expected to be about 80,000 in 1957.

Since the end of World War II immigration has added approximately 1,500,000 to the population, including an estimated 200,000 children born to



People from the Old World coming to live in Canada bring with them their abilities, their special skills and their enthusiasms to blend with Canadian enterprise and culture. These people, staking their individual futures on Canada, will make their contribution to Canada's prosperity and growing independence in the economic world and to the heightening of Canadian cultural achievement.



immigrants after they settled in Canada. The number of persons entering each year was as follows:—

	No.		No.
1946	71,719	1952.....	164,498
1947	64,127	1953.....	168,868
1948	125,414	1954.....	154,227
1949	95,217	1955.....	109,946
1950	73,912	1956.....	164,857
1951	194,391	TOTAL.....	<u>1,387,176</u>

In the immediate postwar period most of the immigrants were the wives and children of Canadians who had served overseas, Polish ex-servicemen, Netherlands farmers whose land had been inundated by the German invasion, displaced persons from European refugee camps, and British subjects from the United Kingdom. However, during 1947 it became apparent that Canadian industry had accomplished the transition from war production to peace production without serious dislocation, that Canada had moved into an era of swift expansion, and that more workers were needed for the developments that lay ahead. Through the 1930's, a time of economic depression, the nation's birth rate had been low so that in the late 1940's there was a drop in the number of boys and girls reaching working age. Since immigration offered the only means of offsetting this deficiency, nationals of Finland, Italy, Hungary and Roumania were removed from the enemy alien category in 1947 and enabled to apply for admission to Canada. Germans were admitted from September 1950.

A dramatic chapter in the history of Canadian immigration opened in November 1956 with the movement across the Atlantic of thousands of refugees who were fleeing Hungary following the October uprising. Immediate measures were taken by the Federal Government for the quick movement by air of several thousands directly from Austria and for their reception and placement in employment with the co-operation of the provincial authorities and voluntary agencies. By the end of 1956, 3,882 Hungarian refugees had arrived and several thousands more were expected in 1957. Meanwhile, the events that led to the blocking of the Suez Canal in the final months of the year gave a new stimulus to a considerably increased emigration movement from the British Isles. At the beginning of 1957 the immigration trend to Canada from Great Britain was stronger than it has been for several years.

Of the 1,222,319 immigrants who came to Canada from 1946 to 1955, 367,705 from overseas were of British origin, 159,207 of German origin, 135,156 of Italian origin, 114,777 of Netherlands origin, 61,578 of Polish origin, 37,474 of Hebrew origin, 34,339 of Ukrainian origin, 24,152 of French origin, and 16,725 of Yugoslavian origin, while 90,752 were from the United States. Smaller groups came from more than thirty other countries. Their destination in Canada, by provinces, was as follows:—

Newfoundland		Manitoba.....	62,343
(since Apr. 1, 1949).....	2,565	Saskatchewan.....	36,881
Prince Edward Island.....	2,490	Alberta.....	95,343
Nova Scotia.....	23,495	British Columbia.....	109,347
New Brunswick.....	12,827	Yukon and Northwest	
Quebec.....	240,432	Territories.....	563
Ontario.....	636,033		

What immigration has meant in terms of national development is apparent when the influx of new workers is viewed in relation to Canada's

total civilian labour force. From 1946 to 1950 this force increased from 4,829,000 to 5,217,000 and by 1955 to 5,558,000, a ten-year increase of 729,000. In the first period immigrants who joined the labour force numbered 199,000 accounting for nearly half the increase in the working force, and in the second period they numbered 433,000 or more than the whole increase in the working force. But for immigration, the labour force would have been drastically reduced by emigration, by the ageing of the working population and by lower participation in the working force by Canadians.

Immigrant workers as a class are more mobile than native-born workers. They have left their own countries behind, they have not yet put down deep roots at a particular place in Canada and it matters less to them where they go as long as jobs are plentiful and wages are good. For this reason they have played a large part in major projects in remote districts, harnessing hydro power, constructing highways and railroads and opening up mines.

But not by any means are all immigrants labourers. A study of immigrants who arrived in the three years ended Mar. 31, 1956 showed that 1.89 p.c. of them were owners, managers or officials, while 2.13 p.c. were professional engineers. Of all working immigrants in the period, 10.5 p.c. were professionals of one kind or another. Besides 4,944 engineers there were 2,673 teachers and professors, 1,036 physicians and surgeons, 4,275 graduate nurses and a considerable number of accountants, chemists, laboratory technicians and architects. A significant fact is that for every two engineers graduated by Canadian universities in the three years Canada gained one engineer by immigration. It is estimated that from 1951 to 1955, for every three students in professional technical fields graduated in Canada, two people in these fields entered Canada as immigrants.

Certain other facts about immigrants stand out. A large proportion of them are young married people or of marriageable age; roughly a seventh of the immigrant workers go to farms, offsetting to a significant extent the

One of the first groups of Hungarians to arrive in Canada late in 1956.



traditional exodus of farm children to towns and cities; 81.6 p.c. of immigrant males and 18.6 p.c. of immigrant females over the age of 14 participate in the working force, compared with 84.3 p.c. of the native-born males and 25.4 p.c. of the native-born females over the age of 14.

And immigrants do not arrive empty-handed. Those who entered Canada from 1946 to 1955 brought with them \$550,000,000 in cash and \$190,000,000 in effects. Many of them, after they settled here, had securities and other assets transferred to them from Europe. Hundreds of them started new businesses, or new industries. While immigrants are producers, they are also consumers. By 1954, the consumer expenditures of postwar immigrants were estimated at \$1,200,000,000 a year—\$290,000,000 for food, \$100,000,000 for tobacco and alcohol, \$140,000,000 for clothing, \$160,000,000 for shelter, \$150,000,000 for household operations, \$140,000,000 for transportation, and \$200,000,000 for personal and medical care, etc. In addition immigrants in that year paid over \$100,000,000 in direct taxation and saved some \$80,000,000. Since 1954 this amount had undoubtedly increased substantially.

Apart altogether from the beneficial impact on the national economy, apart from their skills and their capital, the immigrants have brought Canada cultural and spiritual assets of tremendous value that have greatly enriched the social life of this country.

The Indians and Eskimos

The Indians and Eskimos of Canada, descendants of the races that inhabited this country before the European settlers came, are of special concern to the Federal Government—the Indians since the early days of colonization when it was no longer possible for them to follow their traditional way of life, and the Eskimos in comparatively recent years as civilization has reached them in their northern habitat.

Indians.—There were in Canada, in 1951, 155,874 persons (Census figure) of Indian origin, that is, persons with a paternal ancestor of Indian race. However, many of these have long been assimilated into the white population and have lost their identity as Indians. The number of persons considered as Indian under Indian legislation was placed at 151,558 in 1955, and they appear to be increasing at a rate faster than that of any other segment of the population. These people live on 2,223 tracts of land nearly 6,000,000 acres in extent which have been reserved for their use and benefit. Their welfare is the responsibility of the Indian Affairs Branch of the Department of Citizenship and Immigration.

The broad objective of the Federal Government in promoting the welfare and education of the Indian population is to enable them to become increasingly self-supporting and independent members of the community. They are gradually being given more responsibility in the handling of their own affairs. Band councils, mostly elected but sometimes still chosen according to tribal custom, may make by-laws on various matters of a local nature and exercise a control over the expenditure and management of their funds and property. They operate much as do the councils of other rural municipalities. Apart from special provisions of the Indian Act, Indians are subject to federal, provincial and municipal laws the same as all Canadian citizens. They receive, also, all the benefits of national social assistance.

The occupations of these people differ according to their location. In the northern areas they still follow to a great extent their traditional nomadic existence of the trapper, but game conservation and management measures and the introduction of registered traplines are giving greater security of income. Closer to civilization the Indians are moving out of their hereditary occupations and proving their abilities in competition with others in modern agriculture in industry, and in a variety of professions. The proportion of Indians who become satisfactorily adjusted to modern conditions is, of course, greater among those who have taken full advantage of the educational program provided for them. In the 1955-56 academic year, 1,979 Indian students attended secondary schools, colleges and special courses.

In 1955, 847 Indians were enfranchised, that is, they elected to be considered on a full citizenship basis as are other Canadian citizens.

Eskimos.—In the nearly 1,000,000 sq. miles of treeless tundra across the Canadian Arctic live about 10,000 Eskimos. They are believed to be descended from the last of the prehistoric immigrants from eastern Asia to North America and, as a consequence of the brutal effects of the balance of nature imposing an endless struggle for existence on these people as well as on the animals upon which they depended, they have remained few in number. Their cultural evolution has been occasioned by the necessity for survival and by their contacts with other peoples, Indian and white. With the growing movement of civilization northward, the Eskimos will play a particularly important part in the development of their land because only they, of all the people in Canada, have completely mastered the environment of the Arctic and are totally at home in it.

Indian children living on reservations are taught the basic academic subjects but are also given vocational or handicraft training that will enable them to lead useful lives in their own communities.





Each summer the Hudson's Bay Company's western Arctic supply ship takes cargo from Tuktoyatuck to points along the coast and returns with furs trapped by the Eskimos.

◀ An Eskimo deck-hand wearing a muskrat parka.



◀ Eighteen Arctic white fox pelts were used to make this evening cloak.

It is inevitable that as the Eskimos are brought ever more under the influence of civilization they must be helped to adjust their lives and thoughts to the changes involved. Even now their population is getting larger and their life expectancy longer because of the health and welfare measures undertaken on their behalf. At the same time their food resources are getting smaller since the widespread use of the rifle and the power-driven boat has made game-killing much easier. Thus the self sufficient primitive Eskimo is passing and the nation, through the Department of Northern Affairs and National Resources and other agencies, has embarked on a program to discharge its moral responsibility to see these people through the transition period. With the nation as a whole they share family allowances, old age security and assistance and the blind, the disabled and the needy are provided for, but the objective envisaged for these people is a high standard of health,

good educational facilities and the establishment of a sound and diversified economy. At present health is a major problem because the people have built up little immunity to certain diseases. When treatment is required, the Eskimos are moved to hospitals in various parts of Canada. In 1956 more than 3,316 Eskimos, most of whom were being treated for tuberculosis, were in hospital. Extended periods of hospitalization in a vastly different environment create social problems which are being minimized as much as possible.

The problem of education for people in the more remote areas of the north is also being vigorously studied. Eskimo children in many areas are receiving education and training in new schools with modern facilities, some of which double as adult instruction and vocational training centres.

Means of providing income sources are being studied and implemented. A few industries peculiar to the north, such as boat-building, are being developed and others including the collection of eiderdown, weaving, sheep raising, tanning and preparing of specialty foods are under study. In one field the Eskimos have already had notable success—stone carving and other forms of arts and handicrafts. In 1955 they earned more than \$60,000 from carvings alone. But more important in the long run than these opportunities for self-employment are the openings created by new activities in administration, defence and industry in the north. The Eskimos are being employed on new jobs; whenever possible they are given on-the-job training for more skilled work and some have been sent south for short vocational training courses. There are many jobs at scientific and technical stations which they can do effectively and rising educational standards will open new doors to them as radio operators, weather observers and administrators. They are industrious, quick to learn and the turnover among them is low. The most important task of the Northern Service Officer is to help the Eskimo in his search for new opportunities, to develop in him a sense of local responsibility and to teach him to make his own decisions and run his own affairs.

Eskimo instructors at the RCAF Survival School at Cambridge Bay, N.W.T., are past-masters of their subject—how to survive in the bleak Arctic in event of a forced landing.





A Special Session of Parliament, called for Nov. 26, 1956, to discuss the Middle East crisis, opens with little pomp and ceremony. His Excellency the Rt. Hon. Vincent Massey, Governor General of Canada, followed by Prime Minister St. Laurent and Government Senate Leader Ross Macdonald, proceeds to the Senate Chamber to deliver the Speech from the Throne.

The Government

CANADA is unique in the Western Hemisphere in being a kingdom among republics. As a sovereign nation of ten provinces and two territories, it is likewise unique in that it is founded on British principles of parliamentary government which, while combining monarchical forms with democratic practices, have been adapted to the needs of half a continent through the application of the federal principle.

The most distinctive feature of this federalism is the distribution of legislative powers between the Parliament of Canada and the ten provincial legislatures. Generally speaking, all matters of national concern, such as defence, external affairs, trade and commerce, banking, the raising of money by any mode of taxation, criminal law and transportation, are under the jurisdiction of Parliament, while the provincial legislatures have control over such items as property and civil rights, education, hospitals, welfare institutions, municipal institutions, public lands, and direct taxation within the provinces for provincial purposes.

The Parliamentary System

That the Canadian Constitution is founded on the British parliamentary system is evident in the fact that Parliament embraces the Queen, the Senate and the House of Commons; that the executive and legislative powers are in close identification through the control of administration by leaders of the parliamentary majority; and that the judiciary is virtually independent of control by either the executive or legislative branches of government. The Crown is the unifying symbol of all three spheres of power.

The Nation.—Her Majesty Queen Elizabeth II is "Queen of Canada", though her personal participation in the function of the Crown for Canada is necessarily reserved to such rare occasions as a royal visit or the periodic appointment of a personal representative on the advice of her Canadian Ministers. The Queen reigns but does not rule; rather, she symbolizes the continuity of the ancient traditions of the British constitutional monarchy and indeed of the law and custom of the Canadian Constitution.

The personal representative of the Queen in Canada is the Governor General, appointed by Her Majesty entirely on the advice of the Prime Minister of Canada and usually for a term of five years. He exercises such formal authority as summoning, proroguing and dissolving Parliament and assenting to Bills in the Queen's name. Canada's present Governor General, the Right Honourable Vincent Massey, C.H., is the first Canadian to hold this high office. He was appointed on Jan. 24 and assumed office on Feb. 28, 1952.

The active Canadian executive authority for controlling the exercise of the powers of the Crown resides in the Cabinet or Ministry composed of Members of Parliament, who hold office so long as they possess the confidence of the selected representatives of the people in Parliament.

A new House of Commons is elected at least once every five years under an adult franchise conferred upon Canadian citizens or British subjects, male and female, who have been resident in Canada for twelve months prior to polling day. A readjustment of representation follows each decennial Census of Canada. Provincial representation is now as follows:—

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

The leader of the national party that has won a majority of the seats in a newly elected House of Commons forms a Ministry or Cabinet, the members of which are appointed by the Governor General but selected by the Prime Minister from among his party colleagues in such manner as to ensure as far as possible representation of the several regions of the country and its principal cultural, religious and social interests. The Cabinet is responsible for determining all important policies and securing the passage of such legislation, financial measures and administrative provisions as their supporters may approve. Members of the Cabinet as at Jan. 1, 1957, and the portfolios held by them were as follows, listed according to precedence:—

Rt. Hon. Louis Stephen St. Laurent.....	Prime Minister and President of the Queen's Privy Council for Canada.
Rt. Hon. Clarence Decatur Howe.....	Minister of Trade and Commerce and Minister of Defence Production.
Rt. Hon. James Garfield Gardiner.....	Minister of Agriculture.
Hon. Paul Joseph James Martin.....	Minister of National Health and Welfare.
Hon. James Joseph McCann.....	Minister of National Revenue.
Hon. Milton Fowler Gregg.....	Minister of Labour.
Hon. Lester Bowles Pearson.....	Secretary of State for External Affairs.
Hon. Stuart Sinclair Garson.....	Minister of Justice and Attorney General.
Hon. Robert Henry Winters.....	Minister of Public Works.
Hon. Hugues Lapointe.....	Minister of Veterans Affairs and Postmaster General.
Hon. Walter Edward Harris.....	Minister of Finance and Receiver General.
Hon. George Prudham.....	Minister of Mines and Technical Surveys.
Hon. James Sinclair.....	Minister of Fisheries.
Hon. Ralph Osborne Campney.....	Minister of National Defence.
Hon. William Ross Macdonald.....	Solicitor General of Canada and Leader of the Government in the Senate.
Hon. John Whitney Pickersgill.....	Minister of Citizenship and Immigration.
Hon. Jean Lesage.....	Minister of Northern Affairs and National Resources.
Hon. George Carlyle Marler.....	Minister of Transport.
Hon. Roch Pinard.....	Secretary of State of Canada.



The Rt. Hon. C. D. Howe, Minister of Trade and Commerce meets informally with the Japanese External Affairs Minister Shigemitsu (left) and the Hon. T. C. Davis, Canadian Ambassador to Japan, during Mr. Howe's tour of Japan in the autumn of 1956.

Behind the majesty of the Peace Tower on Parliament Hill in Ottawa is conducted the serious business of making laws for the peace, order and good government of this great nation of Canada.



The Senate or Upper House of the Parliament of Canada shares with the House of Commons the responsibility for the enactment of all federal legislation in that Bills must pass both Houses before receiving Royal Assent through the Governor General. Yet the influence of the Senate on legislation is immeasurably less than that of the Commons in which most public Bills are introduced by the Ministry and to which the latter is responsible. The most striking evidence of this fact is that any Bill for the expenditure of any public money or the imposition of any tax must originate in the elected House, by custom, through the Cabinet. Nonetheless, the Senate has the power to perform a valuable service to the nation in amending and delaying the passage of measures that might result from sudden shifts in public opinion or party strength.



Ottawa, the Nation's Capital. In 1857, when it was a newly incorporated city with a population of about 10,000, it was selected by Queen Victoria as the seat of the Government of Canada. Today the metropolitan area of Ottawa harbours about 345,000 persons, a good portion of whom are employed in the Civil Service. Though self-governing, the physical development of the city and its environs is under the active direction of the Federal Government.

Canadian Senators are summoned for life by the Governor General, on the nomination of the Prime Minister, with equality of representation for four regional divisions. The representation in the Senate by divisions and provinces is 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

Yukon Territory and the Northwest Territories lack representation at present in the Senate.

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, 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. The majority of the civil servants are recruited, classified and promoted by the Civil Service Commission of Canada.

The Provinces.—Similar political institutions and constitutional usages operate in the governments 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, an elected Legislative Assembly 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.

The Territories.—The vast northern and sparsely populated regions of 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 chief executive, styled Commissioner.

New Provincial Government administration building at Regina, Sask.



appointed by the Federal Government, and a locally elected Legislative Council of five members. 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.

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 4,220 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. To maintain these services, the municipality is empowered to place substantial tax levies on the citizen's property.



The Mayor, in Canada's larger municipalities, is the chief officer, assisted in council by a number of aldermen or councillors. Although many variations exist in local government form and power, the fundamental principles are the same—the conduct of public business by representatives chosen by the people.

The division of financial responsibility for health services between the three levels of government has become difficult to define but in defraying today's high cost of new hospital facilities each usually participates. The Rt. Hon. Louis S. St. Laurent, Prime Minister of Canada, and the Hon. Leslie M. Frost, Premier of Ontario, discuss with a technician apparatus installed in a new hospital wing.



The Judiciary.—The Canadian judiciary interprets the law and administers justice. The provinces are authorized to administer justice in the territories under their jurisdiction, including the organization of civil and criminal courts and the establishment of procedure in civil matters in those courts. Legislation concerning criminal law and the procedure in criminal matters is under the jurisdiction of the Parliament of Canada.

Judges of the superior, district and county courts in each province, except those 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.

The Supreme Court of Canada is the court of final appeal in Canada, and exercises general appellate jurisdiction throughout the nation in civil and criminal cases. The jurisdiction of the Exchequer Court extends to cases embracing claims made by or against the Crown in the right of Canada. The Chief Justice of Canada and the puisne judges of the Supreme and Exchequer Courts are appointed by the Governor General in Council.

Public Finance

In assigning legislative power to the Parliament of Canada and the Legislatures of the provinces, the British North America Act of 1867 allocated to the former "The raising of money by any mode or system of Taxation" and to the latter "Direct Taxation within the Province in order to the raising of a Revenue for Provincial Purposes". It also allocated exclusively to the provinces "Municipal Institutions in the Province" and specified that "In and for each Province the Legislature may exclusively make laws in relation to Education", subject and according to certain provisions protecting the rights of denominational schools. The powers assigned to the Parliament of Canada and to the provincial Legislatures, including those for the raising of revenue, are briefly as follows: all those matters not specifically assigned to the provinces and of national concern were placed under the jurisdiction

of the Parliament of Canada, while those of private and local interest were to be administered by the provincial Legislatures. The provinces in turn may delegate certain powers of government and of raising of revenue to various local authorities, largely municipal and educational.

The number, volume and diversity of government services, and consequently the amount and sources of revenues, have expanded tremendously with the passing of the years, and are likely to go on expanding in future. This situation has arisen from growth of population, increased wealth, industrialization and other technological developments, and from changing social concepts. Governments now provide services and draw on tax sources undreamed of at the time of Confederation. As a result of these changes and of the stresses and strains of war, depression, expansion and inflation, there has developed a greater interest in public finance than ever before and more discussion of the problems and their possible solutions. In recent years a number of conferences have been held between the federal and provincial governments from which emanated certain tax agreements, though these have not always proven acceptable to all provincial governments. There has also been adjustment of financial arrangements between provincial and local governments from time to time resulting in some shifts of particular responsibilities, in whole or in part, in changes in grants or other direct aid, and in new tax sources being made available.

Finances of the Federal Government

The financial operations of the Federal Government involve more than "good housekeeping", that is, the proper allocation of the tax burden, economy of expenditure and well-planned debt management. In the federal field there is sometimes a different emphasis due to wartime stress, to actions intended to relieve depression or halt inflation, or to social philosophy, all of which may be summed up in the phrase "money management". The latter is not specifically mentioned in the British North America Act, but nevertheless it has long been a function of sovereign states, more fully understood as the study of the economics of finance has developed.

In the more routine aspects of its financial operations the Government of Canada levies direct and indirect taxes, of which the income tax, individual and corporation, yields the largest return. Excise taxes (including a general sales tax), excise duties and customs duties also produce a very substantial sum. Succession duties and some other taxes yield relatively minor amounts and certain non-tax revenues, special receipts and credits accrue each year from financial transactions outside the tax fields. A 2-p.c. sales tax, a 2-p.c. individual income tax and a 2-p.c. corporation income tax are levied in addition to the regular taxes from these sources to sustain the Old Age Security Fund, from which pensions are paid to all persons over seventy years of age.

The income tax has been the chief source of revenue of the Federal Government since before World War II. Rates of tax on individual incomes were increased considerably and other forms of income tax were introduced to help finance the War but after hostilities ceased a succession of reductions in rates and increases in exemption allowances relieved some of the burden



An RCAF training and proving station for men and missiles, complete with a network of buildings and jet runways and a self-contained townsite, has been transported piece by piece and deposited at Cold Lake in northern Alberta, 145 miles northeast of Edmonton. Its job is the proving and evaluating of aircraft armament and firing controls.

for the taxpayer. Taxes on corporation incomes were also reduced and the excess profits tax was abolished. However, the expansion of personal income, the growth of the labour force and the growth of industry generally in the postwar years has offset the effect of the reduction in rates and the revenue from income taxes continues to grow each year.

For personal income tax purposes, the present exemptions from income in respect of marital status and dependants, which have been in effect since 1949, are: \$1,000 basic exemption with additional exemptions of \$1,000 for persons taxed as married and \$500 for persons 65 years of age or over; maximum exemptions for dependants of \$150 each are allowed, or \$400 if the dependant is not eligible for family allowance. The rate structure for 1956 ranged from 15 p.c. on the first \$1,000 of taxable income to 78 p.c. on income in excess of \$400,000, including the Old Age Security Tax of 2 p.c. up to \$60.

By far the largest item of expenditure of the Government of Canada is defence services. Other expenditures of major significance are made for health and social welfare, veterans' pensions and other benefits, transportation and natural resources. Payment of debt charges and tax agreement payments to the provinces are also major items. The output for defence, health and welfare, veterans' benefits, debt charges and payments to provinces has, during and since the War, caused much of the great growth in federal expenditure.



Electronic optical tracking equipment records flight characteristics of rockets and other missiles fired from CF 100's over the vast weapons range at Cold Lake.

Revenue and Expenditure of the Federal Government, Year Ended Mar. 31, 1955

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—		Defence services.....	1,515,699
Income—		Veterans' pensions and other benefits.....	233,107
Corporations.....	1,066,586	General government.....	196,866
Individuals.....	1,284,347	Protection of persons and property.....	54,602
Interest, dividends and other income going abroad.....	61,264	Transportation and communications.....	159,837
General sales.....	715,269	Health.....	54,501
Excise duties and special excise taxes—		Social welfare.....	816,644
Alcoholic beverages.....	128,689	Recreational and cultural services.....	15,439
Tobacco.....	214,594	Education.....	21,536
Automobiles.....	73,225	Natural resources and primary industries.....	149,416
Other commodities and services.....	61,477	Trade and industrial development.....	17,293
Customs import duties.....	397,228	National Capital area planning and development.....	3,391
Succession duties.....	44,768	Debt charges (excluding debt retirement).....	432,146
Other.....	15,480	Payments to government enterprises.....	79,615
Total Taxes.....	4,062,927	Payments to provincial and municipal governments—	
		Federal—provincial taxation agreements.....	327,967
Privileges, licences and permits.....	15,334	Other.....	35,031
Sales and services.....	45,620	Other expenditure—	
Fines and penalties.....	918	International co-operation and assistance.....	251,131
Receipts from government enterprises.....	50,840	Other.....	44,242
Other revenue.....	15,038	Non-expense and surplus payments.....	10,696
Non-revenue and surplus receipts.....	13,792	Total General Expenditure.....	4,419,159
Total General Revenue.....	4,204,469		

Finances of the Federal Government, Years Ended Mar. 31, 1868-1956

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 Revenue	Per Capita Revenue ¹	Total 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
1943.....	2,249,496,177	193.02	4,387,124,118	376.45	6,182,849,101	524.19
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	775.14
1953.....	4,360,822,789	302.21	4,337,275,512	300.57	11,161,734,269	755.14
1954.....	4,396,419,583	297.43	4,350,522,378	294.33	11,115,937,064	731.55
1955.....	4,123,513,300	271.37	4,275,362,888	281.37	11,263,080,154	721.95
1956.....	4,400,046,639	282.04	4,433,127,636	284.15	11,280,368,964	706.35

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.

The Federal Government is building an \$8,000,000 radar chain across Canada to ensure greater safety for civilian aircraft. Stations are being set up at 15 major airports from Atlantic to Pacific, each of which will have a radius of 200 miles up to an altitude of 60,000 feet.



Giant 40-foot antenna, specially designed for the airport and airway surveillance radar systems to be used in air traffic control.



Geographic indications that permit the operator to pinpoint aircraft positions are electronically superimposed on the face of the radar scope by flipping a switch. Detection is simplified because of the system's ability to select and reflect only moving objects.

Revenue of the Government of Canada reached an all-time record in the year ended Mar. 31, 1956 of \$4,400,000,000, and the highest expenditures were made in the year ended Mar. 31, 1944, during World War II (\$5,322,000,000). The net debt reached a peak of \$13,421,000,000 at Mar. 31, 1946, but budgetary surpluses for each of the next eight years reduced the figure to \$11,116,000,000 by Mar. 31, 1954. Budgetary deficits in the following two years increased the net debt to \$11,280,000,000 by Mar. 31, 1956.

Inflation in the general price level and population growth through the years have reduced the significance of the size of the Government of Canada debt, and the great expansion of the Canadian economy allows the country to support the present debt on a sound financial basis. On Mar. 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 Mar. 31, 1956, the net debt amounted to only 42.1 p.c. of the national product.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at Mar. 31, 1956, amounted to nearly \$15,408,000,000. The portion of the unmatured funded debt payable in Canada was 97.7 p.c., the portion payable in London amounted to 0.3 p.c. and in New York 2.0.

Provincial Finance

As already mentioned, certain agreements have been in effect in recent years between the Government of Canada and the provincial governments. The first of these was made early in the second world war. In order to provide revenue for heavy national expenditures and at the same time control inflationary tendencies, the provincial governments vacated the income and corporation tax fields in favour of the Federal Government for the duration of the War and a limited period thereafter, after agreeing to the terms of a tax rental fee from the Federal Government. These agreements of 1942 were succeeded by Tax Rental Agreements, 1947, which were, in turn, succeeded by Tax Rental Agreements, 1952. Under the 1952 Agreements, all provinces except Ontario and Quebec agreed to lease their personal and corporation income taxes, special corporation taxes and succession duties to the Government of Canada in exchange for a rental fee. Ontario, which had not entered into the 1947 Agreements, also agreed to lease personal and corporation income taxes and special corporation taxes but retained the right to levy succession duties. The Province of Quebec, which since 1947 has levied corporation and corporation income taxes, in 1954 imposed its own personal

A common sight in Canada today—a new housing development, financed largely through chartered bank mortgage loans guaranteed by the Federal Government. However, the rapid extension of urban centres has placed a tremendous strain on municipal governments which must provide the necessary services for these new communities—streets, lights, sewage and sanitation services, police and fire protection, transportation and so on.



income tax approximating 10 p.c. of that levied by the Federal Government. The 1952 Agreements run to Mar. 31, 1957, and a Federal-Provincial Conference was held in October 1955 to consider future fiscal relations. Certain proposals were put forward by the Federal Government and during 1956 these have been under consideration by provincial authorities.

**Net General Revenue and Expenditure of Provincial Governments,
Year Ended Mar. 31, 1955**

Province	Revenue	Expenditure	Province or Territory	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.....	32,851	39,086	Sask.....	99,651	96,145
P.E.I.....	8,154	8,822	Alta.....	175,097	138,303
N.S.....	51,418	52,638	B.C.....	199,658	178,585
N.B.....	50,788	50,990	Yukon.....	1,632	1,313
Que.....	339,108	349,983	N.W.T.....	707	641
Ont.....	399,058	420,999			
Man.....	56,706	48,552	Totals.....	1,414,828	1,386,057

**Analysis of Net Revenue and Expenditure of Provincial Governments,
Year Ended Mar. 31, 1955**

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes.....	566,693	General government.....	55,790
Federal tax rental agreements...	327,954	Protection of persons and property.....	78,487
Privileges, Licences and Permits—		Transportation and communications.....	371,339
Motor vehicles.....	94,371	Health.....	234,901
Natural resources.....	184,833	Social welfare.....	123,626
Other.....	48,056	Recreation and cultural services.....	9,073
Sales and services.....	22,654	Education.....	274,552
Fines and penalties.....	4,591	Natural resources and primary industries.....	106,672
Other Governments—		Trade and industrial development.....	7,772
Government of Canada—share of income tax on power utilities.....	7,294	Local government planning and development.....	2,705
Subsidies.....	24,358	Debt charges.....	128,288
Municipalities.....	243	Contributions to local governments.....	36,672
Government enterprises.....	130,999	Contributions to government enterprises.....	9,414
Other revenue.....	683	Other expenditures.....	8,891
Non-revenue and surplus receipts	2,099	Non-expenditure and surplus payments.....	9,285
Total.....	1,414,828	Total.....	1,457,467
SUMMARY OF LIQUOR CONTROL REVENUE		Less Debt Retirement (included above).....	71,410
(included above)—		Total, exclusive of Debt Retirement.....	1,386,057
Sales tax.....	1,902		
Permits.....	30,635		
Fines and penalties.....	792		
Profits.....	127,549		
Confiscations.....	53		
TOTAL.....	160,931		

At the present time the payments of the Federal Government to the provincial governments constitute a major revenue source of the nine agreeing provinces. Other main sources are sales taxes on motor fuel and fuel oil,

general sales taxes, liquor profits, and privileges, licences and permits. Corporation taxes and taxes on personal and corporation income provide a considerable portion of the revenue of the Province of Quebec. The largest expenditures of the provinces are for transportation (mainly highways), health and social welfare, education, and natural resources and primary industries.

Direct and indirect debt of provincial governments, less sinking funds, as at Mar. 31, 1955, was a little less than three times the net general revenue of the same year, direct debt averaging out to \$157.44 per capita, and indirect debt to \$96.88 per capita. Total debt of the provinces has been increasing for a number of years, though the qualification mentioned as to the burden of federal debt—that it has become lighter because of inflation and increased population—has some application to provincial debt as well.

Municipal Finance

Incorporated municipalities include within their boundaries only a small portion of the area of Canada but they serve most of the population. Outside lie a few school districts and in parts of municipally unincorporated territory some local services are provided by the provincial government concerned. A great part of the area of Canada has not sufficient density of population to warrant even these limited activities. In most provinces the municipalities levy the local taxation for school authorities but exercise little or no control over school administration or finance. In much of Quebec and Prince Edward Island and in limited areas of some other provinces, school authorities levy and collect local taxes. There is no municipal taxation for school purposes in Newfoundland, as schools are denominational and largely financed by the Province.

The largest source of revenue for municipalities and other local authorities, yielding over two-thirds of the total, is the real property tax. Also varying in importance from province to province, are business and other taxes, licences and permits, public utility contributions, and provincial grants and subsidies. Of municipal expenditure from current revenue almost a third goes to support local schools. Other major expenditures are for public welfare, roads and streets, protection to persons and property, and debt charges. Increasingly substantial sums of borrowed capital have been expended in recent years in an attempt to catch up and keep up with the streets, sanitation systems, water systems and other municipal services required by urban municipalities, whose population and development have increased at a rate far beyond that of the remainder of the country.

Municipal debt in most urban areas has increased at such a rate as to offset the inflationary and population growth factors which have held down the burden of federal and provincial debt, though this situation probably applies in many rural municipalities. Provincial governments supervise the issuance of municipal debt, and limit it by legislation or by regulatory formulae. In some instances, provinces are now aiding municipalities and schools in their capital projects by various methods, such as by outright grants, loans, sharing of debt charges, and assumption of debt. The whole question of municipal finance and municipal-provincial education relationships is undergoing much thought and review.



Few places in the New World possess the appeal of the City of Quebec. Beautiful in setting, rich in history and quaint in customs, it holds a unique place among Canadian cities. Here Champlain started Canada's first permanent settlement in 1608 and here events transpired that changed the future of America. Quebec today is fulfilling its role in the modern world, but the narrow winding and precipitous streets of the Old City, its ancient buildings, its fortresses and walls still relate the tales of long ago.



*"Behold, each thing
Is ready for the moulding of our hand,
Long have they all awaited our command."*

Laurentian Hills
by Malak

CANADA'S RESOURCES and THEIR DEVELOPMENT



THE Land is the basis of the people's livelihood and prosperity, setting certain limits on their occupations through location, size, surface relief, soil, vegetation and prevailing climates but offering in return untold opportunities through the same physical factors. Canada first springs to mind, perhaps, as northness and rockiness. It is short intense summers and long austere winters; it is the rugged uplands of Ontario and Quebec, the rounded hills and gentle valleys of the Maritimes, the fertile St. Lawrence valley, the horn-headed peaks of British Columbia and Yukon, the broad horizons of the prairies, the wind-swept rocks of Newfoundland and the limitless bareness of the Arctic. Canada is also the water and the wood; it is the melting of winter snows down innumerable freshets, the sound of cataracts on turbulent streams, the gleam of countless lakes; the mantle of forest that reaches from coast to coast; everywhere a freshness and a wildness that cannot be dispelled.

This is the land of Canada, a vast panorama of wilderness, which, by the toil, perseverance and imagination of its people, has been moulded into a great nation, whose distances have been captured by railways and aircraft, whose rivers have been harnessed for power or made navigable for transport, whose forested areas have been penetrated by logging and lumber trails or cleared for agriculture, prairie grass giving way to waving grain and buffalo to grazing cattle and sheep, and from whose rocks are being wrested treasures untold. A land whose pattern of future greatness has been well and truly laid.

Land, Water and Climate

Canada has an enviable location in a world where geography would seem to have conspired to emphasize the north. It ranges from latitude $41^{\circ} 41'$ at Middle Island off the shores of Lake Erie in the south to $83^{\circ} 07'$ at Cape Columbia on the tip of Ellesmere Island 485 miles from the North Pole, occupying the northern half of North America. About half of the land mass of the world lies between these latitudes in the northern hemisphere, including part of the United States, the United Kingdom, France and Germany, other north European states, the Union of Soviet Socialist Republics and the northern extension of China and Japan. Among the great powers only India lies wholly to the south. Most of these northern countries open out upon the North Atlantic, or the northern Pacific, or the Arctic oceans which, with their various arms, have become the strategic seas of today. Indeed, Canada is in one of the most strategic positions in the world, lying directly between the United States and the U.S.S.R. and facing the densest populations of the world in Western Europe and the Far East.

In size Canada has an area of 3,850,262 sq. miles and is second only in this respect to the U.S.S.R. which has 8,649,821 sq. miles. It is larger than the United States and Alaska with 3,608,790 sq. miles, and Brazil with 3,287,204 sq. miles and is more than forty times the size of the United Kingdom.

Canada is very simply and almost symmetrically constructed. It consists of three principal structures—a central upland sloping on its flanks to interior lowlands which lead in turn to marginal mountains. The heart of Canada is made up of a great mass of very ancient and for the most part very hard rocks known as the Canadian Shield. This vast V-shaped area of about 1,850,000 sq. miles includes the Labrador portion of Newfoundland and most of Quebec and northern Ontario, and its western boundary runs diagonally from Lake of the Woods northwest to the Arctic Ocean near the mouth of the Mackenzie River. It is a very complex structure with a rough broken surface gouged out in the weaker parts or stripped on the higher by ice. All its hills rise to about the same height and its valleys are generally filled with lakes. Tilted at the edges, it sinks at the centre below the waters of Hudson Bay and breaks up in the north to become part of the Arctic Archipelago. The role of the Shield in Canadian life is a dominant one. It is a great storehouse of wealth, rich in uranium, nickel, cobalt, lead, zinc, titanium and asbestos, some of the most valuable and most useful minerals. Its many rivers, flowing outwards toward the Great Lakes, the St. Lawrence or the Atlantic, follow precipitous courses and are tremendous sources of hydro power. Its forest coverage, dense in the southern portions and thinning out until the timber line is reached around the 59th parallel, have been of great significance in the industrialization of the country.

Flanking the Shield are the interior lowlands. To the south and south-east is the Great Lakes-St. Lawrence Lowlands region, a flat and fertile plain occupying the triangular area lying between Georgian Bay and Lake Ontario and taking in the St. Lawrence valley eastward as far as Quebec City. West of the Shield is the Western Interior Lowlands, part of the great plains of the interior of the continent that stretch from the Gulf of Mexico to the Arctic Ocean. In Canada the region occupies the depression between the



New Brunswick with its 300 miles of sea coast is a land of rugged cliffs and sea beaches, of woodland lakes and winding rivers, its picturesque towns and villages shielded by rolling hills.

Shield and the Rocky Mountains and is about 800 miles wide at the United States border, tapering to 100 miles at the mouth of the Mackenzie River. The plains have three levels, sloping eastward from an elevation of 4,000 feet in western Alberta to about 500 feet in southern Manitoba. These Lowland areas, both east and west, are regarded as the basis of Canada's agricultural wealth—wheat and beef in the west, dairy products and fruit in the east. But they do have other important resources. Vast power reserves and natural transportation facilities have assisted in making the St. Lawrence Lowlands Canada's most industrialized area, now supporting nearly two-thirds of the country's population. The Western Interior Lowlands lie above Canada's major sources of coal, gas and oil.

The structural geography of Canada is completed by mountainous regions that lie on the Atlantic, Pacific and Arctic margins. On the Atlantic the Canadian Appalachians are part of the great range of old mountains extending from the island of Newfoundland through the Maritime Provinces, southeast Quebec and into the United States. Elevation over the whole area is moderate and the river valleys, with the fertile plains of the sheltered basins, are particularly suitable for cultivation. Important deposits of base metals, non-metallics and coal occur in widely separated areas and the hills of the region are forest-clad.

In the Yukon and British Columbia, Canada has a portion of the great Cordilleran system of mountains that borders the Pacific Coast of North, Central and South America. In Canada the region has an average width of 400 miles and an area of 600,000 sq. miles and is made up of three zones. On the east is the Rocky Mountain Range with elevations of from 8,000 to 13,000 feet; on the west the Coast Range rises abruptly from the water edge to peaks of from 5,000 to 19,850 feet; and between the two is a belt of upland and mountainous country. The whole region is complex in structure and has a wide range of resources. Most important are the copper, lead and zinc metals found in abundance, as well as coal, oil and gas. To this wealth of minerals may be added a vast hydro-electric potential and dense, extensive forests. Agriculture is limited except in the Fraser delta and in some of the interior valleys.

A system of marginal mountains, known as the Innuitians, flank the Shield to the north beyond which is a coastal plain dipping down to the Arctic Ocean. The plain is interrupted by a number of remarkable piercement domes which may be associated with oil.

Thus Canada's topographical barriers follow a definite north-south pattern making somewhat more difficult an east-west development. However, there are other geographical forces—such as climatic, soil and vegetation zones—which have drawn together regions that have been separated by relief. But most important are the east-west and west-east flowing rivers that cross Canada—the St. John affording a route from the Atlantic across the Appalachians down to the interior lowlands; the St. Lawrence-Great Lakes waterway offering a highway across the Shield to Lake of the Woods and the margin of the prairies; the South and North Saskatchewan leading to passes across the Rockies; and the Thompson-Fraser through the Coast Range to the Pacific.

Land and Water Areas

The following table shows the land and water areas of Canada distributed by provinces.

Approximate Land and Fresh-Water Areas of the Provinces and Territories

Province or Territory	Land	Fresh Water	Total
	sq. miles	sq. miles	sq. miles
Newfoundland (incl. Labrador).....	147,994	7,370	155,364
Prince Edward Island.....	2,184	--	2,184
Nova Scotia.....	20,743	325	21,068
New Brunswick.....	27,473	512	27,985
Quebec.....	523,860	71,000	594,860
Ontario.....	333,835	78,747	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.....	3,554,909	295,353	3,850,262

And the total area classified by tenure is as follows:—

	<i>Sq. miles</i>		<i>Sq. miles</i>
Alienated from the Crown or in process of alienation.....	376,525	Provincial lands other than provincial parks and provincial forest reserves.....	1,792,834
Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,527,083	Provincial parks.....	42,294 ¹
National Parks.....	29,147	Provincial forest reserves..	74,688 ¹
Indian reserves.....	9,173		
Federal forest experiment stations.....	186	TOTAL AREA.....	3,850,262

¹ Duplication of 1,668 sq. miles in Manitoba, see p. 65.

The high figure for federal land is accounted for by the fact that it includes the total area of the Yukon and Northwest Territories. All unalienated lands within the provinces are administered by the provincial governments. Of Canada's land area of 3,554,909 sq. miles, 7.6 p.c. is occupied agricultural land—under crop, in woodland or unimproved. Forested land, both productive and unproductive, accounts for 44 p.c. of the total and the remainder includes rock, muskeg, urban land, road allowances, etc. The great expanse of rocky terrain, while not productive in the sense of plant life, is nevertheless extremely important in its contribution to the Canadian economy.

The inland waters of Canada are very extensive, constituting 7.7 p.c. of the area of the country. The greater portion of the country is lavishly strewn with lakes of all sizes, from bodies of water hundreds of miles long and hundreds of feet deep to ponds lost to sight in the forest. The largest and most numerous lakes occur within five hundred to a thousand miles of Hudson Bay, the most outstanding being of course the Great Lakes whose combined area of 95,170 sq. miles is shared with the United States. But many other lakes, all of them within the Canadian Shield, have the right to be called

The highway leading from the seaport of Haines, Alaska, to link with the Alaska Highway in Yukon is one of the most spectacular drives in Canada — through heavy forest up to the timberline, over alpine meadows and into the company of glaciers. Here the road reaches its summit under the stern gaze of the Three Grampians.



"great lakes". Lake Winnipeg, Great Slave Lake and Great Bear Lake range in area from 9,000 sq. miles to 12,000 sq. miles. In fact many parts of the Shield have the appearance of a drowned area with only the ridge tops appearing, water from one basin simply spilling over into another below.

In Eastern Canada, the Great Lakes and St. Lawrence drainage basin dominates all others and forms an unequalled system of navigable waterways through a region rich in natural and industrial resources for a distance of 2,280 miles into the heart of the Continent. Its tributaries, most of which have lakes that serve as reservoirs, have large developed and potential power resources. In the mid-west, the rivers running through the settled areas drain into Hudson Bay. The Mackenzie River which drains Great Slave Lake is, with its headwaters, the longest river in Canada (2,635 miles) and its valley forms the natural transportation route through the Northwest Territories to the Arctic Ocean.

The rivers flowing west into the Pacific are short and swift, reaching the coast through deep valleys and canyons—power sources of the present and future.

Climate

The climates of Canada lie mostly within the cool temperate zone, with the exception of the remote north which is in the Arctic zone. Cool temperate zones are characterized by relatively short summers and long winters, by the predominance of polar air masses, by a high frequency of storms and a prevalence of spring and autumn frosts. The southern limit is marked by the average temperature of the coldest month, below 26.6°F.; the northern limit by the mean of the hottest month, over 50°F. Although somewhat severe, these climates are stimulating rather than inhibitive in their effects; they challenge rather than frustrate. They may have prevented men from doing much with the land in earlier times when technology was limited and when there was no pressure on space in warmer and easier climatic zones. But since men have learned how to adjust their housing, clothing, food and transportation and have acquired the kinds of tools and bred the species of plants and animals suited to the environment, they have made great progress and have been stimulated to make greater and more intensive specialized and scientific use of the restricted growing season.

Of course the cool temperate climate may be divided into a number of types, such as the humid type with a warm summer found in southern peninsular Ontario, in the lower Ottawa valley and in the Montreal plains and Eastern Townships of Quebec; the humid type with a cool summer is much more widespread and includes the Avalon Peninsula of Newfoundland, the Maritimes, the edge of the Shield in Quebec and Ontario and the northern fringe of the prairies from Winnipeg to Edmonton; the humid type of climate with a severe winter has the widest range of all, extending from the intermediate slopes of the Coast Mountains of British Columbia to the northern half of Newfoundland—this, however, is not the climate of the most settled zone but of the pioneer zone; the humid type of climate with cool summers and mild winters is found along the Pacific Coast of British Columbia and in the offshore islands. Semi-arid to arid climates occur in the extreme interior of the continent and in the Arctic; the former because of isolation from maritime influences and the latter because of prolonged cold.



Waterton Lakes National Park, in the southwest corner of Alberta, is one of the most colourful and charming of Canada's mountain playgrounds. Its stately peaks, sculptured by ancient glaciers, rise abruptly from the plains, clothed in remarkable purples, greens and golds.

Temperature and Precipitation Data for Certain Localities in Canada

Station	Length of Record Yrs.	Temperature (deg. Fahrenheit)					Precipitation	
		Av. Annual	Av. January	Av. July	Ex- treme High (1921-50)	Ex- treme Low (1921-50)	Av. Annual (inches)	No. of Days
Gander, Nfld.	14	39.2	19.0	62.1	91	-16	39.50	199
St. John's (Torbay), Nfld.	10	40.6	23.9	59.4	86	-10	59.99	208
Charlottetown, P.E.I.	30	42.5	18.8	66.6	98	-23	43.13	162
Halifax, N.S.	30	44.4	24.4	65.0	94	-21	54.26	156
Sydney, N.S.	30	42.8	22.7	65.0	98	-23	50.61	165
Saint John, N.B.	30	42.0	19.8	61.8	93	-21	47.69	168
Arvida, Que.	19	36.6	4.2	65.2	95	-42	38.77	176
Montreal, Que.	30	43.7	15.4	70.4	97	-29	41.80	164
Fort William, Ont.	30	36.8	7.6	63.4	91	-38	27.62	142
Toronto, Ont.	30	47.0	24.5	70.8	105	-22	30.94	145
Churchill, Man.	21	18.8	-16.4	55.0	90	-50	14.41	101
Winnipeg, Man.	30	36.6	0.6	68.4	108	-43	19.72	118
Regina, Sask.	30	36.7	2.3	66.6	110	-54	15.09	109
Beaverlodge, Alta.	30	36.1	9.7	60.2	98	-53	17.32	127
Calgary, Alta.	30	39.0	15.8	62.4	97	-46	17.47	101
Nelson, B.C.	30	45.8	24.4	67.2	103	-17	28.52	131
Victoria, B.C.	30	50.2	39.2	60.0	95	6	26.18	144
Dawson, Y.T.	30	23.8	-16.0	59.8	95	-73	13.99	117
Coppermine, N.W.T.	19	11.7	-19.0	49.0	87	-58	10.87	103

National and Provincial Parks

The Governments of Canada—national and provincial—have, with foresight and wisdom, set aside many areas of this magnificent land to be preserved in their natural state for the enjoyment and benefit of the people—some vast and spectacular and some small jewels of picturesque or historic interest. There are scenic and wild animal parks far removed from civilization and completely untouched by the hand of man, but many others are easily accessible by highway, rail or air, offering extensive recreational facilities and every type of accommodation from camp grounds to palatial hotels and cosy cabins. There, away from the bustle of modern life, may be found the peace and solitude that only nature can provide.

The Federal Government began in 1885 to look toward the future by establishing a small parkland around the hot mineral springs at Banff in the Alberta Rockies. This Park, enlarged to over 2,500 sq. miles, has become one of the best known recreational areas in the world. There are now thirty National Parks established across the country, together having an area of 29,000 sq. miles. They are Canada's greatest single tourist attraction, each with its unique fascination and offering its special facilities for the vacationer. The Parks are supervised by the National Parks Branch of the Department of Northern Affairs and National Resources, and records show that about 3,350,000 people entered their gates in 1956. National Park names and areas are as follows:—

The Indians who once inhabited Canada's north Pacific Coast left behind them many expressions of their artistry, among them those monumental wood carvings, the totems.



Park	Area
SCENIC	sq. miles
Jasper, Alta.	4,200.0
Banff, Alta.	2,564.0
Prince Albert, Sask.	1,496.0
Riding Mountain, Man.	1,148.0
Kootenay, B.C.	543.0
Glacier, B.C.	521.0
Yoho, B.C.	507.0
Cape Breton Highlands, N.S.	390.0
Waterton Lakes, Alta.	204.0
Mount Revelstoke, B.C.	100.0
Fundy, N.B.	79.5
Prince Edward Island, P.E.I.	7.0
Point Pelee, Ont.	6.0
Georgian Bay Islands, Ont.	5.4
St. Lawrence Islands, Ont.	189.4
	(acres)
WILD ANIMAL	
Wood Buffalo, Alta. and N.W.T.	17,300.0
Elk Island, Alta.	75.0
HISTORIC	acres
Fortress of Louisburg, N.S.	339.5
Fort Lennox, Que.	210.0
Fort Beauséjour, N.B.	81.3
Fort Prince of Wales, Man.	50.0
Halifax Citadel, N.S.	37.0
Fort Battleford, Sask.	36.7
Fort Anne, N.S.	31.0
Fort Royal, N.S.	20.5
Woodside, Ont.	11.0
Lower Fort Garry, Man.	12.8
Fort Wellington, Ont.	8.5
Fort Malden, Ont.	5.0
Fort Chambly, Que.	2.5



The new Fortuan Lake Parkway through Gatineau Park emerges from an infinity of leaf and lake to pause on the edge of the escarpment overlooking the Ottawa River, opening a new and enchanting vista of a long-settled land.

In addition, more than 500 sites of historic importance have been marked or acquired by the Historic Sites and Monuments Board, commemorating historical events and personalities who have played a distinctive part in the shaping of the nation.

Seven of the provincial governments have established Provincial Parks. Though many of them are undeveloped areas set aside in their natural state, some of the larger parks, especially in British Columbia, Quebec and Ontario, are highly developed and well served with tourist accommodation and organized recreational facilities. The total area of provincial parkland is about 40,626 sq. miles, located as follows: Quebec, 20,264 sq. miles; British Columbia, 12,496 sq. miles; Ontario, 5,079 sq. miles; Saskatchewan, 1,685 sq. miles; Manitoba, 937 sq. miles; Alberta, 117 sq. miles; and Newfoundland, 48 sq. miles. In Manitoba, park developments are being carried out in two of the Province's forest reserves having a combined area of 1,668 sq. miles.

Gatineau Park.—Immediately north and west of Ottawa, the Capital City of Canada, lies a beautiful hill and lake country long loved and widely used for recreational purposes by the people of the district. This area has been taken into the National Capital Plan to be preserved in its natural state and developed as a park and game sanctuary. About three-quarters of its planned 75,000 acres have been acquired and are being opened up by a 45-mile scenic parkway. Late in 1956 the beginning of this driveway was ready for use and the park, with its beaches, trails, camp sites, picnic facilities, fishing and boating and excellent winter skiing, is now the summer and winter playground of the Capital area.



George Hunter

Quirke Lake is one of the most scenic mining areas in Ontario. Six properties completely encircle the lake under which lies most of the uranium orebody of the area. The two shafts at the Panel property have been sunk on small islands to which causeways have now been built.

Resource Development

Minerals



IN 1957 Canada is host to the Sixth Commonwealth Mining and Metallurgical Congress. From September 8 to October 9, Canada's mineral industry will be on display to delegates from some seventy countries, who will visit almost every type of mineral operation in Canada: precious and base-metal mines, coal mines, smelters and metallurgical plants, industrial mineral operations, and petroleum, natural gas and chemical installations as well as universities and various branches of government administration, research and scientific investigation. All will see a thriving, prosperous mineral industry in a period of great growth. Tremendous changes have taken place in almost every field of mineral endeavour since 1927, the year in which the Congress was last held in Canada. Highlighting these changes are the mushroom-like growth of the crude petroleum industry in Western Canada; the colourful development of what will probably become the world's largest uranium industry; the great growth of iron-ore production; and the remarkable expansion of Canada's nickel and copper producing facilities. The most recent developments in the various branches of the Canadian mineral industry are covered in the article below.

Canada, with its great wealth of mineral resources, possesses a thriving mineral industry. During the past five years in particular, widespread exploration and extensive development activity fed by huge capital expenditures have greatly broadened Canada's mineral horizons. So rapid has been the growth of the mineral industry that each successive year sees the setting of new records in both volume and value of production. Output, which comprises over sixty metals and minerals, was almost \$2,100,000,000 in value in 1956 (double that of 1950) and accounted for about 7 p.c. of the value of the gross national product that year. Crude petroleum, with an output valued at \$401,800,000 in 1956, is the leading mineral in point of value and copper is the leading metal.

The mineral industry continues to play an increasingly important role in Canada's export trade. In 1956 exports of primary ores, metals and minerals reached a value of \$1,300,000,000 and made up nearly 30 p.c. of the country's exports of all commodities. Canada today is the chief world producer of nickel, the platinum metals and asbestos. It ranks second in the production of gold, zinc, cadmium and selenium; third in silver, molybdenum and barite, and fourth in copper and lead. Much of Canada's mineral production is exported in the form of ores and concentrates or in primary metallic forms mainly to the United States. However, with the rapid growth

in Canadian industrialization, increasingly large quantities of the basic raw materials from the mines and mills are being processed and consumed domestically.

Several developments of marked significance to Canada's economy are taking place. Among these the high rate of discovery of crude petroleum and, more latterly, of natural gas is effecting great material changes in the country's industrial development as well as adding markedly to the value of Canadian mineral production. The growth of uranium mining, particularly in the Blind River area of northern Ontario, has already placed Canada in the forefront of uranium producers and promises by 1958 to add \$300,000,000 to the annual value of Canadian mineral output. Almost overnight this country has become a major exporter of iron ore and developments in the non-ferrous base metal field, particularly in nickel and copper, are making large new supplies of these metals available for export.

More than any other industry, mining continues to open up Canada's great expanses to settlement and to other industry. The construction a few years ago of the 360-mile Quebec North Shore and Labrador Railway into the New Quebec-Labrador iron ore field has made large areas of Quebec's hinterland accessible for exploration and development. Similarly, the recently built 144-mile railway from Sherridon to Lynn Lake in northern Manitoba has opened up a large section of the Province to the explorer and the developer. Two new rail lines and a highway have been built into the Manitouwadge copper-zinc area of northwestern Ontario, and a railway is pushing into Quebec's Chibougamau area from Beattyville on the west and from St. Felicien on the south. As a result of mineral developments new settlements such as Schefferville in New Quebec-Labrador, Lynn Lake in northern Manitoba, Uranium City in the Beaverlodge area of northern Saskatchewan, and Murdochville in Quebec's Gaspé peninsula have appeared on the mineral scene and have been inscribed on the map of Canada.

Metals.—Metal production continued its upward trend in 1956 reaching a value of \$1,134,400,000, 13 p.c. above the 1955 total and constituting 55 p.c. of the total value of mineral production. Good prices and a firm demand for metals maintained development activity at a high level with a resultant marked increase in actual and potential output. This was particularly true of iron ore, uranium, copper, nickel and zinc.

Iron ore headed the list of actual production gains made. Output in 1956 rose to 22,500,000 short tons, a 38-p.c. increase over 1955 and three times the output in 1954. Developments under way indicate a total iron-ore output of between 50,400,000 and 67,200,000 tons within the next decade. In the Steep Rock area of northwestern Ontario, for instance, Steep Rock Iron Mines Limited and Caland Ore Company Limited plan to spend \$60,000,000 during the next few years to raise output to 10,080,000 tons annually. More than 13,440,000 tons of the 1956 output came from Iron Ore Company in New Quebec-Labrador (8,648,640 tons in 1955); 3,732,000 tons from Steep Rock Iron Mines in the Steep Rock area; 1,585,000 tons from Algoma Ore Properties Limited in northern Ontario; and 3,121,000 tons from Dominion Wabana Ore Limited in Newfoundland. The remainder came mainly from the operations of Marmoraton Mining Company Limited about 35 miles east of Peterborough in southeastern Ontario, and from operations in British Columbia.

Additional iron ore output is coming from the treatment of pyrite and pyrrhotite by Noranda Mines Limited in two sulphur-iron plants in Ontario—one at Port Robinson near Welland and the other at Cutler in the Blind River area—and by International Nickel Company in a new \$19,000,000 ammonia-leaching plant at Copper Cliff near Sudbury. Eventual annual production from this plant will be at the rate of 1,000,000 tons of iron ore grading more than 65 p.c. Increased attention is being paid to properties containing low-to-medium-grade iron ores which are amenable to beneficiation. One such property is the Hilton mine (formerly the Bristol mine) about 35 miles northwest of Hull, Que., which is being prepared for an annual production of 600,000 tons of pellets containing about 66 p.c. iron. The higher content furnace feed thus obtained enables industry to increase blast furnace production by as much as 20 p.c. without expanding capacity.

About 90 p.c. of Canada's output of iron ore is now exported. Canadian consumption has increased fivefold since 1938 and in 1956 totalled 6,720,000 tons. Despite increasing output, about 72 p.c. of the consumption in 1956 was imported, mainly because of geographic factors and company affiliations.

Uranium has become, in the short space of three years, one of Canada's major metals. Canada, which early in 1953 had one producing area at Great Bear Lake in the Northwest Territories, now has four such areas, the three additional ones being the Beaverlodge area of northern Saskatchewan, the Blind River area of northern Ontario and the Bancroft area of southeastern Ontario. It also has two potential uranium areas, the Marian River area of Northwest Territories and the Birch Island area in the Kamloops Mining Division of British Columbia. By late 1956, Eldorado Mining and Refining Limited, the Crown purchasing agent, had signed contracts and given letters of intent to 18 uranium companies covering the purchase of over \$1,500,000,000

The Wabana iron mines of Bell Island, Newfoundland, have recently completed an extensive modernization program increasing their annual output capacity to 2,800,000 tons of ore. For the next five years about 80 p.c. of this output will go to the United Kingdom and West Germany.



worth of uranium precipitates by Mar. 31, 1963. Output by 1958 is expected to come from 24 uranium concentration plants which will handle over 44,000 tons of ore daily. Eleven of these with an estimated throughput of 33,250 tons daily will be in the Blind River area.

Undoubtedly the most colourful events in the uranium industry have taken place in the Blind River area. Since the discovery of uranium in 1953, huge tonnages of low-grade uranium ore have been proven; Pronto Uranium Mines Limited, the area's first producer, entered production in 1955 after an incredibly short period of preproduction development; Algom Uranium Mines Limited officially entered production early in 1957 and is milling at a total rate of 6,000 tons daily in two plants; and several other companies are nearing production, one of these being Consolidated Denison Mines Limited which expects to place its 6,000-ton mill in operation in the spring of 1957. This will be the largest single uranium plant in the world. All told, over \$200,000,000 will be spent to bring the various properties in the Blind River area into production.

Production in the Beaverlodge area comes from Eldorado's property on Beaverlodge Lake, including that of nearby Radiore Uranium Mines Limited which Eldorado has leased on a royalty basis; from the operations of Gunnar Mines Limited in the St. Mary's Channel section; and from several smaller operations. Eldorado has enlarged its mill from 750 tons to 2,000 tons daily and Gunnar from 1,250 tons to 1,650 tons daily. Lorado Uranium Mines Limited is completing the construction of a 500-ton mill, which is later to be expanded to 750 tons daily.

In the Bancroft area, Bicroft Uranium Mines Limited has a 1,000-ton plant in operation and four other companies in the area expect to enter production in 1957. Additional uranium production will also come in 1957 from the property of Rayrock Mines Limited in the Marian River area of Northwest Territories, and from that of Rexspar Uranium and Metals Mining Company Limited near Birch Island in southern British Columbia.

Nickel production is at record levels as a result of the expansion in production facilities in the Sudbury area and the addition of new production from northern Manitoba. During the past decade, International Nickel raised its annual production from around 220,000,000 lb. to over 290,000,000 lb. through the large-scale extension of its underground mining facilities and the use of new metallurgical processes for the treatment of lower-grade ores. Falconbridge Nickel Mines Limited is carrying out an expansion program to raise its production to 55,000,000 lb. by 1960; by 1956 output had reached some 45,000,000 lb. Nickel production from the Lynn Lake nickel-copper property of Sherritt Gordon Mines Limited in northern Manitoba is running at a rate of 20,000,000 lb. a year. Nickel concentrate from the Lynn Lake mine is processed in Fort Saskatchewan, Alta.

The shortage of nickel and the resultant emphasis on the search for new sources of supply have led to a number of developments which promise to increase further Canada's output of the metal. International Nickel is going ahead with the development of its extensive, low-grade deposits at Mystery Lake and Moak Lake in northern Manitoba. In the Kenora area of north-western Ontario, Kenbridge Nickel Mines Limited, a Falconbridge subsidiary, and Eastern Mining and Smelting Corporation Limited are preparing

To man's eternal quest for fabulous fortune has been added a new adventure and a new name—URANIUM—a magic metal with the potential power to change the standard of living the world over. Canada's known resources of this exciting source of energy are being extended steadily and its milling rate should reach 44,000 tons a year by mid-1958.



▲
In this sprawling mill at Gunnar Mines in the Beaverlodge area of northern Saskatchewan, uranium ore is crushed, ground, boiled and purified until only the bright yellow concentrate remains.

Two years ago a 30-mile stretch of road, now an excellent secondary highway, was cut through virgin forest in northern Ontario and over it passed all the heavy equipment to develop the Elliot Lake mines and townsite and the Quirke Lake mines. The Consolidated Denison 6,000-ton mill under construction was completed early in 1957 and is the largest single uranium plant in the world.



properties for production in the Populus Lake and Werner Lake areas, respectively. Production from the latter property plus that from the Montmagny county property of Eastern Metals Corporation Limited on the south shore of the St. Lawrence River and from North Rankin Nickel Mines Limited on the west coast of Hudson Bay in Northwest Territories will be used as feed for the new nickel-copper smelter-refinery at Chicoutimi, Que., which Eastern Mining has scheduled for completion in 1957-58. Initial output from the new plant is planned at 12,500,000 lb. of nickel and 100,000,000 lb. of blister copper annually.

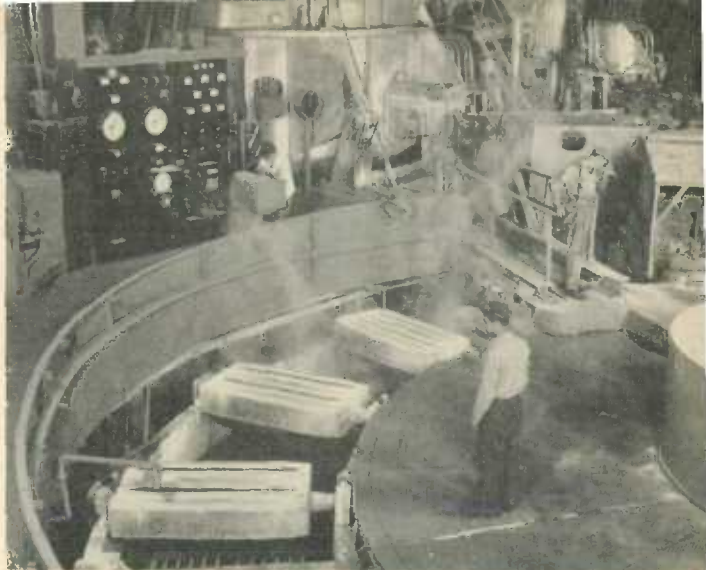
Copper production rose to an all-time high of over 706,000,000 lb. in 1956 mainly because of the expansion in nickel-producing facilities in the Sudbury area and of new output from Quebec's Gaspé and Chibougamau areas. When in full production, the new mine of Gaspé Copper Mines Limited is expected to produce 125 tons of copper anodes daily. The up-and-coming Chibougamau area, from which production first came late in 1953, already has three mines in operation with a combined annual output of over 50,000,000 lb. of copper, and several other properties nearing production.



Four hundred air miles north of Winnipeg in the Mystery-Moak Lakes area lies a nickel deposit, which, after three or four years of development and the expenditure of \$175,000,000, will probably become the second largest nickel producer in the world—next to the Sudbury operations in Ontario.



Wire bar casting from an electric furnace at International Nickel's copper refinery at Copper Cliff, Ont. Canadian industry used 300,000,000 lb. of refined copper in 1956.



New copper production will come in 1957 from the Manitouwadge area of northwestern Ontario where important copper-zinc discoveries were made in 1953. Geco Mines Limited plans a milling rate of 3,300 tons daily at the site of the original discovery and Willroy Mines Limited is completing a 1,000-ton mill on an adjoining property. In northwestern British Columbia, Granduc Mines Limited is preparing a copper property for production by 1960-61 at an eventual contemplated rate of 10,000 tons of ore daily. In Eastern Canada, Maritimes Mining Corporation Limited is planning production at two properties in Newfoundland, the old Tilt Cove mine on the northwest shore of Notre Dame Bay and the Gullbridge property 50 miles to the southwest.

The output of refined copper comes from two refineries, the International Nickel refinery at Copper Cliff in the Sudbury area, and that of Canadian Copper Refiners Limited, a subsidiary of Noranda Mines Limited, in Montreal East. Canadian consumption of refined copper totalled 300,000,000 lb. in 1956, a 9-p.c. increase over 1955 and a 153-p.c. increase over 1938.

Canada's zinc production amounted to 847,200,000 lb. in 1956, 2 p.c. lower than in 1955. Output from the Sullivan mine of Consolidated Mining and Smelting and from other zinc operations in British Columbia, Quebec and other producing provinces is for the most part at capacity rates. Canada's two zinc refineries—that of Consolidated Mining and Smelting at Trail, B.C., and of Hudson Bay Mining and Smelting Company Limited at Flin Flon, Man.—produced 511,200,000 lb. of refined zinc in 1956 compared with 514,000,000 lb. in 1955. Zinc concentrates from provinces east of Manitoba are exported to the United States or Europe. Zinc consumption in Canada has increased 154 p.c. since 1939, far outstripping that of the United States and of the world which increased 71 p.c. and 53 p.c., respectively.

Lead production has shown a gradual decline during the past few years because of a slackening in demand in outside markets. Output in 1956 amounted to 373,300,000 lb. compared with 405,500,000 lb. in 1955. Over 80 p.c. of the production comes from the Sullivan mine and from other operations in British Columbia. Several promising lead-zinc properties are

under development, particularly in the Bathurst-Newcastle area of north-eastern New Brunswick where Brunswick Mining and Smelting Corporation Limited and other companies are working toward production. Canadian consumption of lead, which has increased 144 p.c. since 1939, should show a further marked increase with the construction in 1956 of a plant to produce tetraethyl compounds in the Sarnia area of southwestern Ontario.

The gold industry continues to be faced with difficult economic problems arising from a fixed price for gold and high production costs and, more recently, the high premium on the Canadian dollar. Output in 1956 amounted to 4,400,000 oz. t. compared with 4,500,000 oz. t. in 1955, and 5,345,000 oz. t. in the record year of 1941.

Industrial Minerals.—In line with Canada's rapid industrial growth, marked progress has been made in the production of industrial minerals. Canadian consumption of these minerals since 1938 has increased more rapidly than that of metals. Canada, for instance, now uses five times the cement, seven times the gypsum, and three times the lime and the salt.

Asbestos is the top mineral of the group in point of value, output in 1956 being 1,000,000 tons valued at \$109,700,000. Demand for asbestos suitable for asbestos-cement products increased 5 p.c. in 1956 over 1955 while sales of the spinning fibres dropped 15 p.c. below the record set in 1955. Canadian requirements of asbestos are relatively small and most of the output is exported. By 1958 over \$100,000,000 will have been spent on the expansion of Canada's asbestos-producing facilities since 1950. In the Eastern Townships of Quebec, the source of approximately 96 p.c. of the Canadian output, Canadian Johns-Manville Company Limited has completed at Asbestos the world's largest mill, capable of producing 625,000 tons of fibre annually. A large project under way is the preparation of the Black Lake property of Lake Asbestos of Quebec Limited, a subsidiary of American Smelting and Refining Company, for production at a cost of \$35,000,000. The Company expects to start operations during 1958 at a rate of 4,000 tons daily. In Western Canada, Cassiar Asbestos Corporation Limited, which produces long-fibre asbestos from a deposit in the McDame Lake area of northern British Columbia, has increased its milling rate to 700 tons daily.

Because of the tremendous rate of construction activity, cement production is at capacity levels. Output in 1956 amounted to 29,700,000 bbl. 18 p.c. over 1955 and 78 p.c. over 1950. Production capacity has been raised to 37,000,000 bbl. annually and present expansion under way is expected to raise it to 42,000,000 bbl. by 1957 or early 1958. About 3,500,000 bbl., were imported into Canada in 1956 to meet domestic demand but it is hoped that the additional capacity will eliminate the necessity of imports. One of the larger of the new projects is the 3,000,000-bbl. plant built at Clarkson, Ont., by St. Lawrence Cement Company Limited. It came into production late in 1956.

The gypsum industry recorded another all-time high in 1956 with an output of over 5,000,000 tons compared with 4,668,000 tons in 1955. Nova Scotia accounts for about 85 p.c. of the output and much of the increase in 1956 came from the new quarry of National Gypsum (Canada) Limited at Milford in that Province, where production was as high as 8,000 tons a day on a single shift basis. From this deposit, one of the largest in the world, crude gypsum is shipped to company plants along the Atlantic seaboard.

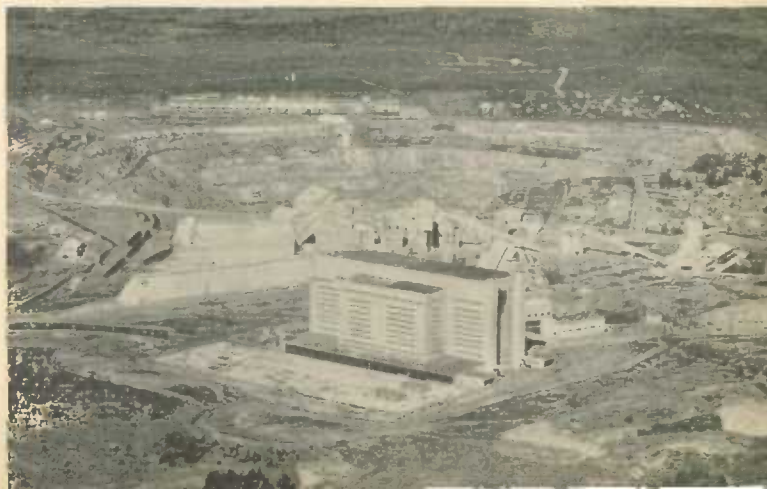
Raised in less than a year, this new cement plant at Edmonton started business in May 1956, delivering cement to contractors in Western Canada. East and west, in almost every province, the cement industry is adding to its facilities in an endeavour to fill construction demands.



Canada's output of rock salt has increased greatly with the bringing in of the new mine of The Canadian Rock Salt Company Limited at Ojibway near Windsor in Ontario in August 1955. Production from this mine, which is equipped to produce 500 tons of salt an hour from the 27-foot seam 1,000 feet below the surface, has made Canada a large exporter of rock salt. Exports, which go to the United States, totalled 200,000 tons valued at \$1,000,000 in 1956 compared with 949 tons valued at \$14,445 in 1954, the year before the mine's entry into production. Rock salt output also comes from Malagash Salt Company Limited at Malagash, N.S., which is preparing a new mine at nearby Pugwash for production in 1957 at 1,000 tons a shift. In Ontario, Dominion Tar and Chemical Company Limited through its subsidiary, Sifto Salt Limited, will spend \$6,000,000 to develop a 20-foot bed of salt 99 p.c. pure near Goderich.

Production of elemental sulphur from sour natural gas will rise rapidly during the next few years after the two major natural gas pipelines now under construction go into operation, as the gas must be cleaned of hydrogen sulphide and other impurities before it is used. Canadian Gulf Oil Company in 1956 constructed a plant near Pincher Creek, Alta., which will have an

The Eastern Townships of Quebec continue to account for most of the asbestos output of Canada. This recently completed mill at Asbestos, which replaced smaller out-moded facilities, can produce 625,000 tons of fibre annually.



ultimate recovery of 896 tons of sulphur a day from gas for delivery to Trans-Canada Pipe Lines Limited. In the Peace River area of British Columbia, Pacific Petroleum Limited will recover sulphur from gas for delivery to the pipeline of Westcoast Transmission Company Limited in a \$20,000,000 plant near Fort St. John at an initial rate of 300 tons daily. Canada's production of elemental sulphur from sour natural gas in 1956 amounted to 29,120 tons. It is being recovered in Alberta by Shell Oil Company of Canada Limited in the Jumping Pound field at a rate of 90 tons daily, and by Royalite Oil Company in the Turner Valley field at a rate of 11,200 tons a year.

Important developments have been taking place in the production of other industrial minerals. Canada's output of titanium dioxide has shown an increase during the past few years because of the extensive modification of electric smelting furnaces and the construction of new ore treatment facilities by Quebec Iron and Titanium Corporation at its plant at Sorel, Que. Output of titanium dioxide in 1956 amounted to 153,000 tons compared with 117,000 tons in 1955. Developments under way at lithium properties in the Lake Nipigon-Beardmore area of northwestern Ontario and in the Cat Lake-Winnipeg River area of southeastern Manitoba indicate a substantial increase in Canada's output of lithium concentrates in the next few years. Quebec Lithium Corporation, Canada's first major producer of lithium concentrate, is raising the capacity of its plant near Val d'Or from 1,000 to 1,500 tons a day. Several niobium (columbium) properties are under investigation in various parts of Canada, including a niobium-uranium property on Newman Island in Lake Nipissing in northern Ontario, and a niobium deposit near Oka, 40 miles northwest of Montreal in Quebec.

Canada's second source of nepheline syenite production was opened up in 1956 with the bringing in by International Minerals and Chemical Corporation (Canada) Limited of its property 40 miles northeast of Peterborough in Ontario. The original producer, American Nepheline Limited in the same area, expanded its plant in 1956 to handle 600 tons a day.

Canada will have a new source of feldspar early in 1957 when Quebec Lithium Corporation commences the commercial production of feldspar as a by-product in the production of lithium concentrate at its plant near Val d'Or. The Company plans an initial production of 250 tons of ceramic-grade feldspar concentrate daily. Present production, which amounted to 17,800 tons in 1956, comes from deposits in Quebec within 100 miles of Ottawa.

Several companies are drilling potash deposits in Saskatchewan. One of these, Potash Company of America Limited, is working toward production by 1958 at its property 15 miles east of Saskatoon. Saskatchewan's potash deposits extend right across the Province from Churchbridge at the Manitoba boundary to Manito Lake near the Alberta border and are believed to contain the largest reserves of potash in the world.

The clay products industry continues to expand rapidly in line with the high level of construction activity. The largest of the new plants to come into production in 1956 was that of Canada Brick Limited at Streetsville, Ont., with an output of 100,000 shale bricks daily. The production of lightweight aggregate from Canadian clays and shales also shows a steady increase. New plants being built will add to the production of the eight now in operation.

Gas conservation plant at Leduc, Alta., which takes some 25,000,000 cu. feet of gas a day from oil wells at Leduc and Golden Spike, separates out the liquid propane, butane and pentanes, then passes some of the dry residue on to a utility company for use in homes and factories in the Edmonton area. The remainder is returned to the oil wells to provide pressure which results in greater oil recovery.



Fuels.—Canada's crude petroleum industry continues to record outstanding progress in growth of production and the steady expansion of supply facilities. Output in 1956, 85 p.c. of which came from Alberta, advanced 32 p.c. over that of 1955 to reach 170,600,000 bbl. Potential production, however, is now almost double allowable production mainly as a result of the remarkable success of the extensive drilling under way in the Pembina field of Alberta and in the oil-rich areas of southeastern Saskatchewan. Alberta in 1956 showed the greatest increase in volume of output, advancing 31,300,000 bbl. to 144,300,000 bbl. Saskatchewan, however, recorded the greatest proportionate increase with an output of 19,200,000 bbl., almost double that of 1955. Production in Manitoba increased 43 p.c. to 5,900,000 bbl.

The domestic market, which regularly shows an annual increase of about 12 p.c., absorbed approximately 75 p.c. of the 1956 output and the export market the remainder. New outlets for western Canadian crude are being supplied by the construction in 1957 of a 20-inch, 150-mile extension to the Interprovincial pipeline from Sarnia to Toronto and by the additions in 1957-58 to refinery capacity in the Toronto area. These are expected to raise Ontario's present market for Canadian crude about 60 p.c. to 200,000 bbl. a day by 1958.

Over \$500,000,000 was spent on exploration and development of crude petroleum and natural gas resources in 1956 and the industry is expected to increase this to some \$600,000,000 in 1957. Crude petroleum reserves in Western Canada have risen to over 3,000,000,000 bbl., three-quarters of which are in Alberta. The marked upsurge in drilling activity in 1956 has carried over into 1957 and remains centred in the Pembina field and in southeastern Saskatchewan. At the end of 1956, the Pembina field, now Canada's greatest producing field and one of the largest in North America, had 1,600 producing wells and reserves estimated at 1,000,000,000 bbl. In southeastern Saskatchewan, drilling activity has met with spectacular success and in 1956 alone, 500 development wells were completed, bringing the region's total to 800 wells at the end of the year. Proven reserves in this region are estimated at 1,000,000,000 bbl.

Canada's refinery capacity was raised in 1956 to 700,000 bbl. a day, and construction under way at the end of the year was expected to raise it further to 750,000 bbl. a day. Close to 225,000,000 bbl. of refined products were manufactured by Canadian refineries in 1956 compared with 195,000,000 bbl. in 1955 and refinery consumption is expected to reach 250,000,000 bbl. in 1957.

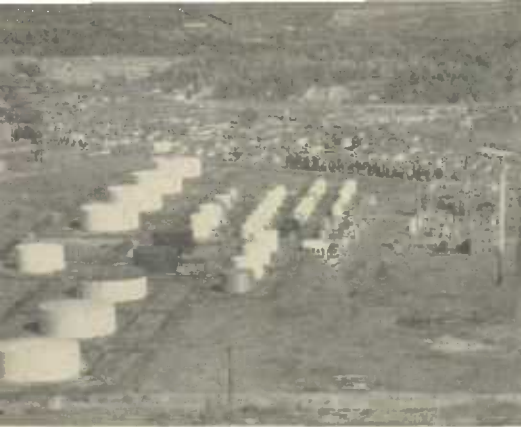
The most significant development in natural gas has been the opening up of eastern and western Canadian markets to western Canadian natural gas that will result from the construction of two major natural gas pipelines now under way—the 650-mile line of Westcoast Transmission Company Limited which will pipe gas from the Peace River area of Alberta and British Columbia south to Vancouver and to the international border, and the 2,300-mile line of Trans-Canada Pipe Lines Limited from the Alberta-Saskatchewan border east to Toronto and Montreal. Details of these pipelines are given at p. 217.

A large-scale exploratory drilling program is in progress in the Fort St. John area of British Columbia to prove up additional natural gas reserves for the Westcoast line. The construction of the Trans-Canada line has had little effect on the exploration for natural gas in Alberta as sufficient gas is available for the first few years of the line's operation. According to the Canadian Petroleum Association, the proven and probable recoverable reserves of natural gas in Western Canada total 22.5 trillion cu. feet, of which 18.5 trillion cu. feet are in Alberta. Additional gas reserves are being found in Alberta at an estimated rate of 2 trillion cu. feet annually.

Coal production declined steadily from the record output of 19,139,000 tons in 1950 to 14,914,000 tons in 1954 in the face of increasing competition for markets from crude petroleum and natural gas. Since 1954 output has levelled out and in 1956 amounted to 14,900,000 tons. The Federal Government is carrying out extensive research dealing with various technical problems encountered by the coal industry. This research is directed to the study of stress phenomena to make mining at depth safe and economical; the improvement in preparation techniques; and the development of uses for the finer sizes of Western Canada bituminous coals that are particularly friable. It includes tests of western Canadian coals to aid in the selective mining of seams for the production of high-quality coal for coke manufacture for the steel industry and also the study of problems relating to combustion and power. Additional research is being directed to the hydrogenation of coal, both in the presence and absence of gamma radiation, to make diesel oil and gasoline.



A large oil drilling rig in operation in south-eastern Saskatchewan where drilling is meeting with spectacular success.



An oil refinery at Calgary, part of the Alberta scene.



An Edmonton catalytic cracking unit which converts heavy crude to gasoline and other compounds.

Statistics of Production

In value of production, the greatest advance in 1956 was made by the metals group although the proportion of the total output accounted for by this group dropped from 56 to 55 p.c. during the year. Copper continued to lead the metals followed by nickel, and iron ore advanced to replace gold in third place. Because of the tremendous increase in crude petroleum production, the fuels group showed a dollar advance almost as great as that of the metals group. The value of most non-metallics increased moderately and greater production of cement brought the structural materials to a new high.



"Spinning in" a new length of pipe



Oil seismic crew maps underground rock formations by measuring electronically the time it takes shock waves produced by dynamite to rebound to the surface.



Underground gravity meter is used to measure the pull of gravity at various spots on the bottom of Lake Erie in search for oil and gas.

Quantities and Values of Minerals Produced, 1955 and 1956

Mineral		1955		1956 ^a	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	2,021,726	563,345	1,820,000	576,300
Bismuth.....	"	265,896	572,362	273,007	494,157
Cadmium.....	"	1,919,081	3,262,439	2,258,184	3,838,913
Cerium, rare earths.....	"	—	988	—	—
Cobalt.....	"	3,318,637	8,563,700	3,685,956	9,372,760
Columbium.....	"	42	1,032	—	—
Copper.....	"	651,987,423	239,756,455	706,585,547	291,469,615
Gold.....	oz. t.	4,541,962	156,788,528	4,378,862	150,808,010
Indium.....	"	104,774	232,598	358,000	805,500
Iron ore.....	ton	16,283,177	110,435,850	22,526,311	156,327,885
Iron ingots.....	"	115,955	4,831,845	157,000	6,339,000
Lead.....	lb.	405,525,038	58,314,500	373,349,541	57,906,514
Magnesium and calcium.....	"	—	6,585,409	—	5,617,826
Manganese ore.....	ton	—	—	—	1,900
Mercury.....	lb.	75	250	—	—
Molybdenite.....	"	1,389,177	823,954	1,452,028	967,461
Nickel.....	"	349,856,997	215,866,007	355,986,460	223,343,992
Palladium, iridium, etc.....	oz. t.	214,252	8,321,633	161,600	6,495,065
Platinum.....	"	170,494	14,747,732	150,000	15,585,000
Selenium.....	lb.	427,109	3,203,319	508,000	6,858,000
Silver.....	oz. t.	27,984,204	24,676,472	28,794,573	25,831,612
Tantalum.....	lb.	390	9,760	—	—
Tellurium.....	"	9,014	15,774	24,000	42,000
Thallium.....	"	275	378	—	—
Tin.....	"	492,781	408,030	611,000	521,550
Titanium ore.....	ton	1,464	10,634	4,443	37,100
Tungsten.....	lb.	1,942,770	5,508,437	2,206,662	6,060,992
Uranium.....	"	—	26,031,604	—	39,577,000
Zinc.....	lb.	866,714,038	118,306,466	847,239,825	125,476,218
TOTALS, METALLICS.....		—	1,007,839,501	—	1,134,354,370
Arsenious oxide.....	lb.	1,571,787	69,159	2,624,757	86,617
Asbestos.....	ton	1,063,802	96,191,317	1,038,975	109,665,924
Barite.....	"	253,736	2,277,166	307,808	2,509,199
Diatomite.....	"	16	352	—	—
Feldspar.....	"	18,152	355,879	17,763	365,370
Fluorspar.....	"	128,114	2,708,437	151,738	3,835,565
Grindstones.....	"	10	1,500	—	—
Gypsum.....	"	4,667,901	8,037,153	5,192,805	8,300,585
Iron oxides.....	"	7,702	162,512	7,757	170,135
Lithia.....	lb.	114,376	61,752	4,800,000	2,640,000
Magnesitic-dolomite and brucite.....	"	—	2,151,820	—	2,412,000
Mica.....	lb.	1,640,708	77,541	1,184,542	73,622
Mineral waters.....	gal.	306,683	160,510	303,500	157,000
Nepheline syenite.....	ton	146,068	2,099,512	179,381	2,489,633
Peat moss.....	"	117,579	3,485,287	125,074	3,708,191
Quartz.....	"	1,869,913	2,039,575	2,114,415	2,781,236
Salt.....	"	1,244,761	10,122,299	1,593,131	13,916,532
Silica brick.....	M	4,763	602,625	5,576	705,077
Soapstone and talc.....	ton	27,160	338,967	29,030	358,750
Sodium sulphate.....	"	178,888	2,799,715	179,438	2,854,223
Sulphur (pyrite and smelter).....	"	628,443	5,984,953	763,736	7,440,410
Titanium dioxide.....	"	117,042	5,192,810	152,500	6,771,000
TOTALS, NON-METALLICS.....		—	144,920,841	—	171,241,069
Coal.....	ton	14,818,880	93,579,471	14,915,033	95,466,866
Natural gas.....	M cu. ft.	150,772,312	15,098,508	173,260,500	17,542,555
Petroleum, crude.....	bbl.	129,440,247	305,640,036	170,569,200	401,840,650
TOTALS, FUELS.....		—	414,318,015	—	514,850,071
Clay products (brick, tile, etc.).....	"	—	35,259,770	—	38,062,112
Cement.....	bbl.	25,168,464	65,650,025	29,719,377	77,876,046
Lime.....	ton	1,331,118	15,810,904	1,303,889	15,328,917
Sand and gravel.....	"	127,524,474	67,775,053	128,995,782	72,637,049
Stone.....	"	30,512,920	43,736,687	31,549,706	43,349,462
TOTALS, STRUCTURAL MATERIALS.....		—	228,232,439	—	247,253,586
Grand Totals.....		—	1,795,310,796	—	2,067,699,096



Most of the Province of Quebec is underlain by rocks favourable for mineral deposition. Particularly active is the Chibougamau district about 300 miles northwest of Lake St. John, now provided with power and being opened up by rail. Campbell Chibougamau, the largest mine in the area, came into production in May 1955 and in 1956 produced concentrates containing 15,300 tons of copper.

Mining is now in the forefront of the primary industries in each province with the exception of Prince Edward Island which is mainly agricultural. And even in the Far North, large-scale aerial geological reconnaissance by the Geological Survey of Canada and exploratory activity by industry are confirming the rich mineral potential of the Yukon and Northwest Territories. The provincial distribution of mineral production in 1927 (the year of the previous meeting of the Commonwealth Mining and Metallurgical Congress in Canada) in 1955 and 1956 was as follows.

Mineral Production, by Province, 1927, 1955 and 1956

Province or Territory	1927		1955		1956 P	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$		\$		\$	
Newfoundland.....	1	1	68,462,956	3.8	87,752,025	4.2
Nova Scotia.....	30,111,221 ¹	12.2 ¹	67,133,539	3.7	66,625,229	3.2
New Brunswick.....	2,148,535	0.9	15,759,744	0.9	18,171,654	0.9
Quebec.....	28,870,403	11.7	357,010,045	19.9	426,608,242	20.6
Ontario.....	89,982,962	36.4	583,954,682	32.5	640,915,058	31.0
Manitoba.....	2,888,912	1.1	62,018,231	3.5	66,711,747	3.2
Saskatchewan.....	1,455,225	0.6	85,150,128	4.7	114,103,316	5.5
Alberta.....	29,309,223	11.8	325,974,326	18.2	408,865,422	19.8
British Columbia.....	60,801,170	24.6	189,524,574	10.6	199,318,374	9.7
Northwest Territories.....	—	—	25,597,821	1.4	22,949,122	1.1
Yukon Territory.....	1,789,044	0.7	14,724,750	0.8	15,678,907	0.8
Totals.....	247,356,695	100.0	1,795,310,796	100.0	2,067,699,096	100.0

¹ Not part of Canada in 1927.
Island.

² Includes a small production from Prince Edward



Rural Ontario

Agriculture

AGRICULTURE in Canada is in its early youth compared with the centuries-old cultivation of the soil in most European countries. Almost 80 p.c. of the present crop acreage has come into use within the past 75 years although agriculture in Canada traces its origin to the early part of the 17th century with the arrival of French settlers at Quebec. As colonization continued throughout the Maritimes and Upper and Lower Canada the cultivation of the land also extended as a subsistence measure. However, it was the completion of the first transcontinental railway in 1885 that opened up to settlement the great prairie region west of the Great Lakes where 75 p.c. of the present cultivated land is found. Since then, demand for food in two world wars, the desire of thousands of people from densely settled areas in Europe and elsewhere to possess land of their own, and the ease with which land on the prairies could be brought under crop have added 193,000 sq. miles to Canada's occupied farm land to bring the total, in 1951, to 272,000 sq. miles or over 174,000,000 acres. The production from this vast acreage, particularly in the mid-west, has been far beyond the needs of the home market, so that Canada has become and still remains a leading exporter of food products to other countries.

As an employer, however, agriculture is giving way to manufacturing. At the beginning of the century, 46 p.c. of the labour force was employed in agriculture but by 1951 the proportion had decreased to 20 p.c.—the number of people earning their livelihood on farms dropped from 1,379,000 in June 1939 to 881,000 in June 1955. This does not mean that agricultural production has declined accordingly—on the contrary, it is now two and a half times greater than at the beginning of the century. Specialization, highly mechanized and more scientific farm operations as well as widespread electrification now permit much greater production with less manual labour. The fact that hired labourers in agriculture total only about 138,000 for the 575,000 farms in the country indicates the small reliance of the farmer on outside help.

The typical farm in Canada is the "family" farm and, regardless of the type of agriculture practised, the size of the farm is governed by the acreage the farmer and his family can handle with possibly some hired help for peak periods such as harvesting. There are, of course, farm projects of a scale and specialization that require additional year-round help, such as the large fruit and vegetable farms in southern Ontario and British Columbia and the larger dairy farms.

More than three-quarters of the farms in Canada are owner-occupied and owner-operated. In fruit-growing areas the farm may not exceed 12 to 20 acres; thousands of dairy and "mixed" farms are in the 100 to 150 acre class. Even on the prairies where grain growing is a major project, a farm of from 320 to 600 acres, depending upon soil and location, is considered as an efficient unit and may be successfully operated by a farm family.

The purchase of mechanized and electrical equipment has meant a heavy investment of capital by farm owners, particularly since the beginning of World War II, when the demand for manpower for industry and the

Armed Forces drained away the hired labour and the younger members of the farm family. In 1941 the value of farm machinery and equipment on Canadian farms, as shown in census returns, was \$596,046,000. By 1951 it had increased by 224 p.c. to \$1,933,312,000. The number of tractors alone increased from 160,000 to 400,000 in the same period and the estimate for 1955 is 475,000.

Because of Canada's pre-eminence as a world wheat supplier, there is a tendency, particularly among people of other countries, to look upon Canadian farmers largely as wheat growers. Important as this crop is in the agricultural economy, in terms of farm income its sale makes up only about 20 to 25 p.c. of total farm cash income. Actually, production of grain for livestock feeding has substantially exceeded the production of wheat. In two of the latest five years the oat crop alone has been slightly larger than the wheat crop in yield.

Livestock and livestock products form by far the largest source of income to Canadian farmers. Including poultry meat, they were valued in 1955 at \$853,837,000 compared with \$437,994,000 for dairy products, \$356,521,000 for wheat and \$318,167,000 for fruits, vegetables, eggs and other special crops.

The fact that Canada's exports of wheat and flour in the years 1953-55 were nearly double the quantity exported in 1937-39, while meat and live animal exports dropped nearly two-thirds in the same period, bears little relation to their relative volume of production. Though exports of meats were reduced, total output increased by 56 p.c. from the five-year average (1935-39) of 1,500,000 lb. to the 1955 total of 2,365,000 lb. The increase in population and heavier consumption of meat per capita more than absorbed the reduction in exports.

Canadians spend about a quarter of their income on food and are eating more beef, pork and poultry than they did in the past. In 1955 the per capita consumption of poultry meat was 30 lb., (an increase of approximately 8 lb. since 1950), beef was 72 lb. and pork 58 lb. Since 1953, beef consumption has increased by about 7 lb. per person and pork by approximately 3 lb. during the same period. Considering this greater demand for all meats and an increase in population of about 3 p.c. each year, it appears that there is and should continue to be a good outlet for Canadian meat products on the domestic market.

Total milk production in Canada increased nearly 2,000,000,000 lb. during the five years 1951-55 to reach an estimated 17,298,000,000 lb. Utilization of this quantity of milk is of concern to every dairyman, more particularly that portion used in the manufacture of the various dairy products. Allowing 6,978,000,000 lb. or about 40 p.c. for use in liquid form, the remaining 60 p.c. must be apportioned to the various manufactured products. Disappearance of all dairy products has increased during the past five years because of the population increase, but much greater use generally has been made of cheese, evaporated milk and dried skim milk.

Despite the increasing portion of all agricultural production being absorbed by the domestic market, Canada still remains a leading exporter of agricultural commodities. In the years 1935-39, exports averaged 33 p.c. of agricultural production. The amount has fluctuated considerably since then, reaching a peak of 69 p.c. in 1945 and dropping to 24 p.c. in 1953. In 1954 it was 27 p.c. The pattern of agricultural export trade has remained

substantially the same in recent years. The average value for 1953-55 was \$934,000,000, or nearly one-fifth of total merchandise exports. The value of exports of wheat and flour alone averaged \$515,000,000, approximately one-half of total agricultural exports. In each of the three years wheat competed with newsprint paper and planks and boards for top position. While exports of those products now finding a ready outlet on the domestic market have naturally declined, some grains apart from wheat, such as barley, rye and flaxseed, have shown marked increases in export markets.

As an importer of foodstuffs, Canada relies on more southerly countries for citrus and other fruits, cane sugar, coffee, tea and spices—products that cannot be produced in this northern country. Otherwise, aside from some out-of-season vegetables, Canada is self-sufficient in food supplies.

The dynamic factors in the agricultural picture of the future will undoubtedly be further technological improvements and growth of the domestic market. It is unlikely that much new land will be brought under cultivation since new land is no longer available in localities where it can be developed easily at low cost and provided with the social services now demanded in rural areas. But Canada has many thousands of acres of land in settled areas capable of much more intensive cultivation than at present. These areas are already supplied with electricity and transportation facilities, with schools, churches and other amenities of life. Scientific agriculture, too, is playing a leading part in increasing the potential output of Canadian farms. Hardier and higher-yielding varieties of almost all crops are constantly being developed; crop losses by insects, weeds and disease are being reduced;

Harvest-time in Eastern Canada.



soil chemistry is making and keeping soils more fertile; irrigation and reclamation of suitable lands is receiving attention; improvement of livestock is under continual study as is the processing, transportation and marketing of the finished agricultural product.

Because of Canada's rapid economic development there has been some encroachment on farming land by industry. Naturally this is most pronounced in areas geographically suited for industrial development and in such areas some fertile farm land has been lost to agriculture. However, it seems probable that for some years to come, more intensive cultivation of the present established farming areas will compensate for any loss of agricultural lands to industry. A possible exception may be some highly specialized crops grown in areas where climatic conditions are the essential factor in production.

Agricultural development of Canada's northern areas, where frost frequently remains in the subsoil the year round, is unlikely to proceed faster than the influx of people into these areas. As the population increases, local demand for such farm products as the soil and climatic conditions make it possible to grow would then arise. Even so, the assessment of agricultural possibilities in these northern fringe areas is not being overlooked. Soil surveys being made by the Canada Department of Agriculture indicate that in some of the river valleys such as the Liard and Mackenzie, there are areas that can be farmed successfully should the need arise.

Government and Agriculture

The agricultural industry is a most complex one and the Federal Government as well as the provincial governments have long realized the intricate problems that face the farmer. For this reason each government has established a department to assist the farmer in almost every field of his activities. These departments, along with their organization of scientists, technicians and fieldmen, work in close co-operation. In addition, services are necessary which will assure that food products are suitable for human consumption and are graded in accordance with established standards. This is particularly



The mild, almost subtropical climate of the southern part of Vancouver Island permits the cultivation of crops that cannot be grown commercially elsewhere in Canada. Flowering bulbs and seeds are important products of this area.



Winter wheat
breeding nursery,
Central Experi-
mental Farm of
Ottawa.

There is only one practical method of controlling cereal rusts—by breeding rust-resistant varieties and producing sufficient seed to take the place of susceptible varieties. The Scientific Service of the Department of Agriculture is constantly working on new varieties to combat different races of rust that might become epidemic in future.

Examining hybrid seeds from a cross produced under glass.



necessary for the many farm products, such as meats, dairy products and canned foods, that require considerable processing before they are ready for marketing. Standards are also necessary for farm products not grown for food such as seeds, livestock feeds and many products used by other industries. Also, such farm supplies as fertilizers, pesticides and the like, must conform to established regulations.

The work of the Canada Department of Agriculture may be divided into five main functions: research and experimentation; production and protection of crops and animals; marketing, including grading and inspection; price stability in marketing; and reclamation and development.

Research and Experimentation.—Research and experimentation covers almost every kind of technical problem met by farmers in the production and marketing of their commodities as well as those problems involved in the processing, curing, storing and distribution of farm products.

To carry on this vast and varied work, the Canada Department of Agriculture has a chain of experimental farms and research laboratories

located across the country. They are situated where they can best serve the needs of a wide variety of farming enterprises and of specialized areas of soil and climate. The work is co-ordinated through the headquarters of the Experimental Farms Service and the Science Service at Ottawa, where research is also constantly under way. Among the best known results of the Department's research are the origination of many new varieties of field crops and horticultural plants, methods of controlling pests and diseases, and soil fertility findings which have improved production and lowered costs. Discoveries in the field of animal diseases include the development of vaccines and other controls which have contributed materially to a high level of health in Canada's livestock and poultry.

An important and often misunderstood aspect of this research is that it must be continuous, for new problems constantly arise; indeed, the solution of one problem often leads to others. One example is the work on cereal grains which opened up the Canadian West. When cereal grains were first cultivated by man, plant diseases probably caused little damage. Through the years, by selection and breeding, better varieties were developed more suited to the many different climatic and soil conditions. These crops are now grown in many parts of the world and millions of bushels are harvested annually. In the meantime the diseases, at first thought so unimportant, developed and have caused enormous losses except where measures for their control are known and practised.

Production and Protection of Crops and Animals.—Safeguarding crops and livestock from disease which might be imported with shipments from abroad is an important part of the Department's work. In addition, extensive testing and research is undertaken to control the spread of disease within the country. Control of tuberculosis and many other contagious diseases in animals is typical of this work. Over half of the cattle in Canada are now in accredited areas, that is, in areas in which not more than one-half of one per cent of the cattle were found to be affected with tuberculosis at the latest TB test. Slightly over one-half of the remaining cattle are in tested areas which have not yet reached accredited status or areas where the accreditation has expired. When the remaining cattle have been tested and the reactors moved, a second test will probably show that the entire country can be classed as an Accredited Area. All meat animals are subject to veterinary inspection both before and after slaughter and regulations govern the methods used in and the sanitary conditions of meat and other processing establishments.

The promotion of the production of certified and registered seed and purebred livestock is also of great importance. Certification is maintained over registration and distribution. Standards are maintained which are widely accepted in other countries. Another type of activity is the enforcement of laws governing the sale of feeds, fertilizers, pesticides and many other products purchased by farmers.

Marketing, including Grading and Inspection.—Marketing activities, in general, consist of the establishment and enforcement of national standards for animal, dairy and poultry products, for canned foods, and for many fruits and vegetables. These standards are enforced by grading or inspection of commodities entering interprovincial and export trade. By arrangement and collaboration with provincial authorities, many commodities produced

The change-over from dry-land farming to irrigation farming on thousands of acres of land in southern Alberta and Saskatchewan was a challenge to the farmer. He grew different crops using different machinery and faced an entirely new set of problems.



The growing of registered grain and legume seed crops is very profitable in Alberta's irrigated district. The land was weed-free when first settled and good farming practices have kept it that way. It has been found that irrigated land can be used to best advantage through mixed farming.

within provincial boundaries are inspected and graded. (See p. 179 for information on co-operatives.)

Reclamation and Development.—For many years the Federal Government has provided financial assistance in connection with land and water resources. The work is done under the Prairie Farm Rehabilitation Act, 1935. The

administration of the Act is broad enough in its scope to meet the problems of rehabilitation, and flexible enough to enable formulation of joint policies with each provincial government, the rural municipalities or the farmer himself. The activities are classified as either intermediate or long-term. The intermediate program includes projects concerned with soil drifting on good lands; water developments for small farms; development of irrigation for feed production on a watershed basis; and community pastures. Water developments for small farms include dugouts, stock-watering and individual irrigation, the engineering and financial assistance for which extends to about one-third of the cost. Long-term projects involve many years of study. Engineering surveys are only a part, and it is necessary to have surveys of soil, economical water supply, climate and all those matters that affect land and people. Such projects include the St. Mary River Dam, completed in 1951, a key structure to bring water, when and where needed, to about 500,000 acres of fertile land in southern Alberta. Mention should also be made of the marshlands rehabilitation in Nova Scotia and New Brunswick. A joint effort is being made by those two provinces and the Federal Government to preserve and in some areas to restore the productivity of rich agricultural lands bordering the Bay of Fundy which are threatened by the sea. Some work has also been done in Prince Edward Island.

Price Stability and Farm Credit Measures.—Canada, like most agricultural countries, has measures designed to give price stability in marketing. Under the Agricultural Prices Support Act, 1944, the Federal Government may stabilize the price of any agricultural product (except wheat, which is handled separately) by outright purchase or by underwriting the market through guarantees or deficiency payments. This Act has been used to good purpose to stabilize the price of products such as butter and eggs which normally are subject to somewhat violent seasonal price fluctuations. It is also valuable in handling surpluses of a temporary nature. Farmers who market their products co-operatively can be assisted under the Agricultural Products Co-operative Marketing Act. Since 1939 the Act has aided farmers in pooling returns from the sale of their products by guaranteeing initial payments.

Another measure of considerable importance in price stabilization is the Agricultural Products Marketing Act, 1949. A number of provincial governments have established boards to control or regulate agricultural products produced and marketed within the province concerned. This Act enables such provincial marketing legislation, or any particular part of it, to be applied in the same way to the marketing of agricultural products outside that province and in export trade. The Prairie Farm Assistance Act, 1939, gives financial aid to Prairie Province farmers who suffer partial or total crop failure during years of drought.

The Federal Government has made provision for the extension of credit to farmers under two Acts. The Canadian Farm Loan Act, 1927, gives long-term and short-term farm mortgage credit and the Farm Improvement Loans Act, 1944, provides intermediate-term and short-term credit to enable farmers to equip, improve and develop their farms.

On Mar. 7, 1956, Royal assent was given to two Bills on grain legislation with respect to (1) payment of carrying costs of temporary wheat reserves and (2) provision for short-term credit to grain producers in the Prairie



cattle on this 54,000-acre ranch in southern Saskatchewan can be checked in an hour with the use of a small 'plane.

Provinces. The carrying costs of temporary wheat reserves owned by the Canadian Wheat Board in respect of Board stocks of wheat in excess of 178,000,000 bu. at the commencement of a crop year will be paid for out of the Consolidated Revenue Fund. Under the loans legislation, loans up to a maximum of \$1,500 were made available through banks to producers in order to meet financial difficulties arising from their inability to deliver grain because of congested storage conditions. Loans amounting to about \$7,900,000 were made to 10,326 farmers under this legislation during the 1955-56 crop year.

Marketing of Western Canadian Grain.—The Canadian Wheat Board, a Crown corporation, is the general marketing agency for all wheat, oats and barley produced in Western Canada and sold commercially for interprovincial or export movement. The Board has been in operation for more than twenty years and an increasing number of western producers, particularly of the younger generation, have never marketed their grain in any other way.

The farmer places his grain 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 the grain. Through the provision of that 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 by

the Board from time to time helps to steady the flow of income into the agricultural economy and to spread it throughout the year. The Board is also in a position to meet special marketing problems as they arise, such as the handling of the large quantity of out-of-condition and low-grade grain harvested in 1950 and 1951.

The Board has not always had its present extensive responsibilities. From 1935 to 1943 it operated as a voluntary wheat agency, purchasing wheat offered for sale by producers at a fixed initial price. The producer could either sell to the Board at that price or sell in the open market as he saw fit. However, in 1943 when agriculture was being marshalled to produce and distribute food for Canada and its Allies, the Board was given the exclusive wheat-marketing power which it now exercises throughout Western Canada. In 1949 these powers were extended to cover the marketing of oats and barley.

The Wheat Board is in a very real sense the servant of the producer, for whom it seeks to obtain the best possible returns for the grain entrusted to it. The Board also ensures, through its "delivery quota system", the equitable use of available grain storage facilities, which is particularly important in times when producers have more grain than the normal storage facilities of the country can handle adequately. The quota system is therefore administered primarily for the protection of the producers, although when there is conflict between market requirements and the delivery quota program, the general interest may be better served by giving precedence to the former.

The Board does not own or operate any grain-handling facilities in Canada, but business is carried on by agreements entered into each year with the elevator companies, which are co-operatively or privately owned. The companies undertake to finance the initial payment to producers, the storage of grain in country positions and delivery to terminal positions in accordance with Board regulations. Handling and carrying charges are included in the agreements.

When the marketing of all the grain in any pool is completed, the Board reckons the financial position of the pool, deducts its costs of operation and administrative expenses, and then pays to the producers in the form of participation payments any surplus realized. Handling expenses, including storage, interest, freight and other costs, may be quite substantial but the Board's cost of administration is exceptionally low.

The Canadian Wheat Board derives its authority from the Government of Canada through the Canadian Wheat Board Act and reports to Parliament through the Minister of Trade and Commerce. Its operations, which have far-reaching effects on the economy of the whole country and of Western Canada in particular, are subject to review by the Agricultural Committee of the House of Commons.

Statistics of Agriculture

Farm Income

The downward trend in the farming income of Canadian farmers, in evidence since 1951, was reversed in 1955. The income for that year was placed at \$1,454,268,000, about 22 p.c. higher than for 1954. The record



A great network of grain elevators—country, lake terminal, eastern transfer and export terminal—handles grain in bulk from farm to ultimate destination, either in domestic mills or ports of importing countries. Grain leaves the field by truck and is taken directly to country elevators located at practically every railway station and siding in the grain-producing areas of the prairies. Although portions of it move westward to Vancouver and northward to Churchill, the great bulk travels by rail to lakehead terminals at Fort William and Port Arthur and then moves eastward in specially designed freighters through the Great Lakes-St. Lawrence waterway.



Terminal elevators at Fort William and Port Arthur have a storage capacity of about 91,000,000 bu.



reached in 1951 amounted to \$2,154,527,000 and the average for the postwar years 1946-54 was \$1,564,400,000.

Net Income of Farmers from Farming Operations, 1952-55

Item	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000
1. Cash income.....	2,849,310	2,775,795	2,395,321	2,352,563
2. Income in kind.....	413,496	399,325	393,107	404,804
3. Value of changes in inventory.....	237,742	50,263	-115,409	210,812
4. Gross Income (Items 1 + 2 + 3).....	3,500,548	3,225,383	2,673,019	2,968,179
5. Operating expenses and depreciation charges.....	1,582,206	1,530,057	1,485,529	1,547,249
6. Net income, excluding supplementary payments (Item 4-5).....	1,918,342	1,695,326	1,187,490	1,420,930
7. Supplementary payments.....	5,131	1,572	2,427	33,338
8. Net Income of Farm Operators from Farming Operations.....	1,923,473	1,696,898	1,189,917	1,454,268

The main factors contributing to the increase in 1955 over 1954 included larger grain crops in the prairies resulting in increased farm-held inventories at the end of the year, also larger inventories of livestock and a slightly higher value of income in kind which is the value of products grown by farm operators and used in the farm home plus an imputed rental value of the farm dwelling. Lower returns from the sale of farm products and higher operating expenses and depreciation charges offset these increases to some extent.

Cash income from the sale of farm products is the most important item of farm income and represents receipts from all products sold off farms during the year together with participation payments on the grain crops of the previous years. This item showed a decrease in 1955 of 1.8 p.c. as compared with 1954 and 17.4 p.c. as compared with the all-time high established in 1952. On a commodity basis, the most important reductions in 1955 were recorded for oats, barley, rye, clover and grass seed, hogs and total participation payments. The most important increases partly offsetting these decreases were for wheat, flaxseed, corn, potatoes, tobacco, cattle, poultry and dairy products.

The income from the sale of wheat rose from \$322,000,000 in 1954 to \$330,800,000 in 1955 but wheat participation payments totalling \$25,700,000 in 1955 were well below the 1954 payments of \$97,400,000; oats and barley payments provided a partial offset to the decline in wheat payments by rising from \$15,500,000 to \$21,500,000. The greatest proportional increase in cash income for any commodity was shown by flaxseed for which a substantial increase in marketings and higher prices provided an increase from \$20,000,000 to \$40,400,000. Higher marketings of corn and higher average prices for potatoes increased the returns for these two commodities.

Cash receipts from livestock almost equalled those of a year earlier. A substantial decline in the returns from hogs was balanced by an equal advance in income from the sale of cattle. Both marketings and prices were higher for cattle but for hogs higher marketings were offset by much lower prices. Income from dairy products was up in 1955 as a result of



One of the four 1956 Master Farm Families of Alberta chosen for farming and community enterprise. On their fine 590-acre farm, the emphasis is on the production of livestock but good returns are also received from potatoes, sugar beets and canning peas, successive plantings of which are broken with wheat, oats, barley and summerfallow.



increased production but little change was indicated for eggs since higher prices were counterbalanced by smaller marketings.

Expenditures were higher for nearly all commodities and services used in the farm business. Rental payments, particularly share-rent payments in the Prairie Provinces, contributed more than any other single item to increased farm operating expenses. Property taxes continued their steady upward climb, rising from \$120,500,000 in 1954 to \$127,600,000 in 1955. Additional borrowings on the part of farmers increased their outlay in the form of interest payments. Higher prices and larger purchases of prepared livestock feeds were reflected in the increase in expenditures for feed from \$250,700,000 in 1954 to \$257,500,000 in 1955. Tractor expenses were estimated at \$132,400,000 compared with \$127,700,000 in 1954. Estimates indicate that farmers curtailed expenditures for hired labour and fertilizers during 1955. The wage bill, including the value of board and lodging, amounted to \$161,700,000 as against \$163,400,000 for 1954. Smaller purchases of fertilizer and slightly lower prices accounted for the reduction in farmers' outlay for this item.



Weighing flats of strawberries which have been grown on a fruit farm near Victoria, B.C., but will find their way, within days, to markets all across the country.

Cash Income from the Sale of Farm Products, by Province, 1953-55

Province	1953	P.C. of Total	1954	P.C. of Total	1955	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	22,929	0.8	24,392	1.0	25,489	1.1
Nova Scotia.....	40,297	1.5	44,296	1.9	45,066	1.9
New Brunswick.....	43,524	1.6	48,852	2.0	47,324	2.0
Quebec.....	393,589	14.2	406,960	17.0	424,986	18.1
Ontario.....	720,161	26.0	714,379	29.8	744,108	31.6
Manitoba.....	220,038	7.9	187,906	7.9	170,126	7.2
Saskatchewan.....	742,236	26.7	472,424	19.7	425,043	18.1
Alberta.....	486,475	17.5	387,828	16.2	363,081	15.4
British Columbia.....	106,546	3.8	108,284	4.5	107,340	4.6
Totals.....	2,775,795	100.0	2,395,321	100.0	2,352,563	100.0

Cash Income from the Sale of Farm Products, by Source, 1955

Source	Cash Income	Source	Cash Income
	\$'000		\$'000
Grains, seeds and hay.....	549,588	Miscellaneous farm products....	44,485
Vegetables and other field crops...	178,956	Forest products sold off farms...	86,141
Livestock.....	853,837	Fur farming.....	13,247
Dairy products.....	437,994		
Fruits.....	49,103	Cash Income from Sale of	
Eggs, wool, honey and maple products.....	139,212	Farm Products.....	2,352,563

Estimates for 1956.—Early estimates indicate that farm net income in 1956 will be somewhat above the 1955 level. Cash income will be higher but will likely be offset to some extent by increased operating expenses and smaller additions to inventories. Grains, particularly wheat, will likely contribute the largest share to the cash returns although income from the sale of livestock is also expected to increase as a result of higher marketings of cattle and calves. Farm operating expenses and depreciation charges are expected to continue their upward trend, contributed to by almost all items used in farm

business operations with the most significant increase occurring in feeds. The build-up of farm stocks of grain continued during 1956 but at a much slower rate than in 1955. Total livestock numbers at the end of the year should be at about the same level as at the end of 1955, although there are likely to be fewer hogs.

Field Crops

Seeding was late in most parts of Canada in 1956 and farming operations in Eastern Canada during the summer were repeatedly delayed by wet, cool weather. In Western Canada a spring drought gave way to timely rains and average temperatures, and a period of excellent autumn weather speeded harvesting to completion but not before early frosts had lowered the quality of the crop. Yields, with few exceptions, exceeded the recent ten-year average as well as 1955's high levels. In the Prairie Provinces the switch from barley and hard red spring wheat to oats, durum wheat and oilseed crops was a notable feature and new production records were established for flaxseed, rapeseed and mustard seed. Yields of the crops that thrive on warmer weather, such as corn and soybeans, were lower. Estimated production was greater than in 1955 for all crops except winter wheat, fall and spring rye, corn for grain, dry beans, soybeans, potatoes, sunflower seed, hay, field roots, and sugar beets.

Total marketings of the five major grains in Western Canada in 1955-56 amounted to some 567,300,000 bu. compared with 524,600,000 bu. in 1954-55 and the ten-year (1944-45-1953-54) average of 561,200,000 bu. Combined

A heavy oat crop in the Okanagan district of British Columbia. These oats are grown principally for livestock feed and are used generally on the same farm as in the same district where they are grown.



exports of the five grains, including wheat flour, rolled oats and oatmeal, malt, pot and pearl barley in grain equivalent, totalled 406,500,000 bu. as against 370,700,000 bu. in 1954-55 and the ten-year average of 380,700,000 bu., although exports of oats and oat products at 4,100,000 bu. were the smallest since records began in 1908. Even though marketings were above average as a result of the large 1955-56 supplies, combined stocks of the five major grains at July 31, 1956 were estimated at 788,400,000 bu., an increase of 13 p.c. over the previous year and 117 p.c. above the ten-year average of 363,700,000 bu. Increased production in 1956, except for rye, resulted in still larger supplies for the 1956-57 crop year. Total supplies of the five major grains for 1956-57, consisting of July 31, 1956 carryover and 1956 production, were estimated in millions of bushels as follows (1955-56 figures in parentheses): wheat, 1,078,300,000 (993,900,000); oats, 652,900,000 (491,800,000); barley, 388,600,000 (343,900,000); rye, 23,900,000 (33,200,000); and flaxseed, 37,400,000 (22,000,000).

Because of widespread rains and frosts in several areas in late August and early September, only about 71 p.c. of the 1956 western crop of hard red spring wheat is expected to fall in grades 1 to 4 Northern. The total amount of high-grade durum wheat was larger than for many years but 4 C.W. amber durum was the largest single grade. The average protein content of the crop was reduced to 12.4 p.c. which is 0.6 p.c. below that of the 1955 crop, but average baking strength was much the same for both years, which reflects the superior quality of the protein in 1956.

Estimated Area, Yield and Production of Principal Field Crops, 1955 and 1956

Crop	Area		Yield per Acre		Production	
	1955	1956	1955	1956	1955	1956
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	21,505,800	21,340,400	23.0	25.2	494,142,000	537,774,000
<i>Winter wheat.....</i>	<i>582,000</i>	<i>620,000</i>	<i>34.3</i>	<i>31.9</i>	<i>19,963,000</i>	<i>19,778,000</i>
<i>Spring wheat¹.....</i>	<i>20,923,800</i>	<i>20,720,400</i>	<i>22.7</i>	<i>25.0</i>	<i>474,179,000</i>	<i>517,996,000</i>
Oats for grain.....	11,178,000	11,972,500	36.5	44.6	407,783,000	533,767,000
Barley.....	9,932,500	8,722,300	25.4	31.8	252,385,000	277,646,000
All rye.....	780,200	557,000	18.9	15.4	14,753,000	8,577,000
<i>Fall rye.....</i>	<i>568,900</i>	<i>395,100</i>	<i>19.9</i>	<i>15.3</i>	<i>11,343,000</i>	<i>6,034,000</i>
<i>Spring rye.....</i>	<i>211,300</i>	<i>161,900</i>	<i>16.1</i>	<i>15.7</i>	<i>3,410,000</i>	<i>2,543,000</i>
Flaxseed.....	1,838,400	3,139,000	10.7	11.1	19,748,000	34,935,000
Mixed grains.....	1,705,200	1,634,700	38.7	42.2	65,990,000	68,910,000
Corn for grain.....	507,000	439,000	62.1	54.5	31,510,000	23,918,000
Buckwheat.....	120,900	121,900	18.4	21.2	2,334,000	2,583,000
Peas, dry.....	49,100	48,200	15.2	20.0	748,000	965,000
Beans, dry.....	80,900	72,800	15.9	17.5	1,286,000	1,274,000
Soybeans.....	214,000	228,000	26.4	21.6	5,650,000	4,935,000
Potatoes.....	308,300	303,100	214.5	215.7	66,127,000	65,370,000
Mustard seed.....	78,500	137,300	633	970	49,658,000	133,150,000
Rapeseed.....	136,200	357,000	568	855	77,395,000	305,350,000
Sunflower seed.....	18,000	25,000	800	500	14,400,000	12,500,000
Tame hay.....	11,055,000	11,206,000	tons	tons	tons	tons
Fodder corn.....	366,400	400,300	1.86	1.81	20,614,000	20,278,000
Field roots.....	42,400	38,900	9.34	8.64	3,423,400	3,460,000
Sugar beets.....	81,908	78,878	10.35	10.69	439,000	416,000
			11.98	11.32	981,014	892,955

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

Production, Imports and Exports of Wheat, Years Ended July 31, 1948-57

NOTE.—Wheat flour has been converted into bushels of wheat at the uniform average rate of $4\frac{1}{2}$ bu. to the barrel of 196 lb. of flour.

Year ended July 31—	Production (Previous Year's Crop)	Imports of Wheat and Flour	Exports of Wheat and Flour	Domestic Dis- appearance
	'000 bu.	'000 bu.	'000 bu.	'000 bu.
1948.....	338,506	825	194,982	152,779
1949.....	381,413	289	232,329	124,672
1950.....	366,028	4	225,137	131,107
1951.....	466,490	12	240,961	148,538
1952.....	553,646	18	355,825	169,863
1953.....	701,922	17	385,527	150,405
1954.....	613,962	457	255,081	140,848
1955.....	308,909	178	251,909	159,104
1956.....	494,142	20	309,181	144,155
1957.....	537,774	—	—	—

Quota and Delivery Policy.—With bumper crops being harvested in five of the past six years, the pressure on Canada's grain storage and handling facilities remained great during 1956-57. The Canadian Wheat Board had under continuous review the situation with respect to the provision of adequate supplies of the various grains and grades in the desired positions at the right time to meet both domestic and export commitments. The Board placed durum wheat and flaxseed on a delivery quota basis at the start of the season. Wheat (excluding durum), oats, barley and rye were placed on an initial unit quota basis. Each permit holder, regardless of his acreage, was given an initial quota of 100 units entitling him to deliver a maximum of 300 bu.

New frontiers on civilization's doorstep. There is enough black marshland spotted through the area south and east of Montreal to the United States border to produce the vegetable requirements of the Commonwealth. The potential of this land has long been known but only recently has a start been made on drainage and soil correction. Experience on the 5,000 acres now in full use indicates that yields of 700 bags of onions, 600 bu. of carrots and 500 bu. of potatoes per acre are easily obtainable.



of wheat *or* 800 bu. of oats *or* 500 bu. of barley *or* 500 bu. of rye *or* any combination of these grains, not to exceed 100 units. Following this initial quota as space became available the Board again established general quotas based upon bushels per 'specified' acre. Durum wheat and flaxseed were on an initial delivery quota of 5 bu. per 'seeded' acre.

Marketing of Major Grains.—Although the commercial grain storage position continued tight during 1955-56, deliveries of wheat by western Canadian farmers amounted to some 353,000,000 bu. as against 319,800,000 bu. the preceding year and the recent ten-year average of 354,000,000 bu. Exports during 1955-56 consisted of 269,200,000 bu. of wheat and 40,000,000 bu. of flour in terms of wheat. The combined exports of 309,200,000 bu. of wheat and flour went to 87 countries and their territories and colonies during the crop year. Total domestic (commercial and farm) disappearance of wheat decreased from 159,100,000 bu. in 1954-55 to a level of 144,200,000 in 1955-56. Carryover stocks at July 31 increased from 499,700,000 bu. in 1955 to 540,600,000 bu. in 1956. Marketings of western Canadian wheat during the 1955-56 crop year was again conducted by the Canadian Wheat Board on a one-year pool basis with the initial payment set at \$1.40 per bu., basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. The initial payment for No. 1 C.W. amber durum was established at \$1.50 per bu. The 1954-55 pool was closed out in May 1956 with producers averaging slightly more than \$1.65 per bu. for No. 1 Northern wheat.

Marketings of oats totalled 71,600,000 bu. during 1955-56 as against 70,200,000 bu. the previous year. Some 4,100,000 bu. of oats and oat products were exported and 52,600,000 bu. were used domestically. Commercial carryover increased from 30,600,000 bu. on July 31, 1955 to 47,900,000 on July 31, 1956. Total domestic disappearance, which includes disappearance of oats on farms where grown as well as sales, was placed at 368,500,000 bu. in 1955-56 as against 326,400,000 bu. in 1954-55. Farmers marketed 114,500,000 bu. of barley in 1955-56. Of this amount 68,700,000 bu. were exported in various forms, some 34,700,000 bu. were sold for use in Canada and the remainder added to commercial carryover. Total domestic disappearance, commercial and farm, in 1955-56 is placed at 164,200,000 bu. as against 149,100,000 bu. in 1954-55.

Livestock

Livestock is the foundation of agricultural economy in many areas of Canada. The largest cattle ranches are found in Alberta in the foothills of the Rockies and across the northern part of that Province into Saskatchewan, in the interior plateaux of British Columbia, in the extreme south of Saskatchewan and in northern and eastern Manitoba. In the east, the Georgian Bay district of Ontario, a great part of Prince Edward Island and an area in western Nova Scotia are devoted primarily to the raising of livestock. However, it is from the mixed farm, the type most prevalent throughout the country other than in the wheat-growing areas of the mid-west, that a great proportion of livestock comes. On the mixed farm, small herds of dairy or meat animals have been found to be the most lucrative of the cash producers and even on some farms specializing in other types of production, livestock, particularly beef cattle and hogs, is raised as an income stabilizer.

Livestock and livestock products form by far the largest source of income to Canadian farmers. Most of the rapidly growing production is absorbed by the Canadian market, exports having been greatly reduced in recent years.



Comparison of the numbers of livestock on farms at June 1, 1956 with the same date a year earlier indicate that cattle and calves at 10,465,000 (milk cows 3,348,000 and other cattle 7,117,000) reached an all-time high, 2 p.c. above 1955, hogs at 5,680,000 decreased about 6 p.c., sheep and lambs at 1,706,000 remained about the same, but horses continued their downward trend and at 851,500 were about 50,000 fewer than in 1955.

Prices for cattle in 1955 were stable despite an increase of about 10 p.c. in the movement to public stockyards and packing plants. Good steers, up to 1,000 lb., averaged \$19.60 per cwt. (\$19.25 in 1954) at Toronto. However, with hog deliveries 16.5 p.c. higher than in 1954, hog prices dropped sharply and B1 dressed hogs, at Toronto, averaged \$25.05 per cwt. (\$30.90 in 1954).

Estimated Meat Production and Consumption, 1954 and 1955

Item	1954		1955	
	Beef		Veal	
Animals slaughtered..... No.	2,268,100	2,345,700	1,465,000	1,342,900
Animals exported..... "	85,971	63,586	3,223	4,027
Meat production ¹ '000 lb.	1,101,031	1,139,078	153,816	139,548
Total domestic disappearance.... "	1,094,758	1,122,396	154,016	137,173
Per capita disappearance..... lb.	72.0	72.0	10.1	8.8
	Pork		Mutton and Lamb	
Animals slaughtered..... No.	7,082,200	7,950,600	728,600	808,100
Animals exported..... "	26,508	8,930	2,402	8,874
Meat production ¹ '000 lb.	917,171	1,019,121	31,015	34,167
Total domestic disappearance.... "	815,282	904,338	38,406	43,389
Per capita disappearance..... lb.	53.7	58.0	2.5	2.8
	Offal		Canned Meat	
Production..... '000 lb.	89,447	94,973	57,450	75,606
Total domestic disappearance.... "	80,391	89,555	68,139	70,706
Per capita disappearance..... lb.	5.3	5.7	4.5	4.5

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



The size of a farmer's profits, like those of any private business, depends on his enterprise as an owner and manager. Farming today is a specialized industry demanding careful planning, sound judgment and detailed accounting.

This integrated dairy farm, started on worked-out land less than fifteen years ago with little capital backing, in 1955 produced the highest income among all the dairy farms surveyed by the Ontario Agricultural College.



Per capita consumption of beef held at 72.0 lb. as in 1954 but pork consumption influenced by lower prices rose to 58.0 lb. from 53.7 lb.

As 1956 drew to a close it seemed almost certain that total Canadian meat output would be the largest for any peacetime year and in fact only

slightly below the all-time high production of 1,900,000,000 lb. in 1944, the peak year of the war. Record output of beef and veal was the main factor, for pork production for the year as a whole was only slightly higher than in 1955 and far below the peak of 1944 when Canada was supplying huge quantities of Wiltshire bacon to Britain. The domestic market proved itself capable of absorbing most of the larger supply and consequently the proportion exported was much smaller than in most recent years.

Dairying

Dairying is perhaps the most general of all types of farming in the agricultural areas of Canada. Dairy farmers whose chief income is derived from the sale of milk or surplus breeding stock are mostly located within economic trucking distance of the larger towns and cities in all provinces. At greater distances dairying is combined with bacon hog production, raising of poultry, or the sale of cash crops such as potatoes or grain, selected according to adaptability for the particular area.

Milk production in Canada has shown a steady increase each year since 1951, the output in 1956 at 17,303,082,000 lb. being the highest on record. The fluid milk and creamery butter markets, expanded by the growth in population, absorbed most of the increased production. The average daily consumption of fluid milk per capita remains approximately the same at just under one pint and the annual consumption of butter at about 21 lb. The quantity of butter manufactured in 1956 amounted to 323,680,000 lb. of which 317,871,000 lb. was creamery butter and the remainder dairy and whey butter.

Most of Canada's production of cheese is now absorbed by the domestic market. Of the total cheddar output of 84,144,000 lb. in 1956, 71,379,000 lb. were used in Canada; per capita consumption in that year was 4.4 lb. compared with 4.9 lb. in 1955 and 3.7 lb. in 1942. Production of cheese other than cheddar is also increasing, output of special types in 1956 amounting to 8,938,000 lb. compared with 7,574,000 lb. in 1955 and 1,216,000 lb. in 1942.

The sale of dairy products added \$445,913,000 to the cash income of farmers in 1956 as compared with \$438,392,000 in 1955. The increase was accounted for by higher production as well as by a rise of five cents in the average price of milk sold off farms.

Dairy Production by Economic Area, 1955 and 1956

Economic Area and Year	Total Milk Production	Milk Used in Fluid Sales	Products Manufactured ¹			
			Butter		Cheddar Cheese	Ice Cream
			Creamery	Dairy		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....1955	1,139,058	362,395	20,390	3,109	1,440	2,404
.....1956	1,147,715	375,157	19,840	3,142	1,689	2,428
Que. and Ont.....1955	11,603,542	3,805,006	208,907	4,469	74,560	20,313
.....1956	11,701,532	3,986,062	201,877	4,641	78,861	20,445
Prairies.....1955	3,786,800	776,291	83,180	10,273	3,287	6,376
.....1956	3,705,969	817,668	78,679	10,176	3,032	6,540
B.C.....1955	769,071	386,445	6,100	732	693	3,317
.....1956	747,866	410,358	2,852	630	562	3,804
Totals.....1955	17,298,471	5,330,137	318,577	18,583	79,980	32,410
.....1956	17,303,082	5,589,245	303,248	18,589	84,144	33,217

¹ Not included in this table are: whey butter with a production of 1,843,000 lb. in 1956 and 1,817,000 lb. in 1955, other cheese with 8,938,000 lb. and 7,574,000 lb., respectively, and concentrated milk products with 484,020,000 lb. and 474,599,000 lb., respectively.

Poultry and Eggs

Poultry and eggs are also universally common products of the mixed farm, although there is a definite tendency toward the establishment of larger specialized poultry farms. The poultry meat situation is being dominated

by the development of new and more efficient methods of raising chicken and turkey broilers with the result that these branches of the industry are now the major sources of poultry meat supply in the country. The number of chickens on farms increased by about 3 p.c. from 1954 to 1955 and turkeys were up by 20 p.c. but considerably fewer geese and ducks were reported. The numbers on June 1, 1956, were: hens and chickens, 63,680,000; turkeys, 4,014,000; geese, 326,000; and ducks, 420,000.

Production of eggs in 1955 at 383,210,000 doz. was 2 p.c. lower than 1954 production and per capita consumption declined from 24.4 doz. to 24.0 doz. Poultry meat output was up about 5 p.c. to 443,169,000 lb. and domestic disappearance amounted to 29.7 lb. per capita compared with 28.7 lb. in 1954.

Quantity and Value of Eggs and Poultry Meat Produced, by Province, 1955

Province	Eggs		Poultry Meat	
	Production	Value	Production	Value
	'000 doz.	\$'000	'000 lb.	\$'000
Maritime Provinces.....	33,513	15,111	20,988	9,710
Quebec.....	57,460	26,241	83,650	38,323
Ontario.....	144,693	61,730	184,841	73,092
Prairie Provinces.....	117,766	40,625	120,925	39,967
British Columbia.....	29,778	13,634	32,765	14,213
Totals, 1955.....	383,210	157,341	443,169	175,305
1954.....	392,406	148,074	421,456	163,018

Fruit Growing

The apple is the most important of the commercial fruits grown in Canada. In 1955, 19,142,000 bu. with a farm value of \$10,870,000 were produced, the second largest crop on record; 34 p.c. of the crop was grown in British Columbia, 21 p.c. in Ontario, 26 p.c. in Quebec, 17 p.c. in Nova Scotia and 2 p.c. in New Brunswick. The average price received by the growers in these areas for unpacked fruit differed considerably, ranging from 39 cents per bu. in Quebec to 80 cents per bu. in New Brunswick. The 1956 apple crop was poor in most areas and was estimated at 12,042,000 bu.

Values of Fruits Produced, 1952-55, with Averages 1947-51

Fruit	Average 1947-51	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	14,705	17,391	17,578	17,965	10,870
Pears.....	1,959	2,371	2,653	2,246	2,579
Plums and prunes.....	1,120	1,033	1,252	1,467	1,068
Peaches.....	3,804	5,152	5,543	5,208	6,125
Apricots.....	298	342	425	293	316
Cherries.....	2,431	2,113	2,658	3,421	3,503
Strawberries.....	5,969	6,077	6,405	6,870	5,910
Raspberries.....	3,161	2,565	3,661	3,131	2,775
Grapes.....	2,899	3,052	3,496	3,926	3,622
Loganberries.....	189	158	197	162	178
Blueberries.....	—	3,384	3,339	3,409	2,688
Totals.....	36,535	43,638	47,207	48,098	39,634



Commercial fruit growing in Canada is confined to rather limited areas in the Maritime Provinces, along the St. Lawrence Valley and in southern Ontario and British Columbia. But from these specialized production areas comes almost all of the deciduous fruit used in Canada.



Strawberries are grown in commercial quantities in the above five provinces and raspberries in most of them, but production of pears, peaches, cherries, plums and prunes is very largely confined to British Columbia and Ontario. Ontario produces a large proportion of all the grapes grown in Canada and British Columbia is the only province in which apricots and loganberries are grown commercially.

Production of all tender tree fruits was lower in 1956 than in 1955, as well as production of strawberries, raspberries, loganberries and grapes. November 1956 estimates of production with final figures for 1955 in parentheses, were: pears 1,437,000 bu. (1,510,000); plums and prunes 612,000 bu. (828,000); peaches 1,591,000 bu. (2,883,000); apricots 111,000 bu. (184,000); cherries 461,000 bu. (763,000); strawberries 17,515,000 qt. (22,674,000); raspberries 6,394,000 qt. (12,099,000); loganberries 297,000 lb. (1,237,000); and grapes 80,423,000 lb. (94,752,000).



Canada's forest cover is its most important natural resource. It maintains agricultural lands against drought and erosion, continuously protects water catchment areas and assures supplies of water which, when put to use as electric power, make possible the exploitation of vast mineral deposits and the establishment of manufacturing industries.

Forestry

THE great bands of forest that lie across the land from Atlantic to Pacific are Canada's greatest renewable resource. Their contribution to the nation's growth throughout the years and to its current economy is almost immeasurable. The forest industries employ more than 351,000 people and pay over \$1,100,000,000 in salaries and wages each year. They keep armies of workers employed in other industries, notably the chemical, machinery and electrical equipment industries and also in fields of transportation, agriculture and hydro-electric power. They provide much-needed foreign exchange to offset Canada's expensive purchases abroad. The value of exports of forest products amounting to \$1,520,921,000 in 1955 is almost double the value of exports of the next important group of industries. The forest industries in 1955 produced goods valued at \$2,000,000,000 which was 25 p.c. of the net value of production of all Canadian manufacturing industries. Of this figure, \$640,000,000 came from woods operations, \$269,000,000 from the lumber industry and \$600,000,000 from the pulp and paper industry. Clearly, Canada has a tremendous stake in its forests and in maintaining and managing them in a perpetually productive condition.

The forest area of the country is estimated at over 1,620,000 sq. miles, 45 p.c. of the total land area. More than 51 p.c. of this forested area is considered to be productive and, of the productive area, 76 p.c. is at present accessible. Trees of merchantable dimensions occupy 60 p.c. of this accessible area and the remainder is occupied by young trees that will grow to merchantable size. The forest areas that are considered unproductive in the sense that they do not produce crops of merchantable timber because of adverse climate, soil or moisture conditions and the areas that are presently inaccessible are still of great value in providing protection for drainage basins and shelter for game and fur-bearing animals. Of the total productive forests, 65 p.c. is comprised of softwood, 24 p.c. mixed wood and 11 p.c. hardwood. There are more than 150 tree species in Canada, 31 p.c. of which are conifers.

The vast bulk of Canada's forests—93 p.c.—is owned by the people of Canada in right of the Crown. Only 7 p.c. is privately owned by individuals or corporations. Rights to cut Crown timber under lease or licence are now granted on 15 p.c. of the total forest land. All Crown lands in the provinces are administered by the provincial governments, with the exception of certain forest reserves, National Parks and forest experiment stations which come under the jurisdiction of the Federal Government. The latter also administers the forests in the nearly 1,500,000 sq. miles of land area in the Yukon and Northwest Territories.

Forest growth is generally prolific in Canada and the saving of the woodlands ordinarily involves only proper management. The forested area supports a total volume of 449,000,000,000 cu. feet of merchantable timber and since depletion through cutting and losses by fire amount to approximately 4,000,000,000 cu. feet a year, it is unlikely that a timber famine will occur in the near future. However, there are many areas in the most highly accessible and most productive regions where cutting exceeds growth or where individual highly valued species are being badly overcut.



Behind the magical transformation of a tree into one of a host of objects—a fragile tissue, a length of gleaming satin, building board, fine paper or newsprint—lies years of patient study. The Canadian industry, with government assistance, holds a position of leadership among the nations in pulp and paper research.

There has been a gradual awareness of the need for better forest management and better utilization of the products of the forest has increased in intensity during the past decade. Governments have made much progress toward planned management and many have called Royal Commissions to point the way toward better legislation and administration. Forest management licencing systems have been adopted and in the provinces where there is a high proportion of private land some public control of such lands has been adopted. The Federal Government has built a number of new laboratories for scientific investigation and has extended co-operation with the provinces under the Canada Forestry Act to include inventories, reforestation and fire protection. Industries, in co-operation with provincial governments, have begun operating their holdings under sound forestry principles and are developing methods of operation involving maximum utilization of the forests at their disposal. Management of private lands has also begun to improve under the impetus of the Tree Farm Program.

Today, forest operations are thoroughly modern industrial undertakings in which up-to-date means of communication are used to direct the tens of thousands of workers over areas measured in tens of thousands of square miles. The wood is cut and moved by modern mechanical methods best suited to the characteristics of the individual region. Logging is becoming less seasonal in nature and because in many instances woodlands are being harvested on the basis of perpetual yield, permanent forest communities have been set up and living conditions for woodworkers greatly improved.

Forest Industries

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

Woods Operations.—The output of Canada's forests in 1954 was 2.3 p.c. higher in volume but 0.9 p.c. lower in value than in 1953. The actual "cut" in the forest in 1954 amounted to 3,661,963,000 cu. feet valued at \$776,419,236. Preliminary estimates for 1955 indicate an increase of approximately 200,000,000 cu. feet in the volume of the wood harvest over 1954. More than 94 p.c. of the merchantable timber cut in Canada in 1954 was retained in the country for immediate use or as raw material for further domestic manufacture and about 6 p.c. was exported in manufactured or partly manufactured form.

Value of Primary Forest Production, 1953 and 1954

Product	1953	1954
	\$	\$
Logs and bolts.....	308,965,959	302,565,201
Pulpwood.....	370,912,264	373,096,937
Fuelwood.....	62,766,922	64,608,114
Sawn railway ties.....	771,421	491,014
Poles.....	15,798,908	13,612,652
Round mining timber.....	8,530,523	6,812,059
Fence posts.....	3,062,977	2,716,120
Wood for distillation.....	415,271	467,645
Fence rails.....	679,151	614,327
Miscellaneous.....	11,643,562	11,435,167
Totals.....	783,546,958	776,419,236

The most important primary forest product in Canada is pulpwood which heads the list of forest products by value in Quebec, Ontario, New Brunswick, Newfoundland and Manitoba. Logs and bolts come first in value of production for British Columbia, Alberta and Nova Scotia.

The already long list of specialized equipment used in the woods, in the mills and in transportation, is being added to continually. Heavy road-building machinery has improved logging roads and, coupled with powerful high-capacity trucks, has reduced handling charges and permitted the opening up of stands of timber formerly considered inaccessible.



Lumber.—Production of sawn lumber in Canada in 1955 amounted to 7,920,033,000 ft. b.m., a new record, surpassing by 8.4 p.c. the peak attained in 1953. Total value also reached a new high of \$541,563,241, a gain of 9.5 p.c. over 1953. This production, which excludes some amounts from very small mills and custom sawing in other wood-using industries, was obtained from 7,238 sawmills, 1,875 of them in British Columbia, 1,575 in Quebec and 1,039 in Ontario. Mills range in size from giants (in British Columbia) capable of cutting as much as half a million feet board measure in a single shift to small mills producing one to two thousand feet a day. One hundred and one mills, representing 1.4 p.c. of the total number of sawmills, accounted for over 48 p.c. of the total volume of production. Most of the lumber cut in Canada is spruce with Douglas fir a close second, followed by hemlock, cedar, white pine and jack pine, balsam fir, yellow birch and tamarack. Douglas fir takes first place in total value.

Over 43 p.c. of the lumber produced in Canada in 1955 was exported at a value of just over \$285,000,000.

Production of Sawn Lumber and All Sawmill Products, 1955

Province or Territory	Sawn Lumber Production		Total Sawmill Products
	'000 ft. b.m.	\$	\$
Newfoundland.....	32,691	1,996,166	2,114,437
Prince Edward Island.....	9,610	534,194	593,050
Nova Scotia.....	353,682	21,309,769	23,057,289
New Brunswick.....	275,186	17,867,953	20,751,935
Quebec.....	1,025,094	69,545,538	81,381,163
Ontario.....	759,976	58,654,467	69,872,231
Manitoba.....	46,627	2,694,833	3,080,222
Saskatchewan.....	75,233	4,125,631	4,339,875
Alberta.....	421,616	22,288,596	23,853,097
British Columbia.....	4,914,285	342,058,910	414,944,542
Yukon and Northwest Territories.....	6,033	487,184	495,149
Canada.....	7,920,033	541,563,241	644,482,990

The 1955 gross value of \$644,482,990 included: sawn lumber (\$541,563,241); shingles (\$29,795,687); ties (\$8,963,430); box shooks (\$3,093,671); flatted mine timbers (\$1,710,393); lath (\$1,613,497); hardwood squares (\$1,151,158); staves and heading (\$891,504); and pickets (\$680,515).

Pulp and Paper.—From 1946 to 1955 continuously, the pulp and paper industry ranked first in gross value of products among all manufacturing industries as well as first in wages and salaries paid. Except during the war years 1942-44, the industry also ranked first in net value of production, having achieved that position in 1920. With respect to number of persons employed, it took first place in 1955 replacing sawmills which topped the list for years.

In little over half a century the pulp and paper industry in Canada has become one of the world's great industrial enterprises. Several factors have been responsible: Canada possesses over half the pulpwood resources of North America; cheap and abundant water power is found close to pulpwood stands, and extensive river systems can be used to transport pulpwood to the mills. Contributing factors are the growth of population on the North American Continent, increased literacy and the growth of voluminous daily newspapers,



Newsprint mill, Powell River, B.C. Every province in Canada, with the exception of Saskatchewan and Prince Edward Island, contributes to the production of pulp and paper. Two new mills in Alberta have recently brought that province into the picture.

the adoption of technical improvements in the building and printing trades and the advance of modern merchandising techniques—for example, the development of product packaging and its display in self-serve supermarkets. Recent developments in the use of chemical pulp by-products and the unused wood from sawn lumber operations have contributed to greater utilization of formerly waste wood products and have created whole new industries.

In 1955, the value of factory shipments of the pulp and paper industry reached an all-time record. The value added by manufacture was 7.5 p.c. above 1954 and, as a measure of the industry's growth in the past three decades, was 464 p.c. higher than pre-depression 1929. In 1955 there were 125 operating mills, 31 classed as pulp mills, 25 as paper mills, and the remaining 69 as combined pulp and paper mills.

Sixty-seven mills accounted for 92 p.c. of the gross value of production of the industry in 1954. The 100 mills manufacturing pulp produced 10,150,547 tons valued at \$693,402,831 in 1955, representing increases of 5 p.c. in volume and 6 p.c. in value over 1954. About 23 p.c. of the total pulp production was made for export, 72 p.c. for use by the mills themselves in paper-making and 5 p.c. for sale in Canada. Groundwood or mechanical

pulp formed 54 p.c. of the total pulp production, sulphite pulp 28 p.c. and sulphate pulp 14 p.c. Quebec province leads in pulp manufacture, followed by Ontario, British Columbia, New Brunswick, Newfoundland, Nova Scotia, Manitoba and Alberta, in that order. Quebec and Ontario together account for 71 p.c. of the total production.

Among the many kinds and grades of paper and paper boards produced in Canada, newsprint is the top product, forming 77 p.c. of the total and 96 p.c. of the amount exported. Quebec and Ontario together accounted for 75 p.c. of all newsprint produced in Canada in 1955. Nineteen fifty-five's 6,196,319 tons of newsprint was the highest production ever recorded in Canada and was valued at \$688,338,369, increases of 3.3 p.c. in tonnage and 4.7 p.c. in value over 1954. More than half the world's newsprint requirements was supplied by Canada in 1954 and in that year the United States took 88 p.c. of Canada's exports of more than 5,521,000 tons; the remainder was distributed among 65 other countries. Of all commodities exported from Canada in 1954 and 1955, newsprint was first and pulp fourth in export value for both years. Though pulp and newsprint move freely on world markets, fine and specialty paper and other paper products are subject to tariff restriction. As a consequence, Canadian manufactures in this field are largely for domestic use and considerable quantities are also imported. In 1955, Canada imported paper and paper goods valued at nearly \$53,000,000, including fully manufactured articles and specially processed goods for use in Canadian paper-making industries. Domestic production of papers and paper boards in 1955 totalled 8,000,213 tons valued at \$981,439,247.

***Principal Statistics of the Pulp and Paper Industry, 1930, 1940,
1954 and 1955***

Item	1930	1940	1954	1955
Establishments..... No.	109	103	125	125
Employees..... "	33,207	34,719	60,837	62,205
Salaries and wages.....\$	45,774,976	56,073,812	252,598,383	265,298,119
Gross value of factory shipments.....\$	215,674,246	298,034,843	1,241,665,451	1,326,938,138
Value added by manufacture.....\$	107,523,731	158,230,575	641,517,070	689,818,173
Pulp produced..... tons	3,619,345	5,290,762	9,673,016	10,150,547
\$	112,355,872	149,005,267	655,916,738	693,402,831
Paper produced..... tons	2,926,787	4,319,414	7,649,607	8,000,213
\$	173,305,874	225,836,809	925,590,643	981,439,247
Pulp exported..... tons	760,220	1,068,516	2,180,416	2,366,133
\$	39,059,979	60,930,149	271,418,005	297,304,069
Newsprint exported..... tons	2,332,510	3,242,789	5,521,530	5,763,167
\$	133,370,932	151,360,196	635,669,692	665,876,987

Wood-Using Industries.—This group includes thirteen industries, other than sawmills and pulpmills, using wood as their principal raw material. In 1954, these industries, comprising 4,469 establishments, gave employment to 71,921 persons and paid out \$183,550,683 in salaries and wages. The gross value of their products was \$633,773,407 and the net value \$303,571,257. The furniture industry (which includes metal furniture as well) accounted for \$232,704,198 of the total output, the sash, door and planing mills industry for \$200,200,315, the veneer and plywood industry for \$92,848,867, and the hardwood flooring industry for \$15,645,422. The other industries making up

Paper and paperboard, particularly the tough cheap paper stocks, is the raw material for many products now in great demand.



Subjected to treatment, it emerges as coated, sensitized or corrugated paper, bags, boxes and containers of all kinds, wallboard, composition roofing and siding and other commodities.



the remaining \$92,374,605 included: boxes, baskets and crates; wood-turning; morticians' goods; cooperage; woodenware; lasts, trees and wooden shoe findings; beekeepers' and poultrymen's supplies; excelsior, etc.

Paper-Using Industries.—Three industries engaged primarily in manufacturing commodities of paper and paperboard constitute this group, which, in 1954 comprised 444 establishments, employed 26,533 persons and distributed \$78,957,643 in salaries and wages. The gross value of factory shipments was \$388,604,150 and the net value \$160,870,087. The paper box and bag industry contributed products valued at \$194,242,948 to the total output, the roofing paper industry \$38,931,254, and the miscellaneous paper goods industry \$155,429,948.



The Bersimis watershed, a mountainous land of virgin spruce forests until five years ago unknown and uninhabited, is now the site of one of man's major power achievements. From this wilderness of forests and rivers has been developed a powerful giant which is adding its energy to Quebec's ever-expanding capacity. Two generators started the flow of current over 400 miles of transmission line to Montreal in November 1956. Eventual capacity will be 1,200,000 h.p.

Water Power

CANADA's extensive and well-distributed water-power resources have been a major factor in the country's economic growth. Coincident with the development of its power resources, the nation's economy has become increasingly dependent on industrial operations. The availability of large amounts of electric energy produced by water power has made possible the exploitation of forest and mineral resources and the production of basic materials from those sources has fostered the establishment of secondary industries which are no less dependent on a sufficient supply of low-cost electricity. Indirectly, the increased employment offered by expanding industry has added to the prosperity of the individual and, although the present high standard of living enjoyed in Canada depends on many factors, one of the main contributions thereto is the widespread availability of cheap electric energy in the cities, towns and villages and on a large proportion of the farms, permitting the use of many conveniences and labour-saving devices.

Canadians, second largest per capita consumers of electricity in the world, are now using more power than ever before. So great has been the increase that power planners are being forced to revise upwards their forecasts of future requirements. Although certain sections of the country will have developed fully their major water-power resources within the foreseeable future, other regions have great hopes for future progress through continued development of available sites.

The following table lists, by provinces and under two conditions of flow, the total power potential of all presently tabulated water-power sites in Canada, together with the installed capacity of all existing water-power developments as of Jan. 1, 1957.

Available and Developed Water Power by Province, Jan. 1, 1957

Province or Territory	Available 24-Hour Power at 80 p.c. Efficiency		Turbine Installation
	At Ordinary Minimum Flow	At Ordinary Six-Month Flow	
	h.p.	h.p.	h.p.
Newfoundland.....	958,500	2,754,000	336,750
Prince Edward Island.....	500	3,000	1,882
Nova Scotia.....	25,500	156,000	177,018
New Brunswick.....	123,000	334,000	164,130
Quebec.....	10,896,000	20,445,000	8,489,957
Ontario.....	5,407,000	7,261,000	5,441,866
Manitoba.....	3,333,000	5,562,000	796,900
Saskatchewan.....	550,000	1,120,000	109,835
Alberta.....	508,000	1,258,000	285,010
British Columbia.....	7,023,000	10,998,000	2,566,460
Yukon and Northwest Territories.....	382,500	814,000	33,240
Canada.....	29,207,000	50,705,000	18,403,048

Total resources under the condition of "ordinary six-month flow" are estimated to be nearly 51,000,000 h.p. However, as it is the usual practice to

install excess capacity at developed sites, it may be said that the presently recorded water-power resources of Canada will permit an economic turbine installation of nearly 66,000,000 h.p. Therefore the present total turbine installation of 18,403,048 h.p. represents the development of about 28 p.c. of recorded resources.

Canada's installed hydro-electric capacity of over 18,000,000 h.p. is higher than that of any other country with the exception of the United States which has an installation of approximately twice that amount. On a per capita basis, Norway comes first with 1.3 h.p. and Canada second with 1.2 h.p. However, it is interesting to note that the per capita installations of British Columbia and Quebec are, respectively, 1.9 h.p. and 1.8 h.p.

Provincial Distribution of Water-Power Resources

On the Island of Newfoundland and in Nova Scotia and New Brunswick the water-power resources are small in comparison with those of other provinces but topography and run-off conditions favour the development of moderate sized plants at numerous sites within economical transmission distance of the principal cities and towns. A considerable number of the more favourable sites have been developed. In Labrador, recent investigations have proved that the development of Grand Falls on the Hamilton River, one of the largest potential power sites in the world, is quite feasible.

Quebec is the richest of the Canadian provinces in both developed and undeveloped water-power resources and has reserves of undeveloped power sufficient to meet its foreseeable needs for some years to come. Its present installation, approaching 8,500,000 h.p., is more than 45 p.c. of the total for all provinces. The Quebec Hydro-Electric Commission's Beauharnois development on the St. Lawrence River, with a present capacity of 1,408,000 h.p., is to be expanded to a capacity of more than 2,000,000 h.p. The Shipshaw plant of the Aluminum Company of Canada on the Saguenay River is rated at 1,200,000 h.p. On the St. Maurice River, the Shawinigan Water and Power Company operates seven hydro-electric plants with a total capacity of 1,695,000 h.p. and a new plant of 330,000 h.p. is under construction by that Company at Beaumont Rapids.

Ontario has large power resources and ranks second in power production among the provinces. The Hydro-Electric Power Commission of Ontario conducts province-wide operations and is the greatest power producing and distributing organization in Canada. Its largest development, the Sir Adam Beck Generating Stations Nos. 1 and 2 located on the Niagara River at Queenston, is presently rated at 1,820,000 h.p.; however, when the expansion of the No. 2 plant and its associated pumped-storage development is completed in 1958, the total installed capacity will reach 2,522,000 h.p. In addition the Commission purchases nearly 1,000,000 h.p. on contract.

Of the Prairie Provinces, Manitoba has the largest water-power resources, there being great potential on the Saskatchewan, Nelson and Churchill Rivers. The water-power sites so far developed have been confined largely to the Winnipeg River and are used to serve Winnipeg, adjacent municipalities and the transmission network of the Manitoba Power Commission. Approximately 496 cities, towns and villages are served by the Commission's network as well as more than 42,000 of the Province's 50,000 farms. In

Saskatchewan, hydro-electric developments are confined to mining uses in northern areas where water-power resources are abundant. The more settled areas farther south are served by the Saskatchewan Power Corporation which is supplied exclusively by fuel-power plants. In Alberta, the larger hydro-electric developments from which Calgary Power Limited serves much of the southern part of the Province are located on the Bow River and tributaries. The greater part of the Province's water-power resources are located in the northern areas and are rather remote from present centres of population.

British Columbia, with its many fast-flowing rivers and its generally high rate of precipitation, ranks second among provinces in water-power resources and is exceeded only by Quebec and Ontario in installed capacity. Its largest development, the 600,000-h.p. Kemano plant of the Aluminum Company of Canada, may ultimately have a capacity of 2,000,000 h.p. Other developments are located chiefly in the southern part of the Province where a number of important sites are still available for development.

In the Yukon and Northwest Territories, there are appreciable amounts of potential power suitable for meeting the requirements of mining areas; however, owing to light precipitation and a long winter season, the favourable sites are limited to those with large storage capacity.

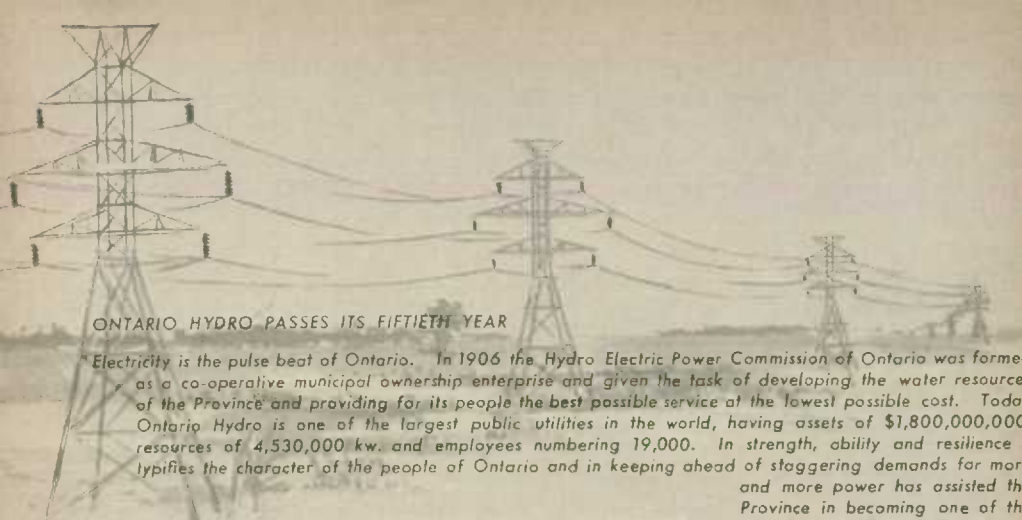
Hydro-Electric Construction During 1956

The development of the water-power resources of Canada continued at a high rate during 1956 with nearly 900,000 h.p. of new capacity brought into operation and with considerable progress being achieved in the construction of several important developments now under way.

Quebec.—The largest single increase in capacity during the year was that of 450,000 h.p. comprising the first three units of stage one of the Quebec Hydro-Electric Commission's Bersimis development; stage one is expected to be completed in 1958 at which time its ten units will have a capacity of about 1,200,000 h.p.; stage two comprises a second plant of five units at 167,000 h.p. each, which is to be constructed at a site located 18 miles

Work begins on a 330,000-h.p. plant at Rapide Beaumont on the St. Maurice River in Quebec. This will be the eighth plant on that River to be placed in operation by the Shawinigan Water and Power Company.





ONTARIO HYDRO PASSES ITS FIFTIETH YEAR

Electricity is the pulse beat of Ontario. In 1906 the Hydro Electric Power Commission of Ontario was formed as a co-operative municipal ownership enterprise and given the task of developing the water resources of the Province and providing for its people the best possible service at the lowest possible cost. Today Ontario Hydro is one of the largest public utilities in the world, having assets of \$1,800,000,000, resources of 4,530,000 kw. and employees numbering 19,000. In strength, ability and resilience typifies the character of the people of Ontario and in keeping ahead of staggering demands for more and more power has assisted the Province in becoming one of the most heavily industrialized and prosperous areas on the Continent.



Ontario Hydro's first power, purchased from a private firm, came from Niagara Falls and the development of Niagara still goes on. Currently under construction are four—the last—generating units. When completed, the Sir Adam Beck Generating Station No. 2 will be producing about 1,828,000 h.p.



The Manitou Falls plant in northwestern Ontario came into operation in 1956, providing power for the mines, the mills and the homes of that area.

Ontario's hydro power plants now under construction will meet the growing needs of the Province only until 1962, beyond which new sources of power must be found. In preparation, Ontario Hydro entered the nuclear power age on Sept. 19, 1956, when the sod was broken for Canada's first experimental nuclear-electric plant.



ST. LAWRENCE POWER PROJECT TAKES SHAPE

Ontario Hydro and its United States partner are well along with the gigantic task of harnessing the International Rapids Section of the St. Lawrence River, requiring the building of two adjoining powerhouses—one on each side of the International Boundary—and two dams. The powerhouses, of 2,200,000 h.p. capacity, span the channel between the east end of Barnhart Island and the Canadian shore, two miles west of Cornwall.

Men and machines work the clock around at the powerhouse site and each day the structures rise skyward in the de-watered section of the St. Lawrence River. The tallest transmission towers in the country will carry power across the St. Lawrence.

The Long Sault Dam is located upstream from the generating stations and stretches from the upper end of Barnhart Island to the United States mainland. This 2,250-foot dam and the power plant will combine to maintain the head of water required to operate the generators.

Twenty-five miles upstream from the Long Sault is the Iroquois Dam, extending 2,540 feet from Iroquois Point on the Canadian side to Point Rockway on the United States side. It will control the outflow of water from Lake Ontario.





Laying the world's longest undersea cable which now carries 132,000 volts of electricity from the British Columbia mainland to power-hungry Vancouver Island. This tapping of mainland power removes for many years any ceiling on southern Vancouver Island's industrial expansion.

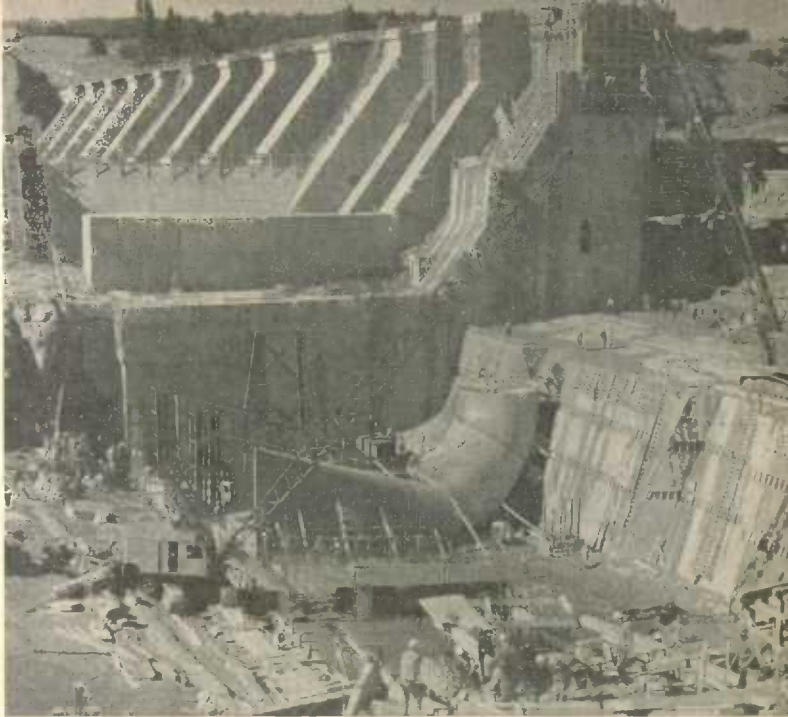
downstream, completion being scheduled for 1959. The Commission is planning to proceed with its Beauharnois No. 3 development of 715,000 h.p. in 11 units, with about one-half of this capacity scheduled for completion in 1958 or 1959. The addition of a third 16,000-h.p. unit at its Rapid II plant on the Ottawa River was completed in 1956.

The Gatineau Power Company installed a new unit of 47,000 h.p. at its Pagan Falls plant on the Gatineau River, bringing the total capacity to 285,000 h.p. Work has commenced by the Shawinigan Water and Power Company on its 330,000 h.p. Rapide Beaumont plant which is scheduled to begin operation in 1958; this will be the eighth plant operated by the Company on the St. Maurice River. Preliminary work is under way by the Aluminum Company of Canada on a new development on the upper Peribonka River where five units at 200,000 h.p. each will be installed in three years.

British Columbia and Yukon Territory.—The Aluminum Company of Canada installed a fourth 150,000-h.p. unit at the Kemano powerhouse bringing the plant capacity to 600,000 h.p. A fifth unit of 150,000 h.p. is scheduled for 1957 operation and ultimate capacity is about 2,000,000 h.p. British Columbia Power Commission's development at Ladore Falls on the Campbell River has been placed in service with an initial installation of 70,000 h.p. in two units. Its Whatshan plant on the Lower Arrow Lake has been expanded to 49,500 h.p. by the addition of one unit of 16,500 h.p. The Commission has commenced work on a huge earth-fill dam at its new project located below the outlet of Upper Campbell Lake where a 42,000-h.p. unit will be installed.

The British Columbia Electric Company brought into service its Seton Creek development on the west bank of the Fraser River near Lillooet, with a

Two of the three 45,000-h.p. units of New Brunswick's Beechwood hydro plant on the upper St. John River will be in operation late in 1957. This begins the implementation of an adjustable program of construction to meet the Province's future power needs.



capacity of 58,500 h.p. in one unit. The Company's Cheakamus River development of 190,000 h.p. in two units is scheduled for operation in 1957. Work has commenced on a project to rebuild the Clowhom generating station which includes raising the present dam and expanding the capacity of the plant from 4,000 h.p. to 40,000 h.p. by late 1957. Construction has started on the second and final stage of the Bridge River plant; four units totalling 320,000 h.p. will be added, raising the ultimate capacity of the development to 568,000 h.p.

The North West Power Industries Limited continued investigations and surveys in the upper watershed of the Yukon River towards a water storage and diversion scheme with a potential ultimate capacity of perhaps 4,300,000 h.p. However, preference is now being given to studies on the Nass River in northern British Columbia where the development of some 350,000 h.p. is anticipated. While complex and difficult problems are yet to be resolved with respect to the utilization of such rivers as the Columbia, Kootenay and Fraser, intensive studies are continuing on various schemes with a view to finding acceptable solutions for the development of hydro-electric power.

Ontario.—In its new Manitou Falls generating station located on the English River, The Hydro-Electric Power Commission of Ontario placed into service four units totalling 74,000 h.p. with provision made for a fifth unit. Associated with the Commission's Sir Adam Beck development on the Niagara River, construction of the pumped-storage plant was continued and the six reversible units, each having a turbine rating of 45,500 h.p., are scheduled for operation about March 1957. Four additional units, each of 105,000 h.p. capacity, are to be added to the Sir Adam Beck No. 2 station—two in 1957 and two in 1958. At the international rapids site on the

St. Lawrence River, where the work force on the Canadian side is now about 4,100 persons, the project passed the mid-point of its 1954-58 schedule. The pouring of concrete for the base of the powerhouse structure is progressing rapidly and railways, highways and townsites are being relocated. Initial operation of this 1,100,000-h.p. development is scheduled for August 1958.

New hydro-electric power developments planned or under construction by the Commission include extensions to the Alexander and Cameron Falls generating stations on the Nipigon River and the development of sites at Whitedog Falls on the Winnipeg River and at Caribou Falls on the English River. The Great Lakes Power Company is expanding its Upper Falls plant on the Montreal River by raising the height of the dam and installing an additional unit which will add 30,000 h.p. capacity for 1957 operation. The Company is also starting construction of a new 28,000-h.p. plant on the Montreal River located between the Upper and Lower Falls plants, which is expected to commence operation early in 1958.

Prairie Provinces.—Northland Utilities Limited completed installation of a 1,000-h.p. additional unit at its Astoria River plant near Jasper, Alta. Calgary Power Limited is continuing work of expanding its Lake Minnewanka-Cascades development by the addition of a second 23,000-h.p. unit; this additional capacity, which is to be used mainly for peak load purposes, is scheduled for operation late in 1957. The Company has also been making surveys at a possible site on the Brazeau River, a tributary of the North Saskatchewan River.

In Manitoba, a 7,000-h.p. development on the Laurie River, 100 miles north of Sherridon, is scheduled for operation in 1957 by Sherritt Gordon Mines Limited. Studies are continuing with respect to possible development of the Province's northern streams. It is expected that the next important hydro-electric project by provincial agencies will be located at Grand Rapids on the Saskatchewan River.

Atlantic Provinces.—The New Brunswick Electric Power Commission is proceeding with its Beechwood development on the St. John River with two units of 45,000 h.p. each scheduled for operation in 1957 and with provision being made for a third unit. In Newfoundland, the United Towns Electric Company completed a 5,600-h.p. development on the New Chelsea Brook. The Union Electric Light and Power Company installed a second 2,000-h.p. unit at its plant on the Trinity River. In Labrador, surveys were carried out by the British Newfoundland Corporation towards future development of the large power resources of the Hamilton River.

Central Electric Stations

Central electric stations represent the electric-power industry and are either commercial (privately owned) stations or are publicly owned, that is, operated by federal, provincial or municipal governments. They include both wholesale and retail distribution systems, whether the energy is generated in their own plants or purchased for resale. They are also classified according to the kind of power used—hydraulic or water-driven, fuel or steam, and non-generating or distributing only. In 1955, 95 p.c. of the total output of central electric stations was from hydraulic generation. The total generation of central electric stations since 1939 was as follows:—

	1939	1949	1954	1955
	('000 kwh.)			
Generated by—				
Water power.....	27,829,017	42,779,199	62,572,316	69,478,003
Thermal engines.....	509,013	1,639,374	3,364,124	3,432,589
TOTALS.....	28,338,030	44,418,573	65,936,440	72,910,592

Of the 72,910,592,000 kwh. generated, 4,433,460,000 kwh. were exported to the United States.

Central electric stations provide much of the power for large industries, but some of them generate their own requirements. In 1954, manufacturing industries purchased from central electric stations 34,806,586,000 kwh., but generated for their own use 7,628,365,000 kwh. Of this amount, 4,456,098,000 kwh. were generated by pulp and paper industries and 1,276,848,000 kwh. by smelters and refineries. The primary mining industry purchased 2,731,016,000 kwh. from central electric stations but generated for its own use 398,488,000 kwh.

In 1955 there were 3,645,313 domestic, including rural, customers in Canada compared with 1,623,672 in 1939. During that period the amount of electricity consumed domestically advanced from 2,310,891,000 kwh. to 12,759,657,000 kwh., or from 1,423 kwh. to 3,500 kwh. per customer. The per customer consumption varied widely among the provinces; Manitoba led with 5,420 kwh. while Prince Edward Island and New Brunswick had the lowest averages. Farm customers added during 1955 numbered 30,560 the largest increase being again in the Prairie Provinces. In 1955, Ontario accounted for about 50 p.c. of the total domestic power consumed, though this Province had but one-third of the total population of the country.

Canadians enjoy one of the lowest rates per kilowatt hour in the world. The revenue from domestic consumers averaged 1.66 cents per kwh. in Canada in 1955 as compared with 2.64 cents in the United States and commercial and industrial sales averaged 0.7 cents per kwh. in Canada compared with 1.3 cents in the United States. Annual average bills have registered moderate increases for the past sixteen years. The 1955 average bill for domestic and farm service stood at \$58.03 against \$26.97 for 1939, an increase of 115 p.c., but consumption per customer rose 146 p.c. Provincial bills ranged from \$76.74 for British Columbia to \$45.36 for Quebec.

Steam power is becoming more and more important in Canada's energy picture. In some areas, such as south-central Alberta where this coal-fuelled plant has recently been completed, there are no water resources but coal and gas are plentiful. In other areas, water resources must be supplemented by power.





Unloading herring at Kelly's Cove, N.S. That trim little ocean fish of the northern hemisphere is caught in tremendous numbers off both the Pacific and Atlantic Coasts and is marketed in many forms under many names. Immature herring taken from the Bay of Fundy appear canned as sardines. Mature herring are marketed fresh, frozen or canned, pickled as 'solt' herring, smoked as kippers, bloaters and Digby chicks, filleted and marinated in vinegar as specialty items. West Coast herring are used mainly in the production of high-protein meal and oil.

Fisheries

FROM the abundant resources of the oceans that wash Canada's coasts and from the resources of the expansive networks of rivers and lakes that occur throughout most of the land, comes an annual harvest which not only places Canada high among the fish-producing nations of the world but also makes it a major source of supply for fish-importing countries. The fisheries constitute an industry of considerable importance to the national economy and, in an even greater degree, to that of many hundreds of communities in the coastal and lake regions. Landings of some 2,000,000,000 lb. each year provide the livelihood of over 62,000 people while many more thousands benefit in varying measure from the contribution fisheries make in the processing, transportation and marketing fields.

Historically, the fisheries have played a unique part in the discovery and early exploitation of the waters of the western world and of the colonization and development of the land. As early as the middle of the fifteenth century, venturesome European fishermen were known to be regular visitors to the waters off Canada's Atlantic Coast, while the early tides of immigration consisted largely of people who obtained their livelihood in whole or in part from the sea. Today these waters continue to be the scene of a great international fishery where Canadian fishermen mingle with those of at least six other nations in tapping one of the greatest reservoirs of sea food known to man.

Canada's Atlantic fishing industry, although well over four centuries old, has a fresh, lively outlook resulting from the reorganization and development that have marked its course in recent years. While traditional methods still form part of this pattern, woven into it are rejuvenating advances in the mechanization of fishing boats, the design and construction of processing plants and in the diversification of production. In the traditional salt cod industry, home-curing, although still an important factor, is being superseded in many places, particularly in Newfoundland, by the establishment of artificial curing and drying plants. This development, together with the remarkable expansion that has taken place throughout the entire Atlantic region in the quick-freezing industry, has been of particular benefit to fishermen in providing them with a ready cash outlet for their landings and in enabling them to devote more of their time to actual catching operations.

In the frozen-fish field, the most significant development continues to be the "fish stick", marketed in block, cooked and uncooked forms, which provides a wider industrial scope for the vast shoals of cod that are the principal marine crop of many coastal areas. Coincidental with the advances in production techniques, a new look has been shaping up in catching methods. More commodious and versatile boats using mechanized types of gear are gradually being introduced to inshore waters and to those a little farther offshore, while a fleet of large, diesel-driven otter trawlers equipped with the latest in navigational and fishing aids has taken over in deepsea waters. As industrial centres expand, they are attracting people from the isolated areas, thus helping to overcome the problems inherent in the small-scale individual mode of fish processing.

Meanwhile, other established Atlantic fisheries continue to be a dominating factor in the livelihood of thousands of fishermen. Paramount among these is the widespread lobster fishery which in terms of value, though not of landings, actually exceeds the codfishery. Other important fisheries include those for haddock, hake, rosefish, halibut, various flatfishes, oysters, herring, sardines (immature herring), mackerel, smelts and clams.

While much of the initiative and resources going into fisheries development in the Atlantic Provinces is provided by private enterprise, a great deal of the leadership and practical assistance is being supplied by the federal and provincial governments. This is reflected in financing plans enabling fishermen to obtain new boats and gear, in industrial development, in harbour improvements, and in research and demonstration in biological and technological fields. Coupled with this are extension and educational services for fishermen.

The picture is decidedly different on Canada's Pacific Coast where the fisheries have for some time enjoyed the status of a highly mechanized, strongly organized industry built primarily around the great salmon runs which are financially the most important of all species in Canada. Other valuable species of this area include halibut which is marketed throughout the year from cold storages, and herring which is utilized in the production of high-quality protein meal and oil. Because of the intensity and efficiency of the Pacific fishing effort and the biological characteristics of certain species, conservation and development programs are of the utmost importance to the industry. Measures developed in this respect have had spectacular success in restoring the huge sockeye salmon runs of the Fraser River and halibut stocks.

Complementing the sea fisheries are those of the inland areas which, though relatively small, are nevertheless of considerable importance to the regions in which they exist. The bulk of the catch consists of lake trout, whitefish and pickerel taken from the Great Lakes, Lake Winnipeg and Great Slave Lake. A drastic decline in the Great Lakes fisheries in recent years, caused by the predacious sea lamprey, has resulted in joint action being taken by the United States and Canada to bring this menace under control and to rehabilitate the fish stocks.

Sole legislative authority in the regulation of the coastal and inland fisheries rests with the Parliament of Canada through the Department of Fisheries. The Department also administers all tidal fisheries (except those of Quebec) and certain non-tidal fisheries. These functions include the conservation and development of the industry to the point of maximum sustained yield and the responsibility for instituting and maintaining standards of quality. Consumer education also forms a valuable part of the Department's work.

The Fisheries Research Board of Canada, a specialized departmental agency under the Minister of Fisheries, is the Department's strong right arm in biological and technological investigations. At field stations located on both coasts and in the inland regions, Board scientists and engineers are continually carrying out projects which have resulted in the accumulation of much new knowledge of populations and characteristics of various species as well as of catching and processing techniques.



The West Coast's fishing industry, which provides employment for at least 18,000 people, is, of course, based upon the salmon which accounts for about 70 p.c. of the industry's net value of production. Two-thirds of the catch is canned—the pack of sockeye salmon, the most valuable of the species because of its firm texture and deep colour, amounted to 320,000 cases of 48 lb. each in 1956.

Keenly aware of the value of the fisheries and the need for protecting certain species in the face of intensifying fishing activity, Canada has long taken a foremost part in initiating and administering control measures on international levels. Under the International Pacific Salmon Fisheries Treaty, Canada and the United States have had remarkable success in re-establishing the sockeye runs of the Fraser River and representatives of both Governments agreed, in October 1956, that similar protection is necessary for the future of the pink salmon fishery of the Juan de Fuca-Fraser River area. Outstanding results have also accrued to joint United States-Canadian action in the restoration of the halibut stocks of the North Pacific and the Bering Sea, and in the management of the Pribilof seal herds. Both countries have united in an endeavour to restore the Great Lakes fisheries which involves the formulation of plans for controlling the parasitical sea lamprey.

Since 1950, as a member of the International Commission for the Northwest Atlantic Fisheries, Canada has taken a leading role in the management of the fisheries of the Northwest Atlantic, and in 1951 the United States,

Japan and Canada signed the International Convention for the High Seas Fisheries of the North Pacific Ocean. Canada is also a member of the International Whaling Commission.

Inasmuch as the annual consumption of fish in Canada is relatively low, averaging less than 14 lb. a person, over 90 p.c. of Canada's production goes to other countries, thus giving the industry an added international flavour. Much of the output of frozen and canned fish is marketed in the United States. Other products, such as salted codfish, travel multi-laned trade routes to distant markets in countries of Europe, South America and the West Indies. Thus the fishing industry contributes its share not only to the livelihood and financial status of many Canadians but also to their nutritional well-being and that of other peoples in widely separated parts of the world.

Fishery Statistics

The fishery industry, being dependent upon the vagaries of nature, has its good years and its poor years. Nineteen fifty-five was generally satisfactory. The total catch was over 1,900,000,000 lb. with a value landed of \$90,900,000 and a marketed value of \$181,100,000. However, compared with 1954 this was a decrease of 6 p.c. in quantity landed, of 7 p.c. in value to the fishermen and of 5 p.c. in marketed value. It was an off year for sockeye salmon on the West Coast and the run was even smaller than expected. The herring and halibut runs in British Columbia were also short so that the catch was much below the level of previous years and fishermen's incomes suffered proportionately. Off the coast of Nova Scotia the year was fairly profitable but in Newfoundland the salted cod industry yielded much less than the expected catch. The sardine fishery in the Bay of Fundy was disappointing but lobstermen had excellent fishing and a firm market. The freshwater fishery was a little heavier and a little more valuable than in 1954.

However, Canadian fishermen approached the end of 1956 with the expectation that, for most of them, it would be one of the best of recent years. Landings of the principal species of fish and shellfish, with a few exceptions—



Canada's fisheries are federally administered and one of the primary phases of management is conservation through maintenance of open and close seasons and regulations governing gear and equipment. Here a fisheries officer talks to a troll fisherman at work in Discovery Passage, B.C.

Hauling a cod trap off the coast of Newfoundland. While this is the most efficient method known for catching fish, the individual's production is limited and inshore fishery is gradually giving way to the highly capitalized mechanized Grand Bank fishery with its supporting shore processing plants.



notably Pacific salmon and Atlantic herring—exceeded those of the previous year. The markets for fishery products generally were strong in 1956 and average prices paid to fishermen equalled or exceeded comparable 1955 levels in almost every fishery.

Quantity and Value of Landings of the Chief Commercial Fish, 1953-55

(Newfoundland included)

Kind of Fish	1953		1954		1955 ^p	
	Quantity Landed	Value Landed	Quantity Landed	Value Landed	Quantity Landed	Value Landed
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
Atlantic Coast	—	46,437	—	50,361	—	50,056
Cod.....	530,597	12,588	639,341	15,990	579,563	14,367
Haddock.....	72,966	3,001	117,989	4,244	135,573	4,325
Halibut.....	4,508	4,976	4,976	1,112	4,446	950
Herring.....	187,507	1,839	184,748	2,001	190,053	1,795
Lobsters.....	46,397	15,718	46,675	15,558	48,568	16,470
Mackerel.....	24,124	1,019	27,664	1,045	28,118	1,072
Rosefish.....	46,545	1,055	48,739	1,106	43,980	1,015
Salmon.....	4,713	1,357	3,955	1,280	2,644	892
Swordfish.....	3,324	1,105	4,304	1,139	4,546	1,090
Other.....	—	3,779	—	6,886	—	8,080
Pacific Coast	—	31,280	—	34,458	—	27,711
Halibut.....	24,882	3,661	25,199	3,984	19,679	2,555
Herring.....	298,241	3,678	360,962	4,565	305,692	4,187
Salmon.....	186,914	21,848	178,862	23,579	131,008	18,481
Other.....	—	2,093	—	2,330	—	2,488
Inland	—	12,115	—	12,723	—	13,124
Pickeral (blue).....	10,399	1,041	8,210	1,231	12,070	1,448
Pickeral (yellow).....	15,974	2,540	16,759	2,667	19,737	3,093
Whitefish.....	25,571	4,352	24,577	4,425	21,990	3,726
Other.....	—	4,182	—	4,400	—	4,857
Totals, Canada	—	89,832	—	97,542	—	90,891



Fisherman on Needle Lake in northern Saskatchewan packs trays with fresh fish in preparation for the air haul to La Rouge where it is filleted and fast frozen.

Landings and Values of All Fishery Products, by Province, 1953-55

Province or Territory	Quantities Landed			Value of Products		
	1953	1954	1955 ¹	1953	1954	1955 ¹
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Newfoundland.....	502,085	607,413	553,200	24,000 ¹	28,000 ¹	25,000 ¹
Prince Edward Island.....	31,854	34,627	31,431	4,049	3,922	3,841
Nova Scotia.....	367,583	396,511	425,902	40,012	44,079	47,093
New Brunswick.....	197,206	213,294	168,540	17,523	22,161	20,420
Quebec.....	113,162	92,545	129,435	5,804	5,002	6,675
Ontario.....	44,836	47,680	45,634	7,916	7,889	7,631
Manitoba.....	23,359	28,445	34,936	4,784	5,279	6,147
Saskatchewan.....	8,481	10,524	10,152	1,281	1,644	1,617
Alberta.....	10,839	8,765	8,731	1,086	1,141	1,144
British Columbia.....	542,279	602,270	498,376	66,260	69,351	60,032
Northwest Territories.....	6,719	7,021	7,827	1,512	2,040	1,529
Totals.....	1,848,403	2,049,095	1,914,164	174,227	190,508	181,129

¹ Estimated.

Principal Statistics of the Fish-Processing Industry, 1950-55

Year	Estab- lishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Selling Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1950 ¹	591	14,861	18,722	1,773	79,959	128,424
1951.....	639	18,706	24,744	2,724	101,621	163,010
1952.....	635	17,551	24,426	2,533	86,458	134,725
1953.....	598	13,731	23,092	2,410	85,908	137,310
1954.....	586	14,202	26,001	2,605	95,633	153,457
1955 ¹	574	14,626	26,320	2,663	101,921	159,888

¹ Exclusive of Newfoundland.



Important as the commercial fisheries are, there are other types of fishing for which Canadian waters are famous. There is hardly a lake, river or stream that is in any way accessible which does not give its share of enjoyment to the leisure-time fisherman.



George Hunter

A converter aisle in The International Nickel Company's Copper Cliff smelter where copper-nickel matte for reverberatory furnaces is blown to produce blister copper.

Industrial Development



Manufactures

CANADA is now one of the world's leading manufacturers, probably the sixth largest. United Nations statistics show that in 1954 the manufacturing component of Canada's national income was of greater value than that of Italy or Japan, for instance. Canada derived 29 p.c. of her national income from manufacturing in 1954, indicating that the country was about as industrialized as the United States, which derived 30 p.c. of its national income from that source.

In 1954 Canada was the world's fourth commodity trader, being out-ranked by the United States, the United Kingdom and West Germany. This high position as a trader is both reflected in the industrial structure and derived from it. For instance, several of the major industries based on Canada's natural resources, such as pulp and paper mills and non-ferrous metal smelters, are dependent on world markets for a large part of their sales. One of them, the aluminum industry, developed in Canada because of the availability of abundant supplies of low-cost hydro power, depends on the outside world for both raw material and a market.

However, Canada's rapidly growing population is providing a greater market for more industrial produce. Manufacturers of groceries, meat products, lumber and automobiles, for example, must produce larger quantities of goods to feed, house and otherwise maintain the population. Mineral and forest industries, transport systems and service trades are all expanding and in so doing require more building materials, machinery and equipment and other supplies. Every new factory also means an increased market for capital goods and for raw materials or semi-finished products. The result is that manufacturing industry grows in two different ways. The variety of products increases because markets for new products grow until they are big enough to support domestic production. At the same time the markets for existing Canadian products expand, calling for increased output.

The following table shows the long-term growth in Canadian manufacturing. These figures are reasonably comparable but, since they cover so long a period, allowances should be made for certain changes in information collected and in treatment of the data. In particular, in 1952 the collection

of data on "gross value of production" was replaced by "value of factory shipments". The former included all goods produced during the year irrespective of whether they were shipped from the factory during that year. The latter includes all goods leaving the plant during the year regardless of when produced. The difference is not great since most goods are shipped during the year in which they are manufactured.

Gross values of production or shipments represent more than the actual contribution of the industry to the economy. They give the value of goods leaving the industry and therefore include all the work put into them at earlier stages of production. For instance, the value of shipments from a clothing factory covers not only the value of the work done by that factory but also the work done by the people who produced the raw cotton, the shippers who brought it to Canada, the spinning mills that turned it into yarn and the weaving plants that made the cloth purchased by the clothing factory. Thus, by deducting the cost of materials and the cost of fuel and electricity purchased from the gross value a net figure is obtained that gives a truer picture of the contribution to the nation's economy by the factories concerned. It still includes, however, items contributed by such firms as insurance companies, advertising agencies and some transportation expenses. From 1954 on, adjustment is made for the change in inventories of products held at the plants when calculating net value added.

Summary Statistics of Manufactures, 1870-1955

Year	Establishments	Employees	Salaries and Wages	Cost of Materials	Net Value Added by Manufacture ¹	Gross Value of Products ²
	No.	No.	\$'000	\$'000	\$'000	\$'000
1870 ³	41,259	187,942	40,851	124,908	96,710	221,618
1880 ³	49,722	254,935	59,429	179,919	129,757	309,676
1890 ³	75,964	369,595	100,415	250,759	219,089	469,848
1900 ⁴	14,650	339,173	113,249	266,528	214,526	481,053
1910 ⁴	19,218	515,230	241,008	601,509	564,467	1,165,976
1917 ⁵	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1920 ⁶	22,532	598,893	717,494	2,085,272	1,621,273	3,706,545
1929.....	22,216	666,531	777,291	2,029,671	1,755,387	3,883,446
1933.....	23,780	468,658	436,248	967,789	919,671	1,954,076
1939.....	24,805	658,114	737,811	1,836,159	1,531,052	3,474,784
1940.....	25,513	762,244	920,873	2,449,722	1,942,471	4,529,173
1943.....	27,652	1,241,068	1,987,292	4,690,493	3,816,414	8,732,861
1945.....	29,050	1,119,372	1,845,773	4,473,669	3,564,316	8,250,369
1946.....	31,249	1,058,156	1,740,687	4,358,235	3,467,005	8,035,692
1947.....	32,734	1,131,750	2,085,926	5,534,280	4,292,056	10,081,027
1948.....	33,420	1,155,721	2,409,368	6,632,882	4,938,787	11,875,170
1949 ⁶	35,792	1,171,207	2,591,891	6,843,231	5,330,566	12,479,593
1950.....	35,942	1,183,297	2,771,267	7,538,531	5,942,058	13,817,526
1951.....	37,021	1,258,375	3,276,281	9,074,526	6,940,947	16,392,187
1952.....	37,929	1,288,382	3,637,620	9,146,172	7,443,534	16,982,687
1953.....	38,107	1,327,451	3,957,018	9,380,559	7,993,069	17,785,417
1954.....	38,028	1,267,966	3,896,688	9,241,858	7,902,124	17,554,528
1955 ⁶	—	1,289,978	4,110,720	10,298,186	8,708,584	19,469,013

¹ Gross value less cost of materials 1870-1928; gross value less cost of materials, fuel and electricity 1929-55. ² Value of factory shipments from 1952 on (see text above).

³ Includes all establishments irrespective of number of employees, including house building and custom and repair work. ⁴ Includes all establishments employing five hands or over.

⁵ Includes all establishments irrespective of number of employees, but excludes construction and custom and repair work. ⁶ Newfoundland included from 1949.

These statistics show a fairly steady long-term growth both in employees and value of production, although increased prices were partly responsible for the latter. The index of the volume of manufacturing production, indicates that production has been rising faster than employment since 1946. In that year the index was 189.9 compared with an average of 100.0 for the years 1935 to 1939; by 1954, it was 251.4 and in 1955 it was 270.1. Thus the increase was about 42 p.c. from 1946 to 1955 as compared with an advance of about 22 p.c. in employment in manufacturing.

The following table gives principal statistics for 1954 of the fifteen industries with the largest values of factory shipments. Though hundreds of new commodities have been added to the list of Canada's manufactures in the past decade, much the same group of industries hold the lead, although their positions are in some instances changed. Petroleum products, butter and cheese and food preparations improved their positions in 1954 as compared with 1953 and miscellaneous electrical apparatus and printing and publishing moved into the top fifteen group at the expense of motor vehicle parts and men's factory clothing.

Principal Statistics of the Fifteen Leading Industries, 1954

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Pulp and paper.....	125	60,837	252,598	515,258	641,410	1,241,558
Non-ferrous metal smelting and refining..	22	26,048	102,596	515,316	352,038	922,579
Petroleum products....	61	12,476	52,316	568,542	309,795	909,253
Slaughtering and meat packing.....	154	22,999	78,699	674,152	157,684	837,508
Motor vehicles.....	20	27,949	106,062	477,309	176,473	666,287
Sawmills.....	7,696	57,010	139,572	301,118	263,629	572,186
Butter and cheese.....	1,467	20,599	55,022	304,836	99,404	412,205
Primary iron and steel..	51	28,861	108,817	145,110	217,487	383,154
Aircraft and parts.....	47	35,095	135,863	158,893	181,382	343,011
Miscellaneous food pre- parations.....	333	10,131	28,462	213,195	90,418	306,451
Railway rolling-stock..	36	29,214	96,862	162,220	116,736	283,399
Bread and other bakery products.....	2,584	33,883	83,805	131,120	139,859	280,208
Miscellaneous electrical apparatus and supplies	157	23,624	82,253	123,156	145,639	267,574
Rubber goods (includ- ing footwear).....	73	20,894	67,476	106,502	149,074	264,185
Printing and publishing	800	29,401	100,475	71,647	182,854	256,700
Totals, Fifteen Lead- ing Industries.....	13,626	439,021	1,490,878	4,468,374	3,223,882	7,946,258
Percentages of fifteen leading industries to all industries 1954...	35.83	34.62	38.26	48.35	40.80	45.27

The value added by these industries does not necessarily vary in the same way as the value of shipments. The butter and cheese industry, for instance, added much less to the value of its products than seven of the industries which ranked lower according to their value of shipments. This was due to the large quantity of milk resold after pasteurizing and bottling, which are not very expensive processes. Sawmills, because they buy mainly wood as a raw material, added considerably more value than either the motor



The running speeds of paper machines are being constantly advanced as demand for their product increases. This 276-inch machine, which went into operation at La Tuque, Que., in 1956, has a kraft speed of 1,750 feet a minute and a newsprint speed of 2,500 feet a minute.

vehicle industry or the slaughtering and meat packing industry, both of which had higher sales. Automobile manufacturers buy many fabricated parts and even complete assemblies. The meat packers buy farm animals and one plant may buy intermediate products from another. Containers and other packaging materials are also purchased. The number of employees also varies in a different manner from sales. Bakeries, for instance, had one employee for every \$8,270 of sales, whereas the petroleum products industry had only one for every \$72,880.

The production of pulp and paper has been the leading Canadian industry for many years. Fed by the great coniferous forests, and no less dependent on the power from the rivers, this industry produces goods valued well above those of any other. Of the 9,673,000 tons of wood pulp produced in 1954, 7,493,000 tons were used in Canada. This pulp, together with a small amount of imported pulp and some 470,000 tons of waste paper, straw and rags, made about 7,650,000 tons of paper. Output of newsprint at 6,001,000 tons was about five times higher than that of any other country. Of the newsprint production 5,522,000 tons were exported. By value, about three-quarters of the total production of the industry was exported either as pulp or as paper.

The importance to this industry of cheap power is emphasized by the fact that in 1953 it used about 36 p.c. of the electricity used by all manufacturing industries. Its consumption was about 14,715,000,000 kwh., of which 4,273,000,000 kwh. were generated by its own power plants. All manufacturing plants in Canada together used 40,928,000,000 kwh., of which they generated 6,901,000,000 kwh.

The sawmills, which ranked sixth in value of shipments, also depend on the forests for their raw materials and on world markets for a great part of

their sales. Their main product is, of course, lumber which accounted for 84 p.c. of the value of shipments but shingles and railway ties are also of importance. Most of the lumber was sawn in British Columbia, Quebec and Ontario following far behind. There are a large number of relatively small operators in this industry and they employ almost as many men as the pulp and paper mills but require less skilled help so that their wage bill is much lower. Exports of commodities produced by sawmills totalled \$359,000,000 in 1954, equivalent to 63 p.c. of total shipments. Imports of such commodities totalled about \$21,000,000.

The non-ferrous metal smelting and refining industry, Canada's second largest, is based on mineral deposits but is also a heavy user of electric power. Because of the availability of that power, most of the non-ferrous ores mined in Canada are processed within the country and for the same reason huge aluminum smelters operate in Quebec and British Columbia using imported ores and concentrates. Canada is a leading producer of metals, standing first in the production of nickel, second in aluminum and zinc and fourth in copper. Total shipments of the smelting and refining industry in 1954 amounted to \$933,000,000. Exports of aluminum, copper ingots, bars and billets, pig lead, nickel in various forms, platinum, silver bullion and zinc spelter alone amounted to about \$546,000,000, or 59 p.c. of the total.

The petroleum products industry advanced from fifth place in 1953 to third in 1954, with sales increasing from \$695,000,000 to \$909,000,000. In the later year the industry used 6,000,000,000 gal. of crude oil, 54.5 p.c. of which was from Canadian wells. In that year the use of Canadian crude exceeded that of imported crude for the first time.

Of particular interest in considering the tremendous expansion of this industry is a special study recently made which shows that the net amount of

Population growth and higher personal incomes have been largely responsible for the doubling of the dollar sales of processed foods in this country since 1945, but equally important has been the steady up-grading in the quality of foods offered on the domestic market.



energy used in Canada doubled from 1926 to 1952, and that per capita use increased by a little over 30 p.c. in that period. Liquid petroleum fuels made up about 9 p.c. of the net consumption of energy in 1926 and about 38 p.c. in 1952. Of Canada's requirements of gasoline and naphtha, 90 p.c. were met from her own refineries in 1952 and for fuel oils the equivalent figure was 76 p.c.

The pattern of energy consumption by the manufacturing industry has changed considerably during the past twenty years, as shown by the following percentage distribution of the uses of various fuels by manufacturers other than those producing fuel.

	1933	1939	1953		1933	1939	1953
	p.c.	p.c.	p.c.		p.c.	p.c.	p.c.
Coal.....	55.9	54.1	47.8	Fuelwood and wood			
Coal products.....	4.6	7.8	4.8	waste usable as			
Natural gas.....	1.4	1.6	2.6	fuel.....	6.1	3.5	1.0
Petroleum products...	11.1	8.7	20.5	Electricity.....	20.9	24.3	23.3

Three industries based on agriculture are among the first fifteen—slaughtering and meat packing, butter and cheese, and bread and other bakery products. The slaughtering and meat packing industry came fourth in value of shipments, but was ninth in terms of value added. In 1954 the industry slaughtered over 8,000,000 animals valued at \$520,000,000 and purchased some \$74,000,000 worth of dressed meat and poultry. A striking feature of the meat packing industry in recent years is the continued ability of Canada to consume substantially increased production of meats and the consequent decline of exports, especially of beef. Per capita consumption of beef in 1954 was 72 lb. and of pork 54 lb. The total value of exports in that year was only \$69,000,000, a situation which a few years ago would have been considered unbelievable. Also more and more meats are being prepared in branded, consumer-size packages in the packing house. Shipments were valued at \$838,000,000 in 1954.

The butter and cheese industry is also now producing almost entirely for the Canadian market. It was seventh in terms of value of shipments, but only twenty-fourth in terms of value added. Total shipments in 1954 amounted to \$412,000,000, of which \$150,000,000 was for milk and cream sold as such. Exports of butter and cheese were valued at about \$1,600,000.

The bread and bakery products industry came twelfth on the list with sales of \$280,000,000 all in the home market—of these sales \$173,000,000 were bread. Canadians used about 100.5 lb. of bread per person in 1954, 5 lb. less than for the previous two years.

The miscellaneous food preparations industry was the tenth in terms of value of shipments but because of the high proportional cost of materials used and because a large part of the industry's activity consists of blending and packaging it was well down on the list in value added. For instance roasted coffee which sold for \$78,000,000 was bought as green beans for \$69,000,000, and blended and packaged tea which sold for \$47,000,000 was purchased in bulk for \$30,000,000. These two items made up over one-third of the industry's sales of \$306,000,000 and accounted for nearly half of the materials purchased. For these, and many other items, the industry relied on imports for its supplies but its market was almost entirely within Canada.

The motor vehicle industry ranked fifth in 1954, as against third in 1953. The main items shipped were about 287,200 passenger cars valued at \$137,000,000, about 69,500 trucks valued at \$118,000,000, about 400 buses valued at approximately \$5,000,000 and repair parts and accessories to the value of \$34,000,000. Total shipments came to \$666,000,000. The cost of materials purchased was about \$477,000,000, which means that over two-thirds of the value of sales represented work done by manufacturers in other industries. The automobile industry, concentrated in southern Ontario, uses thousands of commodities produced by other industries operating all across the country. Of the vehicles shipped, about 19,700 passenger cars worth \$13,000,000 were exported (including 12,300 chassis without bodies), together with 10,200 trucks worth over \$7,000,000; about 38,500 cars, 4,700 trucks and 300 buses valued at \$76,000,000 were imported. Thus there were 370,500 new motor vehicles available for use in Canada in 1954, 158,200 of which were offset by vehicles going out of use. There was one passenger car for every 5.7 persons in the country and one motor vehicle for every 4.2 persons. In Ontario there was one passenger car for every 4.2 persons and one motor vehicle for every 3.2 persons.

The primary iron and steel industry, which ranked eighth is dominated by four integrated plants, two at Hamilton and one at Sault Ste. Marie in Ontario, and one at Sydney, N.S. There are also other steel plants across the country which buy pig iron and scrap to feed their furnaces. The industry uses a good deal of Canadian ore and coke from Canadian coal but imported ore is mainly used, partly because some plants can ship ore more conveniently

Workmen readying an engine for placement on a car chassis. After the addition of such parts as the starter, carburetor and generator, the engine, by use of suspension conveyor, is mounted on the chassis. The propeller shaft, tail pipe and muffler assembly are added after the engine is installed.



from United States mines and partly because a blast furnace requires a mix of different types of ores and therefore must draw on varied sources. The industry's sales of rolling-mill products amounted to \$301,000,000 and of steel castings \$34,000,000. Only \$1,000,000 worth of the steel ingots produced were sold as such, almost all of them being further processed. Over a fifth of the pig iron produced was sold for \$22,000,000 and other products brought the total to \$383,000,000.

The aircraft and parts industry, a comparative newcomer among the leaders, was greatly expanded to meet the increased defence requirements which followed the war in Korea but, in addition to its output of military aircraft, several types of civil aircraft have been specially developed to operate under Canadian conditions. As recently as 1950 production amounted to only \$55,000,000 but in 1954 the industry produced \$65,000,000 worth of parts alone. It put \$145,000,000 of work into the production of aircraft, did other work including engine production and aircraft development to the value of \$102,000,000, and did \$31,000,000 worth of repairs. The total value of production was thus \$343,000,000. The industry used \$109,000,000 worth of aircraft and engine parts both in manufacturing and servicing. Exports of Canadian aircraft and parts were valued at \$28,000,000, and imports of aircraft and engines totalled \$26,000,000.

The main items produced in 1954 by the railway rolling-stock industry, eleventh on the list, were 244 diesel electric locomotives valued at \$41,000,000, 4,490 box cars at \$30,000,000, 253 passenger cars at \$29,000,000, and various types of freight cars to a total of \$30,000,000. Total output was valued at \$283,000,000 and exports at over \$8,000,000.

The miscellaneous electrical apparatus and supplies industry, having shipments of \$268,000,000 in 1954, appeared among the fifteen leading industries for the first time in that year. This industry, whose main products are electric wire and cables, electric light bulbs and fluorescent tubes, is only one of the electrical industries showing extremely rapid growth in recent years—the radio and radio parts industry had an output of \$229,000,000 in 1954, the heavy electrical machinery industry of \$202,000,000, the refrigerators, vacuum cleaners and appliances industry of \$130,000,000 and the batteries industry of \$35,000,000. Other industries also produce wire and cables and electric light bulbs and tubes and the total output of these commodities in 1954 amounted to \$123,000,000 and \$20,000,000, respectively.

The rubber products industry, fourteenth among the industries, sells almost all its products on the home market. It relies heavily on activity in the transport field, since over half its sales consist of tires and tubes. It was at one time completely dependent on imports for two basic raw materials, rubber and the cottons from which its tire fabrics were woven, but the development of synthetic rubber and synthetic fibres have changed that picture. In 1954 the natural product made up 49 p.c. of the rubber used, synthetic rubber 36 p.c. and reclaimed rubber 15 p.c. By 1955 the process had gone further, only 45 p.c. of the rubber used being natural and 40 p.c. synthetic. Of the tire fabrics costing \$25,000,000 in 1954, \$19,000,000 was for rayon fabrics, \$3,000,000 for cotton and \$3,000,000 for nylon and other fabrics. Of total sales valued at \$264,000,000, tires accounted for \$131,000,000, tubes for \$10,000,000 and rubber footwear for \$30,000,000.



Camouflaging CF-100's for duty with NATO. Four squadrons of these aircraft, built at Malton, Ont., will serve in Europe as day and night long-range interceptors. The first squadron was posted in France in November 1956.

Under current production at Canadair is the CL-28, largest aircraft yet built in Canada. It is designed for defence use as a long-range submarine hunter and attacker and as a cargo and personnel carrier.

Port and starboard wheels for the CL-28. Hydraulic units are built under sub-contract.



Although Canada's ten to fifteen leading industries have expanded sufficiently during the past decade to retain about the same proportion of the value of all manufacturing output, hundreds of new items have been added to the list of commodities produced. In large plants and small ones, everything from pipe to pickles is turned out to satisfy the demands created by a growing population with higher incomes and a steadily advancing standard of living.



The third and fourth industries were petroleum products and slaughtering and meat packing, which shipped products to the value of \$311,000,000 and \$173,000,000, respectively. These were followed by the women's clothing industry and two other textile industries—men's clothing and cotton yarn and cloth—and the tobacco, cigars and cigarettes industry. Quebec predominates in the Canadian output of the pulp and paper, textile, clothing and tobacco industries as well as the leather footwear, railway rolling-stock and miscellaneous electrical appliances industries.

British Columbia ranks third among the provinces in manufacturing production. Its output, which was valued at \$1,474,000,000 in 1954 and made up 8.4 p.c. of the Canadian total, is based largely on forest and mineral resources. The sawmilling industry ranked first in 1954 with shipments of \$348,000,000 and pulp and paper second with \$158,000,000. British Columbia holds the dominant position among the provinces in the production of wood products, its output making up 40 p.c. of Canada's total. The completion of the oil pipeline bringing Alberta crude oil to west coast refineries advanced the Province's output of petroleum products from seventh place in 1953 to third in 1954. The Province is also one of Canada's greatest producers of fishery products, shipping \$71,000,000's worth in 1954 which was 46 p.c. of the Canadian total. Non-ferrous metal smelting and refining—of base metals in the south and of aluminum in the north—is of considerable importance.

The three *Prairie Provinces* together reported shipments of \$1,427,000,000 in 1954, 8.1 p.c. of Canada's total. Alberta with \$575,000,000 took the lead for the first time in that year in place of Manitoba with \$571,000,000.





Saskatchewan's output was valued at \$281,000,000. Taking these provinces together, slaughtering and meat packing had the largest value of shipments in 1954, amounting to \$267,000,000, followed by petroleum products with \$213,000,000, flour mills with \$96,000,000, butter and cheese factories with \$91,000,000 and the railway rolling-stock industry with \$45,000,000. These five contributed nearly half of the total factory shipments. *Alberta* moved rapidly ahead in recent years as a result of the establishment of many refineries and chemical industries based on the production of the oil and gas fields. However, slaughtering and meat packing remained in first place in 1954 by a narrow margin, having shipments of \$122,000,000 as compared with \$102,000,000 for petroleum products. Third came butter and cheese factories with shipments of \$36,000,000 followed by flour mills, sawmills, sash, door and planing mills, bakeries, railway rolling-stock, breweries, and printers and publishers. In *Manitoba* the slaughtering and meat packing industry led by a wide margin, its shipments of \$114,000,000 comparing with \$35,000,000 for the petroleum products industry which came second, \$31,000,000 for railway rolling-stock which came third. Butter and cheese, flour production and miscellaneous food preparations were also of importance in this Province as well as factory clothing. *Manitoba* has a greater diversity of manufacturing output than the other Prairie Provinces, a great many small and medium sized industries having established in the Winnipeg area in recent years. *Saskatchewan's* manufacturing industry is dominated by the petroleum products industry with shipments of \$76,000,000 and industries based on agriculture—flour mills with \$43,000,000, slaughtering and meat packing with \$31,000,000 and butter and cheese with \$28,000,000.



Manufactures in the *Atlantic Provinces* are based mainly on the forests, the sea and the mines. Considering the four provinces as a unit, pulp and paper, fish processing, sawmills and primary iron and steel predominated, followed by two heavy users of steel, the shipbuilding and repairs industry and the railway rolling-stock industry. These industries accounted for over half the total shipments of \$720,000,000 for the area. In *Nova Scotia*, which shipped \$300,000,000's worth of products, fish processing was the major item with an output of \$41,000,000, followed by the primary iron and steel industry with \$32,000,000. This industry is established near the coal mines of Cape Breton and benefits from easy access by sea to the iron ore of Newfoundland. Among the important steel using industries, shipbuilding reported shipments of \$22,000,000, railway rolling-stock \$14,000,000 and miscellaneous iron and steel products \$7,000,000. Pulp and paper mills shipped \$21,000,000 and sawmills \$17,000,000. Manufacturing in *New Brunswick* is dominated by forest products. Pulp and paper reported shipments of \$89,000,000, sawmills \$18,000,000 and sash, door and planing mills \$8,000,000. Fish processing was the second largest industry with shipments of \$20,000,000 and other food industries of importance were the miscellaneous food preparations industry, slaughtering and meat packing, butter and cheese, and bakeries. In *Newfoundland*, too, the forests are of major importance to manufacturing production. The pulp and paper industry accounted for nearly 60 p.c. of the provincial total of \$110,000,000 in 1954, with shipments valued at \$62,000,000. Fish processing was second with \$13,000,000 followed by breweries with \$4,000,000 and sash, door and planing mills with \$3,000,000. *Prince Edward Island* had a manufacturing output of \$23,000,000 in 1954, butter and cheese accounting for \$5,000,000, fish processing for \$4,000,000 and prepared stock and poultry feeds for \$1,000,000.

The manufacturing shipments of the *Yukon* and *Northwest Territories* are small but increased from \$2,500,000 in 1953 to \$3,500,000 in 1954. The main items were petroleum products and wood products.

Statistics of Manufactures by Province, 1954

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland....	790	9,892	30,101	4,057	46,503	59,484	109,568
Prince Edward Island.....	209	1,774	3,000	367	17,002	6,045	23,470
Nova Scotia.....	1,526	29,611	71,740	10,800	161,295	129,778	300,073
New Brunswick...	1,057	22,107	55,109	12,013	157,216	118,016	287,350
Quebec.....	12,191	424,095	1,214,661	150,486	2,806,248	2,448,027	5,395,787
Ontario.....	13,178	598,914	1,954,767	186,767	2,412,537	3,930,730	8,533,167
Manitoba.....	1,522	41,224	116,455	10,363	328,828	232,488	571,409
Saskatchewan....	1,010	11,526	33,510	7,120	169,326	104,560	280,734
Alberta.....	2,052	32,765	96,910	11,022	346,525	219,327	575,278
British Columbia.	4,462	95,867	319,803	31,246	794,885	651,813	1,474,156
Yukon and Northwest Territories.	31	191	630	191	1,493	1,856	3,536
Canada.....	38,028	1,267,966	3,896,686	424,432	9,241,858	7,902,124	17,554,528

Preliminary Statistics of Manufactures by Province, 1955

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials	Value of Factory Shipments
	No.	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	9,420	27,523	5,466	47,333	109,379
Prince Edward Island.....	1,902	3,187	385	16,847	23,839
Nova Scotia.....	29,120	75,288	10,559	169,866	322,901
New Brunswick.....	22,217	56,816	12,394	161,592	296,355
Quebec.....	424,888	1,260,693	161,089	3,146,612	5,908,216
Ontario.....	613,724	2,076,729	206,405	4,996,647	9,616,319
Manitoba.....	41,040	121,386	11,526	329,714	590,933
Saskatchewan.....	11,499	34,424	7,716	174,146	295,177
Alberta.....	34,658	106,444	12,225	368,069	641,356
British Columbia.....	101,311	347,568	34,291	884,399	1,659,527
Yukon and Northwest Territories.....	199	662	187	2,961	5,011
Canada.....	1,289,978	4,110,720	462,243	10,298,186	19,469,013

Manufacturing in Urban Centres.—The prosperity of most of the cities and towns of Canada is intimately connected with their manufacturing industries which provide employment for a large proportion of the labour forces. The following table gives the principal statistics for those urban centres in which manufacturers shipped goods to the value of more than \$100,000,000 in 1954. Excluded are certain centres for which the publication of such figures would disclose the activities of an individual firm.

Urban Centres with Value of Factory Shipments of Over \$100,000,000 in 1954

NOTE.—Statistics for urban centres cannot be published when one establishment has 75 p.c. or more or two establishments have 90 p.c. or more of the total production.

Urban Centre	Estab-lish-ments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Montreal, Que.....	4,415	184,684	539,120	19,031	1,050,161	1,983,218
Toronto, Ont.....	3,728	145,792	470,047	19,884	945,614	1,810,861
Hamilton, Ont.....	580	54,199	189,100	20,471	341,556	752,354
Vancouver, B.C.....	1,335	33,916	114,114	6,105	273,058	486,913
Montreal East, Que.....	34	6,085	23,597	15,282	326,627	481,432
Windsor, Ont.....	353	30,210	112,817	5,718	263,144	474,634
Sarnia, Ont.....	54	7,899	30,942	14,821	150,703	288,953
Winnipeg, Man.....	864	26,887	74,629	3,503	150,352	288,602
London, Ont.....	308	16,249	48,539	2,523	83,870	193,360
Edmonton, Alta.....	350	11,602	36,566	2,410	120,724	191,014
Quebec, Que.....	432	17,506	43,112	5,135	90,623	187,551
Kitchener, Ont.....	205	14,597	43,272	2,128	88,325	181,321
New Toronto, Ont.....	53	7,404	28,166	2,168	83,698	159,746
Leaside, Ont.....	56	11,188	35,989	1,853	73,558	151,494
Calgary, Alta.....	323	8,724	27,546	1,567	89,448	142,658
St. Boniface, Man.....	88	4,454	13,951	1,192	102,825	135,251
St. Laurent, Que.....	56	13,407	50,364	1,499	56,580	134,972
St. Catharines, Ont.....	114	11,578	40,043	2,267	60,129	126,685
Peterborough, Ont.....	101	9,623	33,135	1,269	63,634	124,467
Brantford, Ont.....	166	11,055	34,572	1,795	61,099	119,653
Shawinigan Falls, Que.....	50	5,634	19,968	9,633	48,377	117,980
Three Rivers, Que.....	90	7,558	23,264	6,988	48,734	115,541
New Westminster, B.C.....	134	6,320	20,927	1,445	59,214	110,596
Ottawa, Ont.....	293	10,428	30,479	2,018	45,675	106,818
Lasalle, Que.....	41	4,750	15,944	3,040	53,474	104,869
Lachine, Que.....	71	9,112	31,895	1,271	40,112	101,302



Steel framework of a giant aluminum smelter being constructed at Baie Comeau in northern Quebec, where sufficient hydro power is available for operation. The \$200,000,000 smelter will be completed late in 1957 and will provide a variety of employment for the town whose only industry has been newsprint production.

Capital Expenditures

THE rapid build-up of capital facilities since 1946 has passed through three main phases. In the early postwar years, accumulated demand at home and abroad provided the stimulus for a rapid expansion of capital expenditure, particularly on consumer goods industries, agriculture and housing. Then, in the period following the outbreak of war in Korea, new demands were made on the economy, and the emphasis in capital expenditures shifted towards defence and defence-supporting activities. After the short recession in 1953-54, a high level of foreign demand encouraged heavy capital outlays in traditional export industries. Although different factors affected the pattern of capital expansion, two persistent underlying influences predominated—world interest in the development of new and known resources and rapid population growth which created a need for additional social capital of all kinds. The strength of these expansionary forces is indicated by the fact that capital outlays as a percentage of current dollar gross national product rose from 18.1 in 1947 to 26.6 in 1956.

Private and Public Capital Expenditures, 1946-57

NOTE.—1947-55 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Year	Construction	Machinery and Equipment	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	
1946.....	1,074	629	1,703	14.2
1947.....	1,424	1,065	2,489	18.1
1948.....	1,877	1,298	3,175	20.3
1949 ¹	2,124	1,378	3,502	21.3
1950.....	2,366	1,449	3,815	21.0
1951.....	2,735	1,842	4,577	21.3
1952.....	3,263	2,022	5,285	22.7
1953.....	3,665	2,176	5,841	23.9
1954.....	3,680	1,940	5,620	23.3
1955.....	4,314	2,036	6,350	23.7
1956.....	5,283	2,617	7,900	26.6
1957.....	5,586	2,947	8,533	—

¹Newfoundland included from 1949.

During all periods, new levels of capital spending have been reached in the manufacturing industries. Expenditures in the consumer soft goods industries rose rapidly in the early postwar years and accounted for about 30 p.c. of all capital outlays in manufacturing but by 1956 this proportion had fallen to about 15 p.c. In recent years the impressive additions to capacity in the traditional export industries, forest products and non-ferrous metal products, and in two basic industries—iron and steel and chemical—have been outstanding.

The utilities and mining sectors of the economy have absorbed a growing share of the total capital program, the large percentage increase in the former sector reflecting accelerated activity in the construction of gas and oil pipelines, hydro-electric installations and the St. Lawrence Seaway. Expenditures in agriculture and fishing rose rapidly in the early postwar years when

PROGRESS ON THE ST. LAWRENCE SEAWAY

Pace of construction has been rapid and, as the Seaway project progressed into the second half of the five-year schedule, emphasis began changing from planning, design and excavation to the building of structures. Almost \$180,000,000 of the estimated \$200,000,000 in contracts had been awarded, 46 p.c. of the excavation and 60 p.c. of the dyke construction completed and 15 p.c. of the cement placed. Excavation will be finished in 1957, and 1958 will be devoted to concrete work, the installation of lock gates and equipment and the erection of bridges. The major construction areas are at Montreal and in the International Rapids Section just above Cornwall.

cumulative replacement needs were being met and reached their peak in 1952. In forestry and construction, outlays reached a peak in 1956 but their advance has been uneven.

Investment in housing was at a high level and represented almost one-quarter of the total investment program in the period 1946 to 1950. The firming of interest rates in 1951 and renewed scarcities of labour and materials caused a decline in house building in 1951 and 1952, but an upward trend began in 1953 which was reinforced in 1954 by legislation broadening the mortgage market. However, during 1956, difficulties in financing again began to have a restraining effect upon housing investment.

Outlook for 1957.—Plans for a total capital expenditure program of \$8,500,000,000 in 1957 are indicated. This is an 8-p.c. increase over the 1956 estimate of \$7,900,000,000 which was substantially less than the increase that occurred in 1955. Estimates indicate a drop of 18 p.c. in expenditures on housing in 1957 as compared with increases of 16 p.c. and 13 p.c. on non-residential construction and for the purchase of machinery and equipment. Expenditures in the utilities, commercial and institutional sectors are expected to be substantially higher. Manufacturing is estimated at 9 p.c. higher with accelerated programs in the non-ferrous metals, iron and steel and transportation industries being partly offset by a lower rate of spending in the wood products, paper and building material groups.

Private and Public Capital Expenditures, by Sector, 1955-57

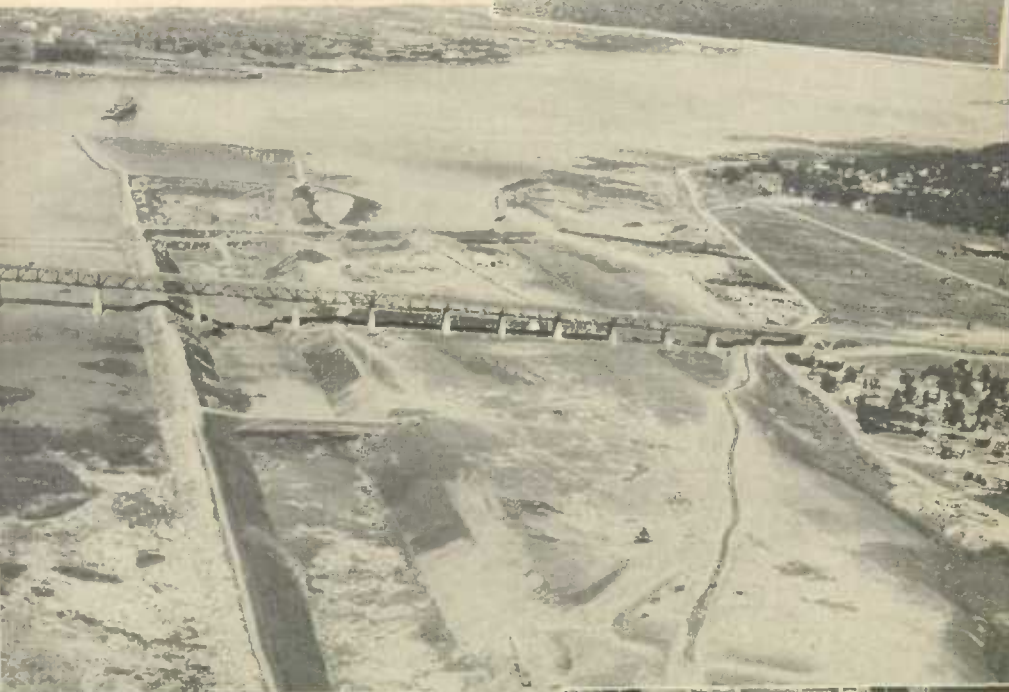
NOTE.—1955 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Sector and Year	Construction	Machinery and Equipment	Total
	\$'000,000	\$'000,000	\$'000,000
Agriculture and fishing.....1955	87	339	426
.....1956	99	396	495
.....1957	104	435	539
Forestry.....1955	36	27	63
.....1956	40	34	74
.....1957	35	27	62
Mining, quarrying and oil wells.....1955	248	88	336
.....1956	369	167	536
.....1957	346	184	530
Manufacturing.....1955	345	602	947
.....1956	477	872	1,349
.....1957	474	997	1,471
Utilities.....1955	649	450	1,099
.....1956	1,047	583	1,630
.....1957	1,464	721	2,185
Construction Industry.....1955	16	158	174
.....1956	21	170	191
.....1957	17	151	168

Dredges preparing the entrance to the Seaway from Montreal Harbour.



The portion of Jacques Cartier Bridge over the entrance excavation will be permanently elevated to provide 120-foot clearance for ships using the Seaway.



Upstream approach wall to Iroquois Lock, the most westerly of the five new locks under construction. This lock is the first scheduled for completion.



Inside the wall of the Côte Ste. Catherine Lock the tunnel which will carry the water to and from the lock chamber to lift and lower ships is being prepared.

Private and Public Capital Expenditures, by Sector, 1955-57—Concluded

Sector and Year		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Housing.....	1955	1,499	—	1,499
	1956	1,575	—	1,575
	1957	1,283	—	1,283
Trade—wholesale and retail.....	1955	181	148	329
	1956	181	138	319
	1957	234	159	393
Finance, insurance and real estate.....	1955	82	20	102
	1956	103	22	125
	1957	128	23	151
Commercial services.....	1955	33	97	130
	1956	53	110	163
	1957	66	118	184
Institutional services.....	1955	367	41	408
	1956	360	42	402
	1957	421	48	469
Government departments.....	1955	771	66	837
	1956	958	83	1,041
	1957	1,014	84	1,098
Totals.....	1955	4,314	2,036	6,350
	1956	5,283	2,617	7,900
	1957	5,586	2,947	8,533

Private and Public Capital Expenditures, by Province, 1955-57

NOTE.—1955 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Province and Year		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Newfoundland.....	1955	66	23	89
	1956	63	28	91
	1957	77	41	118
Prince Edward Island.....	1955	12	9	21
	1956	12	9	21
	1957	12	10	22
Nova Scotia.....	1955	108	56	164
	1956	112	60	172
	1957	106	73	179
New Brunswick.....	1955	126	42	168
	1956	128	54	182
	1957	120	60	180
Quebec.....	1955	1,074	472	1,546
	1956	1,269	578	1,847
	1957	1,313	672	1,985
Ontario.....	1955	1,486	785	2,271
	1956	1,808	1,022	2,830
	1957	2,005	1,159	3,164
Manitoba.....	1955	197	104	301
	1956	245	114	359
	1957	291	118	409
Saskatchewan.....	1955	219	130	349
	1956	290	171	461
	1957	280	179	459
Alberta.....	1955	548	187	735
	1956	644	266	910
	1957	609	250	859
British Columbia ¹	1955	479	228	707
	1956	711	315	1,026
	1957	774	387	1,161
Canada.....	1955	4,315	2,036	6,351
	1956	5,282	2,617	7,899
	1957	5,587	2,949	8,536

¹Includes Northwest Territories and Yukon Territory.



The largest refinery construction job ever undertaken in Canada was completed in Halifax in 1956. The project cost \$30,000,000 and entailed the complete rebuilding of the refinery to make it the third largest of Imperial Oil's nine refineries across Canada. Crude oil arrives by tanker from the Caribbean and is processed at the rate of 1,500,000 gal. a day.

Construction Activity

Construction activity in 1956 is estimated at \$6,400,000,000 compared with \$5,300,000,000 in 1955 and was by far the largest program ever accomplished in one year in Canada. However, indications are that in 1957 the construction program will cost about \$6,700,000,000, a further increase over the record year of 1956.

Value of Construction Work Performed, 1948-57

NOTE.—1948-55 figures are actual, 1956 figures are preliminary and 1957 figures are forecasts.

Year	New	Repair	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	
1948.....	1,877	694	2,571	16.5
1949 ¹	2,124	732	2,856	17.3
1950.....	2,366	766	3,132	17.2
1951.....	2,734	927	3,661	17.0
1952.....	3,282	916	4,198	18.0
1953.....	3,666	974	4,640	19.0
1954.....	3,700	1,023	4,723	19.6
1955.....	4,270	1,041	5,311	19.8
1956.....	5,260	1,129	6,389	21.5
1957.....	5,563	1,139	6,702	—

¹Newfoundland included from 1949.



Rayrock uranium mine in the Marion River area of the Northwest Territories will be in production in 1957.

During 1956, major projects such as the St. Lawrence Seaway, the two gas pipelines, one to the Pacific Coast and the other from the mid-west to Ontario and Quebec, together with a number of large hydro-electric developments, added greatly to the volume of engineering construction. The engineering program anticipated for 1957 is to a considerable extent a continuation of expansion plans initiated in earlier years. Commercial and institutional organizations are also planning substantially increased programs for 1957.

Value of New and Repair Construction Work Performed, 1955-57

NOTE.—1955 figures are actual, 1956 figures are preliminary and 1957 figures are forecasts.

Type of Construction	1955		1956		1957	
	New	Repair	New	Repair	New	Repair
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Building	2,811	567	3,184	604	2,989	619
Residential.....	1,499	238	1,575	256	1,283	273
Industrial.....	294	105	475	118	454	114
Commercial.....	427	86	510	89	599	89
Institutional.....	408	56	398	52	477	51
Other.....	183	82	226	89	176	92
Engineering	1,459	474	2,076	525	2,574	520
Roads, highway and aerodrome construction....	359	160	448	169	485	181
Waterworks and sewage systems.....	127	21	168	26	220	27
Dams and irrigation....	35	5	53	6	51	6
Electric power construction.....	301	37	420	41	582	45
Railway, telephone and telegraph construction....	144	168	202	187	228	162
Gas and oil facilities....	311	28	505	28	640	30
Marine construction....	61	15	112	16	156	17
Other engineering.....	121	40	168	52	212	52
Totals, Construction	4,270	1,041	5,260	1,129	5,563	1,139

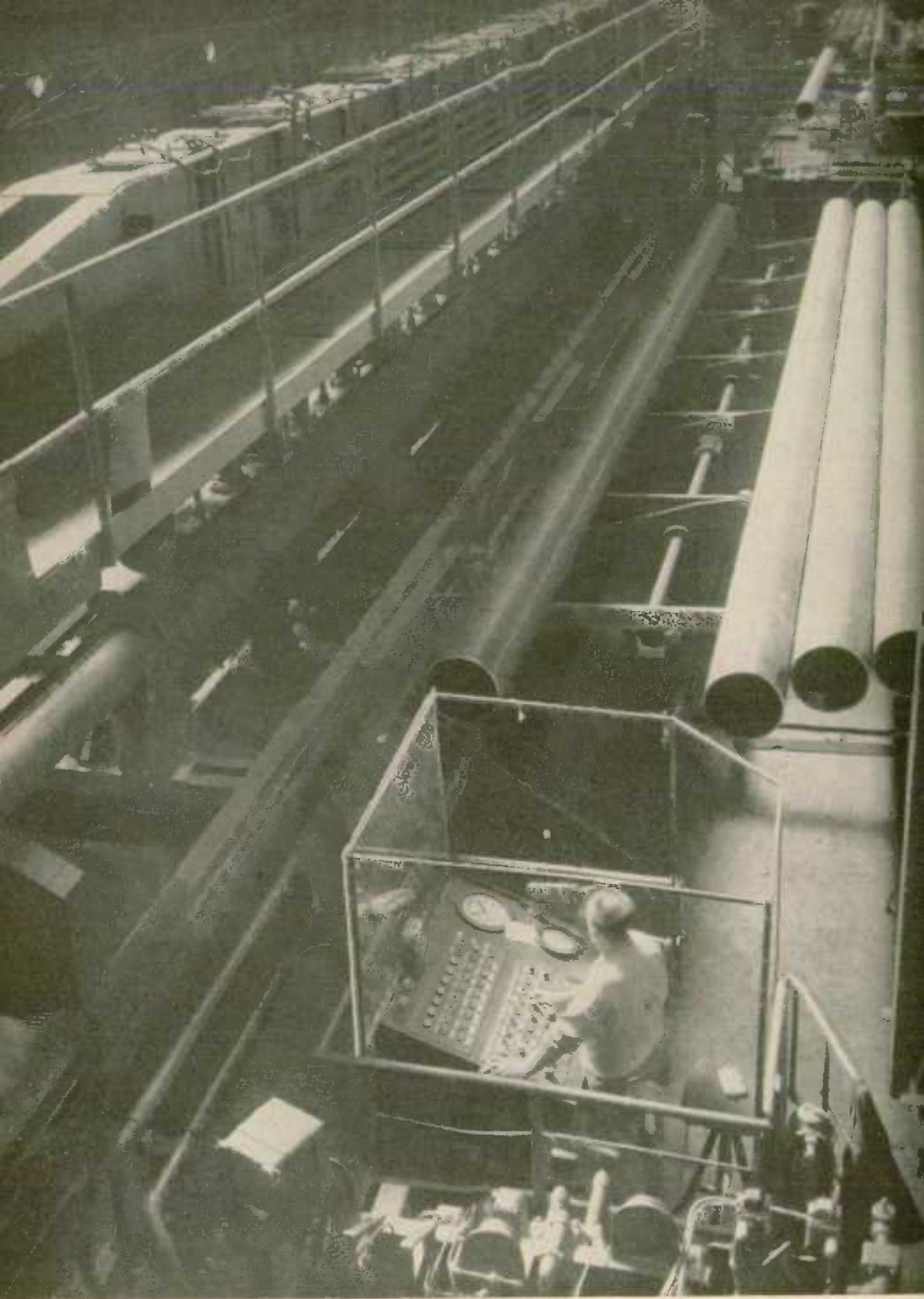
Housing.—During 1956 there were 135,000 new dwelling units completed, an all-time high. However, the number of new houses started declined from the 1955 record of 138,276 to 127,000 units. This decline was primarily the result of a scarcity of mortgage credit which, in turn, reflected the heavy demands for long-term credit associated with the large volume of non-housing investment. The scarcity of mortgage credit had its major impact on the availability of mortgage loans insured under the National Housing Act. The value of new loans insured under the Act was down by 33 p.c. from 1955 to 1956. Dwellings financed by means of these loans represented 37 p.c. of the 1956 total compared to 53 p.c. in 1955.

The year was marked by the completion of the one-millionth postwar home—more than one-third of these million homes were completed in 1954, 1955 and 1956. These additions to the housing stock exceeded requirements resulting from the formation of new families and of non-family households and from the movement of population from farms, and the excess has made possible some decline in the numbers of families sharing accommodation.

Of the million new homes built in the postwar period, more than half have been in the cities with populations of over 30,000 people; Toronto and Montreal alone accounted for 237,000 of them. This expansion has created many problems, among them the accentuation of the stresses and strains which were already being felt at the centres of the cities. In order to aid re-development of those areas most affected by congestion and blight, amendments to the National Housing Act were made in 1956 to extend Federal Government aid to municipalities undertaking urban re-development. Urban renewal studies were undertaken during the year in Vancouver, Winnipeg, Toronto, Saint John and Halifax with financial assistance provided under the Act.

Ceremony on Sept. 14, 1956, marked the completion at Scarboro', Ont., of the one-millionth Canadian home built since the end of World War II. On a per capita basis more homes are privately owned in Canada than in any other country of the world.





Steel pipe, like power, is a major life-line of the Canadian economy. It is used everywhere as a carrier for fuels and water, in heating and construction. This plant at Welland, Ont., produces pipe up to 16 inches in diameter for a myriad of uses. Under construction at the same location is Canada's first "big-inch" steel pipe mill which will produce pipe from 20 to 36 inches in diameter, some of which will be used for the natural gas line from Western Canada to Montreal.

The Economy in 1956

CANADA'S production of goods and services continued to increase during the year 1956. At the end of the year the physical volume of production was 7 p.c. above the 1955 level and for the second consecutive year exceeded the average rate of increase of over 4 p.c. which has prevailed in the decade since the end of the Second World War—in that period only one year, 1954, recorded a decrease from the previous year's level. During 1956 prices rose between 3 p.c. and 4 p.c. so that the increase in the value of the gross national product at market prices approached 11 p.c., advancing the total product to almost \$30,000,000,000. This 11-p.c. increase compares with an advance of 10 p.c. in 1955. Because of the slack of unemployed labour and productive facilities at the beginning of that year, however, less than 1 p.c. of the 1955 gain was caused by price rises, the remaining 9 p.c. being an addition to the real output of goods and services. But in 1956 the economy was bumping increasingly against short-run ceilings imposed by the available supply of labour and productive capacity and, although the inflow of imported goods eased many potential shortages, the competition for the available supply of goods and services led to price increases during the year. As a result of the higher volume of production and higher prices, both labour income and profits rose substantially during the year, leading to another gain in personal and business income. Despite a 20-p.c. increase in saving by Canadians, net foreign investment in Canada during 1956 amounted to \$1,300,000,000, almost twice the 1955 rate.

Demand, Supply and Prices

The character of the upswing in economic activity which began in the fourth quarter of 1954 changed in an important respect during 1956, with a much heavier relative emphasis on business capital expenditure than on house building and consumer expenditures. In 1955, expenditures on new dwellings had increased 27 p.c. over the 1954 level, whereas in 1956 the increase of only 1 p.c. actually became a decrease in the latter part of the year. On the other hand, expenditures on new business premises, factories and other non-residential construction such as the St. Lawrence Seaway, oil-well drilling and the construction of gas pipelines plus expenditures on new industrial machinery and other business capital equipment rose by 35 p.c. over the 1955 level compared with an increase of less than 10 p.c. in 1955. Business capital expenditure in 1956 took place mainly in mining and oil wells, in the paper products, metal products and chemical products manufacturing industries, and in public utilities. It accounted for about one-sixth of the gross national product, the highest proportion since 1929. If residential construction is included, the ratio rises to over one-fifth, slightly higher than in 1929.

While this change in the composition of capital expenditure took place, the other principal components of final demand for the output of Canadian industry continued strong and increased by almost the same percentage in both years. Thus expenditure on consumer goods and services by persons

NOTE.—The figures used for the full year 1956 are based, for the most part, on data for the first nine months of the year.



Capital expenditures on new factories, business premises and other non-residential construction was 35 p.c. higher in 1956 than in 1955. Over \$28,000,000 was spent on the construction of this cement plant on the shores of Lake Ontario. It was ready for full operation in March 1957 and its capacity is 3,000,000 bbl. of cement a year.

increased 8 p.c. in 1956, exports by 12 p.c., and government expenditure on goods and services by 9 p.c. Personal expenditure on durable consumer goods showed strength during 1956, with significant increases in the purchases of new passenger cars, furniture and house furnishings, appliances and radios. The sales of television sets, however, declined. In non-durable goods the major advances were in food, clothing, household supplies and motor vehicle parts and supplies. Among services, the most notable increase in expenditure was attributable to increases in household rents.

The continued high level of economic activity in the United States and in overseas countries provided a good market for increased exports. The increase in the available supply from Canada was made possible by capital expenditures in previous years which had increased the productive capacity of the primary resources industries. These included the development of iron-ore mines in the Quebec-Labrador region and the completion of a 360-mile railway from the mines to the St. Lawrence River; expanded iron-ore production facilities at Wabana, Nfld.; the construction of rail outlets for copper produced in Quebec's Chibougamau area and the supplying of hydro-electric power to the area; increased production of copper ore in the Gaspé Peninsula following the receipt of power from the north shore of the St. Lawrence; greatly increased uranium production from new developments in the Blind River district of northern Ontario and the Beaverlodge area in northern Saskatchewan; the construction of new pulp and paper mills on Vancouver Island; and the increase of aluminum capacity at Kitimat in British Columbia,

although low water levels in Quebec during the winter of 1955-56 reduced Quebec production of aluminum and tended to offset the increased British Columbia production. In addition, an increase of 50 p.c. in the value of wheat sales to foreign countries accounted for a large portion of the total increase in exports but a weakening in overseas markets resulted in some reduction in the exports of lumber. Receipts from shipping and freight increased.

During the first nine months of 1956 inventories accumulated at a greater rate than during the same period of 1955 but it was not possible to estimate what portion of this increase represented a desired increase in stocks to keep pace with rising sales and what portion, if any, was an involuntary increase resulting from a failure to sell purchased goods. This stepped-up rate of inventory accumulation accounted, however, for only about 10 p.c. of the gain in the value of the gross national product during 1956. The rate of accumulation slackened during the third quarter of the year, but only at the retail level did there appear to be some liquidation of stocks.

In all, the total final purchases of goods and services increased by 11 p.c. in 1956 compared with 8 p.c. in 1955. This increase together with the inventory build-up put a strain on the productive facilities of the economy and, to meet the greater demand for goods and services, an increase in imports of one-fifth over the 1955 level took place during the year. Imports thus formed over 20 p.c. of the gross available supply of goods and services in Canada, a high figure though lower than the proportion of almost 25 p.c. which occurred in 1944 and 1929. During the first half of 1956, approximately one-third of the merchandise imports consisted of machinery and equipment and parts, one-third consisted of industrial materials, fuel and lubricants, and the other third consumer goods. It is possible that the steel strike in the United States in July 1956 may have had some effect on the level and composition of Canada's imports in the latter part of the year.

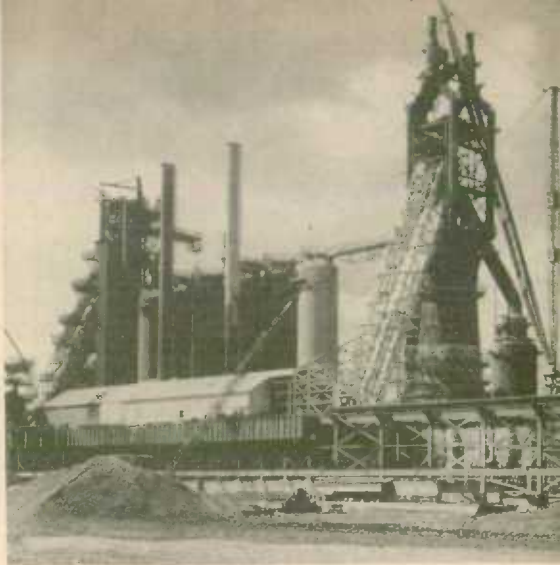
Total currency and active bank deposits held by the general public rose slightly during the year and, together with increases in consumer credit granted by retail stores and instalment finance companies, provided some additional purchasing power. The competition for the available supply

Recent capital expenditures on productive capacity are now paying off in increased supply of goods, increased employment and higher personal and business income. One of the most spectacular of the primary industry developments is the aluminum smelter at Kitimat, B.C., ingots from which are here being loaded for transport.



The demand for steel and steel goods from every sector of the economy explains why the Canadian market has been able to absorb a sharply increased production as well as a record level of machinery imports and large tonnages of imported steel rolling-mill products. New homes, new factories, new power plants and great activity in mining, road-building and other transport facilities and communications have precipitated an increase in basic steel-making capacity. New processing mills have been built and old mills expanded and modernized.

A second 1,000-ton blast furnace under construction alongside one already in operation.



of money and credit to finance the desired increases in expenditures, however, caused the price of money (interest rates) to rise during the year. For example, the average yield on three-month Treasury bills rose from about 2½ p.c. to about 3½ p.c. during the year.

The competition for the available supply of labour, goods and services caused increases in prices in general during the year. Higher prices accounted for about one-seventh of the increase in personal expenditure on consumer goods and services, almost one-quarter of the increase in expenditure on non-residential construction and new machinery and equipment, almost two-thirds of the increase in the value of residential construction put in place, about one-half of the increase in government expenditure on goods and services, and about one-fifth of the increase in the value of exports. Price increases also accounted for nearly one-half of the increase in the value of inventories which took place during the year. The price of merchandise imports, however, remained relatively unchanged partly because of the appreciation of almost 4 p.c. in the foreign value of the Canadian dollar during the year.

The competing demands on the available supply of credit together with the shortages of serviced land in some municipalities was reflected in a decline in housing starts, which numbered 127,000 as compared with 138,276 in 1955.

Employment, Income and Production

The 7-p.c. increase in the production of Canadian industry in 1956 was made possible in part by an advance of 5 p.c. in the number of persons with jobs in the non-agricultural sector of the economy during the first nine months of the year, including a 12-p.c. increase in the number of construction workers with jobs. The employment increase resulted from immigration, the natural increase of the adult population, the re-entry of some workers who had been voluntarily out of the labour force, and a shift of workers out of agriculture. Only about 3 p.c. of this total labour force was reported without jobs and seeking work, the lowest level since 1953. Higher employment and rising



Pouring molten steel from a 60-ton ladle into moulds where it will cool and solidify into ingots.



One of the forty-eight hydraulic regulating gates required for the St. Lawrence power project. They are being fabricated at Lachine, Que.

Sheet metal is in demand for everything from culverts to cars.

Canada is now virtually self-sufficient in the production of tin plate and to complete that self-sufficiency two new electrolytic tinning lines are under construction.



wage rates brought total wages, salaries and supplementary labour income 12 p.c. above the 1955 level and the expenditure of part of this increased income contributed to the 11-p.c. increase in gross national expenditure.

Corporation profits before taxes during the year were 13 p.c. higher than in 1955 (profits after taxes were estimated to be 16 p.c. higher). The net income of non-farm unincorporated business was 6 p.c. higher than in 1955, while rising bond and mortgage interest rates and rents led to an increase in investment income. When labour income, military pay and allowances and farm income are added to these sources of income, the total net national income of Canadians in 1956 amounted to \$23,000,000,000, an increase of 11 p.c. over 1955. Personal disposable income of Canadians rose by 10 p.c. in 1956 to a level approaching \$20,000,000,000. This represents an increase of almost 60 p.c. since 1950, but account must be taken of increases during the period in prices of consumer goods and services and in population. The real value of disposable income per person has risen, therefore, by about one-sixth in the past five years, or an average of about 3 p.c. each year.



There were 147,000 persons added to Canada's non-agricultural labour force during 1956, accounted for by the natural increase of the adult population, immigration, a shifting of workers from agriculture to industry and re-employment of persons who had previously left the labour force.



The average weekly expenditure for food in 1955 was estimated at \$6.38 per person in families whose income ranged between \$2,000 and \$6,500. This expenditure would have increased substantially during 1956, since the index number of food prices advanced 8 p.c. from May to November.



Agricultural output was up 8 p.c. in 1956 while marketings of agricultural products (especially grains, poultry and livestock) increased 13 p.c. This in turn led to an increase of 13 p.c. in the net income received by farm operators from farm production. The level of farm incomes was, however, still below the 1953 level when prices of farm products were higher and the volume of agricultural exports larger. In the middle of 1956 an increase occurred in the prices of Canadian farm products but even so they were still considerably below the peak levels of 1951.

In the primary resource industries, the output of the mines and oil and gas wells advanced 14 p.c. in 1956. The most significant increases were in iron ore (40 p.c.) and in copper, nickel, gypsum and asbestos; the production of gold, lead and zinc was lower. In fuels, the output of crude petroleum and the distribution of natural gas increased by about one-third and the production of coal rose slightly. Hydro-electric power generated to support the higher productive activity also increased. Corporation profits in the mining, quarrying and oil wells industries were up 26 p.c. during the first nine months of the year over 1955 levels, while corporation profits of firms in the public utility industries increased by a smaller amount. Forestry activity was up by 10 p.c. and fishing and trapping showed small gains.

Notable increases took place in the production of some of the manufacturing industries which process the products of the primary resources industries into fuels or into fabricated materials for export or for use in secondary manufacturing industries. These included the primary iron and steel industry, products of the petroleum and coal industry, and the non-metallic mineral products industry group. A more moderate gain was recorded by the pulp and paper products industry while the wood products industry group failed to advance significantly.

Manufacturing industries generally increased 6 p.c. in 1956—durable goods by 8 p.c. and non-durable goods by 5 p.c. Activity in the durable goods industries was affected by the stepped-up rate of investment in business

plant, machinery and equipment, and by increased personal expenditure for durable goods. Most industries in the iron and steel group showed substantial increases, particularly the iron castings and fabricated and structural steel industries, as well as the primary iron and steel industry—all three of these industries increasing their output over the 1955 levels by 20 p.c. or more. The agricultural implements industry, however, recorded a decrease of 10 p.c. and operated below the 1953 level. The output of the electrical apparatus and supplies group rose significantly while the output of the other durable goods groups—wood products, non-ferrous metal products and transportation equipment—increased by much smaller amounts. The transportation equipment industry did not reach the peak volume of output attained in mid-1953 partly perhaps because of a five-month strike affecting the output of one large motor vehicle producer which ended in February 1956.

Activity in most non-durable goods industries was also up but production in the food industries increased by less than 1 p.c. and, although activity in the clothing industries increased 7 p.c., the output of textile mills declined by almost 1 p.c. However, despite that decline, corporation profits before taxes for the first nine months of the year for the textile and clothing industries were up 27 p.c. over 1955. The levels of output in these industries were below the 1953 peak levels and profits below the 1950 and 1951 levels. Other significant increases in the profits of manufacturing companies were in the iron and steel products, non-ferrous metal products, products of petroleum and coal, rubber products, and wood and paper products industry groups.

Substantial increases occurred in the output of the transportation industries and the storage industry (including grain elevators), influenced by increased marketings of agriculture, increased shipments by the resources industries and greater civil aviation activity. There was greater movement of wheat, pulpwood, crude petroleum and natural gas, ores, concentrates, and refined metals and imported goods. Radio and television broadcasting activity showed a large gain while the volume of telegraph and cable services increased more moderately. Profits before taxes of companies in the transportation, storage, and communications industries rose 30 p.c. during the first nine months of the year.

Increased personal expenditure on consumer goods and services was reflected in a 7-p.c. increase in the volume of retail sales. Wholesale trade advanced nearly 10 p.c., partly because of increased retail activity and partly because of higher exports, construction activity, and business expenditure on machinery and equipment. On a nine-month comparison profits before taxes of incorporated companies in wholesale trade increased by 31 p.c. and those in retail trade by a much smaller proportion.

Saving and Investment

Canadians, enjoying a greater amount of disposable income, increased their personal saving by 29 p.c. in 1956 over 1955. This was more than twice as high as the 1950 level, but only 7 p.c. higher than the previous peak established in 1953. Total saving by businesses, governments and persons, amounted to \$6,200,000,000 in 1956, of which personal saving accounted for 26 p.c., undistributed corporation profits for 17 p.c., depreciation allowances for 50 p.c., and the government surplus for 7 p.c. On the other hand, gross investment in new residential construction, business plant and other

non-residential construction, new machinery and equipment, and inventories totalled \$7,500,000,000. This gap between total saving by Canadians and total investment expenditure in Canada represents net foreign investment in Canada in 1956 of \$1,300,000,000. Almost half this net foreign investment was financed by a flow of long-term capital obtained by sales of Canadian stocks and bonds in the United States and other foreign countries. About one-quarter of it was financed by direct investment of foreign companies in Canadian subsidiaries and the remainder represented a reduction of holdings of foreign funds by Canadians and an increase in accounts payable to foreigners by Canadian business firms.

National Income, Gross National Product and Gross National Expenditure, Selected Years 1928-56

(Millions of Dollars)

Item	1928	1939	1946	1950	1953	1954	1955	1956 ¹
Income								
Wages, salaries and supplementary labour income.....	2,705	2,575	5,323	8,311	11,715	11,994	12,810	14,300
Military pay and allowances.....	7	32	340	137	309	367	394	425
Investment income.....	872	917	1,975	3,155	3,782	3,654	4,355	4,839
Accrued net income of farm operators from farm production ²	655	385	1,112	1,503	1,652	1,147	1,404	1,592
Net income of non-farm unincorporated business.....	584	464	1,071	1,444	1,675	1,646	1,775	1,885
Net National Income at Factor Cost.....	4,823	4,373	9,821	14,550	19,133	18,808	20,738	23,041
Indirect taxes less subsidies.....	679	733	1,269	2,018	2,907	2,943	3,209	3,587
Depreciation allowances, and similar business costs.....	659	610	903	1,636	2,418	2,673	2,865	3,196
Residual error of estimate.....	-56	-9	33	-1	15	-107	-43	-169
Gross National Product at Market Prices	6,105	5,707	12,026	18,203	24,473	24,317	26,769	29,655
Expenditure								
Personal expenditure on goods and services...	4,194	3,904	7,977	12,029	15,112	15,823	16,888	18,241
Government expenditure on goods and services...	597	735	1,832	2,326	4,388	4,418	4,738	5,175
Gross Domestic Investment								
New residential construction.....	236	185	371	801	1,061	1,166	1,476	1,491
New non-residential construction.....	411	166	443	1,026	1,706	1,659	1,775	2,473
New machinery and equipment.....	489	254	584	1,389	2,073	1,841	2,017	2,644
Change in inventories.....	157	331	519	960	591	-270	508	762
Exports of goods and services.....	1,773	1,451	3,210	4,183	5,400	5,147	5,753	
Less: Imports of goods and services.....	-1,808	-1,328	-2,878	-4,513	-5,843	-5,574	-6,430	-1,300
Residual error of estimate.....	56	9	-32	2	-15	107	44	+169
Gross National Expenditure at Market Prices.....	6,105	5,707	12,026	18,203	24,473	24,317	26,769	29,655

¹ Preliminary estimates based on data for the first nine months of the year.
² Includes undistributed Wheat Board trading profits and an inventory valuation adjustment on a calendar-year basis for grain held by the Wheat Board.

Source and Disposition of Personal Income, Selected Years 1928-56

(Millions of Dollars)

Source and Disposition	1928	1939	1946	1950	1953	1954	1955	1956 ¹
Source								
Wages, salaries and supplementary labour income.....	2,705	2,575	5,323	8,311	11,715	11,994	12,810	14,300
Less: Employer and employee contributions to social insurance and government pension funds.....	-22	-35	-149	-256	-390	-396	-420	-468
Military pay and allowances.....	7	32	340	137	309	367	394	425
Net income received by farm operators from farm production.....	639	435	1,090	1,402	1,657	1,151	1,382	1,582
Net income of non-farm unincorporated business.....	584	464	1,071	1,444	1,675	1,646	1,775	1,885
Interest, dividends and net rental income of persons.....	597	602	957	1,295	1,649	1,779	1,960	2,112
Transfer Payments to Persons—								
From government (excluding interest).....	87	229	1,106	1,033	1,464	1,630	1,725	1,747
Charitable contributions by corporations.....	5	6	12	25	28	25	31	35
Net bad debt losses of corporations.....	16	12	11	23	25	26	26	28
Personal Income.....	4,618	4,320	9,761	13,414	18,132	18,222	19,683	21,646
Disposition								
Personal Direct Taxes—								
Income taxes.....	30	62	711	612	1,287	1,296	1,296	1,494
Succession duties.....	12	28	54	66	73	78	120	136
Miscellaneous.....	17	22	31	62	72	60	67	80
Total Personal Direct Taxes.....	59	112	796	740	1,432	1,434	1,483	1,710
Personal Expenditure on Consumer Goods and Services—								
Non-durable goods.....	2,377	2,210	5,073	7,241	8,581	8,991	9,469	10,207
Durable goods.....	348	292	590	1,343	1,790	1,694	1,901	2,096
Services.....	1,469	1,402	2,314	3,445	4,741	5,138	5,518	5,938
Total Personal Expenditure on Consumer Goods and Services..	4,194	3,904	7,977	12,029	15,112	15,823	16,888	18,241
Personal Saving—								
Personal saving excluding farm inventory change.....	387	244	1,045	514	1,538	1,080	1,101	1,527
Farm inventory change.....	-22	60	-57	131	50	-115	211	168
Total Personal Saving.....	365	304	988	645	1,588	965	1,312	1,695
Personal Income.....	4,618	4,320	9,761	13,414	18,132	18,222	19,683	21,646
Personal disposable income*.....	4,559	4,208	8,965	12,674	16,700	16,788	18,200	19,936

¹ Preliminary estimates based on data for the first nine months of the year. ² This item differs from item four in the preceding table in that it excludes undistributed Wheat Board trading profits and the inventory valuation adjustment for grain held by the Wheat Board.

*Personal income less total personal direct taxes.



Port Alberni on the west coast of Vancouver Island, one of British Columbia's urban centres established in the late 1800's by the forest industry and still relying on the forests for existence. Lumber mills, pulp mills, plywood and shingle mills, provide employment for its population of about 11,000.



Malak

Loading newsprint at Quebec Harbour.

TRADE and TRANSPORT



THE functioning of a transcontinental national economy, currently measured at nearly \$30,000,000,000 of goods and services, constitutes a unique and ever-challenging task for a nation of barely 16,100,000 people the majority of whom are scattered in a broken ribbon of settlement in close proximity to the industrially mature United States whose influence on the Canadian economy is great and pervading. Yet Canada's enormous industrial growth of recent years and its new confidence in the national ability to finance and carry through many massive undertakings of advanced industrialism merely serve to confirm the soundness of a century-old Canadian tradition of creating national transcontinental economic facilities that would ensure the development of a strong political entity in the northern half of this Continent.

That the experiment of nation-building has proven eminently successful is evidenced by the vast network of Canada's ultra-modern transportation and communications systems, the range, diversity and quality of its wholesale and retail trade and service industries, the skill and enterprise of its business community, the soundness of its financial institutions, the flood of investment capital into this land of unmatched opportunity, its foremost per capita rating among the world's great trading nations and—perhaps most significant—a standard of living for the Canadian people that is among the highest in the world.



The interest of the manufacturer and of the distributor is forever in the direction of the consumer, around whom the wheels of business turn. Sales by Canadian retailers topped all previous records in 1956 for which year they were estimated at more than \$14,000,000,000.

Domestic Trade

DOMESTIC trade in its widest sense includes the flow of goods from importer, manufacturer or producer through all the phases of distribution to the ultimate domestic consumer. Combined with this distribution of goods are all the necessary attendant services of transportation, storage, credit, etc. The field of services can also be broadened to include professional and personal services, such as theatres and advertising agencies, all of which account for some measure of consumer expenditure. A detailed review of the whole subject is not possible in the limited space available and only current statistics on the distributive trades are given here, followed by brief data on prices which are an integral part of wholesale and retail sales.

Distribution Trends

Statistics on the distribution of goods at the wholesale and retail levels are available from 1930, when the first complete census of domestic trade was taken. Since that year, population growth and increasing buying power have advanced retail sales from \$2,735,740,000 to \$14,085,800,000 in 1956. These dollar sales have not been adjusted for price increases during the period so that it is not possible to estimate the increase in the actual volume of retail trade.

During the past twenty-five years, population and industrialization factors have not only produced higher retail sales but, in conjunction with changing social attitudes and merchandising methods, have resulted in marked variations in the relative significance of the various retail trades. For instance, grocery and meat stores in 1956 accounted for 18.6 p.c. of all retail sales as compared with 14.8 p.c. in 1930. This higher proportion claimed by the food retailers is partly caused by the fact that most foods are presented to the consumer today in more highly manufactured form, many of them pre-cooked or frozen and either partly or completely ready to serve. They are also much better and more expensively packaged. The customer in demanding such service must pay for it. Partly responsible also is the fact that grocery and meat stores now sell many items of household equipment that can in no sense be considered as food. This multiplication of commodities merchandised, which has become prevalent in other types of retail stores as well, is tending to merge the commodity characteristics of previously distinct distributive trades.

The advance of motor vehicle sales has been a definite characteristic of the period since 1930. In that year sales of motor vehicles accounted for 2.2 p.c. of total retail sales. The proportion dropped considerably during the depression and war years but since then has made a most remarkable advance to reach 17.9 p.c. of total sales in 1956, a percentage not too far below that for the food stores; these figures do not include sales of used cars, except insofar as they are sold by new car sales organizations. Advances in the same comparison were also shown by hardware and building materials stores from 5.0 p.c. of total sales to 5.5 p.c., and furniture and household



Packaging foods for delivery to households under a home-freezer and food plan. Freezers sold by the provisioner are kept stocked with a variety of prepared foods ordered by the housewife.

appliance stores from 3.4 p.c. to 4.1 p.c. These increases were at the expense of sales by general and department stores and clothing and shoe stores. Altogether the types of retail store mentioned accounted for 64.8 p.c. of total retail sales in 1956 compared with 60.3 p.c. in 1930.

Of great significance in retailing trends during the post-1930 period was the increase in the share of business done by chain stores in certain lines of selling. Chain store operation represents almost the entire trade of variety stores and is very prominent in the food field where its share of total sales increased from 26.1 p.c. in 1930 to 39.6 p.c. in 1955. This growth is much more noticeable in the larger cities and its advance there can be attributed largely to the shopping-centre development in suburban areas of those cities. The stores in the shopping centres are usually either branches of larger local stores or of regional or country-wide chains.

Another recent trend in retailing is the introduction of the so-called 'discount' houses. With a certain unbalance of supply and demand for appliances, especially refrigerators, stoves and washing machines, long-established retailers as well as new mass-volume distributors have reduced prices and offered exceptional trade-in allowances or other bonuses to attract customers. For somewhat the same reason, credit buying has been encouraged by retailers through the provision of easier credit terms and revolving charge or permanent budget account plans and consumer debt has expanded to great proportions in recent years. Retail dealers had an estimated \$924,600,000 owing on their books at the end of 1955. At the same date, sales finance company accounts outstanding, which were largely on motor vehicle purchases, amounted to \$601,000,000 on consumer commodities. These figures do not include debt incurred for the purchase of goods through personal loan companies, banks, co-operative credit organizations, etc. Another inducement introduced by the retailer in his attempt to meet the competition for the consumer's dollar is the controversial trading stamp.

PRODUCER TO CONSUMER

A great deal of organization and care lies behind the presentation of fresh crisp vegetables and delicate fruits to the consumer in his local store. Products from Canada's market gardens and orchards and products imported from all over the world are unloaded daily at wholesale houses in the larger distribution centres where buying and selling follows somewhat the same pattern as that at a stock exchange.

The Ontario Food Terminal at Toronto is one of the largest and most modern receiving points on this Continent.



It is not so long ago that out-of-season fruits and vegetables were looked upon as luxuries. Today this tempting display, which knows no season, is repeated thousands of times over in retail outlets.



Food provisioners, involving the sale of a home freezer and the constant replenishing of frozen foods by companies with frozen food storage facilities and delivery service to the home, have lately entered the distribution field and overhead in connection with the selling of certain popular products such as cigarettes, candy and soft drinks is being cut down through the use of automatic vending machines.

Current Surveys.—During the period between the decennial censuses of 1951 and 1961, certain phases of the distributive trades are being measured statistically, some by sample surveys, others on complete coverage. These cover the important field of retail trade as well as a section of wholesale trade and selected service trades.

Retail Trade.—This phase of distribution is measured statistically on a monthly basis with annual estimates compiled for intercensal years. Estimates for 1955 and 1956 place retail trade at \$13,111,900,000 and \$14,085,800,000, respectively. All provinces contributed to the increase in the later year.

Retail Store Sales, by Types of Business and by Province, 1954-56

Type of Business and Province	Sales			Percentage Change 1955-56
	1954	1955	1956	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and meat stores.....	2,279.4	2,429.6	2,616.7	+ 7.7
Other food and beverage stores.....	924.1	949.6	989.5	+ 4.2
General stores.....	515.0	529.8	557.3	+ 5.2
Department stores.....	1,061.7	1,150.5	1,257.5	+ 9.3
Variety stores.....	233.6	250.2	276.2	+10.4
Motor vehicle dealers.....	2,028.8	2,370.1	2,524.2	+ 6.5
Garages and filling stations.....	632.3	717.9	756.7	+ 5.4
Men's clothing stores.....	207.2	214.3	227.8	+ 6.3
Family clothing stores.....	191.3	199.9	214.7	+ 7.4
Women's clothing stores.....	221.4	225.2	240.3	+ 6.7
Shoe stores.....	120.7	123.2	132.9	+ 7.9
Hardware stores.....	246.5	256.0	274.4	+ 7.2
Lumber and building material dealers.....	406.2	450.7	497.1	+10.3
Furniture, radio and appliance stores.....	485.8	540.5	583.2	+ 7.9
Restaurants.....	452.6	467.6	490.5	+ 4.9
Fuel dealers.....	249.8	267.9	315.3	+17.7
Drug stores.....	281.8	300.3	314.7	+ 4.8
All other stores.....	1,527.8	1,668.7	1,816.8	+ 8.9
Totals.....	12,065.8	13,111.9	14,085.8	+ 7.4
Province				
Atlantic Provinces.....	1,025.2	1,127.1	1,198.1	+ 6.3
Quebec.....	2,797.6	3,005.7	3,282.2	+ 9.2
Ontario.....	4,634.5	5,115.2	5,411.9	+ 5.8
Manitoba.....	637.0	669.3	692.1	+ 3.4
Saskatchewan.....	758.3	748.0	801.1	+ 7.1
Alberta.....	963.6	1,035.0	1,140.6	+10.2
British Columbia (incl. Yukon and N.W.T.).....	1,249.5	1,411.6	1,559.8	+10.5

Retail chain store sales amounted to \$2,354,000,000 in 1955 which was 18 p.c. of estimated total retail sales. Firms considered as "chains" are those operating four or more retail outlets under the same ownership and carrying on the same or related kind of business. There were 496 business firms in this category in 1955 operating 8,274 stores.



The one-stop shopping area capable of supplying most of the everyday needs of the housewife has become part of suburban life in Canada's expanding cities. Carlingwood Shopping Centre serves a rapidly growing residential area in west Ottawa.

Chain Store Statistics, 1930, 1941 and 1951-55

Year	Stores	Retail Sales	Salaries to Store Employees	Stocks on Hand End of Year		Accounts Outstanding End of Year
				Store	Warehouse	
	Av. No.	\$'000	\$'000	\$'000	\$'000	\$'000
1930.....	8,097	487,336	50,405	60,457	—	—
1941.....	7,622	639,210	57,777	68,619	20,976	38,376
1951.....	7,846	1,775,744	153,599	186,562	60,490	53,816
1952.....	7,766	1,924,873	154,642	172,886	55,215	77,475
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

The inflationary pressures exerted upon the Canadian economy during 1956 and the consequent monetary policy followed by the Bank of Canada focussed a great deal of attention on the trend of consumer credit which, by the end of June, had reached an estimated high, in terms of outstanding balances for selected items, of \$2,302,000,000.

Consumer Credit Outstanding—Estimates of Selected Items, 1951-56

SOURCE: Bank of Canada, Statistical Summary, September 1956.

Date	Charge Accounts	Instalment Credit			Cash Personal Loans	Total Selected Items
		Retail Dealers	Finance and Loan Companies	Total		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1951—Dec. 31	283	123	186	309	381	973
1952—“ “	309	243	373	616	460	1,385
1953—“ “	339	284	520	804	567	1,710
1954—“ “	363	322	497	819	661	1,843
1955—Mar. 31	301	304	496	800	675	1,776
June 30	317	314	559	873	743	1,933
Sept. 30	330	334	610	944	779	2,053
Dec. 31	374	377	601	978	830	2,182
1956—Mar. 31	331	362	596	958	849	2,138
June 30	338	368	704	1,072	892	2,302

Since the end of the War there has been a very large increase in the sale of new passenger cars. From 159,205 vehicles in 1947, sales increased to 406,663 in 1956. There has also been a steady advance from year to year in the proportion of new car sales financed, increasing from 17.2 p.c. in 1947 to 29.6 in 1951 and climbing steeply to 42.8 p.c. in 1952, the year credit restrictions were suspended. The slight drop to 40.4 p.c. evidenced in 1955 was accounted for by a prolonged strike in the automobile industry but the 1956 figure of 46.0 p.c. was the highest on record. In that year 498,061 new vehicles of all kinds were sold, having a retail value of \$1,450,835,000; of these, 221,413 vehicles were financed to the value of \$512,165,000. In addition, 428,784 used vehicles were financed to the amount of \$379,690,000.

New Passenger Car Sales and Financing, 1947-56

Year	Sold		Financed		P.C. of Total Sales Financed	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000		\$'000		
1947	159,205	283,190	27,409	32,419	17.2	11.4
1948	145,655	282,904	29,923	37,680	20.5	13.3
1949	202,318	412,298	53,185	71,044	26.3	17.2
1950	324,903	661,674	97,051	131,003	29.9	19.8
1951	275,686	683,183	81,726	110,146	29.6	16.1
1952	292,095	725,168	124,879	194,322	42.8	26.8
1953	359,172	899,726	146,431	252,160	40.8	28.0
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	406,663	1,124,788	187,255	403,820	46.0	35.9

Wholesale Trade.—Following the completion of the 1951 Census an improved and extended sample of wholesale businesses was selected and estimates of wholesale trade produced for each year since. The field covers wholesalers proper, that is, those firms which perform the function of buying merchandise on their own account for resale and generally warehousing and delivering to customers.



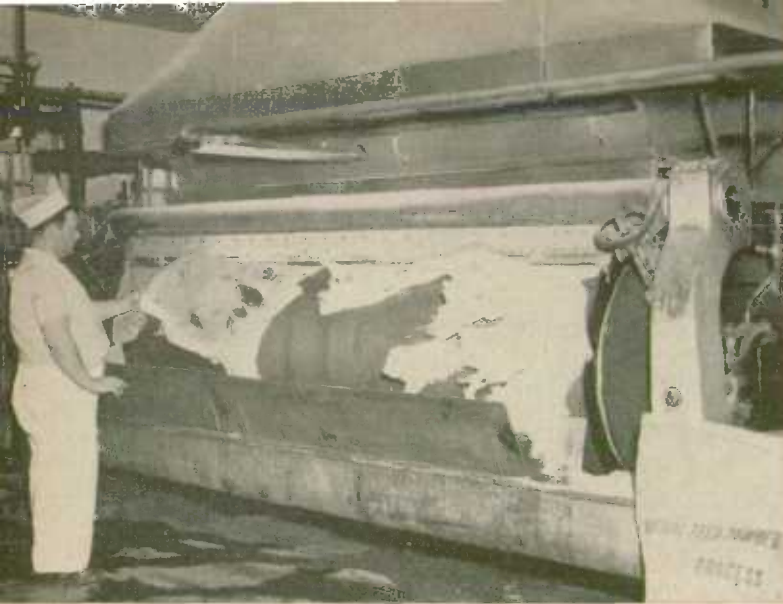
Modern facilities are required to service the mammoth trucks that pound along Canada's highways and are an integral part of the motor transport business. This new \$500,000 truck service centre is a section of one company's long-range expansion program to keep pace with the growth in the trucking industry.

Estimates of Wholesale Sales, by Trade, 1951-55

Kind of Business	1951	1952	1953	1954	1955
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	183.4	212.4	202.0	211.2	217.5
Groceries and food specialties.....	883.3	909.3	945.0	1,036.2	1,139.7
Meat and dairy products.....	173.1	162.4	171.7	171.1	164.2
Clothing and furnishings.....	85.2	89.3	88.9	80.9	86.5
Footwear.....	28.5	29.4	28.4	26.8	29.1
Textile and clothing accessories.....	180.2	183.5	180.7	174.2	183.6
Drugs and drug sundries.....	133.3	140.1	147.7	153.1	165.9
Household electrical appliances.....	93.2	125.4	138.2	150.1	167.9
Farm machinery.....	65.7	72.5	71.2	52.1	60.6
Coal and coke.....	226.7	224.5	197.2	179.0	178.4
Hardware.....	266.9	261.6	268.8	260.8	283.5
Construction materials, etc.....	515.0	505.9	550.4	546.7	655.3
Industrial and transportation equipment and supplies.....	437.0	536.5	533.5	462.2	571.9
Commercial, institutional and service equipment and supplies.....	72.6	78.0	83.0	89.3	99.0
Automotive parts and accessories.....	246.8	263.5	269.3	262.0	352.3
Newsprint, paper and products.....	212.6	226.3	236.8	249.5	264.2
Tobacco, confectionery and soft drinks.....	457.5	524.9	504.6	498.5	509.8
All other.....	1,483.4	1,460.7	1,625.5	1,458.8	1,620.1
Totals, All Trades	5,744.4	6,006.2	6,242.9	6,062.5	6,749.5

Co-operative Associations

Co-operative enterprise has played and continues to play a considerable role in many aspects of Canada's economic expansion. Co-operatives first became established where private resources were too limited to meet the needs of pioneer life. Sometimes it was the marketing problem that found solution in the type of large-scale co-operatives exemplified in the wheat pools of Western



Skim milk comes off the drying rollers in a Quebec co-operative, ready for bottling. A million pounds of milk are processed each day in this co-op, and emerge as butter, cheese and powdered skim milk. In addition it operates a feed mill and a farm machinery agency.

Canada; sometimes it was small local ventures in co-operative processing among fruit growers or fishermen; sometimes it was consumer co-operatives which, in the face of depression, passed on to their members most of the retail margin in the form of patronage dividends.

Co-operative activity in marketing has, since early in the century, been an integral feature of Canadian agriculture, particularly in the mid-West where wheat growers formed elevator companies and built or purchased hundreds of local elevators as well as the great terminals at Fort William-Port Arthur and Vancouver through which is handled half of the western wheat crop. Co-operatives have become progressively prominent also in the marketing of livestock, dairy products, wool and honey as well as in the purchase of farm machinery, feeds, repair parts, motor fuel, etc.

A continuing effort is made to obtain financial and operating statements from all co-operatives in Canada and for the year ended July 31, 1955 a total of 2,522 marketings, purchasing and service co-operatives reported a membership of 1,410,209 and business of \$967,177,886 for the year. The value of farm products marketed was a little over \$704,000,000, about \$32,000,000 less than in 1953-54. Sales of merchandise by co-operatives were also down slightly, amounting to \$228,000,000 as compared with \$234,000,000. It is estimated that co-operative associations market about 30 p.c. of all agricultural products entering commercial trade.

In addition to the local co-operatives, nine co-operative wholesale societies operating in Canada in 1954-55 reported business amounting to a little over \$190,000,000. Sales of farm supplies and merchandise accounted for more than one-half of this amount, or \$102,000,000, and sales of farm products for \$62,000,000. Livestock handled on a commission basis had a value of \$25,000,000.

In 1954-55, 86 fishermen's co-operatives with a membership of 10,167 reported sales of fish amounting to \$11,882,733 and sales of fishermen's supplies amounting to \$2,418,452.

A miscellaneous group of 495 co-operatives providing such services as medical insurance, housing, transportation, electrification, custom grinding and seed cleaning reported membership of 200,234 and revenue of \$11,393,429.

Credit Unions.—The growth of the credit union movement in Canada has been quite phenomenal in the past decade. Credit unions are co-operative savings and loan associations with a stated common bond of membership. Their object is to help the members help themselves to financial security and they do it by making savings a community effort and by giving one another low-cost loans. A membership of about 152,000 at the beginning of the War increased to 1,736,817 at the end of 1955 when 3,903 unions with assets of \$654,000,000 were in operation. Loans to members in that year totalled \$249,000,000 and the savings of all credit union members amounted to \$408,000,000. Member shares had a value of \$193,000,000.

Attractive motels, now appearing on all main highways, are popular with summer tourists but those close to commercial centres are used the year round.



The Queen Elizabeth Hotel rises in the heart of Montreal, part of the 23-acre railway terminal development which has been a major CNR objective for many years.



Prices

Wholesale Prices.—The general wholesale price index advanced throughout 1956 at about the same rate as in 1955, so that the December 1956 index was 3 p.c. above the index for December 1955, which in turn was 2.8 p.c. above that for December 1954. In 1956, six of the eight main component groups of the index registered increases of from 2 to 9 p.c. The two decreases reflected particular circumstances which almost outweighed the strength shown by the other six groups. Wood products declined 1.8 p.c. because of reduced receipts for export sales as a result of the premium on the Canadian dollar; the 5-p.c. decrease in non-ferrous metals stemmed from a reaction to the earlier gains in copper but the extent of the decline was partially offset by a substantial year-end increase in nickel. Iron and its products, with an 8.8 p.c. increase, recorded the highest of the advances to continue a trend that began in mid-1955. Animal and vegetable products increased in 1956 for the first time in several years, the 6.6-p.c. advance in animal products comparing with a 3.8-p.c. rise in vegetable products. The relative volatility displayed by the two indexes was consistent with their behaviour during the 1951-55 period when animal products declined much more sharply than vegetable products. Non-metallic minerals advanced 5.5 p.c. over the same period. The other two groups—chemicals and textiles—recorded somewhat smaller increases of 1.7 p.c. and 3.3 p.c., respectively, during 1956.

Residential and non-residential building materials advanced to new postwar peaks in 1956. The mid-year increase in steel prices was reflected in a number of groups while important advances were also reported for roofing materials, lath and plaster, and brick and stone. Copper component items reflected rapid downward shifts in the price of copper.

Annual and Monthly General Wholesale and Special-Purpose Price Indexes, 1952-56

(1935-39 = 100)

NOTE.—All 1956 indexes and Canadian farm products indexes subsequent to July 1955 are subject to revision.

Period	General Wholesale Prices	Raw and Partly Manufactured	Fully and Chiefly Manufactured	Canadian Farm Products	Residential Building Materials	Non-residential Building Materials (1949 = 100)
1952.....	226.0	218.7	230.7	250.2	284.8	123.2
1953.....	220.7	207.0	228.8	221.6	282.6	124.4
1954.....	217.0	204.8	224.2	211.8	277.5	121.8
1955.....	218.9	209.7	224.5	209.7	283.4	123.4
1956—January.....	222.0	212.9	227.3	197.6	289.9	126.3
February.....	222.2	213.4	227.4	196.8	289.9	126.5
March.....	223.3	214.7	228.3	198.4	291.6	127.0
April.....	224.5	216.2	229.4	201.2	293.7	127.1
May.....	225.3	217.3	230.3	208.6	294.4	127.2
June.....	226.5	219.2	231.3	218.0	294.1	127.5
July.....	226.6	219.0	231.6	227.5	293.9	127.1
August.....	227.0	217.0	233.3	214.4	293.8	129.3
September.....	227.4	216.2	234.3	209.8	293.5	129.4
October.....	227.1	214.4	234.8	208.0	293.5	129.5
November.....	226.6	213.5	234.6	209.4	293.3	129.3
December.....	228.1	216.4	235.3	210.3	292.7	129.6

Consumer Prices.—The DBS consumer price index is constructed to measure the influence of price change on the cost of living of a representative cross-section of Canadian families. The index budget contains 224 items which were selected on the basis of a 1947-48 survey to represent expenditures made by Canadian urban families with the following characteristics: (1) living in 27 Canadian cities with over 30,000 population; (2) ranging in size from two adults to two adults with four children; (3) with annual incomes during the survey year ranging from \$1,650 to \$4,050. These items are priced with varying frequency in from 10 to 33 cities, and the average price change of each commodity and service is combined with the average price change of other items, according to the relative importance of purchases on the items as determined from the survey. The index is a measure of price change only and increases or decreases in other factors affecting the cost of living do not influence it.

In 1956 a series of increases from May onward pushed the index above the previous postwar peak of 118.2 in January 1952 and by December it had reached 120.4. Between 1952 and May 1956 there had been a number of divergent movements in the component groups but these had offset each other to a considerable degree, giving the impression of an absence of movement at the total level. During the last half of 1956, however, the index advanced nearly every month. Food was the component group most responsible for raising the total index—it climbed from 109.3 in May to 117.9 in November, almost 8 p.c. Perhaps half of that increase was seasonal in nature but higher prices were in evidence for many individual items, including such basic foods as bread and milk.

The index of other commodities and services rose more during the year than it had for several years previously. Higher prices were spread through such varied items as new cars and men's haircuts. Household operation, which hovered around 117 from 1952 to 1955, reached 118.6 in December. Fuel, utensils and equipment and furniture increases contributed to the rise. The clothing index was the only one of the major components to show an over-all decline in the 1952-56 period.

Consumer Price Index Numbers, 1952-56

(Av. 1949 = 100)

Year and Month	Food	Shelter	Clothing	Household Operation	Other Commodities and Services	Total
1952.....	116.8	120.2	111.8	116.2	116.0	116.5
1953.....	112.6	123.6	110.1	117.0	115.8	115.5
1954.....	112.2	126.5	109.4	117.4	117.4	116.2
1955.....	112.1	129.4	108.0	116.4	118.1	116.4
1956.....	113.4	132.5	108.6	117.1	120.9	118.1
1956—January.....	111.5	131.3	108.6	116.5	119.0	116.8
February.....	109.9	131.5	108.6	116.7	119.3	116.4
March.....	109.1	131.6	108.7	116.8	119.9	116.4
April.....	109.7	131.9	108.7	116.6	120.1	116.6
May.....	109.3	132.1	108.8	116.5	120.5	116.6
June.....	112.5	132.6	108.6	116.7	120.6	117.8
July.....	114.4	132.7	108.6	116.7	121.1	118.5
August.....	115.9	133.0	108.4	116.8	121.3	119.1
September.....	115.5	133.1	108.4	117.1	121.4	119.0
October.....	117.4	133.3	108.5	117.7	121.6	119.8
November.....	117.9	133.4	108.4	118.1	122.8	120.3
December.....	117.5	133.5	108.6	118.6	122.9	120.4



Sixty percent of the wheat grown in Canada is exported, either as grain or as flour. Perhaps a fifth of the production is milled into flour, half of which leaves the country. Of the wheat used domestically, about a third is used for human food and the remainder for animal feed, seed and other purposes.

Foreign Trade

CANADA's foreign trade soared to new heights in 1956. The value of exports was about 12 p.c. higher than in 1955, exceeding by almost the same percentage the previous record in 1952, and the value of imports surpassed the 1955 peak by 21 p.c. Since average prices of foreign sales and purchases advanced only moderately, most of the value of increase in foreign trade was attributable to a larger volume of shipments. Imports were higher than exports during 1956 and the import balance on merchandise trade more than doubled.

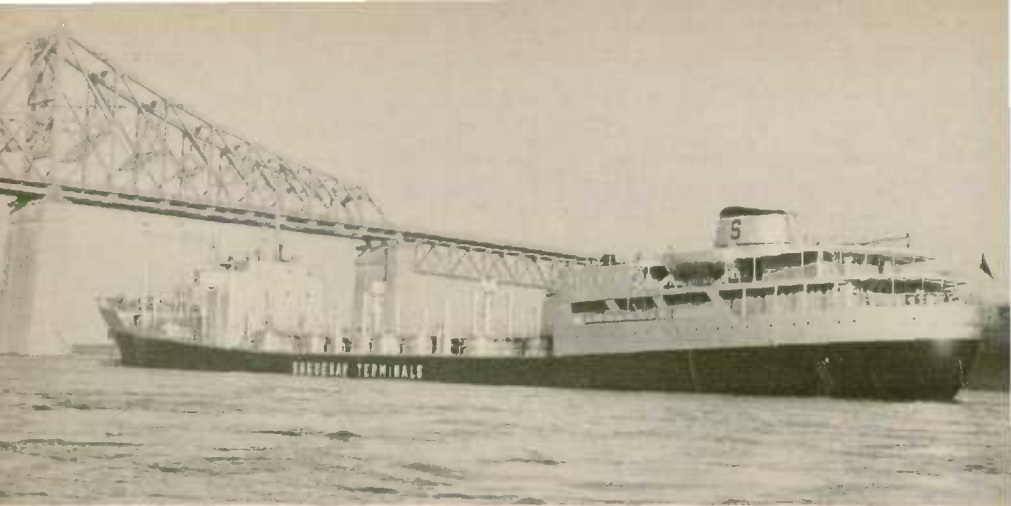
The rising flow of imports is a definite reflection of the almost continuous expansion that has characterized the Canadian economy in the postwar period. The pace of activity quickened in 1955 and 1956—the national production showed its largest increases, consumer expenditure was very high, house-building substantial and capital investment outlays for industrial construction and equipment became the most important expansionary element. Unprecedented progress in the exploration and development of Canada's natural resources, resolving into brisk construction of new processing plants and transport facilities strongly contributed to the greatly increased demands for many types of industrial and other machinery and equipment. Such items accounted for about one-third of the total imports in 1956 and close to two-fifths of their increase over 1955. At the same time, this great activity in the mining and industrial fields has contributed to the high level of exports, most clearly reflected in the recent upsurge in foreign sales of such 'new' exports as oil, iron ore and uranium.

Exports, Imports and Total Trade of Canada, 1951-56

(Millions of Dollars)

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Produce	Foreign Produce	Total			
1951.....	3,914.5	48.9	3,963.4	4,084.9	8,048.2	-121.5
1952.....	4,301.1	54.9	4,356.0	4,030.5	8,386.4	+325.5
1953.....	4,117.4	55.2	4,172.6	4,382.8	8,555.4	-210.2
1954.....	3,881.3	65.6	3,946.9	4,093.2	8,040.1	-146.3
1955.....	4,281.8	69.5	4,351.3	4,712.4	9,063.7	-361.1
1956.....	4,789.7	73.4	4,863.1	5,705.4	10,568.6	-842.3

International Background.—The upward trend of Canada's foreign trade in the postwar years has taken place in a generally favourable economic and institutional climate. There has been a striving toward the solving of international trade and payment problems in an orderly and indiscriminatory fashion, within the framework of such new and diverse international institutions as the various economic agencies of the United Nations, the International Monetary Fund, the World Bank for Reconstruction and Development, the General Agreement on Tariffs and Trade, and the Organization for European Economic Co-operation. Canada has taken an active part in most of these organizations.



A new-type bulk carrier leaving Montreal with 10,400 tons of grain for the United Kingdom.

She is one of a fleet of 101 freighters established in the wake of Canada's swiftly expanding aluminum industry, transporting bauxite and alumina from British Guiana, Jamaica and the Los Islands of French West Africa to Quebec and British Columbia smelters and returning by different routes with Canadian goods for the United Kingdom, Europe and the Caribbean.

The initial difficulties of the postwar years, caused by wartime destruction and the disruption of production and trade, was overcome in a relatively short time thanks to the immediate assistance extended to the war-damaged nations both through international organizations and on a unilateral basis, especially by the United States but also by Canada. Despite a number of cyclical adjustments and particularly the boom and collapse in raw materials resulting from the Korean war, the expansionary forces in the world economy were strong enough to produce, between 1948 and 1955, an estimated increase of about two-fifths in the combined total world commodity production in manufacturing, mining and agriculture. There has been widespread economic development in the postwar decade, notwithstanding a number of as yet unsolved problems associated with inflationary trends, the unevenness of economic growth among various countries and the difficulties stemming from the perhaps temporary agricultural surpluses in certain commodities, including wheat which is of particular interest to Canada. The total gold and dollar reserves of the countries of the free world other than the United States have shown a steady increase since 1952. Also some relaxation has been made of impediments to trade but the easing of quantitative controls and the tariff reductions have been concentrated on industrial materials and capital equipment rather than on foodstuffs and consumer manufactures, whose movement in international trade is still far from unrestricted.

World trade, which by 1948 reached its prewar level, rose between 1948 and 1955 by about three-fifths at a rate exceeding the increase in world production. The 1955 total exceeded the previous record of 1951 by about 9 p.c. in value and, in view of the decline in the average world price level since that year, by over 18 p.c. in volume. In 1956 world trade surpassed the level of 1955 by 10 p.c. in value and somewhat less in volume. Canada's share of world trade in the postwar period has fluctuated between 5 p.c. and

6 p.c. In most postwar years only the United States and the United Kingdom surpassed Canada as a top-ranking world trader. But in 1954 the Federal Republic of Germany regained its prewar position as the world's third trading nation and maintained this rank in 1955 and 1956. On a per capita basis, however, Canada's foreign trade exceeds by far that of most other leading countries in international trade.

Leading Countries in World Trade, 1954 and 1955

NOTE.—Countries ranked by total trade and total trade per capita in 1955. Sources of data: Trade—International Monetary Fund; Population—United States Statistical Office.

Country	Exports, f.o.b.		Imports, c.i.f.		Total Trade	
	1954	1955	1954	1955	1954	1955
VALUE OF TRADE (Millions of United States Dollars)						
United States.....	15,110 ¹	15,553 ¹	11,108	12,368	26,218 ¹	27,921 ¹
United Kingdom.....	7,771	8,468	9,447	10,881	17,218	19,349
Germany, Federal Republic of.....	5,248	6,135	4,571	5,793	9,819	11,928
Canada.....	4,427	4,763	4,549	5,165	8,976	9,928
France.....	4,181	4,798	4,221	4,688	8,402	9,486
Netherlands.....	2,414	2,688	2,858	3,208	5,272	5,896
Belgium and Luxembourg.....	2,300	2,776	2,535	2,830	4,835	5,606
Italy.....	1,638	1,857	2,439	2,706	4,077	4,563
Japan.....	1,629	2,011	2,399	2,471	4,028	4,482
Australia.....	1,656	1,750	1,869	2,160	3,525	3,910
World Trade ²	77,417	84,148	79,415	88,898	156,832	173,046
TRADE PER CAPITA (United States Dollars)						
New Zealand.....	326	334	329	371	655	706
Canada.....	291	305	299	331	591	636
Belgium and Luxembourg.....	252	303	278	308	530	611
Switzerland.....	249	263	264	299	513	562
Netherlands.....	228	250	269	299	497	549
Sweden.....	219	238	246	274	466	512
Norway.....	172	185	300	318	472	503
Venezuela.....	297	331	176	172	473	503
Denmark.....	215	235	264	264	479	499
Sarawak.....	232	256	217	236	448	492

¹ Includes military aid extended to other countries. ² Exclusive of China, U.S.S.R., and eastern European countries not reporting trade currently.

The first shipment of Alberta crude oil to California was made by tanker early in 1956—a new market with great possibilities. Canada became an exporter of oil only five years ago and shipments in 1956 were valued at \$104,000,000. Most of it left the country by pipeline in southern British Columbia and at the Head of the Great Lakes.





A mammoth casting, part of a ten-ton gravity-drop hammer, on its way from England to an Ontario steel plant.

Canadian Trade Trends.—The decline in Canadian exports in 1953 and 1954 resulted mainly from reduced foreign markets for grains, especially wheat. The recovery in 1955 was entirely due to strong demand in the United States and overseas for commodities other than grains, the latter continuing their decline but at a reduced rate as compared with 1954. Forest products and minerals made the greatest contribution to the 1955 increase. There were gains in all the principal wood products, planks and boards registering the greatest value increase for any individual export commodity. Iron ore showed the largest absolute and relative gain among the base metals, reflecting new capacity and a full year of shipments from the Quebec-Labrador mines, and there were considerable increases for nickel and copper. Exports of aluminum went up substantially, supply being enhanced by the completion of the first phase of the Kitimat project. There was also a sizable gain for asbestos, and exports of petroleum advanced very sharply, showing by far the greatest relative increase among Canada's leading exports.

The marked recovery of wheat sales and, to a lesser extent, of other grains was the outstanding feature of Canada's exports in 1956, wheat contributing about one-third of the total export gain. This development primarily reflected unusual sales to certain Soviet countries (Russia, Poland, Czechoslovakia and Hungary) as well as substantial increases to most of the regular European markets. Forest products, on the other hand, did not quite hold their own in 1956, owing almost entirely to reduced shipments of planks and boards which reflected primarily lower shipments to the United Kingdom and in part a falling off in residential construction in the United States during the year. However newsprint paper remained Canada's leading export, a position it has held in almost every postwar year. Except for lead and silver, there were gains for all the leading non-ferrous metals and products, such as aluminum, nickel, copper, zinc, unmanufactured platinum metals and electrical apparatus, but the group as a whole did not maintain its rate of increase of the previous year. In the transportation equipment field there was a considerable gain for passenger cars and sales of aircraft showed the second

largest relative increase among export commodities. Exports of uranium were almost twice as great as in 1955. Shipments of iron ore, four-fifths of which was sold in the United States, went up substantially. Petroleum had the largest absolute and relative rise of all export items. The bulk of it went by pipeline to the expanding markets in the midwestern and northwestern States, but there also took place significant off-shore shipments by tanker from Vancouver to California.

The decline in imports in 1954 was fairly widespread but affected, especially strongly, machinery and equipment and textiles. However, stimulated by the recovery of business activity, an import record was set in 1955 and bettered by one-fifth in 1956. In those two years, the requirements of the industrial expansion, especially in resource development projects, and the demands generated by the generally high levels of employment and income combined to produce a steadily and sharply increasing rate of purchases from abroad. The import recovery in 1955 was shared by most leading commodities. Particularly large increases were registered by some of the imports which declined sharply in the previous year, such as automobiles and parts, rolling-mill products and tractors. There were also substantial gains in engines as well as in industrial machinery which had only a moderate decline in 1954, the lowest among the leading iron and steel products. The iron and steel category is by far the largest among the nine main component material groups and comprises mainly industrial, farm and transport machinery and equipment, and primary and construction steel products. This

Contrecoeur, on the south shore of the St. Lawrence River 26 miles east of Montreal, is the transshipment point for iron ore from the Quebec-Labrador mines. Here the ore is transferred from deepwater freighters either to small canal vessels for shipment through the St. Lawrence canals or to freight cars for transportation by rail to the United States. Seventy cars, each carrying 60 tons, leave daily for Ohio steel mills.





Light Canadian aircraft are in service in many parts of the world. An air taxi operating between Cleveland, Ohio, and Detroit, Michigan, uses Canadian-built Otters.

group therefore tends to respond very sensitively to the upswings and downswings in domestic economic activity. Thus in 1954 iron and steel contributed about two-thirds of the total fall in imports, with a rate of decrease more than twice that of the import total; in 1955 the group rose at a rate half again as great as that in total imports and in 1956 at a rate almost twice as high—accounting, respectively, for 45 p.c. and over 60 p.c. of the total import gain. In 1956 every leading iron and steel commodity showed an increase. Pipes, tubes and fittings, which were the only main iron and steel product to register a decline in 1955, had the largest percentage rise of all the principal import items, owing to the resumption of activity in oil and gas pipeline construction. Very sharp advances were also shown by rolling-mill products, automobiles, tractors and industrial machinery.

Leading Trading Partners.—The United States is Canada's leading trading partner by a wide margin. Exports to the United States consist chiefly of industrial materials, especially such forest products as newsprint, wood pulp and lumber, such minerals as nickel, copper, aluminum, zinc, iron ore and asbestos and recently uranium and petroleum. Exports of whisky, fish, fertilizers and farm implements are also of considerable importance. Imports from the United States comprise mainly manufactured goods such as industrial, farm and transport machinery and equipment and electrical apparatus. But purchases of chemicals, liquid and solid fuels and of certain products not available in Canada, for example cotton and citrus fruits, are also made in significant quantities. Over the past thirty years there has taken place a sharp increase in the importance of the United States as a market for Canadian products, that country's share of Canada's export total rising from some 40 p.c. to about 60 p.c. The share of the United States in imports into Canada has been even greater, increasing from less than 70 p.c. to close to three-quarters of the import total.

The United Kingdom ranks second as both an export market and a source of imports. Principal exports to that country include grains, especially wheat, non-ferrous metals and forest products, while imports consist mainly of manufactured goods such as textiles and certain types of machinery, equipment and electrical apparatus. In contrast to the expansion of trade with the United States, Canada's trade with the United Kingdom has diminished in relative importance over the past thirty years. Exports, although larger in absolute terms have fallen from about one-third to about one-sixth of the Canadian export total. The contraction of the United Kingdom market for grains, dairy products and cattle and for bacon and fish has accounted for most of this relative decline. Imports from the United Kingdom have also shown a value increase over the same period but have decreased from about one-seventh to about one-twelfth of the Canadian import total.

Newsprint from Newfoundland being unloaded at New York.



A Canadian tractor does a hauling job on a Brazilian sugar plantation.



Canadian Douglas fir is used in the construction of trusses for a warehouse at Liverpool, England.



Canada's trade with most European countries and with Japan is similar in character to that with the United Kingdom. Manufactured goods are of greater importance in sales to Latin America and to many Commonwealth countries, while imports from those two areas consist largely of primary commodities which are not produced at all in Canada. But the volume of trade with the rest of the world is not large enough to alter the broad pattern set by the exchange of goods with the United States and the United Kingdom.

Domestic Exports to Leading Countries, 1952-56

NOTE.—Countries ranked by value of exports in 1956.

Country	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,306,955	2,418,915	2,317,153	2,559,343	2,818,655
United Kingdom.....	745,845	665,232	653,408	769,313	812,706
Germany, Federal Republic of...	94,863	83,858	86,899	90,751	134,098
Japan.....	102,603	118,568	96,474	90,893	127,870
Union of South Africa.....	47,852	50,763	39,883	56,026	64,616
Belgium and Luxembourg.....	104,376	69,510	54,987	53,384	57,852
Norway.....	39,002	37,278	43,813	47,031	57,682
Netherlands.....	41,508	42,382	39,777	47,689	54,559
France.....	48,264	32,281	33,799	42,563	53,156
Australia.....	49,679	39,629	45,768	58,482	47,747
Mexico.....	39,641	28,986	27,359	37,126	39,385
Italy.....	52,645	33,170	23,844	27,653	37,744
Venezuela.....	35,683	36,485	30,973	30,756	34,335
Switzerland.....	26,918	29,833	26,826	25,640	33,535
India.....	55,423	37,187	17,689	24,669	25,714
U.S.S.R. (Russia).....	¹	¹	4,854	2,680	24,606
Czechoslovakia.....	367	123	295	1,062	24,558
Philippines.....	16,045	13,872	15,863	18,136	18,060
New Zealand.....	18,844	7,475	14,807	22,344	17,995
Poland.....	69	183	558	4,005	17,918

¹ Less than \$500.

Imports from Leading Countries, 1952-56

NOTE.—Countries ranked by value of imports in 1956.

Country	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,976,962	3,221,214	2,961,380	3,452,178	4,161,667
United Kingdom.....	359,757	453,391	392,472	400,531	484,679
Venezuela.....	135,758	155,147	167,594	187,277	208,401
Germany, Federal Republic of...	22,629	35,507	44,485	55,603	89,348
Japan.....	13,162	13,629	19,197	36,718	60,826
Belgium and Luxembourg.....	33,216	29,082	25,077	29,051	52,728
Mexico.....	23,937	15,785	14,033	28,814	41,699
Netherlands Antilles.....	11,747	8,154	20,582	30,722	38,119
Brazil.....	35,103	35,047	31,623	30,747	34,832
France.....	19,117	22,267	22,046	25,016	32,600
India.....	26,822	26,627	28,054	35,147	30,898
Malaya and Singapore.....	25,473	21,896	19,586	28,810	28,558
Australia.....	18,712	23,464	24,657	26,295	26,310
Italy.....	11,735	14,271	15,006	18,502	24,967
Arabia.....	7,559	2,196	2,225	6,986	24,712
Jamaica.....	9,204	11,761	15,309	15,567	24,633
Netherlands.....	16,495	22,298	22,562	20,951	23,776
Colombia.....	18,004	23,215	24,820	22,220	23,056
Switzerland.....	16,396	20,437	19,151	19,365	22,301
British Guiana.....	23,600	17,800	20,482	18,307	20,498



Canadian-built F-86 Sabre jets are a major element in the air defence of the free world. They are in service with the Royal Canadian Air Force in Europe, the Royal Air Force and the Air Forces of Greece, Turkey, South Africa, Colombia and West Germany and saw action with the United States Air Force over Korea. Late in 1956, West Germany placed an order for 225 Sabres plus spare and ground handling equipment. The order, which includes 400 Orenda engines, is valued at \$75,000,000. The RCAF will train 360 German aircrew in Canada to man the aircraft.

Changes in the Structure of Trade.—The composition of Canada's foreign trade provides an illustration of the influence of climatic and geo-physical factors on the pattern of Canadian resources and the resulting specialization of production. This country has an abundant supply of certain farm, marine and wildlife products such as grains and their products, cattle, meats, fish and furs. But such products of warmer climates as coffee, sugar, citrus fruits, cotton and rubber have to be imported. Minerals are assuming an increasingly important place in exports. Canada produces most of the world's nickel and asbestos, is one of the leading producers of gold (which for special reasons is not included in merchandise export statistics), uranium, copper, zinc and lead, and is also in the process of moving into the top ranks in iron ore and petroleum. On the other hand, the total requirements for bauxite, which is transformed into aluminum by the application of hydro-electric power, have to be imported as well as a large proportion of the domestic consumption of coal and petroleum. Canada's vast stands of timber, chiefly of softwood species, provide lumber, pulpwood, wood pulp and

newsprint for world markets. Only a very limited quantity of wood and wood products needs to be imported, the latter mostly in manufactured form such as books, magazines and newspapers.

Canada's exports have been traditionally concentrated on a relatively narrow range of primary products, and the industries which form their backbone continue to be based on farm and fishery, forest and mineral resources. Nevertheless, there is gradually taking place some diversification of exports with an increasing share being assumed particularly by forest products and minerals. In the late 1920's agricultural and animal products jointly constituted about 58 p.c. of the value of Canadian exports, but in the early 1950's their share declined to only 31 p.c. On the other hand, over the same period the share of forest products increased from 23 p.c. to about 34 p.c. and that of non-ferrous metals and non-metallic minerals together from almost 10 p.c. to 20 p.c. Canada is now one of the world's most important exporters of basic metals and other raw materials used in the more complex types of industry and is in the process of becoming a major exporter of petroleum.

In line with these trends, some significant changes have taken place in the list of Canada's leading exports since the 1920's. Wheat has been displaced from first rank by newsprint, and its share of the export total has fallen from close to 30 p.c. to about 12 p.c. Such formerly important exports as cheese, furs, rubber tires, silver, bacon and cattle are now of relatively small significance. New leaders include aluminum, zinc, fresh and frozen fish, fertilizers, industrial machinery and, starting in 1955, iron ore, petroleum and uranium. In addition to newsprint and wheat, such commodities as lumber, wood pulp, nickel, copper, barley, wheat flour, asbestos, farm implements, whisky, pulpwood and lead were among the leading exports in both periods. Of these commodities all except wheat, wheat flour and whisky increased their relative share of the export total, but only about one-half retained the same relative ranking.

Imports into Canada have always been less concentrated on a few commodities and more diversified than exports. Imports comprise raw materials for industry, required to supplement domestic resources, and an infinite variety of both consumer and producer manufactures. Among the latter, purchases of machinery and equipment have stood out prominently in every phase of Canada's economic history, particularly in recent years. Significant changes have also taken place over the past thirty years in the composition of imports. The proportion of agricultural and animal products declined from about 24 p.c. of total imports in the late 1920's to about 15 p.c. in the early 1950's, and the share of textiles fell from 17 p.c. to about 9 p.c. Non-ferrous metals and non-metallic minerals together increased their proportion of the import total from about 21 p.c. to about 24 p.c. The share of iron and steel products rose from 25 p.c. to 34 p.c., industrial machinery accounting for less than one-fifth and over one-quarter, respectively, of the group. Imports of fully and partially manufactured goods together increased from 74 p.c. to 79 p.c. and of fully manufactured alone from 65 p.c. to 73 p.c.

The list of the leading imports has also undergone some important changes since the 1920's. No longer included are such products as anthracite coal, natural rubber, gasoline, corn, wool and silk fabrics and miscellaneous textile apparel, while new entries consist of aircraft, fuel oils, tourist purchases,

coffee, pipes, tubes and fittings, non-commercial items (mainly settlers' effects) and principal chemicals. On the other hand, many of today's chief imports have been leaders for years, such as industrial machinery, crude petroleum, automobile parts, electrical apparatus, rolling-mill products, tractors, engines, bituminous coal, farm implements, cotton and cotton products, passenger automobiles, and raw sugar.

Principal Domestic Exports, 1952-56

NOTE.—Commodities ranked by value of exports in 1956.

Commodity	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	591,790	619,033	635,670	665,877	708,385
Wheat.....	621,292	567,907	375,339	338,216	513,081
Planks and boards.....	295,949	282,103	324,724	385,313	326,445
Wood pulp.....	291,863	248,675	271,418	297,304	304,536
Aluminum, primary and semi-fabricated.....	155,106	173,378	182,392	210,971	234,806
Nickel, primary and semi-fabricated.....	150,982	162,542	182,154	215,169	222,909
Copper, primary and semi-fabricated.....	100,806	117,351	127,334	163,924	194,206
Iron ore.....	22,333	30,843	39,719	99,814	144,443
Petroleum, crude and partly refined.....	3,452	6,228	6,318	36,253	103,923
Asbestos, unmanufactured.....	86,510	83,973	82,566	94,804	99,895
Barley.....	145,684	136,729	89,363	76,461	94,977
Zinc, primary and semi-fabricated.....	96,283	57,572	58,392	70,558	74,011
Wheat flour.....	116,055	102,160	88,029	74,442	71,549
Whisky.....	54,254	63,086	59,156	60,682	68,660
Farm implements and machinery (except tractors) and parts.....	95,692	67,821	70,819	72,206	63,937
Fish, fresh and frozen.....	52,852	51,219	56,650	55,263	59,594
Pulpwood.....	64,820	45,859	45,766	48,655	49,794
Aircraft and parts (except engines).....	37,503	40,247	28,442	19,906	49,545
Fertilizers, chemical.....	42,293	42,633	42,342	56,296	49,211
Machinery (non-farm) and parts.....	49,192	38,618	38,172	35,789	47,130

Products of southern climes must necessarily be imported into Canada, spice among them. This new Canadian from India packages spices that have come in bulk from her native land.



Principal Imports, 1952-56

NOTE.—Commodities ranked by value of imports in 1956.

Commodity	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.	360,969	401,856	380,219	445,875	628,521
Automobile parts (except engines)	190,337	222,284	180,433	246,505	284,788
Petroleum, crude and partly refined.	210,036	213,094	212,787	229,779	271,291
Electrical apparatus.	139,567	198,275	207,539	226,715	257,292
Rolling-mill products (steel).	143,133	124,813	97,563	129,679	234,709
Tractors and parts.	119,253	126,354	82,814	115,375	159,627
Automobiles, passenger.	49,484	79,454	60,846	83,726	125,539
Pipes, tubes and fittings.	57,261	58,327	59,680	50,290	123,088
Engines, internal combustion, and parts.	126,332	107,736	84,914	100,917	120,986
Coal, bituminous.	99,571	94,680	70,445	74,453	96,516
Aircraft and parts (except engines).	95,212	111,803	100,397	138,091	91,304
Non-commercial items.	47,095	60,923	56,763	72,929	83,098
Fuel oils.	64,908	65,151	70,921	77,754	81,593
Tourist purchases.	66,682	73,840	68,767	71,467	75,205
Farm implements and machinery (except tractors) and parts.	78,044	82,795	60,351	62,874	72,522
Coffee, green.	50,775	57,595	64,214	57,010	62,657
Cotton fabrics.	53,248	55,906	46,012	53,400	62,130
Paperboard, paper and products.	29,921	39,208	43,558	52,690	61,954
Principal chemicals (except acids)	49,824	54,505	46,193	57,677	61,871
Cotton, raw.	65,956	55,494	52,441	61,031	58,748

Canadian Balance of International Payments

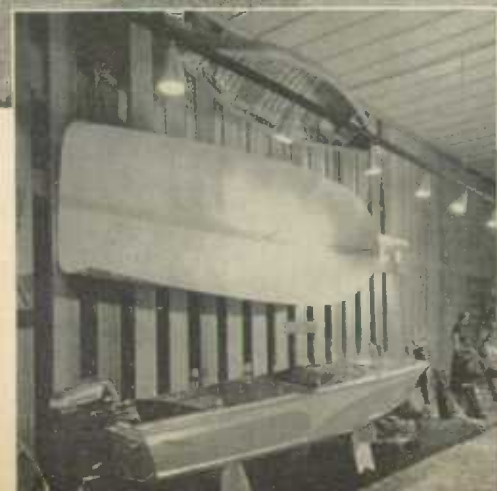
In addition to foreign merchandise trade, Canada has a variety of other current exchanges of services and capital with other countries. All these economic transactions are presented in statements of the Canadian balance of payments. Exchanges of services and merchandise trade are included in the current account, while the capital account shows the direction and extent of movements of capital between Canada and other countries.

Outstanding among the features of Canada's balance of payments during the past six years are the deficits that have arisen from excess of imports of goods and services over exports of goods and services, and the capital inflows for private investment in industry. The capital inflows have been associated with growth and development and have, in turn, contributed to the current deficits by augmenting demands for imported goods and services. In the 1950's there was a current deficit in each year except 1952 when a combination of special influences contributed to a small surplus. The deficits increased from \$334,000,000 in 1950 to \$692,000,000 in 1955 and rose still further in 1956, the preliminary estimate of \$1,398,000,000 being about double that for 1955. In 1956 the deficit has been larger in absolute terms than in any other year and relatively it compares with deficits in some earlier periods of exceptional development in Canada. The accompanying inflows of long-term capital, financing the deficit in 1956, were three times as high as in the previous year.

Traditionally Canada's deficits with the United States have been offset by surpluses with overseas countries. But the over-all deficits of recent years have been the result of rapidly growing deficits with the United States at a time when surpluses with overseas countries have been declining.

Some of Canada's most important international contacts of mutual benefit to Canadians and to the people of other countries concerned are made through the Canadian Trade Commissioner Service and the Canadian Exhibition Commission, both of which carry on a continuous effort to give world-wide distribution to Canadian goods and to find supplies abroad for Canadian importers. Offices in forty-three countries are staffed with trained Canadian trade officials and commodity specialists who are familiar with every aspect of foreign trade in their geographical or political areas.

Canada was guest of honour and the only foreign country to participate with Switzerland in La Foire Nationale de Lausanne in the autumn of 1956. More than 600,000 persons passed through the Canadian Pavilion in which were displayed Canadian goods ranging from objets d'art to books and fashions. During 1957 Canada will participate in thirteen international and industrial trade fairs.



The financing of recent large external deficits has occurred with little or no strain on the Canadian balance of payments. The capital inflows which served this purpose were generally of a long-term character reflecting participation in Canadian growth opportunities through direct and portfolio equity investment. These sources of financing were buttressed at times by large increases in foreign-held funded debt in response to divergent interest rate structures in Canada and in the United States. Such differences arose in part from the heavy demands for capital in Canada accompanying the rapid growth. Movements of short-term capital have also occurred on a comparatively large scale, but have generally played a balancing role and the inflows and outflows have, over time, tended to offset each other. The persistent long-term inflows of capital have kept the Canadian dollar at a premium on the world's exchange markets.

International Investment Position.—Canada's gross external liabilities amount to over \$16,000,000,000 of which more than half represents foreign investment in Canadian enterprises controlled by non-residents. A substantial part of the remainder covers portfolio investment in Canadian corporations by non-residents. Canada's gross external assets are about \$7,000,000,000 of which \$4,000,000,000 is represented by government loans to overseas countries, subscriptions to international financial organizations, and holdings of gold and foreign exchange. Canada's net foreign indebtedness has grown rapidly in recent years and is now about two and a half times as large as in 1949. It is estimated that during 1956 the growth in Canada's net external debt was approximately \$400 for every family in Canada.

Dependence on external sources for some types of capital, together with the special advantages often associated with this capital, has led in Canada to a degree of foreign ownership and control of industry unique in economic history. By the end of 1953 foreign investment accounted for 59 p.c. of the ownership of the Canadian petroleum industry, and represented control of 70 p.c. The mining industry was also 59 p.c. foreign-owned and 55 p.c. foreign-controlled. Manufacturing other than petroleum refining was 44 p.c. foreign-owned and 46 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. Since the date to which these ratios relate, foreign long-term investment in Canada has continued to grow at an accelerated rate.

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 in Canada increase each year by some hundreds of millions of dollars more than the capital actually imported. Indeed, during the postwar years the earnings accruing to non-resident investors but retained in Canada to finance expansion have amounted to about \$3,000,000,000. In addition, there are the actual transfers of investment income which currently take place at an annual rate approaching \$500,000,000. 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, which has helped to set the unusual pace of the current development.



Wide is the land and myriad its pleasures—in the bracing coolness by a glacier-fed Rocky Mountain lake, set in a vast amphitheatre of green-clad slopes and snow-capped peaks or on the wave-washed shores of the rolling Atlantic.

Travel between Canada and Other Countries

Travel between Canada and the United States, which is greater in volume than that between any other two countries, has been a special feature of contact between the two nations for many years and has played an important part in fostering international goodwill on the level of the ordinary citizen. Convenient communications across the continent-wide border as well as the proximity of large groups of people residing close to the border on both sides have assisted in this tourist movement and as a result the people of Canada and the United States are thoroughly familiar with each other's way of life. Neither passports nor visas are required for these tourists, the majority of whom travel by private automobile.

Recently there has been a deficit in Canada's travel account with the United States. Each year since 1952 expenditures by Canadians in the United States have exceeded expenditures in Canada by visitors from that country, contrasting sharply with the surpluses customary in earlier years.

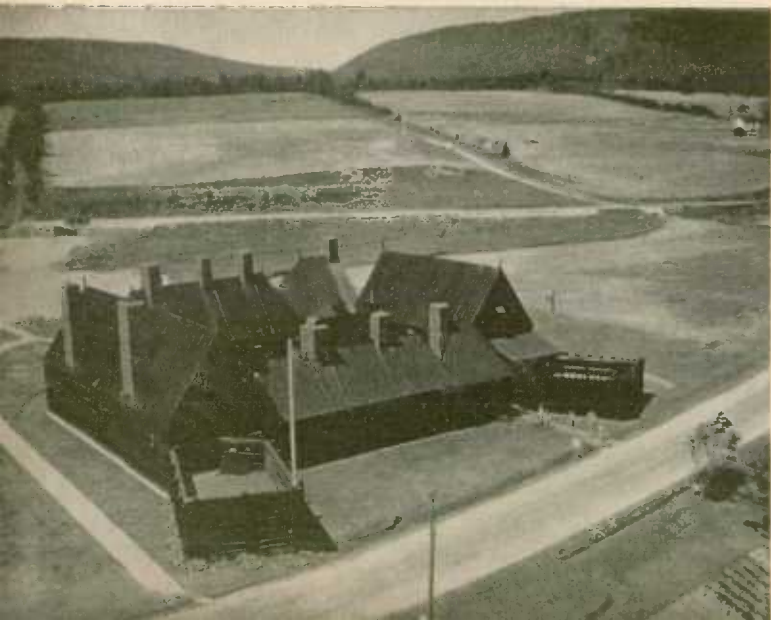
In 1956 expenditures of Canadians amounted to \$391,000,000, exceeding by \$83,000,000 the amount spent in Canada by visitors from the United States.

A very large part of the movement across the border is connected with international commuting and other local visits. The number of longer-term visitors who more properly constitute the tourist trade is a relatively small part of the total traffic but accounts for most of the expenditures. Thus in 1955 the 4,380,000 visitors from the United States who stayed for more than two days spent some \$232,000,000 or 77 p.c. of \$303,000,000 spent by all United States visitors in Canada. The 4,051,000 Canadians visiting the United States for more than two days spent about \$312,700,000, or over 86 p.c. of total expenditures by Canadians of \$363,000,000.

Canadian travel to overseas countries has been increasing substantially each year. The \$106,000,000 spent overseas in 1956 was three times the amount spent in 1951. About one-half of the outlay abroad goes to the United Kingdom, being either spent in that country or on transatlantic transportation provided by British carriers. In 1956 the expenditures of non-resident visitors in Canada were only about one-quarter of the amount of Canadian expenditures overseas.

The balance of payments on travel account between Canada and other countries for 1951-56 were, in millions of dollars:—

<u>Item</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Account with the United States—						
Credits.....	258	257	282	283	303	308
Debits.....	246	294	307	320	363	391
Net.....	+12	-37	-25	-37	-60	-83
Account with Overseas Countries—						
Credits.....	16	18	20	22	25	27
Debits.....	34	47	58	69	86	106
Net.....	-18	-29	-38	-47	-61	-79
Account with All Countries—						
Credits.....	274	275	302	305	328	335
Debits.....	280	341	365	389	449	497
Net.....	-6	-66	-63	-84	-121	-162



To enter the gate of the Port Royal Habitation in Nova Scotia is to step back to the beginning of the 17th Century—to the birth of Canada. It stands on the site of the original Habitation, the first settlement of white people in America north of the Gulf of Mexico.



The glories of the present found in the solitude of the green forests and rushing streams so numerous in Eastern Canada—the glories of the past brought to life in pageantry and colour at Fort Henry, a thrilling reconstruction of early military days at Kingston, Ontario.



Summer and winter, the wondrous spectacles of nature across this vast land call to the vacationer—the wind-eroded hoodoos in the badlands of Alberta or the white and frozen hills of the beautiful Gatineau district of Quebec.





Canada's super-transcontinental trains roll all the way from coast to coast, carrying their passengers in comfort and luxury through the magnificence of the country. The station platform at Banff, Alberta, springs into activity when CPR's "Canadian" makes its customary stop at the mile-high National Park.

Transportation

THERE are many types of transport facilities required to meet the needs of this tremendously active industrial country where trading is no longer localized but spread over great distances and where speed is such an important factor in the movement of goods and people. Efficient means of transport are as important to the economic well-being of the nation as are means of production—more often than not the production would not exist without the transport facilities.

Rail, air, water and land routes knit the vast expanse of Canada together, providing supply and communication networks from Atlantic to Pacific and from the United States border to the far north. The physical and financial problems that have been encountered, and to a great extent solved, in building up and maintaining these facilities have been almost incalculable. It has been a mammoth task, particularly during the past fifteen or twenty years, to keep abreast of the rapidly growing market and movement requirements of the country and at the same time to take advantage of the multitude of new developments and technological advances made available during that time. But it has been done.

Canada's railways, still the country's principal facility of mass movement, are meeting the challenge of growing competition from other types of transport by following a continuing program of modernization and expansion, by streamlining their services and catering to special local needs. The airlines, specialists in speed of movement and thus having a definite advantage in the transport of passenger, mail and perishable traffic, are constantly increasing the extent and efficiency of service between the main centres of population and have become invaluable in the communication requirements of the northern hinterland. In international service the two major airlines cover one of the longest route patterns in the world and improvements and additions now in process will enable them to maintain their position in this highly competitive field.

Immense railway yards at Winnipeg, the geographical centre of the nation, where all eastern and western rail movement meets and passes onward to its destination.





The Pacific Great Eastern Railway, owned by the British Columbia Government, is driving 790 miles of track diagonally across the Province, opening up to settlement and industry a vast hidden empire and extending interminably the already booming economy of Canada's West Coast. The Vancouver-Squamish link completed in 1956 was one of the toughest railroad-building jobs ever undertaken. More than half of its 41 miles was blasted out of solid rock or threaded through tunnels.



The completed route to Prince George has given the historically colourful Cariboo district its first direct rail connection with the markets of Vancouver and the Western United States. The interior of British Columbia is one of the few places in North America where cattle are still driven as far as 200 miles to market. There too this aspect of life will pass into history—the railway has come through.

By 1958 the rail will reach the fabulous Peace River district—terminating at Fort St. John and Dawson Creek. This is a land of many treasures where extension of agriculture awaits the settler. It is known to have reserves of asbestos, silver, copper and mercury, is estimated to contain one-eighth of the world's coal reserves and has a very high potential in oil and gas.



Low-cost bulk movement of goods by water, always of importance in this country of great inland waterways and long coastlines, will become vastly more important on completion of the St. Lawrence Seaway in 1959. Harbour facilities are being prepared to meet the increase. Tremendous expenditures have been made on maintaining and extending the highway network across the country. It is in this field that perhaps the greatest difficulty has been encountered in keeping up with demand. The traditional use of the highways for local passenger and freight movement has been extended until now the automobile, the bus and the truck have, in the specialized field of unitary transport, taken their places beside the railway as essential mediums of freight and passenger movement. The oil and gas pipeline, a relatively new development in Canada, is being rapidly extended as the most efficient means of transporting these elements to the most profitable market.

Railways

The two great transcontinental railway systems operating in Canada are the Canadian National Railways and the Canadian Pacific Railway. Both companies are at present undergoing extensive programs of modernization and extension, including complete dieselization of motive power, the procuring of thousands of new ultra-modern freight and passenger cars, extension, improvement and modernization of yard facilities and repair and maintenance shops, the building of branch lines to serve mining projects in hitherto isolated areas, and the streamlining and mechanization of office procedure. Indeed it is difficult to conceive of a period in railway history when the railway resources have been more fully employed than in recent years. Through broad-scale research and employee training they have intensified their efforts to make the best use of material and human resources.

The Canadian National Railways, a government-owned system is Canada's largest public utility, operating in addition to its rail network and the multifarious associated facilities, a fleet of coastal vessels and inter-provincial ferries, a nation-wide telegraph service providing efficient communication between all principal points of Canada with connections to all parts of the world, a highway transport service, express facilities in Canada and abroad, a chain of hotels, a scheduled trans-Canada and North American Air Service and a transatlantic air service.

The Canadian Pacific Railway is a joint-stock corporation having, in addition to its far-flung railway operations, a fleet of inland, coastal and ocean-going vessels, a north-south airline system, a transpacific airline service to the Orient and the Antipodes, air service to Mexico and Peru and a polar route from Vancouver to Amsterdam, a chain of year-round and resort hotels, a cross-Canada telegraph network, a world-wide express service and a truck and bus transport service.

A number of other companies operate railways in Canada but the Canadian National and Canadian Pacific railway systems comprise about 90 p.c. of the mileage operated. Of the 44,476 single-track miles operated in 1955, a total of 39,642 miles was operated by the two major railways. Gross operating revenues of the two railway systems in 1955 amounted to \$1,131,687,285, and operating expenses were \$1,040,284,898 compared with \$1,063,279,703 and \$1,022,074,871 in 1954. The 61,399,814,245 ton-miles



Highway transport service is operated in conjunction with rail service by the CPR from Winnipeg west to Vancouver, ensuring rapid year-round delivery in areas where weather conditions often interrupt traffic. The CNR operates a similar door-to-door service from Montreal to Toronto and Windsor in Ontario.

Dry ice being loaded into a refrigerated trailer.



of revenue freight handled by the two companies in 1955 was an increase of 4,849,765,749 ton-miles as compared with 1954. Passengers carried numbered 26,355,123 in 1955 compared with 27,387,505 in 1954.

The Board of Transport Commissioners for Canada controls railway freight and passenger rates and makes rules and regulations relating to construction, operation and safety.

Urban Transport Services

Most of the passengers carried by urban transport systems—systems operating electric railway, rapid transit or subway, motor bus, motor coach or trolley facilities in urban, suburban or inter-urban service—are now carried by motor or trolley buses. In 1955, urban transit systems carried 1,211,578,000

passengers compared with 1,264,434,000 in 1954. Inter-urban services carried 63,947,539 passengers, 3,495,325 fewer than revised figures of the previous year. There has been a definite downward trend in traffic on transit facilities since 1949. A large proportion of the 2,971,670 private passenger vehicles in use, including automobiles and motorcycles, is competitive with the transit systems. The recent rapid development of suburban areas has had the effect of encouraging the purchase of private cars as well as increasing the operating costs of transit-company service. At the same time, the advance in fares made necessary mainly because of this suburban expansion has discouraged to some extent the previously profitable short-haul city traffic.

Roads and Highways

Governments at all levels in Canada are concentrating on road building and improvement programs so that an ever-extending network of roads is developing across the country. From a four-lane underwater tunnel being constructed under the south arm of the Fraser River at Vancouver to the linking up of formerly isolated communities on the Island of Newfoundland, highway authorities are attempting to meet their respective requirements. Expansion of population coupled with an even greater rate of increase in the ownership of motor vehicles has put a tremendous strain on road building facilities. At the end of 1954 there were 192,616 miles of surfaced road and 331,439 miles of non-surfaced road. Of the surfaced road, 159,295 miles were gravel, 31,866 miles were bituminous and 1,455 were concrete.

In the years from 1946 to 1954 over \$1,000,000,000 was spent on highway construction, more than was spent in the preceding quarter-century. In the latter year alone, expenditures on new construction and maintenance of roads, bridges, ferries and other works was \$429,472,008, \$355,454,863 of which was supplied by the provincial governments and the remainder by the

Urban and suburban transport systems have been coping with the problems of serving ever-extending areas. Niagara Falls is served by a subsidiary of the Toronto Transit Commission. When one organization is busy in summer, holidays and weekends, the other is slack and interchange of manpower and equipment is beneficial to both.



federal and municipal governments. All roads, except those in the Territories, the National Parks and Indian reserves, which are the responsibility of the Federal Government, are under the jurisdiction of provincial and municipal authorities. It is estimated that the nation's highway-building program under way in 1956 involved an expenditure of \$700,000,000.

The Trans-Canada Highway program, which was started in 1949, has been progressing very slowly. Nine provinces agreed to participate in the program and undertook to construct and maintain that portion of the highway, other than in federal lands, within their borders and the Federal Government agreed to share equally with each province the cost of new construction and the cost of construction of existing highways taken into the system. Quebec, though not co-operating on a financial basis, is still providing a highway linking the two ends of the trans-Canada route in Ontario and New Brunswick. In order to expedite construction where gaps still exist and to extend the time limits of the agreement, an amendment to the Trans-Canada Highway Act was passed in 1956 authorizing a federal contribution of 90 p.c. of the cost of construction for one-tenth of the highway in each province. The total length of the highway, outside of Quebec, is 4,468 miles. By mid-1956, 2,740 miles had been paved but only 1,365 miles paved to Trans-Canada Highway standards.

Motor Vehicles

There were more motor vehicles registered in Canada in 1955 than ever before. Of the 3,948,652 registrations—compared with 3,644,589 in 1954—2,935,417 were for passenger cars and 1,013,235 for commercial vehicles and motorcycles, including 914,795 trucks, 10,694 buses, 36,253 motorcycles and 51,493 other vehicles. Registrations in the different provinces were as follows: Newfoundland, 39,766; Prince Edward Island, 22,145; Nova Scotia, 149,841; New Brunswick, 106,648; Quebec, 743,682; Ontario, 1,617,853; Manitoba, 222,474; Saskatchewan, 274,950; Alberta, 356,839; British Columbia, 409,343; and the Yukon and Northwest Territories, 5,111.

Provincial revenues from motor vehicle registrations and licences reached a high of \$113,519,484 in 1955, and provincial gasoline tax revenues amounted to \$264,407,817. Taxable gasoline sold, most of which was consumed by motor vehicles, amounted to 2,226,980,245 gal.

The apparent supply of new passenger vehicles in 1955 amounted to 397,830 cars, 91,953 more than in 1954. The 1955 figure included 349,306 cars made for sale in Canada plus 48,546 imports, less 22 re-exports of imported cars. In that year, 386,962 passenger cars valued at \$1,023,351,000 were sold, as well as 78,716 trucks and buses valued at \$232,539,000. Nearly 40 p.c. of the number and 30 p.c. of the value of these vehicles were financed by finance companies. The average financed value was \$2,031.

Motor Carriers.—The movement of freight and passengers by motor vehicle has assumed a place of great importance in the national transportation picture. Technological improvement of equipment, the extension of hard-surfaced highways and the construction of new high-speed express highways have contributed greatly to increased traffic in recent years.



Canada has now one vehicle for every four persons and to accommodate its increasing mobility more than \$700,000,000 is being spent annually on roads and highways. The network of rural roads is fairly adequate but within the urban districts there exists a great demand for more and better mileage.



The present series of motor carrier statistics covers only 'common' carriers and does not include companies operating contract services. The figures do not represent a complete coverage of the industry which is largely made up of small businesses with hundreds of licensees, each operating one or two trucks. Their bookkeeping is often inadequate and, at the same time, amalgamations and retirements are numerous, making a census difficult. However there is a gradual consolidation taking place and a growth in the size of the average firm. In 1954, 2,784 carriers reported an average gross revenue of \$88,972 as compared with an average of \$45,356 for the year 1950. Of the 2,784 firms reporting for 1954, 309 had gross revenues in excess of \$100,000, 663 had revenues of between \$20,000 to \$99,999 and 1,737 were small operators with revenues of less than \$20,000. Seventy-five firms operated urban bus services.

Shipping

The importance of shipping in the economy of the country may be realized when consideration is given to the fact that Canada is one of the world's major trading nations and that a large portion of the goods coming into and leaving the country does so by way of the sea. Also, Canada possesses large navigable waterways extending inland which not only lead to the seaports but provide, as well, cheap service from one point to another along the way. The inland lakes and rivers are almost innumerable and there are vast outlying areas where water is still the only available means of transportation. Many settlements along both east and west coasts depend entirely upon coastal shipping for the transport of goods and passengers.

There is no record of all the freight carried by water in Canada, but there is a record of the number and tonnage of ships calling at all ports at which there are customs collectors and of cargoes of vessels trading between these ports. All waterways including canals and inland lakes and rivers are open on equal terms, except for the coastal trade, to the shipping of all countries of the world so that the commerce of Canada is not dependent entirely upon Canadian shipping. However, a large part of the inland and coastal traffic is carried in ships of Canadian registry.

During 1955, customs officials reported 120,442 vessel arrivals in foreign and coastal service as compared with 118,969 in 1954 and 123,075 in 1953. The total tonnage of all cargoes loaded and unloaded in foreign trade at all Canadian ports amounted to 75,383,496 tons, of which 25,898,532 tons or 34.2 p.c. was carried by vessels of Canadian registry.

As in former years, the bulk of foreign trade was with the United States, accounting for 45,380,783 tons, or 60.2 p.c. of the total. Canadian vessels carried 55.2 p.c. of this waterborne commerce. In trade with other countries, however, Canadian shipping carried only 836,608 tons of a total of 30,002,713 tons. Most of the cargo was carried by vessels of the United States, the United Kingdom, Norway, Panama, Liberia, Germany, Sweden and Japan.

In 1955, commodities exported by vessel amounted to 39,502,714 tons, 28.5 p.c. above the 1954 total. The greatest increase was recorded at Atlantic and St. Lawrence River ports (Montreal and below), where the total jumped from 16,960,293 tons in 1954 to 24,719,979 tons in 1955, or 45.7 p.c. Most of this increase was accounted for by shipments of iron ore from Seven Islands. The tonnage of waterborne exports from Great Lakes and St. Lawrence River ports above Montreal increased 28.5 p.c. to 6,359,084 tons, a recovery to the 1953 level. The total of 8,423,651 tons at Pacific Coast ports was down slightly from 8,810,720 tons in 1954. Major Canadian exports by ship in 1955 included: iron ore, 13,739,589 tons; wheat, 5,187,847 tons; gypsum, 3,135,052 tons; lumber, 2,441,394 tons; newsprint, 2,160,331 tons; and pulpwood, 1,834,508 tons. Iron ore shipped in 1955 was more than double the 1954 tonnage but other items were relatively unchanged.

Imports received by ship increased from 32,274,166 tons in 1954 to 35,880,782 tons in 1955, or 11.2 p.c. Shipments of bituminous coal were up from 12,372,250 tons in 1954 to 13,674,184 tons in 1955 and iron ore from 3,147,033 tons to 4,763,016 tons. Increases were also registered for bauxite, limestone, sugar, salt, sulphur, scrap iron, cement, chemicals and petroleum products. Decreases were recorded for corn, flaxseed, anthracite, sand and gravel, fertilizers and crude petroleum.

Lighthouses and other marine danger signals, a pilotage service and radio signal and direction-finding stations, as well as federal legislation and regulations, maintain a high standard of safety for navigation in and around Canada.

Canals

The St. Lawrence waterway with its ship channel and series of canals is the world's greatest inland navigation system, providing as it does a great navigable artery from the Atlantic Ocean to the western end of Lake Superior, a distance of more than 2,200 miles. It has enabled Canadian grain to be sold at competitive prices in the markets of the world and aided in the expansion of manufacturing and trade in the St. Lawrence lowlands. The development of this waterway as a highway of international trade has throughout the years involved a series of engineering projects in keeping with the increasing demands of traffic and the safety of larger and faster ships. The greatest of these is now under way.

Freighters and luxury liners all depend on the St. Lawrence pilot for safe guidance along the winding waterway between Montreal and Quebec, most of which is dredged channel. The pilot, besides technical training, needs a great storehouse of local knowledge and years of experience with ships. He must start his apprenticeship with the Department of Transport at the age of sixteen.



In the autumn of 1954, following protracted negotiation between Canada and the United States with respect to power development and navigation works in the international rapids section of the St. Lawrence, construction of canals and other navigation works was begun by the St. Lawrence Seaway Authority and the United States counterpart, envisaging adequate navigation for vessels of 25-foot draught from Montreal to the head of the Great Lakes. The construction area for the St. Lawrence Seaway is some 120 miles in length from Montreal Harbour to the eastern reaches of Lake Ontario, and work is also being done at the Welland Ship Canal between Lake Ontario and Lake Erie to provide a depth of 27 feet as elsewhere on the Seaway. On Nov. 17, 1954, the first blast was set off, marking the beginning of work for excavation of some 7,600 feet of the Seaway channel and construction of the protecting dyke on the south shore of the St. Lawrence River near Montreal, on the first contract awarded by the St. Lawrence Seaway Authority. The Seaway will be ready for navigation in the spring of 1959.

In the meantime traffic continues through the old St. Lawrence canals which, with the Welland Ship Canal between Lakes Ontario and Erie and the Sault Ste. Marie Canal between Lakes Huron and Superior, are Canada's main route canals on the St. Lawrence waterway. 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. During 1955, 32,685,154 tons of freight passed through the canals in 28,172 vessels. In addition, thousands of pleasure craft locked through; one point, Sault Ste. Marie, was passed by 178,006 passengers.

Harbours

Overseas exports and imports comprise a large proportion of Canada's international trade and the long routes over which these commodities travel—the overland routes and the sea lanes—are linked together by a number of deepsea harbours. Having in mind the importance of deepsea ports as inherent and vital units in the national system of transportation, and for purposes of ensuring greater efficiency and economy in operation, improvement and strengthening of engineering services as well as uniformity in regulations and tariffs, eight of these harbours have been placed under a permanent central board for administration as national ports in accordance with national policy and with the assistance of national credit. The National Harbours Board is an agency of the Crown, responsible to Parliament through the Minister of Transport. Seven other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are about 300 public harbours, all of which come under the supervision of the Department of Transport.

The harbours administered by the National Harbours Board are Halifax and Saint John on the Atlantic seaboard; Chicoutimi on the Saguenay River, and Quebec, Three Rivers and Montreal on the St. Lawrence River in Quebec; Churchill on Hudson Bay; and Vancouver on the Pacific Coast. Six of these

are major ports with facilities including wharves, vessel berths, transit sheds, grain elevators, cold-storage warehouses, terminal railways, shore and floating equipment, workshops, electric-power and water-supply systems and industrial sites. In the years 1956 to 1958 as much money will be spent on improving these harbours as was spent in the twenty years after 1935.

Freight movement through a large port takes a number of forms and that loaded and unloaded from sea-going vessels frequently constitutes a surprisingly small part of the total. Usually the volume coming in and going out by coasting vessels is larger. There is, as well, a transit movement from one point to another within the harbour which may also be large in volume. It is not possible to obtain complete statistics of freight handled, but figures for the ports reporting the highest tonnages in foreign and coastwise trade are as follows.

Foreign and Coastwise Trade Through Ports Handling over 2,500,000 Tons in 1955

Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal, Que.....	4,846,324	4,571,064	3,985,802	5,860,385	19,263,575
Vancouver, B.C.....	4,070,491	1,118,821	3,004,643	2,657,590	10,851,545
Port Arthur, Ont.....	3,154,326	329,533	4,501,321	262,719	8,247,899
Hamilton, Ont.....	33,728	6,077,113	309,230	902,482	7,322,553
Seven Islands, Que.....	6,212,511	32,165	826,019	70,884	7,141,579
Halifax, N.S.....	1,628,697	2,147,271	1,008,866	328,107	5,112,941
Sault Ste. Marie, Ont.....	395,632	3,922,333	106,780	112,253	4,536,998
Toronto, Ont.....	62,593	1,859,370	953,002	1,469,750	4,344,715
Port Alfred, Que.....	437,434	3,344,475	33,983	429,737	4,245,629
Port Colborne, Ont.....	62,770	706,827	1,503,615	1,925,290	4,198,502
Fort William, Ont.....	471,073	847,895	2,111,926	280,229	3,711,123
Quebec, Que.....	768,385	497,605	76,620	2,138,130	3,480,740
Sydney, N.S.....	391,991	153,292	1,905,910	880,465	3,331,658
Three Rivers, Que.....	469,223	190,017	28,562	2,063,813	2,751,615
Saint John, N.B.....	1,491,730	794,421	86,399	340,305	2,712,855
Bell Island, Nfld.....	2,152,356	27	445,424	21,090	2,618,897

Ships in the Cornwall Canal, bypassing the Long Sault rapids section of the St. Lawrence River. A diversion canal permits the use of the 14 - foot - deep system during Seaway construction. It is being replaced by locks on the United States side of the river.



Certain of these ports, such as Port Alfred, serve large industrial establishments rather than great aggregations of population and their cargoes are therefore mainly limited to the movement of such heavy bulk raw materials as iron ore, pulpwood or, as for Port Alfred, bauxite.

Civil Aviation

Through the medium of air transportation, Canada has been able to develop more rapidly the rich resources of territory otherwise almost inaccessible. From a modest beginning in 1919 aviation in Canada has progressed steadily, and Canadian airlines now provide not only a continental network of air services, but also an extensive international service to the British Isles, France, Germany, United States, Mexico, the Caribbean, South America, the Orient, and the Antipodes. In 1955 Canadian air carriers flew almost 81,000,000 revenue miles carrying some 2,763,000 passengers, 231,845,000 lb. of goods, and 24,267,000 lb. of mail.

During this period of growth, greatest emphasis has been placed on the extension of the facilities required for aircraft and for the safety of flying, in preference to more convenient terminal facilities. The Federal Department of Transport, which is responsible through its Air Services for the control of civil aviation, operates more than 100 airports and provides traffic control over 20,000 miles of airways. A chain of airports, equipped with modern air navigation facilities, extends from coast to coast, linking at Edmonton with the Yukon and Northwest Territories. The expansion of airports and facilities proceeds as necessity requires in keeping pace with the demands of ever-increasing air traffic and of heavier and faster aircraft, and a program of improving terminal building facilities is well under way.

The Visual Omni Range system of air navigation on the Montreal-Windsor route was commissioned in January 1956, and work is progressing in extending similar coverage across Canada. Another project in hand, designed to improve control of the large volume of air traffic, is the installation of long-range airport surveillance radar units from coast to coast. Fifteen sets have been ordered for delivery in 1957. These installations will ensure much greater safety for aircraft in flight, as it will be possible for air traffic controllers to pinpoint small aircraft within a radius of 100 statute miles from an airport and at an elevation of up to 60,000 feet under all weather, with considerably greater ranges for larger aircraft.

Trans-Canada Air Lines, a publicly owned company, was created by Act of Parliament in 1937 to operate an all-Canadian transcontinental and international air service. From its initial service of 122 miles between Vancouver and Seattle in 1938, Trans-Canada Air Lines was, by the end of 1955, operating on 23,714 miles of air routes in Canada and to the United States, the British Isles, continental Europe, Bermuda and the Caribbean. During 1955 TCA flew 969,392,395 passenger miles, carrying 1,682,195 passengers. Ton miles of air freight totalled 9,951,059, air express 2,167,137, and mail 7,704,144. In April 1955, TCA began operation of Viscount aircraft and was the first airline in North America to place in service turbine-propeller aircraft. At the end of 1955 the TCA fleet consisted of 22 North Stars, 26 Douglas DC-3's, 7 Super Constellations and 14 Viscounts.



Twenty Vickers Vanguard propeller-turbine airliners have been ordered by TCA and four more optioned as part of its modernization program. By mid-1961, TCA's fleet will be completely turbine-powered. The Vanguard has a cruising speed of 420 miles an hour and carries 82 first-class or 102 tourist passengers.

Every flight is carefully planned by the pilots in consultation with flight dispatchers and meteorological experts.

TCA's fleet of Vickers Viscounts is gradually being increased and will number 36 by 1958.





In September 1957, Canadian Pacific Air Lines will receive the first of ten Bristol Britannia airliners now on order or option. These aircraft will eventually replace the Company's DC-6B's on its international service.

In 1942 the many independent operating companies engaged in flying in northern Canada were taken over by the Canadian Pacific Railway and consolidated into one company under the name of Canadian Pacific Air Lines. This Company also operates the following international routes: from Vancouver to the Orient, the Antipodes, and South America; the trans-Arctic route, Vancouver-Amsterdam; and a direct Toronto-Mexico service. The Company's route mileage now totals some 40,000 miles. In 1955 CPA flew a total of 195,730,000 passenger miles carrying 276,201 passengers. Goods and mail carried totalled 23,896,000 lb. and 276,201 lb. respectively. Domestic routes are flown by DC-3, DC-4, Canso, DHC-3, Curtiss C-46 and Convair 240 aircraft. DC-6B's are used on all overseas routes. The Company has on order for 1957 five Bristol Britannia "310" long-range turbo-prop airliners, with options on five more. These will eventually replace the Company's DC-6B aircraft on its international service.

In addition to TCA and CPA, scheduled service is provided in the lower St. Lawrence area by Quebecair; in the Atlantic and Pacific Coast areas by Maritime Central Airways and Pacific Western Airlines, respectively; and from Winnipeg, Man., to Red Lake, Ont., by Trans-Air Limited. In 1956 Maritime Central Airways inaugurated an international charter service from Montreal and Toronto across the North Atlantic, and to the United States and South America.

Canada's non-scheduled requirements are met by 205 charter and non-scheduled operations. Such services act as feeders to the scheduled airlines and provide for the transportation of personnel, equipment and supplies vitally needed in the exploration and development of the remote parts of Canada. They have made many development projects in otherwise inaccessible areas economically sound and physically possible. During the year 1955, non-scheduled operators flew 25,474,268 revenue miles, carrying 398,530 passengers, 114,898,104 lb. of goods and 1,027,636 lb. of mail.

Civil flying other than that conducted by the scheduled airlines and the large non-scheduled air carriers has also shared in the expansion that civil

aviation has experienced since the end of World War II, as indicated by the increasing number of aircraft employed by corporations and private interests. Of the more than 1,500 privately registered aircraft in Canada, approximately 850 are company-owned, including some 200 multi-engined types.

Instructional flying undertaken by approved flying clubs and commercial flying schools has also increased from a yearly average of 68,000 hours for the period 1948-51 to an average of 119,000 hours for the period 1952-55.

The economic regulation of commercial services in Canada is the responsibility of the Air Transport Board, which was established in 1944. The Board also acts in an advisory capacity to the Minister of Transport in matters relating to civil aviation.

International Agreements.—Canada's position in the field of aviation as well as its geographical location has necessitated co-operation with other nations engaged in international civil aviation. Canada played a major role in the establishment of the International Civil Aviation Organization, and in recent years has been a signatory to agreements concerning civil aviation with Australia, Belgium, Denmark, France, Ireland, Mexico, the Netherlands, New Zealand, Norway, Peru, Portugal, Sweden, United Kingdom and United States. On the North Atlantic, Canada was given extended rights for traffic from Ireland, Japan and the Azores, and also rights in Belgium and landing rights in France.

On the Caribbean route, rights have been obtained in Florida from the United States and for points of call in British territories. In the Pacific, agreements provide for calls at Honolulu, Fiji and Hong Kong. In the trans-border field, TCA has the right to operate from Montreal to New York, and from Montreal and Toronto to the Bahamas and Jamaica with stops at Tampa or St. Petersburg, Florida. Operating certificates have been issued to fifteen Commonwealth and foreign scheduled services flying into Canada.

Pipelines

Oil Pipelines.—At the end of 1955 Canada's oil pipeline system had 5,079 miles of line, exclusive of looping, compared with 1,423 miles in 1950. In addition to the pipeline network within Canada there were 1,514 miles of

For fifteen years, Maritime Central Airways has been operating throughout Eastern Canada from Charlottetown, P.E.I., and today ranks as one of Canada's four major air carriers. It has recently inaugurated an international freight service.



line in the United States used exclusively for the delivery of Canadian crude oil to Ontario and United States refineries. Pipeline construction work in Canada during 1956 raised operational mileage to almost 5,800 miles. Net oil deliveries in 1950 were only 50,654,282 bbl.; in 1955 a total of 224,274,768 bbl. were delivered and 200,642,930 bbl. in the first nine months of 1956. The increase recorded in 1956 illustrates the progress being made in the marketing of Canadian crude oil. All refineries from Vancouver to Sarnia are being supplied through Canada's crude oil pipeline system. Before the end of 1957 the rapidly expanding Toronto area refining industry will be receiving Prairie oil by means of an eastward extension of the Interprovincial pipeline from Sarnia. Canadian pipelines are also transporting increasing volumes of crude oil for export to the United States. Pipeline exports amounted to 16,656,000 bbl. in 1955; in 1956 these shipments were almost three times that amount.

There are two principal components of Canada's oil pipeline system: the Interprovincial pipeline originating in the Edmonton area of Alberta and carrying crude oil to Sarnia, Ontario, via Superior, Wisconsin, over a 1,770-mile route; and the Trans Mountain pipeline traversing the Cordilleran region along a 718-mile route from Edmonton to Vancouver, with a spur line into the State of Washington. A continuous expansion program is under way in both of these systems. At the end of 1956, the Interprovincial pipeline had a daily capacity eastward from Edmonton of 217,000 bbl. En route to Sarnia, deliveries are made both directly and by off-shoot lines to Canadian and American refineries. The system also receives crude oil from Saskatchewan and Manitoba oil fields. The Trans Mountain pipeline, with a capacity of 184,000 bbl. daily at the end of 1956, supplies British Columbia and Washington refineries and also tankers at Vancouver for off-shore shipments to California and Japan. Work carried out in 1957 will make provision ultimately for total withdrawals from Alberta of daily quantities in excess of 500,000 bbl. by these two major trunk lines.

In Eastern Canada petroleum products distribution from Montreal and Sarnia refineries is made through products pipelines. Crude oil for Montreal refineries enters Quebec via pipeline from Portland, Maine, where tankers, principally from Venezuela, make their deliveries for overland transportation.

Natural Gas Pipelines.—Natural gas pipeline construction in 1956 was considerably greater than oil pipeline work. At the start of the year there were 4,143 miles of gathering and trunk lines; by the end of the year this total had been increased to approximately 5,500 miles. City and town distribution mileage rose from 5,538 to almost 6,500 miles. The commencement of the Trans Canada pipeline and the Westcoast pipeline, together with the expansion of existing provincial distribution systems in Alberta and Saskatchewan, made 1956 an outstanding year in the history of the natural gas industry. Construction in 1957 is continuing at a rapid pace.

The 649-mile gas pipeline of Westcoast Transmission Company Limited was two-thirds complete at the end of 1956. Before the end of 1957 this line will be drawing natural gas from fields of the Peace River region in north-eastern British Columbia and northwestern Alberta and delivering it to Vancouver and to an export point on the British Columbia-Washington boundary. This will be the first step in a natural-gas marketing project which

will lead to the construction of 875 miles of gas lines to cities and towns throughout the interior of British Columbia.

Trans Canada Pipe Lines Limited commenced construction of its pipeline in July 1956 at a point on the Alberta-Saskatchewan border and by the end of the construction season had over 200 miles of line in the ground. On resumption of construction in May 1957 the line will be carried eastward to Winnipeg before the end of the year via Moose Jaw, Regina, Brandon and Portage la Prairie. When completed to Eastern Canada, the 2,200-mile line will be the longest in North America. It will be supplied from a grid system in Alberta connecting major gas sources and will make gas deliveries to most cities and towns as far east as Montreal.

Other important gas developments in 1956 and 1957 include expansion of existing Alberta utility services and the construction of pipelines to industrial plants. Saskatchewan's gas pipeline distribution system also is rapidly becoming province-wide and construction of distribution systems entered an active period in Vancouver and in Manitoba centres in preparation for 1957 gas deliveries from the two new major trunk line systems.

Gas sales in 1955 totalled 117,800,000,000 cu. feet and during the first six months of 1956 they amounted to 82,500,000,000 cu. feet.

Hundreds of millions of dollars have been invested in men and equipment to utilize one of Canada's greatest resources—natural gas—and carry it from the gas fields of the Peace River district of northern British Columbia and Alberta to Vancouver and the United States border and from central Alberta eastward as far as Montreal.





A trail of steel towers rising at thirty-mile intervals from skyscraper, mountain peak, escarpment and plain will, by 1958, form an invisible link across Canada's vast distances, permitting a telephone signal to speed from Halifax to Victoria in 1-21,000ths of a second. When the last tower is up and electric impulses start their speed-of-light journeys from amplifier to amplifier, the world's longest single microwave network will be in complete operation. The eastern section of the network, from Quebec City to Toronto and westward to Winnipeg, as well as a Maritime regional link with Halifax, was put into operation in 1956.

Communications

Telephones

AT the end of 1955 there were 4,151,678 telephones in Canada—27 per 100 population. In this respect Canada ranked third among the major nations of the world, preceded only by the United States and Sweden.

The 2,739 separate telephone systems, large and small, operating in 1955 co-operated in providing service across the country: 2,214 of these were small co-operative systems in rural districts and 373 were shareholder-owned companies. The largest of the latter were The Bell Telephone Company of Canada operating in Ontario and Quebec and serving 61 p.c. of all the telephones in Canada, and the British Columbia Telephone Company serving 9 p.c. of the total. Four private companies serve the Atlantic Provinces and three systems operated by the respective provincial governments serve the Prairie Provinces.

Long-distance services make possible the interconnection of practically any telephone across the country with any other, or with any of the 53,000,000 telephones in the United States. Connections are also available with 126 other countries and territories. Within Canada, long-distance service is provided by the separate systems and, on a nation-wide scale, by the Trans-Canada Telephone System, an organization comprising the seven major telephone organizations and two additional associated companies.

The use of telephone service in Canada runs at a high level. The estimated number of calls on all systems in 1955 was 6,961,476,000 representing an average of 1,677 calls per telephone or 446 calls per person of the population. Of the total, 153,000,000 were long-distance calls mainly within Canada or between Canadian and United States points.

Investment in Canadian telephone enterprises continued to rise throughout 1955. By the end of the year total capital invested in telephone systems amounted to \$1,470,679,433. Employees numbered 55,673 and during the year they received \$173,922,973 in salaries and wages.

The tremendous growth of Canadian telephone systems in the past ten years has been matched by their technological development. Automation in the Canadian telephone industry began on a large scale some thirty years ago with the introduction of dial telephones and step-by-step equipment for automatic completion of local calls. About 74 p.c. of all telephones in Canada are now served by this method, and the proportion is increasing steadily. Crossbar, a type of automatic switching equipment more flexible than step-by-step, has now been introduced in several Ontario and Quebec communities with heavy calling volumes. The same basic type of crossbar switching is employed in the regional long-distance centres at Toronto and Montreal. These machines enable operators to dial calls directly to telephones in many distant cities across the continent. Within a few years the extension of this system to most major centres in Canada and the United States, and the addition of automatic call accounting machines, will make it possible for customers themselves to dial long-distance calls.

These developments in the automatic switching of long-distance calls are accompanied by advances in the provision of transmission channels on

a trans-Canada basis. Construction of the first inter-system microwave radio relay chain, between Toronto and Winnipeg, was completed in September 1956 by The Bell Telephone Company of Canada and the Manitoba Telephone System. The westward continuation of the chain will reach Lethbridge late in 1957 and Vancouver by mid-1958. The Maritime Provinces will be joined to the central part of the network towards the end of 1957 when the section between Saint John, N.B. and Quebec City goes into use. The entire transcontinental microwave system will be available for telephone and television purposes when these remaining links are completed.

Canadian manufacturing companies produce the greater part of the telephone equipment and materials used in the country. Dependably high quality is maintained, and desirable uniformity is made possible in operating and maintenance practices across the country.

Overseas Telecommunication.—Since 1952 all external telecommunication services—by cable, radiotelegraph and radiotelephone—have been maintained and operated by the Canadian Overseas Telecommunication Corporation, a Crown agency established in 1950. The Corporation immediately entered upon a program of expansion to meet increasing demands for overseas communications from Canada and anticipated requirements for the years ahead. The most important undertaking was Canada's participation in the construction and maintenance of a transatlantic telephone cable, in co-operation with the United Kingdom and the United States. The laying of the first section of the cable started from Clarendville, Nfld., in June 1955 and the system was placed in service on Sept. 25, 1956.

Other developments in overseas communications for Canada include new transpacific radiotelephone and radiotelegraph services to and from Australia and New Zealand, requiring the erection of transmitting and receiving facilities and an administration building on the West Coast. Since Nov. 1, 1956, Canada has had direct voice communications with Australia and New Zealand. Overseas radiotelegraph facilities at Yamachiche and Drummondville, Que., have also been augmented to take care of the expansion of existing services and the introduction of new direct radiotelegraph circuits between Canada and Germany and France. In December 1956 the Corporation brought into service an overseas teleprinter switching system by means of which the user can teletype directly from his own office into that of his correspondent. This service is available across Canada.

Radio and Television

Broadcasting in Canada, as it has developed over a period of more than 35 years, is a combination of public and private enterprise. Under the Canadian Broadcasting Act (R.S.C. 1952) authority for this system is vested in a Board of eleven governors appointed by the Governor in Council and chosen to give representation to the principal geographical divisions of Canada. The Board is directly responsible to Parliament for carrying on a national broadcasting service in Canada, and for the policies of the Canadian Broadcasting Corporation. It also administers and supervises regulations pertaining to broadcasting which are observed by both the CBC and privately owned stations.

Canada participated with the United Kingdom and the United States in the laying of a transatlantic telephone cable which was placed in service in September 1956. Here the cable is being hauled ashore at Clarenville, Nfld.



History was made in Vancouver on Nov. 1, 1956, when the Canadian Overseas Telecommunication Corporation opened the first Canadian radio link with the Antipodes. A radiotelephone voice conference through the new Vancouver station officially linked the United Kingdom with Australia and New Zealand via Canada.

The Chairman of the Board of Governors, appointed for a ten-year term, is required to devote the whole of his time to performance of his duties under the Act. The Board members, who serve for three-year terms, are not paid and must take an oath of office disclaiming any personal interests in broadcasting. The Board reviews broadcasting activities in Canada generally, in the interests of the country as a whole.

While the Board of Governors determines and supervises policy, day-to-day operations and executive direction of the CBC is the responsibility of the General Manager. The CBC is organized in the following divisions: Program, Engineering, Commercial, Treasury, Press and Information, Personnel

and Administration, Station Relations and Broadcast Regulations, Bureau of Audience Research and International Service. These divisions are represented in five regions—Pacific, Prairie, Ontario, Quebec and Maritimes—each under a regional director, with a regional director for Newfoundland.

The CBC is responsible for regulations controlling the establishment of networks and the proportion of time that may be devoted to advertising in broadcast programs. It neither exercises, nor authorizes any private station to exercise on its behalf, censorship of any broadcast program. The responsibility of having the regulations observed rests with individual stations.

The privately owned stations, which are subject to licensing control by the Department of Transport and to CBC regulations authorized by Parliament, serve primarily the locality in which they are situated with the general purpose of providing a community service. Many such stations are located in relatively small urban centers and serve as well the larger population located in the surrounding rural areas. Others serve medium-sized and metropolitan cities together with the audiences located in the surrounding towns and rural areas, providing alternative programs to those of the CBC. In sparsely populated areas where privately owned stations would not be economical, the CBC provides service through 54 unattended, low-power relay transmitters. All but 67 of the 162 privately owned radio stations form an integral part of the national networks as outlets for national service programming.

The general principles of this system have been approved by fourteen Parliamentary Committees and two Royal Commissions. A third Royal Commission, headed by Robert M. Fowler, conducted an exhaustive study of the country's broadcasting situation in a series of hearings throughout Canada during 1956. At the year's end this Commission, the first since the advent of television in Canada, was engaged in the preparation of its report.

Facilities.—All the privately owned television stations and many of the privately owned radio stations operate in partnership with the CBC in distributing national radio and television services over five networks—in radio, the Trans-Canada, French and Dominion networks, and in television, the English and French networks. The networks are operated by the CBC. Network radio service is available to approximately 95 p.c. of the population, while 80 p.c. is within range of Canada's national television service.

As of Jan. 1, 1957, there were 24 CBC radio stations and eight CBC television stations; 162 privately owned radio stations and 29 privately owned television stations. In addition there were 11 shortwave stations, of which three were CBC and eight privately owned; five CBC and 25 non-CBC frequency-modulation stations, and 54 low-power relay transmitters. Two TV stations, in addition to those mentioned above, are managed by the CBC and use United States facilities, under international agreement, at Goose Bay (Labrador) and Harmon Field, Nfld. These serve United States and Canadian military personnel as well as Canadian civilian population.

The CBC's income, pending possible changes resulting from recommendations of the Fowler Commission, is derived from a 15-p.c. excise tax on radio, television and phonograph sets and tubes, and revenue from commercial programs, with the remainder made up from parliamentary grants. Income of privately owned stations is derived from commercial operations.

Technicians at Winnipeg line up and test a picture from New York being sent via Toronto over the new microwave system. On the left is a polaroid camera attachment which can photograph and develop a picture from the TV screen in 120 seconds.



Radio Program Service.—Canada's system of broadcasting is designed to overcome the problems posed by great distances, a scattered population, and six of the world's 24 time zones. Programs are planned regionally and nationally on CBC networks, and provide a substantial amount of Canadian production as well as outstanding programs from other countries. They offer a wide range of material including programs of substance and a good measure of straight entertainment.

Through CBC facilities, schools across Canada are provided with at least 30 minutes daily of broadcast programs specifically planned by departments of education to meet classroom requirements. In addition, national school broadcasts, prepared with the advice of the departments of education and teachers and financed by the CBC, are heard on Fridays. More than a million children in 32,500 Canadian classrooms hear these school broadcasts regularly. Canada's agricultural population is served by the most complete service of farm broadcasts in the world, including the weekly National Farm Radio Forum, which has about 8,500 members across Canada. A comparable program, Citizens' Forum, provides a national platform for discussion of topics of current interest. Programs of interest to women are scheduled for afternoon listening; there are special children's programs for out-of-school listening; and time is allotted regularly for religious programs. Free-time political broadcasts arranged with the various parties are heard both nationally and regionally. The special CBC Wednesday Night program offers a full evening of the finest in drama, music, talks, poetry, recitals and performances by such groups as the CBC Symphony and the CBC Opera Company.

Television.—Canadian television began in September 1952, when the CBC's first television stations, CBFT and CBLT, were opened at Montreal and Toronto, respectively, programming about three hours each evening.

By January 1953, the program schedule at both centres had grown to 30 hours a week, and live programs from United States networks joined the Canadian schedule when the microwave link between Buffalo and Toronto was completed. As of Jan. 1, 1957, there were 10 CBC stations: at Vancouver (CBUT), Winnipeg (CBWT), Toronto (CBLT), Ottawa (CBOT and French-language CBOFT), Montreal (CBFT and English-language CBMT), Halifax (CBHT), Goose Bay (CFLA-TV) in Labrador and Harmon Field (CFSN-TV) on the Island of Newfoundland.

Privately owned stations were operating from 29 other centres: Victoria, B.C.; Calgary, Edmonton and Lethbridge, Alta.; Regina and Saskatoon, Sask.; Brandon, Man.; Sault Ste. Marie, Port Arthur, Sudbury, Timmins, North Bay, Barrie, Wingham, Windsor, London, Kitchener, Hamilton, Kingston and Peterborough, Ont.; Sherbrooke, Quebec City, Rimouski and Jonquières, Que.; Moncton and Saint John, N.B.; Charlottetown, P.E.I.; Sydney, N.S.; and St. John's, Nfld. Others were planned at Quebec City, Kamloops, B.C., Medicine Hat, Alta., and Rouyn, Que.

This development brought Canadian television within range of 80 p.c. of the population. Actually, more than 60 p.c. of all Canadian homes were equipped with TV and, at the start of 1957, this approached the total of 2,500,000 homes. Of the 39 stations, 19 between Winnipeg and Quebec City are joined by microwave relay while four Maritime stations—Halifax and Sydney, N.S., and Saint John and Moncton, N.B.—are linked in a separate Maritime TV network. Plans were completed for joining the Maritime network to the main system and completing extension of microwave relay from coast to coast, possibly some time in 1958.

Today Canada is second in the world in terms of "live" television production and in terms of number of television transmitters in use. CBC television has developed a program schedule covering the wide range of entertainment achieved in its sound broadcasting, and based on the same objectives. On the English network more than 55 p.c. of the schedule is made up of Canadian programming and on the French network more than 80 p.c. is Canadian-produced. These programs have included weekly drama series, leading sports events such as NHL hockey and the Grey Cup football final, children's series, news, variety, discussions, and many other types of programs. The majority of Canadian television productions are "live" from studios at Toronto and Montreal, but regional and national shows are also produced in studios at Vancouver, Winnipeg, Ottawa and Halifax. Some programs shown on the CBC network are fed directly from United States networks via the microwave relay and some film features are





In about four years, despite geographical difficulties and the two languages of the country, television service has been brought within reach of 80 p.c. of the population of Canada. CBC audiences enjoy a full range of programs including adult entertainment of every type, children's entertainment and informational programs, news and special events, school broadcasts, farm broadcasts, religious and sports programs.



also offered from other countries. Three separate experiments in television for school children have been undertaken by the CBC School Broadcasts Department in collaboration with the provincial departments of education and results are being studied.

CBC International Service.—The International Service is financed wholly by funds voted by Parliament. The main program and production headquarters are in the Radio Canada Building at Montreal and two powerful 50,000-watt transmitters at Sackville, N.B., are linked with the studios at Montreal by a landline 600 miles long. Altogether the shortwave broadcasts of the International Service are listened to in some 30 countries. The programs are broadcast in 16 languages: English, French, German, Dutch, Danish, Swedish, Norwegian, Italian, Spanish, Portuguese, Czech, Slovak, Polish, Russian, Ukrainian and Hungarian. Countries having poor reception for geographical reasons, such as Austria and Greece, receive transcribed programs. The International Service endeavours to give listeners in other lands Canadian views on international affairs and a picture of Canadian life, with special reference to cultural, social and economic development.

Postal Service

Canada's air-mail, railway-mail and land-mail services are among the most extensive in the world and also among the most efficient. To speed the estimated 3,500,000,000 mail items annually passing through the Post Office to their destination requires a tremendous organization using every type of transport from aircraft to dog team and the employment of 21,614 persons.

The principal means of mail transportation is the railway mail service which operates over 40,000 miles of track. Mail clerks sort and exchange the mails in the railway cars and in the steamships serving coastal settlements. All first-class domestic mail up to and including eight ounces is transported by air whenever this expedites delivery. A network of air routes links up every section of Canada and connects with air services to other countries and serves many points in the hinterland lying far beyond the end of steel. The most remote Arctic outposts receive their mail by means of courtesy flights provided by the Royal Canadian Air Force and commercial lines as well as by ship.

Wherever population warrants, post offices are established for the transaction of every kind of postal business. House-to-house delivery is conducted in cities and towns and daily service is given over most rural routes. In suburban areas delivery is often made to group mail boxes where it is picked up by the addressee. A multitude of side-services are in operation, conveying mails to and from sub-post offices, postal stations and railway stations, wharves and airports, collecting from street letter boxes and delivering parcel post. Stage and motor vehicle services supplement rail and other media of transport in outlying districts.

The Post Office Department is continually improving its mail-handling machinery. In the larger offices mail is handled automatically from its arrival to its departure. Belt conveyors carry it from one working division to another. Though facing-up and sorting is still done by hand, mechanical equipment, such as cancelling machines, revolving tables, bundle-tying machines and

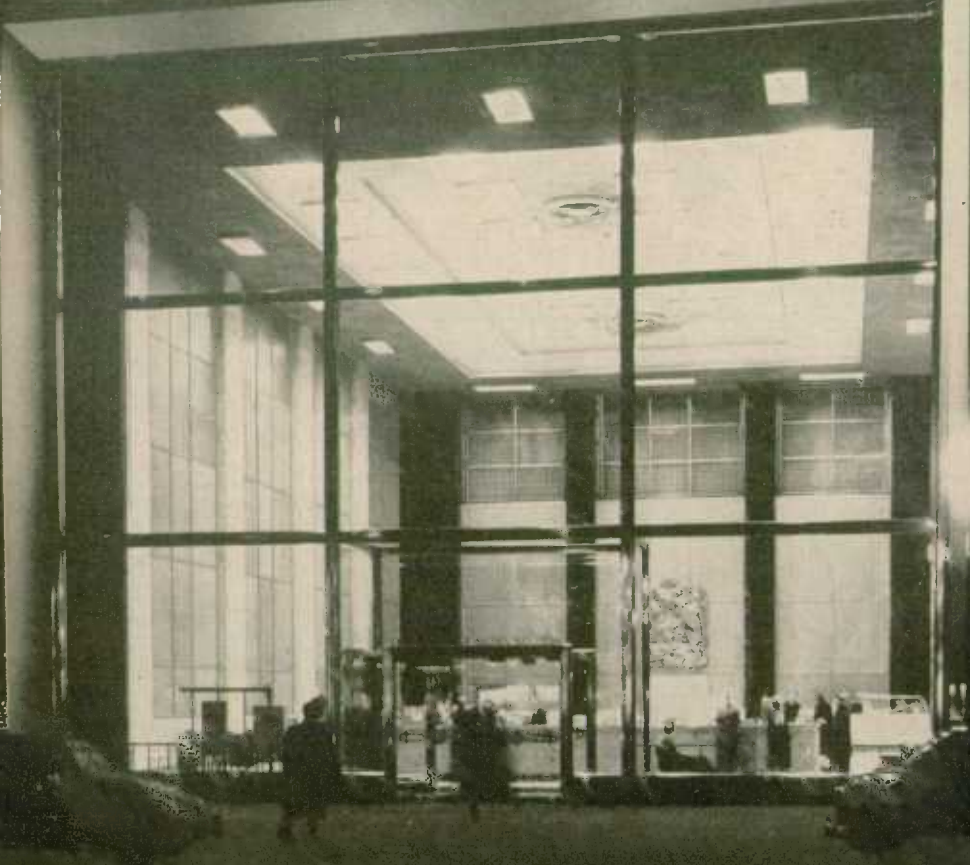
spiral chutes speed up this work. The Post Office Laboratory is working on the development of the first simplified prototype of an electric sorting system for medium-size offices and an automatic facing-up machine. The first sorting and despatching machine to be installed in North America is in operation at the new Peterborough Post Office—five operators sort letter mail into 300 separate receptacles at a speed of 3,000 letters per man hour.

On Mar. 31, 1956, there were 11,996 post offices and 11,099 money order offices in operation. For the year ended on that date, postage paid by means of postage stamps totalled \$75,559,106 and the gross postal revenue was \$158,568,356, the highest ever recorded. Combined deposits of \$36,164,460 were reported in the Post Office Savings Banks which are located throughout Canada.

Speed and efficiency are Post Office bywords and equipment is constantly being improved to keep up with the ever-increasing volume of mail. Electronic sorters handle 3,000 letters per man hour. Below is a view of the new \$13,000,000 Post Office at Vancouver which is equipped for rooftop helicopter landings.



THE BANK OF NOVA SCOTIA



The whole approach of Canadian banks to the general public has undergone a great change. In the 1930's, the bank's main task was to conserve resources but since 1940 lending has become dynamic. Today the commercial bank is a competitive business depending for its success on the goodwill of the customer, adapting itself easily to changing conditions and sharing in the growth and needs of the community and the country.

Banking and Insurance

Banking

THE role of Canadian banks in financing and facilitating Canadian business becomes more evident each year. Canada is an under-capitalized country and the banks fill an indispensable role in mobilizing the savings and working funds of the nation and putting them to use in financing current business.

The Banking System.—The Canadian banking system is a strong and stable structure with many outstanding features that have grown up since its foundations were laid more than a century ago. It consists of the Bank of Canada, which is a government-owned bank, and nine privately owned commercial banks competing among themselves for the domestic and foreign banking business of the Canadian people.

The Bank of Canada is the keystone of the structure. Its chief function is to regulate the total volume of money and credit through changes in the cash reserves of the chartered banks. An increase in cash reserves above the required minimum of between 8 and 12 p.c. encourages banks to expand their assets (mainly by purchasing securities and making loans) with a resultant similar increase in their deposit liabilities; a decrease in cash reserves tends to discourage expansion and may result in some contraction. Therefore, by taking steps to alter the volume of cash reserves available to the chartered banks, chiefly through open market purchases and sales of Government of Canada securities, the Bank of Canada is able to influence the total of chartered bank assets and the total of their Canadian dollar deposit liabilities. The deposit liabilities of the banks, except for those payable to the Government, are of course assets of the general public and together with currency comprise its most liquid assets.

The production and distribution of Canada's currency is a very large-scale operation handled entirely by the Bank of Canada. Each year about 150,000,000 new bank notes with a face value of more than \$170,000,000 are placed in circulation.





An efficient system of audit and inspection is an essential part of a branch banking organization. It is a standing rule that members of the staff concerned should witness counting operations during inspection.

The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. It is empowered to buy and sell securities on the open market, to fix minimum rates at which it will make advances and to buy and sell bullion and foreign exchange. The Bank is managed by a Board of Directors appointed by the Government.

The Industrial Development Bank, established in 1944, is a subsidiary of the Bank of Canada but operates as a separate entity. Its function is to supplement the activities of the chartered banks and other lending agencies by supplying the medium- and long-term capital needs of small enterprises; the bank does not engage in the business of deposit banking.

The nine chartered banks of Canada are commercial and savings banks combined. While they supply a complete range of banking services, their principal function is to provide a safe repository for savings and to act as the principal source in Canada of short-term credit. The banks are privately owned, latest figures showing 77,153 shareholders, of whom 74.4 p.c. are Canadian, owning 73.7 p.c. of the shares. The fact that 90 p.c. of the shareholders have 500 shares or fewer shows the wide diffusion in bank ownership.

The commercial banks are referred to as "chartered" banks because they do business under a charter or licence granted by the Parliament of Canada. They receive this charter through the Bank Act, federal legislation which prescribes what the banks can and cannot do and provides a uniform banking law for all Canada. Every ten years the bank charters are renewed and the Bank Act is reviewed by Parliament and revised to keep it in tune with banking needs, a practice unique to Canada.

From the earliest days of banking in Canada, the branch bank system has been followed, and has been developed to a much greater extent than in any other nation. At the end of September 1956, there were 4,373 bank branches throughout Canada, or a branch for every 3,667 Canadians—an availability of banking service not exceeded in any other country. It is a reflection of the highly competitive nature of Canadian banking that in the past ten years more than 1,100 branches have been opened in expanding

established areas as well as in new and often remote developments. The chartered banks also have 132 branches or offices outside of Canada, mostly in the United States, Great Britain, the West Indies and South America. In addition, the banks have agents or correspondents throughout the world, an important aid to Canada's world-wide trade.

Although operating under the general supervision of a head office, a branch bank, whether in big city or rural hamlet, is a self-contained banking unit, providing a full range of bank service. Under the branch bank system there need be no lack of credit in a community through lack of local funds. Branches whose deposits exceed local loan potential, credit the excess funds to head office which, in turn, makes them available to branches where lending funds are needed. The branch manager has wide autonomy and behind him stand the resources, strength and experience of the institution of which his branch is a part.

The chartered banks are subject to close regulation by federal authorities, although uncontrolled in their day-to-day affairs. They are under the authority of the Minister of Finance whose link with them is as an official of his Department, the Inspector General of Banks, to whom the banks make regular reports on many phases of their operations. He is required to inspect the books of each bank at least once a year and may do so more often. This inspection is in addition to that carried out by auditors appointed by the shareholders of each bank, and to whom the auditors report. In addition, a continuous audit of the operations of each bank and its branches is carried out by the bank's own inspection staff.

The lending field occupied by the chartered banks is essentially short-term. Banks extend credit to producers, industry, institutions, municipalities, corporations, governments and to tens of thousands of individuals for a multitude of purposes. The banks provide the working capital rather than fixed capital—the money to meet payrolls, to buy raw materials, process them and market them, rather than the money to build a factory. Bank

A bank manager and a grain elevator official discuss problems peculiar to the business of shipping and storing wheat. The local banker is in every sense a citizen of his community and takes his full share of community responsibilities.



loans are seldom over a year in length. The latest analysis of bank loans on Sept. 30, 1956 shows total loans in Canada (excluding residential mortgage loans under the National Housing Act) of \$5,395,000,000 and of these, \$3,772,000,000 were for agricultural, industrial and commercial purposes. Loans to individuals totalled \$858,000,000.

Statistics of the Chartered Banks of Canada, Aug. 31, 1956

Bank	Branches in Canada and Abroad ¹	Total Assets	Personal Savings Deposits	Total Deposit Liabilities	Loans and Discounts ²	Liabilities to Share- holders
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Montreal.....	692	2,752,493	1,328,961	2,573,539	1,325,616	139,134
Bank of Nova Scotia..	518	1,257,016	573,063	1,171,242	753,482	65,024
Toronto-Dominion Bank.....	461	1,295,198	684,748	1,215,561	715,692	63,950
Provincial Bank of Canada.....	350	272,628	159,874	255,569	124,306	9,090
Canadian Bank of Commerce.....	746	2,392,723	1,091,150	2,244,595	1,311,776	104,899
Royal Bank of Canada.	865	3,431,501	1,310,154	3,146,088	1,517,264	181,588
Banque Canadienne Nationale.....	583	635,567	396,989	612,221	324,921	21,877
Imperial Bank of Canada.....	277	834,398	394,710	779,517	490,461	40,152
Mercantile Bank of Canada.....	3	17,961	882	14,113	9,006	1,901
Totals.....	4,495	12,889,485	5,940,531	12,012,445	6,572,524	627,615

¹ Includes sub-branches and sub-agencies.
insured under the National Housing Act, 1954.

² Includes mortgages and hypothecs

Monetary Policy in 1955-56.—Business operations during 1955 and 1956 were extremely active in every field, continuing the dynamic growth that has generally characterized the Canadian scene during the past decade. There was full utilization of facilities and labour, and strong and favourable economic forces were at work throughout the country. But, as often happens in a rapidly advancing economy, an imbalance began to appear in the second half of 1955 between expenditure and the country's physical capacity to produce. In other words, the nation's output of goods and services, high though it was, was not keeping pace with consumption and investment expenditure, causing great pressure on the price level and a rising inflationary trend. It became evident that some monetary restraint was necessary to maintain a measure of stability and the Bank of Canada, in accordance with its statutory responsibility to "regulate credit and currency in the best interests of the economic life of the nation" began, late in 1955, to tighten up on credit expansion by restricting the money supply, thereby allowing market rates of interest to rise with the increased demand for funds. The chartered banks were requested to suspend purchase of corporate securities and to discontinue the granting of long-term loans and were also required to maintain second-line reserves of treasury bills and day-to-day loans sufficient, with existing statutory cash reserves of 8 p.c., to establish a liquid-asset ratio of 15 p.c. of deposit liabilities.

The policy of credit restraint gradually took effect. The monthly rate of increase in general Canadian loans of the chartered banks which had risen from \$65,000,000 to over \$100,000,000 between the third and final quarters of 1955, fell back to \$75,000,000 in the first quarter of 1956 and still further in the second quarter, remaining relatively stable throughout the remainder of the year. However, despite the curb on total credit, the chartered banks were able to serve a reasonable proportion of the increased credit needs of the country: at the end of October 1956 current and call loans were reported at \$5,450,000,000 an increase of \$775,000,000 over the same date of 1955, increases being registered in almost every category of commercial and personal loans. In line with the curbing of credit expansion and the general increase in interest rates, the banks during 1956 made upward adjustments in interest rates on bank loans and in the rates paid on savings deposits.

An important change in central banking technique was introduced on Nov. 1, 1956 from which date the bank's loan discount rate will be set automatically each week at one-quarter of one per cent above the yield rate on 91-day treasury bills, thus making the rate more responsive to conditions in the short-term money market

In an area midway between Sudbury and Sault Ste. Marie in northern Ontario, which just over two years ago was wilderness inaccessible except by air, there are now ten uranium mines in operation or under development and 6,000 people live in modern homes, bunkhouses or trailers. Three branch banks serve the area and are fully equipped, as are all branch banks, to render every type of banking business.



The Royal Bank branch at Quirke Lake serves 1,500 workers employed by various construction companies in the area. Cash for bank requirements is transported by car and jeep twice a month from Blind River.



Insurance

Life insurance has become the most widely practised form of thrift in Canada today, accounting for more than one-quarter of personal savings of all kinds. The ratio of life insurance owned to national income is higher than in any other country of the world; on the average, just over fifteen months of current personal income is protected by life insurance. The number of Canadian policyholders at the end of 1955 was 6,500,000. During that year, new insurance written, including industrial, group and fraternal insurance, amounted to \$3,565,000,000, bringing the total life insurance in force in Canada at the end of 1955 to \$27,315,000,000. This represents an average of \$4,200 per policyholder. The amount of premiums paid to carry this insurance was \$556,000,000. Estimates indicate a further gain of \$3,000,000,000 in insurance in force by the end of 1956.

Although life insurance is bought for various reasons, its primary purpose is protection for widows and children and for old age. Total benefits paid during the year 1955 to policyholders, including death claims, matured endowments, disability claims, dividends, surrender values and annuity payments were \$344,000,000. Of this amount, death benefits amounted to nearly \$124,000,000, which means that close to \$220,000,000 was returned in benefits to living policyholders. There has been a continued and growing interest on the part of Canadians in pension planning and personal retirement programs. Annuity contracts, for example, numbered about 426,000 in 1955 (including group certificates) and represent a present and future income to Canadians of more than \$382,000,000 a year. The important factor in this rapid growth is the increasing interest in group annuities among employers and their employees, which have increased more than 700 p.c. since 1945 and now account for five-sixths of the total annuities in force.

Life insurance in Canada is actively transacted by 69 companies and 40 societies registered by the Federal Government, of which 31 companies and 25 societies are foreign. There are also 14 companies and about 45 societies operating under provincial licence only.

Net premiums written for automobile insurance increased rapidly after the War to the point where they overtook fire insurance premiums in 1953. They now constitute the largest volume of any class of casualty insurance premiums. In 1955, the volume of automobile premiums written amounted to \$179,000,000 an increase of 7 p.c. over 1954 which was largely attributable to rate reductions. The loss ratio based on premiums earned was 57 p.c.

Fire insurance coverage has naturally increased with continued economic expansion but, because of substantial reductions in premium rates, the annual volume of net premiums written has remained almost static since 1953. Fire insurance premiums written in 1955 amounted to \$168,000,000 and claims paid to \$95,000,000. The ratio of claims incurred to premiums written was 56 p.c.

The popularity of personal accident and sickness insurance manifests itself in the steady increase in premiums written for these classes. The volume in 1955 was \$114,000,000, ranking third to automobile and fire insurance and representing an increase of 12 p.c. over 1954. Through life and casualty insurance companies and agencies such as the Blue Cross and medical care plans sponsored by the medical profession, hospital expense

insurance is now provided for about 6,500,000 Canadians, surgical expenses for about 5,500,000 and medical expenses other than surgery for nearly 4,300,000.

Operations in other casualty lines have not been spectacular except for the continued expansion of personal property insurance for which premiums written in 1955 amounted to \$25,000,000. Public liability insurance was next in order of premium volume, which amounted to \$16,000,000.

Insurance is a mutual undertaking for spreading risks so that losses which would be serious or catastrophic to a few persons are shared by many. Insurance today covers almost the entire range of public and private investment, from protection of life and earning power to the sale of life and health policies. It also represents investment in housing, municipal utilities, proper business organization and holdings in stocks and bonds by the insurance companies themselves. The growth each year in the amount of insurance written represents an expanding need for security ranging all the way from dealing with problems of greater complexity in personal financing to providing increased educational funds for children.

Insurance forms a large part of the savings of the young family today—protecting the earning power of the head of the household and safeguarding his future and that of his dependants, financing his home and providing for the education of his children.





Sunday afternoon with the Toronto Symphony
Warner Photographic Limited

Music, like science, knows no nationality. Its language is the language of humanity and its works the expression of the times. It knows no barriers of age, colour or creed but lays bare its treasures to be accepted by each of us in his own measure.

SOCIAL DEVELOPMENT



THE many and varied aspects of Canada's current social and cultural development and the recently launched enlightened programs toward further advances in the cultural totality of Canadian society—in the Canadian way of life—find a firm base in the tremendous postwar expansion of the national economy and the present high level of prosperity of the Canadian people.

With increased productive capacity and scientific endeavour have come higher wages, improved working conditions, better housing, marked advances in health—a sustained high birth rate, a steadily declining death rate and a comprehensive program of assistance designed to dispel many of the hazards to health and income security—all contributing to a standard of living hardly surpassed elsewhere in the world.

Stimulated by the emergence of Canada as an industrial and international power and by the enhanced economic well-being of its people, a maturing national self-consciousness is currently finding expression in a justifiable pride in Canadian achievement and potentialities, in a realization of the richness of its bi-cultural traditions—indeed, of the cultural mosaic of many immigrant peoples building a new life in this Northland of opportunity, and in the endeavours of the federal and provincial governments, corporations, cultural bodies and individuals in all branches of literary and artistic expression to foster Canadian cultural activities through such instrumentalities as the theatre, the ballet, the art gallery, radio and television, the film, the press, the university, and the Canada Council for the promotion of the arts, humanities and social sciences.



Youth holds the key to the future. Canada is acutely conscious that education must keep pace with the increasing technological demands of modern society, that every sphere of activity must now be supervised by experts trained at university level, that in gaining material advantages it becomes more and more necessary to develop cultural education to give life its full meaning.

Building upon fine educational traditions, the Federal Government in 1956 joined forces with the provinces and industry in providing financial assistance for the extension of university facilities so that Canada's young people may be trained for the very highest standard of achievement.

Education

TWO-THIRDS of all Canadian children aged five to nineteen are enrolled in Canadian schools for at least some time during the school year. The proportion increases from 65 p.c. at ages five to nine, to 93 p.c. for ages ten to fourteen and drops to 40 p.c. for ages fifteen to nineteen. About 5 p.c. of those aged twenty to twenty-four are still in school. Altogether, in the academic year 1953-54 about 3,400,000 pupils were receiving formal instruction in public and private schools from kindergarten to university or in vocational or professional training schools.

It is more appropriate to speak of Canada's *systems* of education than of the Canadian *system* of education because each of the ten provinces is responsible for its own schools and each has developed a system to meet its particular needs. Perhaps the greatest distinction is between the French tradition found in the Roman Catholic schools of Quebec and the English tradition found in the Protestant schools of Quebec and in the schools of the other provinces. The basis of the latter which is most prevalent across the country is an eight year elementary school which the child enters at age six, a four or five year high school and a three or four year course at college or university leading to a degree in arts or science. Beyond this basic grouping, there are many variations in detail.

Though school law is provincial law, the operation of the elementary and secondary public schools is a local responsibility. Boards of school trustees, of which there are more than 20,000 across Canada—most of them elected—manage the schools for the ratepayers. Property taxes yield the greater part of the income of the public elementary and secondary schools and provincial grants are the other important source of revenue. Through these grants an attempt is made to equalize educational opportunity in all areas, urban and rural, and also to give assistance for such special purposes as transportation, equipment, building costs and classes in arts and crafts. Provincial grants are, in turn, supplemented by grants from the Federal Government for the support of vocational training. Private schools at the elementary and secondary level are financed largely from fees and gifts or are supported by religious organizations.

Grant Hall Tower, Queen's University,
Kingston, Ont.



University income is derived mainly from student fees, government grants, gifts and bequests, and endowment income. Each of the provinces has at least one provincially controlled university or college, or a provincially controlled professional school attached to a private university. Other universities and colleges are privately controlled. Federal grants have enhanced university income since 1951 and late in 1956 the Federal Government announced its intention of increasing those grants from \$8,000,000 a year to \$16,000,000 and of allocating half of the \$100,000,000 grant for the creation of a Canada Council for the Arts, Humanities and Social Sciences to university building projects to be spread over a ten-year period.

A description of Canada's institutions of education and training would include reference to nursery schools, kindergartens, elementary schools, high schools, Indian schools, trade schools, apprenticeship training, technical institutes, business colleges, agricultural schools, teachers' colleges, hospital training schools, colleges, universities, and a variety of agencies of adult education. As one way of introducing these institutions and of indicating their characteristics and roles, there follow sketches of the school careers of nine imaginary Canadians: engineer, teacher, doctor, homemaker, stenographer, Indian farmer, nurse, office clerk, and automobile mechanic.

Engineer

Engineers are in great demand in Canada these days. Stanley Porteous is one of them—working for a large industrial firm.

Stanley lived in an Ontario city where school facilities were highly developed. At the age of three he began a two-year time of happy play and social development in a private nursery school, attending in the mornings only. From there he went to kindergarten, still for half days, in a nearby public elementary school, continuing in an atmosphere of play, but with the addition of exercises in anticipation of the learning of reading and arithmetic.

When he was six, Stanley went on into grade 1, and the study of language and numbers began in earnest. Eight years he spent in the elementary school, and then entered a collegiate institute, comprising grades 9 to 13. There he followed the general course, with studies in English, history, geography, French, science and mathematics. At the end of grade 12 he qualified for his secondary school graduation diploma and at the end of grade 13 for the "honour" graduation diploma.

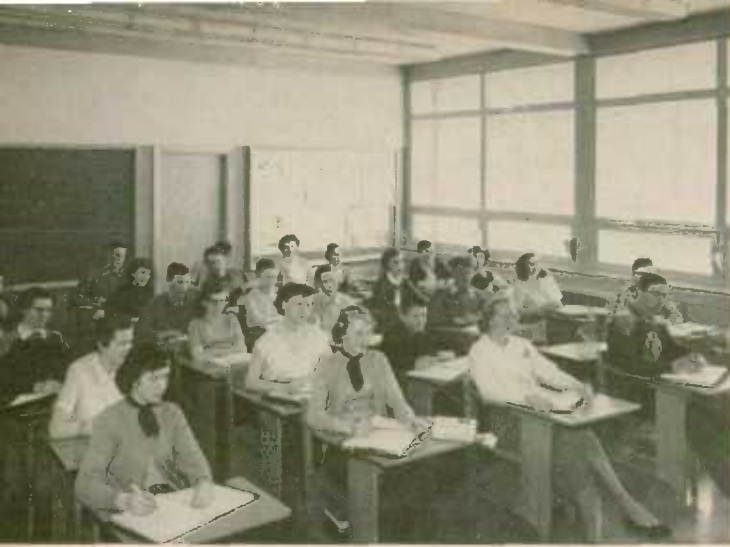
He had excelled in mathematics and science and wished to pursue these studies. Should he go to university or to a technical institute? The decision was easy when he learned that he had won a university scholarship, and he embarked on a four-year course in engineering. During the first two years he studied mathematics, physics, chemistry, mechanics, drafting and related subjects, and in the next two he specialized in mechanical engineering. Each of his three summer vacation periods was spent in engineering work—one of the requirements of the training program. His degree was bachelor of applied science (B.A.Sc.).

Membership in the provincial association of professional engineers and in the Engineering Institute of Canada keeps Mr. Porteous up-to-date in his field. He finds time, too, to hear the luncheon speakers brought before its membership by the Canadian Club.



Every Canadian child must enter elementary school at the age of six or seven—a school usually within walking distance of home if he lives in a city or town, or to which he will be brought by bus if he lives in the country. Here begins the training that will, according to the child's abilities and interest, determine his future place in society.





The pupil progresses from elementary to secondary school in his seventh, eighth or ninth school year. Most students go on to this stage and receive at least part of the secondary school training.

Teacher

Lois Robertson, born on a prairie farm and now teaching in a prairie high school where her own background and training is having an immeasurable influence on the many young people who look to her for instruction.

Lois received her elementary and secondary schooling in a centralized school to which she and her fellow pupils were taken each day by a school bus, replaced during the winter season by a bombardier or snowmobile. In the process she passed through three stages: (1) elementary school, grades 1 to 6, in which concentration was on the basic school subjects, with the addition of social studies, science, art, music and health; (2) junior high school, grades 7 to 9, allowing for exploratory studies in some vocational subjects as well as continuation of work in language, mathematics, science and social studies; and (3) senior high school, grades 10 to 12, in which she followed a college-preparatory program.

Having decided to be a teacher, Lois had to choose between entering directly a teacher-training course or taking a university degree first. She chose the latter, and enrolled at university in the faculty of arts. Her



subjects included selections from the humanities, the social sciences and the natural sciences. During the two final years of the three-year course she placed major emphasis on the study of psychology and sociology. At the age of twenty-two she was graduated with a bachelor of arts (B.A.) degree.

Then followed a one-year course in the university's faculty of education, in which she was introduced to the philosophy and history of education, to educational psychology and to principles of school administration, and was instructed in teaching methods. A significant part of the time was spent in practice teaching in both city and rural schools. For several summers after she began to teach, Miss Robertson spent six weeks in a teachers' summer school, taking further training in the field of education.

Doctor

Jean-Paul Lefebvre, M.D., physician in his native city of Quebec.

At the age of five, Jean-Paul Lefebvre started his scholastic training in a neighbourhood French Catholic elementary school for boys and was enrolled in the *classe maternelle* (nursery class or kindergarten). After a year of pre-school orientation, he entered the seven-year elementary course in the same school. There he was taught to read and to write his own language—French—and English too beginning in the sixth year. He studied arithmetic, Canadian history, geography and, above all, religion. His teachers were nuns.

Because Jean-Paul showed considerable ability his parents decided then that he should be prepared for a professional career, so his next move was to a *collège classique*. Taught by priests, he followed there an eight-year program of humane studies—Latin, Greek, French, English, history, philosophy, mathematics, science and, of course, religion. He wrote the



At the secondary level, both institutions and curricula are much more greatly diversified so that each pupil may follow the course to which he is inclined.



Elementary school teachers in training at the New Toronto Teacher's College. A new specially designed and equipped building accommodating a thousand students serves to emphasize the importance of the teacher in starting Canada's young people on the right road to personal success and national service.

examinations set by the university to which his college was affiliated and received the degree, *baccalauréat ès arts* (B.A.). This qualified him to enter university, which he did at the age of twenty-one.

During his first two years in the faculty of medicine he studied anatomy, physiology, histology, chemistry and bacteriology. For another two years he studied pathology and attended clinics in the university hospital, and in his fifth year he was a junior intern in the hospital, getting practical experience under the guidance of older doctors. At this point he passed the university's examinations for the degree *docteur en médecine* (M.D.) and also the examinations set by the Medical Council of Canada whose certificate entitled him to practice anywhere in Canada. After one more year in hospital as a senior intern, Dr. Lefebvre began his work as a general practitioner at the age of twenty-seven.

Homemaker

Madame Denyse Lefebvre is the wife of the
Dr. Jean-Paul Lefebvre.

Like her husband she spent eight years in an elementary school—one year in the *classe maternelle* and seven more to complete the seventh year of the elementary course. Her teachers, like his, were nuns, but she attended a girls' school. She continued to the secondary school but after completing the ninth year she transferred to a residential *institut familial* (institute of family and feminine education), administered by a religious order but under the direction of the provincial department of education. There she followed a four-year course designed to prepare young women for homemaking and motherhood. The curriculum included training in cooking, home management, handicrafts, millinery, dress-making, baby and child care, and also cultural development through the study of religion, history, language, science, art and ballet. Much emphasis was placed on the development of social

grace and the whole program emphasized the essential femininity of the young women who followed it.

Madame Lefebvre continues her lively interest in the arts by painting two evenings a week in an *école des beaux arts*. She is an ardent supporter of the local art gallery.

Stenographer

When the manager of a western meat packing firm says, "Please take a letter", it is Helen Sullivan who responds.

Her first school year in her home city on the prairies was in a private kindergarten. There she expressed herself in music and art, learned to distinguish and name colours, listened to stories, developed a feeling for spatial relationships, had her first experience in getting along with a large group of children, and was oriented to reading and number-work. There followed eight years in a "separate" (Roman Catholic) elementary school—financed, like the public school, by public funds. The curriculum was the same as that of the public school except that there was more emphasis on the teaching of religion. High school came next, but when Helen had completed grade ten she decided to be a stenographer and spent the next year in a private business college. Her studies included shorthand, typewriting, business English, business arithmetic, office practice and office machines. When she received her diploma she was able to take dictation at a speed of 120 words a minute, to type at 60, and to turn out finished letters, invoices and other business forms in an acceptable manner.

Fond of reading, Miss Sullivan plans her own further education and makes much use of the local public library.

Indian Farmer

Joe Mountain is an Indian and, like many Indians, he is a farmer.

He did not start to school when he was six because he belonged to an isolated band, and it was not until he was eight that arrangements were made by the Indian Affairs Branch of the Federal Department of Citizenship and Immigration to send him to an Indian residential school. There he lived

Young Indian men and women from Alberta reserves are given special instruction in farming and home-making at Olds School of Agriculture and Home Economics.



and studied with 180 other Indian children in a school which was church-controlled but financed by the Federal Government. The curriculum was that of the provincial department of education, with some adaptation to take into account the special problems of Indian children: some could not speak English when they arrived; most were likely to spend their lives on the reserve.

Joe was quiet, like his fellows, but he learned. Not many Indians continue beyond elementary school and when Joe finished the sixth grade he went home to work on the family farm which would one day be his. His schooling was not over, though, for he was chosen several years later to attend the provincial agricultural school (at Federal Government expense) for a two-year course in practical farming—six months each winter. And he continues to make use of the advice made available to him by the extension service of the provincial department of agriculture.

Nurse

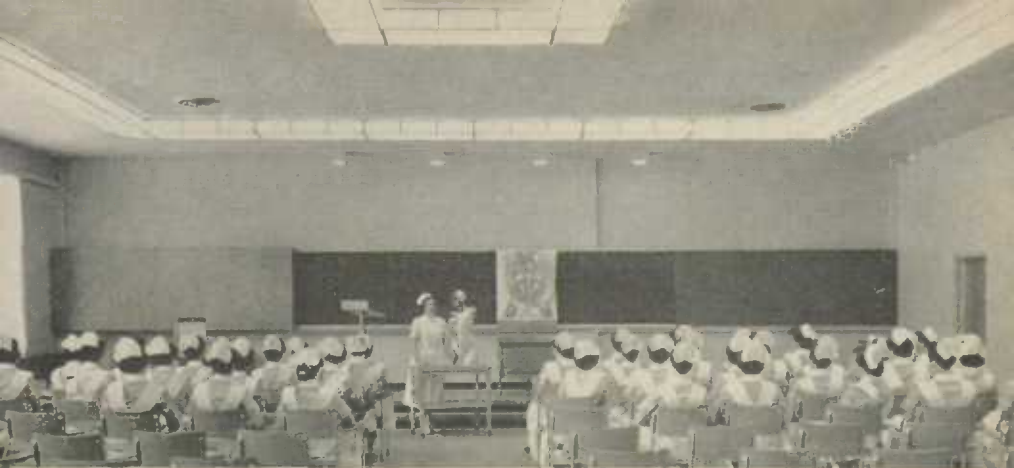
Mary MacLeod, R.N., is a Maritimer and proud of it. She is on the staff of a city hospital.

There was but one room in the village elementary school to which Mary went as a child, and in it she progressed from the primary grade through grades 1 to 6. The teacher had to divide her time among the children in those seven grades, so there was a good deal of "seat work" done by all of them. When she was in the lower grades, Mary often listened to the lessons being given to the older children, and when she became one of the older children she sometimes helped the younger ones. For grades 7 to 11, Mary attended a regional high school. It was some miles from her home, but the school bus stopped at her door each morning, took her to school for the day and dropped her off at home again in the late afternoon. Mary had always wanted to be a nurse so chose her high school subjects with this in mind, being careful to include chemistry, physics and mathematics. At the age of 17 she graduated from high school and because she could not enter the hospital school of nursing until she was 18 she spent a year at home helping her mother. Off she went, then, to the hospital for a three-year course. The curriculum included anatomy and physiology, microbiology, pharmacology and therapeutics, psychology and sociology. In addition she learned many things such as making hospital beds and serving meals to patients, and received a variety of experience on different types of wards—surgical, obstetrical, children's and the rest. Now, as a Registered Nurse, she is engaged in the occupation of her childhood dreams.

Office Clerk

Frank Bell is a clerk in a chemical firm.

After six years in elementary school he entered the junior high school. There, in addition to further study of English, history, general mathematics and science, he was given an opportunity to explore a number of vocational subjects and to take advantage of the school's guidance service. He took courses in typewriting, woodworking and metalworking. Typewriting appealed to him, so when he had completed the three-year program of the junior high school and was ready to enter senior high school (grades 10 to 12) he decided to take the commercial course, one of the several parallel courses



The training period for a Registered Nurse is three-years. At the Ottawa Civic Hospital, under a new system to be inaugurated in 1957, a student nurse will pay a nominal fee for the first two years as in any other institution of higher learning, and in the third year of advanced practical training in the wards will receive a monthly allowance and live out of residence if she wishes.

available in the composite school he attended. In addition to typewriting, which had first caught his interest, his studies included shorthand, book-keeping, secretarial practice, business arithmetic, English, social studies, and health and personal development. At the end of the course he qualified for a high school graduation diploma.

The firm for which Mr. Bell works encourages its employees to continue to learn and has paid half the tuition cost for his attendance at two courses in office management given by the extension department of the provincial university.

Automobile Mechanic

If you were to leave your car at a downtown garage in a Quebec city it might be taken care of by Pierre Trudeau.

Pierre is one of a farm family of eight. His elementary schooling of seven years was obtained in a French Catholic *école de rang*, or rural school. He continued for one year in a secondary school but it was evident by then that he was more suited to work with his hands than to book learning and Pierre went to the city to learn a trade.

The Quebec Department of Social Welfare and Youth operates a network of vocational schools and institutes and Pierre enrolled for a one-year course in an *école de l'automobile*. There he learned the functions of the parts of an automobile and how to repair and correct mechanical defects. He was given instruction on the motor, the transmission and the electrical and lubrication systems, following which he was put on general repair work and given practical experience. Pierre then became an apprentice in a large garage. If he had not gone to the school he would have had to serve a three-year apprenticeship, but completion of the course reduced the required time to one year. When he had served his apprenticeship he passed a practical and

oral examination and was given a certificate of competency as a journeyman automobile mechanic—Class "C". As he gained experience he prepared for and passed another examination for a Class "B" certificate, and eventually a third for the coveted Class "A" certificate—the mark of the skilled trades man.

Not all types of schools are represented in these outlines, for the variety of educational facilities in Canada is without end. No mention has been made, for example, of the many kinds of schools and classes for the education of exceptional children, nor of correspondence courses, military colleges and the education of Eskimos. Nor have many of the provincial variations in the organization of elementary and secondary schooling been brought out. What has been recorded, however, is representative of the educational scene.

Statistics of Canadian Education, Academic Year 1953-54

Type of School	Schools	Teachers	Pupils
	No.	No.	No.
Elementary and Secondary Schools (including some vocational training).....	31,882	112,068	3,234,529
Regular public.....	30,149	102,563	2,822,810
Regular private.....	1,259	8,584	160,003
Schools for the blind and deaf.....	13	315	2,096
Indian schools.....	461	606	28,174
Evening classes (public and private).....	—	—	221,446
Universities and Colleges (excluding pre-matriculation courses).....	270	11,789	138,526
Full-time university grade.....	270	6,503	64,121
Evening courses.....	—	5,286	27,977
Other (extension, part-time, etc.).....	—		46,428
Teacher Training Institutions	142	1,470	14,337
Normal schools and teachers' colleges (chiefly for elementary school teachers).....	118	1,246	12,072
University faculties of education (chiefly for secondary school teachers).....	24	224	2,265
Totals¹	32,270	125,103	3,385,127

¹Less duplication—figures for university faculties of education also included in those for full-time university grade.

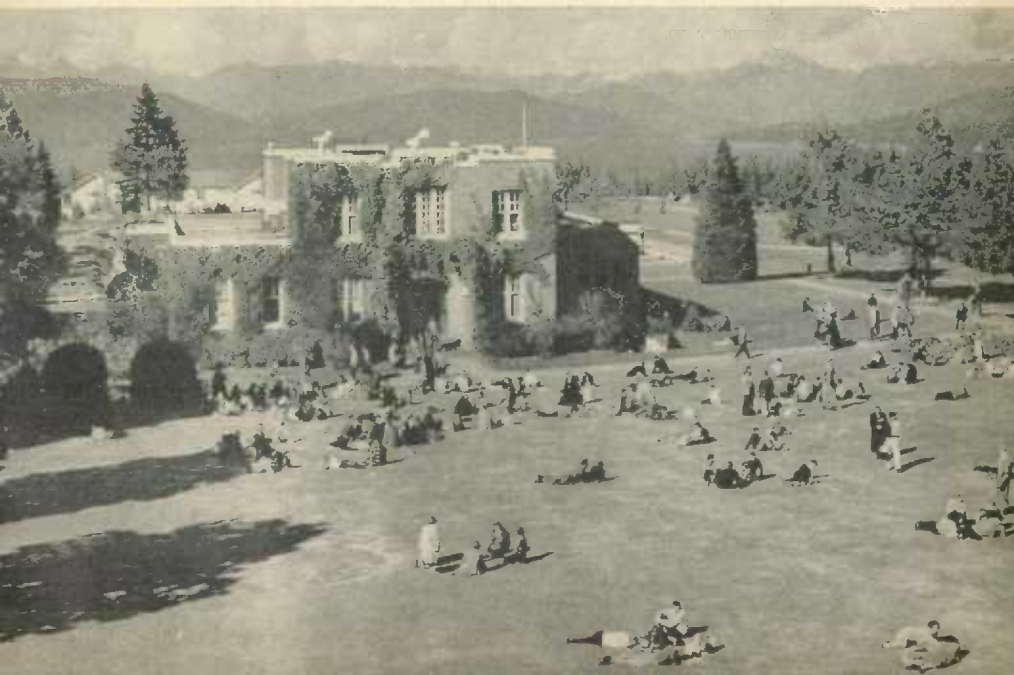


The gifted child requires as much special attention as the retarded child. Many work classes at the elementary and junior high levels give the fast learner regular school work enriched by additional instruction in languages, literature, science and music.



The University of Montreal stands in a remarkable setting near the summit of Mount Royal. It was founded in 1876 and has become an educational landmark in French-speaking Canada. Affiliated with it are thirty colleges with an enrolment of more than 10,000 students.

Students at the University of British Columbia are surrounded with magnificence—the creation of nature and of man. The thousand-acre campus, situated on the outskirts of Vancouver contains almost 200 buildings and a \$10,000,000 construction program is at present under way. The University has ten faculties, 765 staff members and 7,500 students.



Scientific Research

IN Canada as in any country competing in the industrial world, scientific research has become a most important element in the economic picture. Industry advances on the findings of the research laboratory and it is evident that an increasing proportion of the expenditures of the larger industrial establishments is being allotted to research-development programs.

Investment in scientific research and development by Canadian industries during 1956 is estimated at \$80,000,000, an increase of 20 p.c. over the \$66,000,000 reported for 1955. These figures are based on information supplied by 2,500 leading Canadian companies who co-operated in a survey conducted jointly by the Dominion Bureau of Statistics and the National Research Council. Of these companies, 318 are conducting their own research-development programs, 235 others have research information provided to them without cost—about 50 p.c. of them from parent companies outside Canada—and the remaining companies had no particular research information sources. The expenditure of \$80,000,000 represents an outlay of about \$5 per capita or 0.3 p.c. of the estimated gross national product for 1956. The proportion in the United Kingdom and the United States is two to four times higher but the Canadian increase in recent years reflects a trend towards greater self-sufficiency in research. Canada's relative growth in industrial research-development expenditures since 1946 has been about three-fold, roughly paralleling that of the United States.

Research-Development Expenditures by Industry, 1955 and 1956

Industry	1955	1956 Estimate	Industry	1955	1956 Estimate
	\$'000	\$'000		\$'000	\$'000
Mining, quarrying and oil wells.....	3,046	3,619	Non-metallic mineral products.....	1,101	1,074
Manufacturing—			Products of petroleum and coal.....	4,704	5,654
Foods and beverages....	1,707	1,779	Chemical products.....	7,845	10,136
Rubber products.....	2,720	2,997	Tobacco and tobacco products and miscellaneous manufacturing.....	297	518
Leather products.....	157	170	Transportation, storage, communications and public utility operations.....	3,351	3,372
Textile products.....	1,161	1,295	Construction, health services, engineering and scientific services and trade associations.....	702	934
Wood products.....	95	88			
Paper products.....	4,049	4,595			
Iron and steel products..	3,088	3,297			
Transportation equipment.....	16,553	22,772			
Non-ferrous metal products.....	4,530	5,109			
Electrical apparatus and supplies.....	10,780	11,896			
			Totals.....	65,886	79,305

Comparison of Canadian industrial research with British or American must take into account two factors affecting Canada. One is the continuing reliance on facilities of parent companies outside of Canada; out of the \$66,000,000 spent in 1955, \$12,000,000 or 18 p.c. was performed outside of Canada, this in addition to the research information provided free of charge to branch plants in Canada. The other is the greater relative participation



Large food preparations industries carry on continual testing and research to improve their products.

In a new industrial environmental test laboratory, equipment is subjected to corrosion tests in artificially produced salt fog.

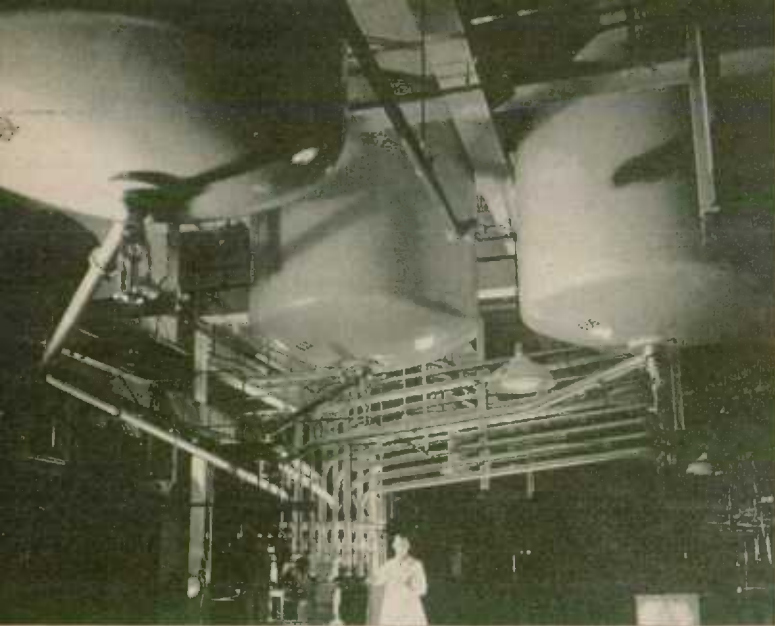
Industrial engineers use development missile as test-bed for torsional studies simulating actual flight conditions.



Electronic oil conservation equipment receives known data on an oilfield and prepares information regarding its future behaviour.

Testing explosives to ensure peak performance for a particular job.





The paint industry is actively engaged in extensive research and has recently developed many new special-purpose finishes. New paints, easier to apply and more durable, are available in a wide range of shades.

of the Federal Government in the nation's total volume of non-military research. In 1956-57 the Canadian Government will spend about \$5.40 per capita on civil research as compared with \$4.40 per capita by the United States Government and a somewhat lower amount by the United Kingdom. Total federal expenditures on research, including defence research, is about 2.5 p.c. of the national budget. In 1955, expenditures in the mechanical, chemical and electrical engineering fields together with chemistry and metallurgy accounted for 86 p.c. of the total.

In most industries the larger companies—those with sales volume in excess of \$50,000,000 a year—are responsible for about 65 p.c. of research expenditures. Exceptions are the chemical products and the iron and steel industries where research costs are shared more evenly by medium and lower annual sales groups.

While industry has in recent years been making an increasing contribution to scientific study, much of the industrial research in Canada has long been carried on by government. The National Research Council plays the leading role in scientific and engineering fields at the national level, while several provincial research councils stimulate and support research designed to assist primary and secondary industries in developing the natural resources of the provinces. A number of federal departments of government—notably Agriculture, Fisheries, Mines and Technical Surveys, National Defence, National Health and Welfare, Northern Affairs and National Resources, and Trade and Commerce—have permanent branches that carry on research in the national interest in such practical fields as soils and crops; processing and marketing of fish; silviculture and forest products; geodetic, topographical, hydrographic and geological surveys and metallurgy; military problems; food and drugs, nutrition and medical care; and the mastery of the Arctic environment. The Dominion Observatory at Ottawa and the Dominion Astrophysical Observatory at Victoria, B.C., specialize in solar physics, geophysics and astrophysics, while Atomic Energy of Canada Limited is engaged in a broad

research and development program in the field of nuclear fission. The work of the National Research Council, the Defence Research Board and Atomic Energy of Canada Limited is covered briefly on pp. 256-261.

A significant role is played by Canada's universities in both fundamental and practical research. A wide variety of studies are at present being carried out in such diverse fields of pure research as mathematics, nuclear physics, electrical communication, isotopes and therapy units. Practical research in the universities, influenced largely by industrial and social life in the communities around them, embrace such fields as primary agriculture, industry, minerals, lands and forests, fisheries, atomic energy, health and town planning. Most of the research in the universities is financed by grants-in-aid, scholarships and fellowships from the federal and provincial governments, from foundations, industrial corporations and individual donors.

For many years in Canada, medical research has been making notable contributions to the health of the nation and to medical knowledge generally through support provided by the federal and provincial governments, by private foundations or corporations, and by universities or hospitals in the form of research fellowships for training and capital and salary expenses to permit investigations in specialized fields. Most of the fundamental medical studies are carried on in medical schools.

Realization of the fact that the gap between research ideas and marketable inventions is narrowing prompted the creation recently of a Crown company—*Canadian Patents and Development Limited*—whose principal purpose it is to make licensing arrangements with industry for patents issued on work of government or university laboratories.

Of particular current interest in the scientific field in Canada is its part in the world-wide program of studies known as the International Geophysical Year (IGY). This is a vast 18-month project being undertaken by more than fifty nations and upwards of 5,000 scientists to obtain simultaneous

Rockets loaded with scientific equipment are fired from this launching tower near Churchill, Man. Travelling up to 165 miles into the stratosphere, the rockets gather information on natural phenomena, which will be part of Canada's contribution to the world-wide program of studies known as the International Geophysical Year.



measurements all over the world of natural phenomena which affect climate, weather, communications, navigation, commerce and many other aspects of daily life. During the IGY—July 1957 to January 1959—about ninety stations in Canada, ranging in importance from the Dominion Observatory to remote outposts, will collect daily information on ocean levels, glacial changes, earth tremors, gravity, magnetism, the Northern Lights, disturbances of the upper atmosphere and solar flares. Most of these stations are already well established and adequate to meet all IGY demands. In other fields expansion has taken place to fit them into the world scheme.

National Research Council.—In its forty years of existence, NRC has had a profound effect upon Canadian research. Its first function was to establish a system of grants and scholarships to stimulate research in universities and to assist students in financing post-graduate training. Later the "Associate Committee" mechanism was set up which has, throughout the years, co-ordinated all research of a national character. NRC began its own laboratory work at Ottawa in 1925 and today operates five laboratory Divisions in the sciences, three engineering Divisions, regional laboratories at Halifax and at Saskatoon, and also operates a Division of Medical Research to award grants and fellowships in support of research in that field. In 1954-56 the Council provided \$2,600,000 to support pure research in the universities. In addition, it sponsors many Associate Committees operating in such diverse fields as aquatic biology, corrosion research, plant breeding, radio science and soil and snow mechanics.

Its service to industry has three objectives: to encourage industrial establishments to use the Council's laboratories just as the units of a large company use their own laboratories as sources of scientific information and assistance; to undertake, under contract, research work for any firm which has a problem that cannot be solved by private consulting and testing laboratories; and, through its Technical Information Service, to help small industries with no scientific staff who often do not realize that their problems are capable of solution and to provide them with information on the latest technical and scientific developments.

NRC staff numbers 2,400, of whom about 600 are scientists whose average age is only thirty-five years. About half of these scientists hold degrees at the doctorate level and the other half degrees at the master or bachelor level, and about 150 of them are also engineers. In addition, there are about 100 post-doctorate Fellows working at NRC, selected by world-wide competition. This scheme has been so successful that it has been extended, under NRC auspices, to universities and some government laboratories. The Council operates on an annual budget of about \$20,000,000 of which about 5 p.c. comes from royalties and fees received for special research for industry. An Advisory Council, responsible to a committee of seven Cabinet Ministers formulates the broad policy that governs the operation of the laboratories. Most of the Council's 21 members are drawn from the senior scientific staffs of universities; others represent labour and industry.

The NRC's laboratories are organized in nine divisions. The current activities of the *Division of Applied Biology* range from applied studies on food storage and transportation to fundamental work on the metabolism and chemical composition of living organisms. The *Division of Pure Chemistry*,

Industrial or closed circuit TV is lending an eye in places where it is difficult or dangerous for men to go. NRC scientists observe in safety the performance of jet engines under conditions in which there is risk of explosion. The camera is mounted in the test cell and separated from the control panel by a thick steel wall.



concerned with investigations in the organic, inorganic, physical and colloid fields of chemistry, is endeavouring to discover the reasons for certain reactions and to determine the ultimate spatial structure of unknown compounds. A major function of the *Division of Applied Chemistry* is the development of chemical processes that will utilize Canada's natural resources. At present petroleum products are receiving special attention, as well as textiles and rubber. The *Division of Pure Physics* is concerned with various fundamental problems including X-ray diffraction, cosmic rays, spectroscopy, solid state physics and theoretical physics. Preparation for the International Geophysical Year, 1957-58, has stimulated much of this research. Of special interest in 1956 was the International Conference on Electron Transport in Metals and Solids, organized by this Division in co-operation with UNESCO and the International Union of Pure and Applied Physics.

Helicopter de-icing is studied by NRC. The huge sroy rig provides an icing cloud in which a Royal Canadian Navy helicopter hovers.



The *Division of Applied Physics* serves Canada with its significant contributions to Canadian mapping methods, its provision of a common dosage standard for X-radiation at cancer clinics, and its co-operative program with the Canadian Pulp and Paper Association on noise abatement in the paper industry. Studies in the standards field have led to a highly precise temperature scale through most of the international range, and the reproduction of the standard of brightness through the brightness of melting platinum.

The *Building Research Division*, in co-operation with the construction industry and Central Mortgage and Housing Corporation, is conducting, in a cross-country chain of research stations, an extensive program of studies in building materials, house heating, insulation, fire research, building physics, design characteristics and soil mechanics. A pocket-book edition of the National Building Code has been published for use by smaller municipalities.

The *Mechanical Engineering Division* embraces many branches of aeronautical research, together with certain phases of hydraulic and mechanical engineering and naval architecture. The Division includes units for work on aerodynamics, engines, fuels, lubricants, structures and instruments; operates a flight research station where equipment produced in the laboratories can be tested in actual flight; functions as a research organization for the Armed Services; and provides Canada's aviation industry with research, development and testing facilities.

The *Radio and Electrical Engineering Division* is working on several military projects in co-operation with the Defence Research Board. Considerable basic research is also being carried on in radio-physics and in radio and electrical engineering. Subjects of civil rather than military interest include testing and development work for electrical manufacturers; electronic work associated with a program of electromedical research in progress at the University of Toronto; civil radar techniques, especially in their application to air and sea navigation and aerial survey problems; and solar noise observations, radio-frequency mass spectrometers, antenna design, electronic detection of flaws in paper, electronic music, and the explosion hazards of static electricity generated by grain handling. This Division, too, is playing an important role in the International Geophysical Year.

The *Medical Research Division* promotes medical research through fellowships and grants-in-aid to workers in Canadian medical schools. Many different fields of medical research are being supported, including studies relating to the central nervous system, endocrinology, properties of the blood, metabolism, and shock.

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

The Board operates ten laboratories across Canada, as well as liaison offices in London and Washington in addition to its Ottawa headquarters. The research and development program includes in part the following fields:

naval, weapons, the defensive aspects of atomic, biological and chemical warfare, humans in unusual environments, telecommunications, electronics, northern problems and a host of related research projects. All operations are carefully co-ordinated with defence research and development in the United Kingdom and the United States, in order to eliminate any duplication of effort.

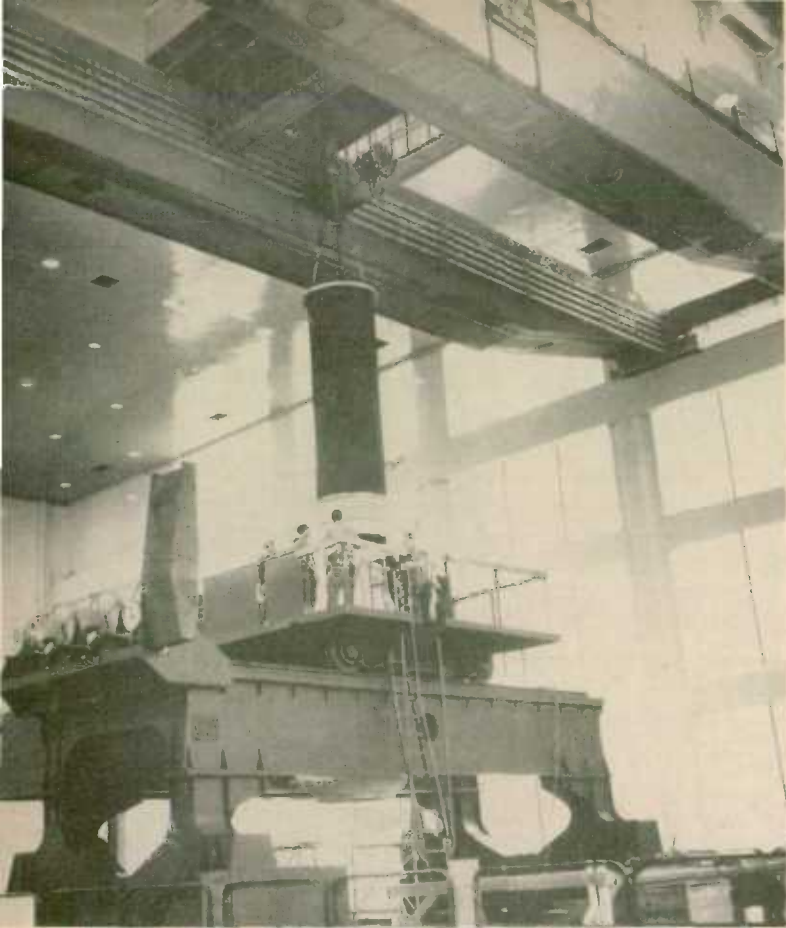
Atomic Energy of Canada Limited.--This Crown company is entrusted with research and development to enable Canadian industry, agriculture and medicine to take full advantage of the many new opportunities that have arisen from the discovery of nuclear fission. Its main laboratories and plant are situated at Chalk River, Ont., about 130 miles northwest of Ottawa. Since the end of the War its work has been directed towards peaceful applications of atomic energy in science and industry and particularly towards the large-scale generation of electricity. At the same time, fundamental research on the structure of the atomic nucleus has prospered and laboratories have been equipped for studying the basic chemistry of the radioactive substances which characterize atomic energy work and for research into the effects of atomic radiations on living organisms. From the start of the project to March 1957, the Government of Canada has voted approximately \$192,000,000

A gunner undergoing a skin temperature test at the Defence Research Northern Laboratory, Churchill, Man., to determine how quickly he may become acclimatized to the cold.

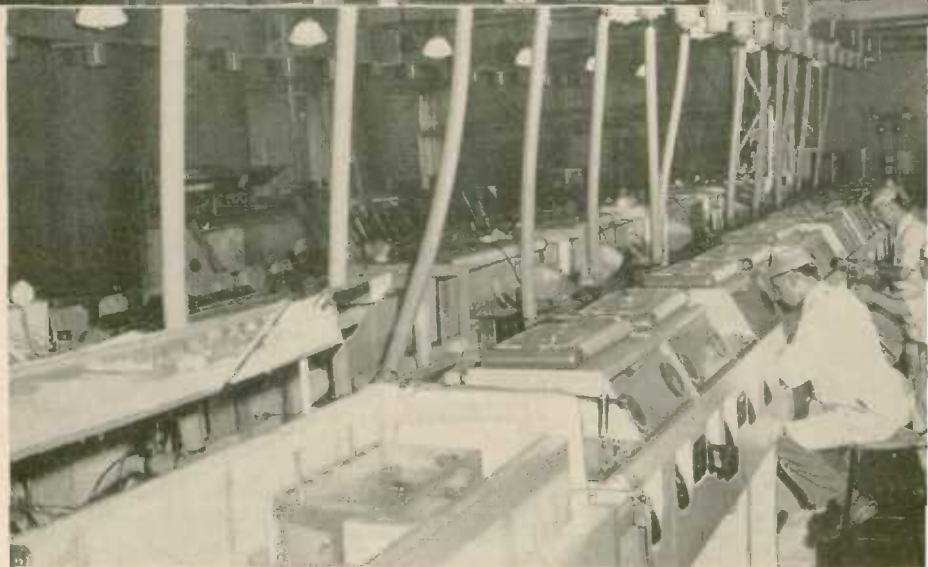


Scientists at DRB's Naval Research Establishment at Dartmouth, N.S., are studying the possibilities of hydrofoil craft in high-speed rescue operations.





Erecting the fuel rod removal flask on top of Canada's new NRU reactor which will be five times as powerful as the NRX reactor now in operation.



Radioactive sources for medical and industrial applications are handled in ventilated and shielded boxes in the Gamma Laboratory of the Commercial Products Division of Atomic Energy of Canada Limited.

for the development of atomic energy, and about 2,400 persons are now employed by the Crown company.

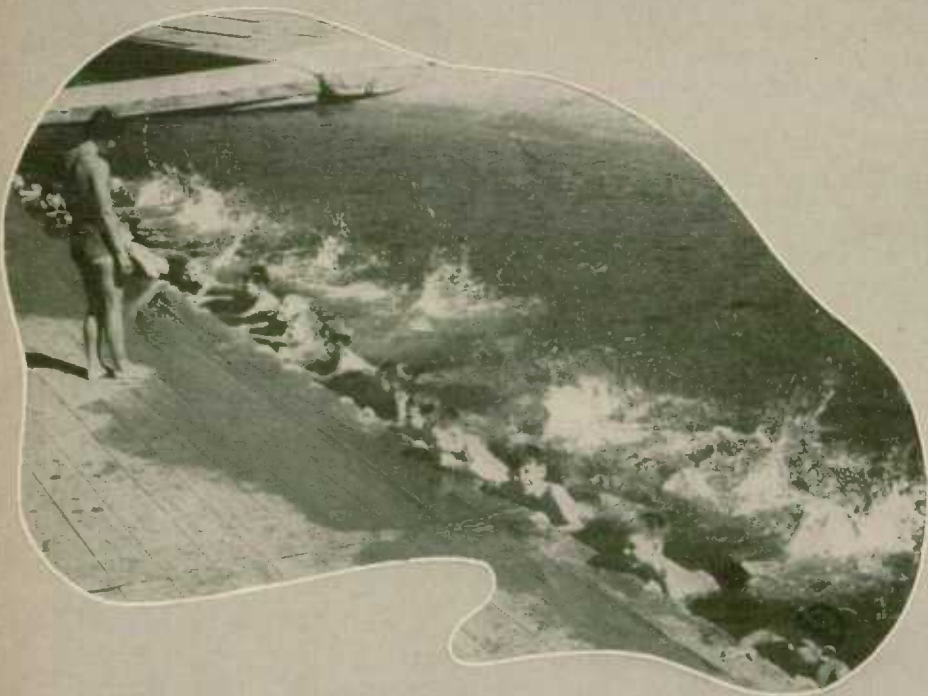
A significant event in Canada's atomic energy program in 1956 was the beginning of the construction of the country's first atomic power station. This Nuclear Power Demonstration (NPD) plant is a joint undertaking by Atomic Energy of Canada Limited, Canadian General Electric Co. Ltd., and The Hydro-Electric Power Commission of Ontario. It is being built about 20 miles from the Chalk River establishment, and will send 20,000 kw. of electricity into Ontario Hydro distribution lines when it goes into operation in 1959. The NPD station will provide valuable technical data and information on the economics of this type of plant which is needed for the design of larger atomic power plants and for estimating their costs. A preliminary design and feasibility study for a power reactor in the range of 100,000 to 200,000 kw. is now being carried out at Chalk River. Power-producing organizations in various parts of Canada are being kept informed on atomic power through the Advisory Committee on Atomic Power Development, a committee consisting of senior executives of the utilities.

Private industry is participating in the Canadian atomic program on an increasing scale. Canadian General Electric Co. Ltd. is designing the reactor for the NPD station; Canadair Limited is designing and building a low-power reactor known as PTR (Pool Test Reactor) for testing reactor fuels at Chalk River; Canadian Westinghouse is producing engineering test apparatus to be installed in the NRU reactor; and Shawinigan Engineering Co. Ltd., is doing the modifications of the NRX reactor design for CIR (Canada-India Reactor). Many other companies are manufacturing equipment of special design for reactors and associated plants. A private firm is building a fuel rod manufacturing plant in Port Hope, Ont., and will design and build the first privately owned reactor in Canada at McMaster University which will be used for research activities and to train scientists and engineers.

Work is progressing rapidly on the Canada-India Reactor being built near Bombay. This is a joint enterprise in which the costs and responsibilities are being shared by the two countries. It is the first major atomic project in the field of international assistance to be undertaken by any of the countries most advanced in the development of atomic energy. The reactor portion of the plant, which will provide experimental facilities similar to those of the NRX reactor on which its design is based, is being provided by Canada under the Colombo Plan.

While primary emphasis is placed on the production of electricity, other beneficial applications of atomic energy are by no means neglected. Cancer therapy units manufactured in Canada have been supplied to hospitals in the United States, the United Kingdom, France, Australia, Puerto Rico, Italy, Brazil, Switzerland and New Zealand as well as in Canada. Others are going to Lebanon and India, and one has been given to Burma under the Colombo Plan.

Radioactive isotopes are bringing improvements in many industrial operations and, in addition, it is becoming abundantly clear that all the biological sciences from forestry to medicine are making a step forward by the use of isotopes in research. The power to control may be expected to follow the understanding so gained.



The maintenance of a high standard of health and well-being for a community or a nation begins with the individual—first for himself and his family and then for those about him who need assistance. The thoughtful selfless effort of public-spirited citizens is an immeasurable addition to organized professional service.



Health and Welfare

THE progressive development of health and welfare services which has taken place in Canada during the postwar years had by 1956 provided a reasonably comprehensive network of assistance against most of the economic and health hazards of today. Health and rehabilitation services were being expanded and integrated to support the work of the hospitals and medical practitioners, though a good deal remained to be accomplished before adequate facilities were available to deal with the problems of mental illness and the chronic degenerative diseases and there continued to be variation between provinces in the type of services provided and in their availability to different groups of the population. Active consideration was being given in all provinces to the federal proposal to assist provincial programs for hospital care and radiological and diagnostic services. In some provinces prepaid public hospital care was available to a majority of persons; in the remainder a substantial proportion of the population was covered under voluntary plans.

Family Allowances, Old Age Security, Old Age Assistance, Disability and Blindness Allowances, Unemployment Insurance and Assistance, Mothers' Allowances and Workmen's Compensation Programs constituted a bulwark against the principal threats to income security for a large number of persons.

Health in Canada

The sustained high birth rate since the end of the War (28.4 in 1955) together with a steadily declining death rate (8.2 in 1955) has produced a net increase of two and one-half million native-born Canadians over the past ten years. In the same period, the average age of death has been raised by four years. The female fertility rate is higher than at any time in the past thirty years and during the same period infant and maternal mortality rates have been reduced by 40 p.c. and 70 p.c., respectively.

Improvement in health is related to improvement in living standards in recent years as well as to advances in medical science. Better nutrition, better housing and better hygienic control of environment have all contributed greatly to improvement of health conditions. As in other countries, the most spectacular progress has been made against the infectious diseases. Vaccination has wiped out smallpox and helped to control whooping cough. Salk vaccine has been used effectively against poliomyelitis, and BCG in controlling tuberculosis; the death rate for tuberculosis alone has been reduced by 80 p.c. over the past ten years. The recent detection and successful use of vaccine against the adeno-viruses (febrile respiratory conditions) has opened new fields in the control of virus infections. The development of broad spectrum antibiotics and other chemo-therapeutic agents has dramatically reduced morbidity and mortality from many bacterial and virus diseases. Infectious diseases now account for less than 2 p.c. of all deaths.

Increasing control of infectious diseases has accentuated the substratum of illness resulting from degenerative processes. Heart and other circulatory conditions, cancer, stroke and other central nervous system diseases now



The Industrial Health Laboratory of the Department of National Health and Welfare works with provincial authorities and with industry to safeguard and advance the health of Canadian workers. This X-ray spectrometer detects and measures silicosis-producing dust in air samples.

account for two-thirds of all deaths. In the past six years, heart disease and respiratory cancer deaths have increased among the male population by one-fifth and one-half, respectively. The Survey of Permanent Physical Disabilities carried out as a part of the Canadian Sickness Survey of 1951 disclosed that heart disease, arthritis, rheumatism, blindness, deafness, stroke, and other conditions affecting the central nervous system accounted for nearly half of the approximately one million Canadians estimated to be suffering at least some degree of permanent disability. Accidents have proved an increasingly important source of disability. Motor vehicle accidents, causing nearly three thousand deaths and over sixty thousand injuries yearly, are the most serious and over four hundred thousand injuries are reported annually by industry. Mental illness also continues to be a severe problem, with more than sixty thousand persons in mental institutions and many more receiving treatment through clinics and general hospitals.

Medical research has produced treatment methods which contribute greatly towards the control of chronic disease. Insulin and ACTH, valuable drugs in endocrine therapy, owe much to research in Canada for their development. These and other new drugs have greatly helped the control of such conditions as diabetes, arthritis, epilepsy, and cretinism. The new tranquilizing drugs have made a considerable contribution to the treatment of mental illness and hypertensive disease. But even with the rapid development of facilities and treatment the average Canadian still faces many health problems. The Canadian Sickness Survey showed that four out of every five Canadians had some ailment during the year and that at least some interruption to activity because of illness was suffered by over half the population, with about one person in ten being hospitalized during the year. About two-fifths of all illnesses were colds or influenza.

Health Services

The scope and nature of public health services have been continually evolving since the first provincial board of health was established in Ontario in 1882 and the first provincial health department in New Brunswick in 1918. The initial acceptance of public responsibility for environmental

services, inevitably expanded to include increasingly comprehensive control of communicable disease, has in turn given way to the modern conception of public health as a buttress and support to the hospitals and to medicine, the essential foundation on which all health care is built.

The public health services developed in response to this conception are a complex interweaving of local, provincial and federal effort, in which direct responsibility rests with the provincial and local governments, assisted by national and local voluntary agencies. Federal responsibility has been confined constitutionally and by tradition to special programs of a nation-wide nature and to the provision of assistance to the provinces.

Federal Services.—Federal participation in health matters is largely centred in the Department of National Health and Welfare, with important treatment

Doctor attached to the hospital at Fort Simpson, N.W.T. attends Slave Indian patients.



Latest equipment in a new heart unit at Toronto General Hospital permits better diagnoses and treatment of diseases of the heart and blood vessels.



programs being administered by the Department of Veterans Affairs and the Department of National Defence. The National Research Council makes grants in support of medical research and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare has jurisdiction in such matters as control of food and drugs including narcotics, quarantine and immigration medical services, the carrying out of international health obligations and the provision of health services to Indians and Eskimos, sick mariners and other groups. It provides financial assistance to the provinces through the National Health Program, serves in an advisory and co-ordinating capacity to them, and makes grants to national voluntary agencies.

Since 1948, federal financial assistance has been provided through the National Health Program for the extension and development of provincial health and hospital services. Funds are made available for general public health, tuberculosis control, mental health, venereal disease control, cancer control, services for crippled children, professional training, public health research, hospital construction, laboratory and radiological services, medical rehabilitation and child and maternal health. During the first eight years of the Program, the Federal Government has expended over \$190,000,000 on the extension of health and hospital services.

Provincial Services.—Provincial programs are administered through provincial and local health departments and by health units serving counties or groups of municipalities. Most provinces operate laboratories and provide preventive and treatment programs for venereal disease, tuberculosis, mental illness, cancer and other conditions. There has been increasing provincial participation in general hospital-care insurance programs, grants to hospitals and health-care services for public assistance recipients.

The larger municipalities provide a range of basic public health services including environmental sanitation, communicable disease control, child, maternal and school health services, public health nursing, health education and vital statistics. They participate, particularly in the eastern provinces, in the costs of hospital care and supply medical services to indigents. Some 158 full-time local health units or districts and 30 urban health departments serve about 11,500,000 persons, almost 75 p.c. of Canada's total population.

The most successful efforts to control specific diseases have been the mass immunization programs undertaken by provincial and local health departments. Several provinces provide free treatment and rehabilitation services for poliomyelitis, most provide substantially free care for tuberculosis and all supply free diagnosis and treatment of venereal disease.

Until recently, public mental health programs involved chiefly the treatment and custodial care of persons committed to mental institutions. Treatment has been hampered by lack of staff and facilities and shortages of qualified personnel. Although some progress has been made in increasing the number of mental hospital beds and in the development of community clinics and psychiatric units in general hospitals, the provision of adequate mental health services remains a most severe problem.

Expansion of hospital facilities has been rapid in the postwar period. Growth has been stimulated by the federal-provincial Hospital Construction

Grant under which the Federal Government may contribute up to \$1,000 for each approved active treatment bed, \$1,500 for each chronic or convalescent bed including beds for tuberculosis or mentally ill patients, and additional amounts for specified auxiliary facilities; federal contributions must be matched by the province concerned. Beds approved for construction to the end of 1956 included 34,868 for active treatment patients, 6,009 for chronic and convalescent patients, 15,364 for the mentally ill, 4,331 for tuberculosis, 7,735 bassinets and 10,316 nurses' beds.

Hospital Statistics

The statistical data on the institutional aspects of health, published annually by the Dominion Bureau of Statistics, include detailed information on the different types of institution, on size, ownership, cost of operation, sources of revenue, movement of patients, personnel, and services rendered. Because mental illness and tuberculosis are especially important in the public health field, additional details are given on the patient population in mental institutions and tuberculosis sanatoria.

In 1955, Canadian hospitals had 1,075 beds for every 100,000 of the population. Of this bed capacity, 89.6 p.c. was available in public hospitals, that is, in hospitals that are not operated for profit, that accept all patients regardless of ability to pay, and that are recognized as public hospitals by the province in which they are located. Private hospitals, those that ordinarily restrict their admissions to patients paying for the care provided at rates determined by the management, accounted for 2.4 p.c. of the bed capacity. The remaining 8.0 p.c. was in federal hospitals operated for special purposes related to federal departmental administration such as the care of war veterans, members of the Armed Forces, Indians and immigrants.

Of the 2,259,377 admissions in 1955 to Canadian hospitals, 2,177,738 or 96.4 p.c. were to general hospitals, 1.0 p.c. were to mental institutions and 0.8 p.c. to tuberculosis institutions. However, only 44.6 p.c. of the average

Free diagnostic services for tuberculosis, operated under provincial, municipal or voluntary auspices, have been greatly effective in controlling the disease. The compulsory testing of employees in many industries, especially those connected with the preparation and handling of food, is becoming prevalent throughout the country.



daily population of all hospitals was in general hospitals. Mental institutions accounted for 41.2 p.c. and tuberculosis institutions for 8.5 p.c. These differences in proportion are explained by the greater turnover of patients in general hospitals where the average stay was approximately eleven days as compared with over ten months in tuberculosis institutions.

Summary Statistics of Hospitals, 1955

Item	General	Special	Mental	Tuber- culosis	Total
	No.	No.	No.	No.	No.
Public Hospitals—					
Number reporting.....	781	77	70	55	983
Bed capacity.....	71,699	10,631	54,327	13,735	150,392
Average daily population.....	55,973	8,837	62,533	12,049	139,392
Admissions.....	2,044,727	40,723	21,525	16,461	2,123,436
Private Hospitals—					
Number reporting.....	55	120	4	1	180
Bed capacity.....	1,067	2,458	431	21	3,977
Average daily population.....	2,562 ¹	2	399	1	2,962
Admissions.....	49,376 ¹	2	1,954	1	51,331
Federal Hospitals—					
Number reporting.....	36	12	—	7	55
Bed capacity.....	11,390	821	—	1,206	13,417
Average daily population.....	9,635 ¹	2	—	959	10,594
Admissions.....	83,635 ¹	2	—	975	84,610
All Hospitals—					
Number reporting.....	872	209	74	63	1,218
Bed capacity.....	84,156	13,910	54,758	14,962	167,786
Average daily population.....	68,170	8,837	62,932	13,009	152,948
Admissions.....	2,177,738	40,723	23,479	17,437	2,259,377

¹ Includes general and special hospitals.

² Not available.

Personal Health Care

Personal health care and public health services are estimated to have cost the Canadian public over \$1,000,000,000 in 1955, of which close to \$500,000,000 was for hospital care. General and allied special hospitals accounted for approximately two-thirds of hospital costs, mental and tuberculosis institutions and federal hospitals for one-third. Prepaid hospital care is provided through public insurance programs in British Columbia, Saskatchewan and Alberta. In Newfoundland, the provincially operated Cottage Hospital Plan makes hospital care and the services of physicians to both in- and out-patients available to almost half the population. About 20 p.c. of the population of Canada was well covered under public hospital plans in 1955, with another 44 p.c. having some degree of coverage.

It is estimated that in 1955 approximately 38 p.c. of the population had purchased insurance for the payment of physicians' bills; in 1954 payments by these agencies on behalf of their membership represented about 30 p.c. of all payments made to physicians by patients directly or on their behalf by insurance plans. Public medical care services are also provided under a variety of arrangements: by the Federal Government to members of the Armed Forces, to veterans for service-connected disability, to sick mariners, and to Indians and Eskimos; by some provincial governments to sufferers from specific diseases such as cancer, tuberculosis, mental illness and poliomyelitis as well as, in some provinces, to public assistance recipients; and by

Older hospital buildings are being replaced in all Canadian cities and those of later vintage modernized and extended to keep up with growing populations and advances in medical science. The Winnipeg Children's Hospital late in 1956 moved into new quarters completely up-to-date in every respect.



Nurses and doctors have plenty of space to work in the new five-bed wards. The colour scheme and gay curtains are part of the therapy design and the rooms are comfortable with their thermopane windows and sound-proof ceilings.

municipalities to indigents not otherwise covered, as well as to residents of certain municipalities in Western Canada under municipal doctor schemes.

Most Canadians purchase dental services and home nursing care directly, although home care is often provided through health agencies. School dental services are available in some localities. Drugs to non-hospital patients are also purchased privately.

Rehabilitation Services

Services for the rehabilitation of disabled persons have been steadily strengthened since the National Conference on the Rehabilitation of the Physically Handicapped in 1951. The Federal Government and nine provinces have signed agreements to provide financial assistance for the co-ordination

of rehabilitation programs, national and provincial co-ordinators have been appointed, a Medical Rehabilitation Grant has been added to the National Health Grant Program and other services financially assisted.

During 1955, following the receipt of specialized services, upwards of 1,000 persons were rehabilitated to employment and programs were under way to make medical, psychosocial and vocational rehabilitation services available to increasing numbers of people. In four provinces medical rehabilitation services have been purchased on behalf of indigents and in eight provinces training selection instituted. Three provincial Workmen's Compensation Boards have built new rehabilitation centres. Large national agencies such as the Council for Crippled Children and Adults, the Canadian Arthritis and Rheumatism Society and the Canadian National Institute for the Blind have substantially expanded their services. New voluntary facilities and services have been established with support from federal-provincial grants and private sources such as service clubs. This has been accompanied by increased interest on the part of hospitals, professional groups, management and labour as well as health and welfare agencies.

Welfare

The Welfare needs of Canadians before the turn of the century were met largely by charitable institutions developed usually under private or religious auspices. Since that time, however, the trend has been away from institutional care, the emphasis shifting to income maintenance programs and to the provision of services designed to assist individuals in meeting problems characteristic of an increasingly industrialized society.

Social developments during the past thirty years have created welfare and security problems that could be met only at the higher levels of government and it is in federal and joint federal-provincial programs that the greatest expansion has taken place. At the provincial level, too, there has been a substantial broadening of services, particularly for the protection and care of children. Most provinces have delegated a number of welfare responsibilities to the municipalities or to voluntary agencies. General assistance or relief is usually administered at the municipal level and other programs,



Much progress has been made, particularly since the end of the War, in the physical and mental rehabilitation of handicapped persons. With new methods of treatment, new mechanical aids and perceptive training many persons once considered hopelessly invalided are able to live a somewhat normal life.



Work for human welfare in Canada is diverse and many are the organizations and individuals engaged in it. The Canadian Welfare Council, with headquarters at Ottawa, plays a key part in the orderly and adequate development of these services and, by co-ordinating their efforts through the exchange of ideas and experiences, providing contact with national resources and disseminating information, enables them to work together.

depending on the size, structure and traditions of the local community, may include the provision of welfare services for children, families, the aged, the ill, transients, and those with acute housing problems. Methods of financing vary considerably but most provinces share the costs of municipal services in organized areas and assume the total cost in unorganized territories.

The expansion of government services has been paralleled by an equally significant development in the voluntary field. Relieved of most of the financial burdens of providing maintenance, voluntary agencies have been in a better position to develop other types of essential community service, both those that are broadly preventive and those designed to aid people in dealing with problems of adjustment and relationship in time of individual or family crisis. Services have been expanded and improved in family welfare and child welfare, including specialized institutional care for children, social work in hospitals and clinics, programs for the aged, correctional care, rehabilitation and recreation. Community chests and federated funds in some 75 areas centralize the financial campaigns of welfare and related agencies, and welfare councils are promoting the better co-ordination and use of community resources in over 30 Canadian cities. The Canadian Welfare Council, a national association of public and private agencies, provides a means of

co-operative planning and action across the country and serves as a link between voluntary agencies and between the public and voluntary fields.

Most federal and federal-provincial social security programs are under the jurisdiction of the Department of National Health and Welfare or the joint jurisdiction of that Department and the provinces, and are described in the following paragraphs. Certain programs are administered by other federal departments.

Federal Programs

Family Allowances.—In general, all children under 16 years of age who are resident in Canada are eligible for Family Allowances. The allowances, which were established in 1945, are paid by the Federal Government, involve no means test and are not considered as income for tax purposes. Allowances are paid at the monthly rate of: \$5 for children under six years; \$6 for children six to nine years; \$7 for children ten to twelve years; and \$8 for children thirteen to fifteen years. In June 1956, allowances were paid in respect of some 5,425,000 children in 2,279,100 families and expenditures totalled about \$393,300,000 for the year.

After Sept. 1, 1957, the monthly rates will be \$6 for children under six years and \$8 for those ten to sixteen years.

Old Age Security.—A pension of \$40 a month is paid by the Federal Government to all persons aged 70 or over who have been resident in Canada at least twenty years. The amount is supplemented in some provinces on a means-test basis. The pension is financed through a 2-p.c. sales tax on net corporation income and, subject to a limit of \$60 a year, on individual net taxable incomes, and by loans or grants from general revenue. In June 1956, pensions were paid to some 781,000 persons; expenditures were about \$375,000,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.



Four of thousands of the nation-wide "assembly line" of volunteer workers who produce vital relief supplies for the Red Cross. These women turn out tons of clothing, bedding and hospital supplies each year for distribution at home and abroad.

The individual care received in a supervised foster home is considered superior to institutional care for the homeless child who has been made a ward of the government.



From ten to twelve thousand children are adopted in Canada each year. Great care is taken to place each child in the environment to which he is mentally and hereditarily suited.



Federal-Provincial Programs

Old Age Assistance.—Assistance of up to \$40 a month is paid to needy persons aged 65 to 69 years who have been resident in Canada for at least twenty years. The Federal Government reimburses the province for 50 p.c. of \$40 per month or of the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement this amount. Total annual income, including assistance, cannot exceed \$720 for a single person, \$1,200 for a married couple, or \$1,320 if a spouse is blind. In June 1956, 92,630 persons or 20.5 p.c. of the population aged 65 to 69 were in receipt of Old Age Assistance; the federal contribution toward that assistance was about \$20,700,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.

Blindness Allowances.—Allowances of up to \$40 a month are paid to needy persons who are blind, aged 18 or over and who have been resident in Canada for at least ten years. The Federal Government pays 75 p.c. of \$40 per month or of the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed

\$960 for a single person, \$1,160 for a single person with one or more dependent children, \$1,560 for a married couple one of whom is blind, and \$1,680 for a married couple when both are blind. In June 1956 there were some 8,270 persons in receipt of the allowance. The annual federal contribution towards blindness allowances is about \$3,000,000.

Effective July 1, 1957, the monthly payment will be increased to \$46.

Disabled Persons Allowances.—Allowances of up to \$40 a month were commenced in 1955 to needy persons who are totally and permanently disabled, aged 18 or over and resident in Canada for at least ten years. The Federal Government pays 50 p.c. of \$40 per month or half the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed \$720 a year for a single person, \$1,200 for a married couple or \$1,320 where the spouse is blind. In June 1956 there were 27,757 recipients of allowances. The Federal Government's contribution was about \$6,800,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.

Unemployment Assistance.—In 1956 Parliament passed the Unemployment Assistance Act under which the Federal Government will reimburse each co-operating province for one-half the cost of assistance to needy unemployed in excess of 0.45 p.c. of the provincial population, with certain adjustments for special situations. The scale and conditions of payment are determined by the provincial and municipal authorities and the payments are administered by them.

Provincial Programs

Mothers' Allowances.—Allowances on behalf of needy mothers and their dependent children are provided by all provinces. Assistance is granted to widows, mothers with husbands in mental hospitals and, in nine provinces, to mothers who are deserted or whose husbands are disabled. Some provinces



Each of Canada's 781,000 senior citizens who has reached the age of seventy years receives a monthly pension to supplement his life savings.

provide also for mothers with husbands in penal institutions and to divorced, separated and unmarried mothers. To be eligible an applicant must be caring for one or more children of eligible age, and must meet specified conditions of character or competence, need, residence and, in six provinces, of nationality. The maximum monthly allowance payable to a mother with one child varies by province from \$25.00 to \$69.50. An additional amount is paid for each subsequent child and in some provinces for a disabled father in the home. Certain provinces have established a maximum amount payable to a family and the majority grant supplementary aid where special need is apparent. As at Mar. 31, 1955, approximately 40,500 families with some 109,000 children were receiving mothers' allowances. The total cost of these allowances for the fiscal year 1955 was approximately \$22,500,000.

Widows' Pensions.—In Alberta, under the Widows' Pensions Act, pensions of up to \$40 a month may be paid, subject to certain conditions of need and residence, to widows aged 60 to 64 and to wives in this age group whose husbands are committed to mental hospitals or who have deserted.

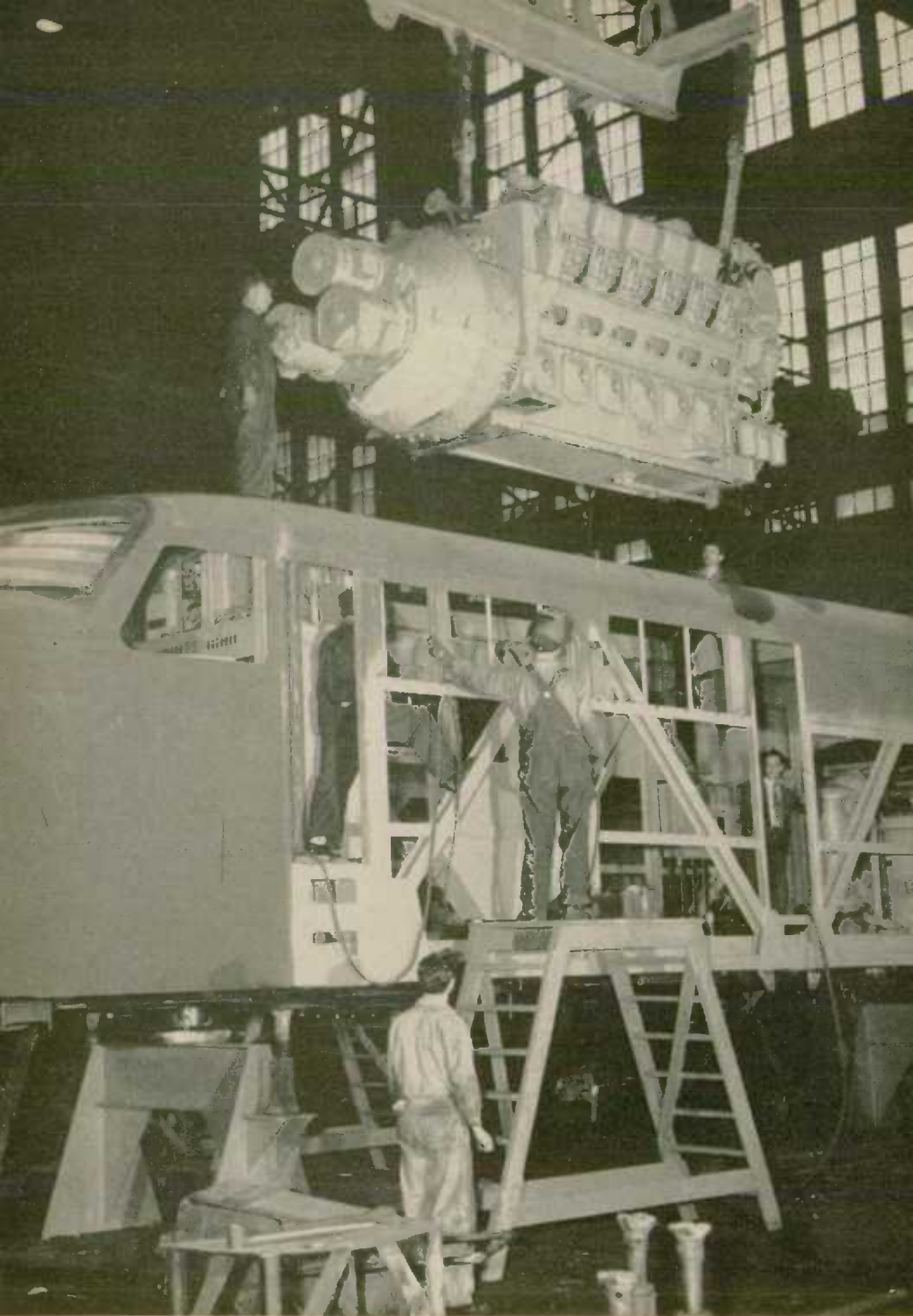
Veterans Affairs

Most of Canada's war veterans have been assimilated into civilian life, the assistance now required being mainly concerned with allowances, medical treatment, land settlement, rehabilitation and welfare, which is the responsibility of the Department of Veterans Affairs, and the adjustment and payment of pensions which is under the jurisdiction of the Canadian Pension Commission. At the end of December 1956 there were 159,614 disability pensions being paid to veterans and 33,747 pensions being paid to dependants of deceased service men. The year's expenditure for these pensions amounted to about \$130,454,000. At the end of 1956 there were 54,736 recipients under the War Veterans Allowance Act, 39,523 were veterans and therefore eligible also for free medical treatment for any condition. Expenditure for allowances during 1956 was \$40,854,000 and an additional \$661,446 was paid to recipients who qualified for grants from the Assistance Fund.

Medical treatment is provided in DVA hospitals and in public general hospitals and other institutions under contractual arrangements. At Dec. 31, 1956 the Department was operating 11 active-treatment hospitals with 8,720 beds, two health and occupational centres with 365 beds, and three homes for veterans who require domiciliary care.

Substantial numbers of veterans are still being assisted to settle on the land, either as farmers or small holders, or to become commercial fishermen. At the end of 1956 the cumulative total of veterans who had received such assistance was 72,577 and the public investment made on their behalf was about \$353,736,000. Their payment record is very satisfactory. Financial assistance is also given to veterans who wish to build their own homes and are approved for loan under the National Housing Act.

Rehabilitation and welfare needs have diminished but special interest is still taken in the training and placement of seriously disabled veterans, the employment of older veterans and the education of children of war dead.



The dieselization of Canada's railways has involved the gradual conversion of shops and servicing facilities and the re-arrangement of work programs from steam to diesel maintenance.

Labour

CANADA'S industries have experienced a spectacular development since the turn of the century. In 1901 Canadian workers were engaged largely in the production of animal products, field and vegetable crops, fish, lumber and gold. The labour force, less than two million strong, was composed mainly of farmers, merchants and craftsmen working in most instances on their own account. Today well over five and one-half million Canadians, men and women, ranging from unskilled labourers to highly trained technicians and executives and from workers on the farm to those in large manufacturing plants, provide the nation with goods and services.

The productive capacity of the Canadian economy has greatly increased. New raw materials have come into use, such as oil, aluminum and titanium, making possible the production of goods not available before. Synthetic materials like nylon and artificial rubber have become essential to everyday life. New machines have been developed to aid the worker in producing more and better goods with less effort. The present era of electronics and automation is relieving manpower of repetitive and often strenuous jobs, and advancing techniques and organizational methods in manufacturing and distribution have also had their effect on bettering production and extending services.

These developments, together with higher wages, better working conditions, higher educational standards and greater emphasis on vocational training, have helped to raise the standard of living for the whole community of workers. Advances in human relations in industry have also assisted the Canadian worker to reach a fuller participation in the national life.

The pace of development over the past fifty years has not, of course, been steady. It was slowed down or interrupted on several occasions. Today, however, a better understanding of the operation of the economy together with the institution of new social assistance such as unemployment insurance, workmen's compensation and old age security provides a more even flow of income to Canadians and this, in turn, helps to balance economic development.

Seasonal unemployment caused by cold weather, and to some extent by consumer buying habits still results in serious annual loss to the Canadian economy. Some winter slow-down is unavoidable, but it is possible by concerted effort to reduce the extent of winter unemployment. New techniques and materials have made winter construction work more practicable and the Government as well as industrial establishments are now planning their programs so that as much work as possible may be done during winter months. Further co-operation by industry and the public can make this program highly effective in keeping winter unemployment to a minimum.

Development in the field of labour has been assisted by legislation at both federal and provincial levels. Laws have been enacted to set minimum standards for hours of work, wages and many other conditions of employment. Most Canadian workers, however, enjoy conditions of employment far better than those required by law. The right of workers to belong to labour unions of their own choosing is protected by law. Union membership has grown



In the forests of central British Columbia primary conversion, handled at the logging site by the use of a tractor, a fork-lift truck and a portable saw, has proven quite successful.

rapidly, particularly since 1940. Today more than 1,300,000 persons are members of unions. Through their organizations they have negotiated more than 7,000 collective bargaining agreements which generally

embody joint labour-management decisions on wages and conditions of employment. Since 1947 there has been a steady growth in the number of collectively bargained group health insurance and pension plans. In the past two years a number of employers and unions have also negotiated unemployment benefit plans to supplement payments under the Unemployment Insurance Act. Until a few years ago collective agreements were as a rule re-negotiated each year, but more recently there has been a trend toward two-year agreements with specified wage increases provided for each year. In the vast majority of cases, collective agreements are concluded without work stoppage, though sometimes with the assistance of government conciliation services. Only about one-sixth of one per cent of the estimated total working time in all Canadian industry was lost by strike action in 1955.

The Labour Force

The labour force of Canada, as measured by sample surveys conducted by the Dominion Bureau of Statistics, includes those people who have jobs plus those who do not have jobs and who are looking for work. "Job" in this sense means work for pay or profit, or unpaid work which contributes to the running of a farm or business operated by a relative. Thus a coal-miner or a shopkeeper is considered to be in the labour force but a housewife or a student is not. The labour force is not a fixed group of people. It is constantly changing, as new workers enter and old ones leave.

About three out of four persons in the labour force are male and almost one-half of those in the labour force are from 25 to 44 years of age; the average female worker is considerably younger than the average male worker. Occupationally, one worker out of seven is in agriculture; geographically, about two

out of three live in Ontario or Quebec. The percentage of the labour force to the total population 14 years of age or over is lower in Newfoundland, the Maritime Provinces and British Columbia than in the rest of the country. In non-agricultural industries, which employ 4,880,000 persons of whom one-quarter are women, about 88 p.c. of the men and 93 p.c. of the women are paid employees. In agriculture, on the other hand, paid employees form a relatively small element—hardly more than one worker in seven, even during harvest season.

Industrial Distribution of Persons with Jobs, by Sex, Week Ended Oct. 20, 1956

(Thousands of persons 14 years of age or over)

Industry	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Agriculture.....	747	47	794	102	12	114
Forestry.....	132	1	134	115	1	117
Fishing and trapping.....	19	1	19	1	1	1
Mining and quarrying ²	118	1	123	116	1	121
Manufacturing.....	1,132	304	1,436	1,067	298	1,365
Construction.....	452	1	461	388	1	396
Transportation ³	371	62	433	342	62	404
Public utilities.....	62	1	68	62	1	68
Trade.....	605	271	876	469	231	700
Finance, insurance and real estate.....	105	84	189	91	82	173
Service.....	585	556	1,141	504	517	1,021
Totals.....	4,328	1,346	5,674	3,262	1,223	4,485

¹ Fewer than 10,000.
communication.

² Includes oil wells.

³ Includes storage and com-

Automatic equipment in use in a large paper box factory. The forest industry and the industries dependent on the forest for their raw materials give employment to tens of thousands of Canadians—about one out of every eleven is directly or indirectly dependent on the woods for a livelihood.



Occupational Distribution of Persons with Jobs, by Sex, Week Ended Oct. 20, 1956

(Thousands of persons 14 years of age or over)

Occupation	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Managerial.....	411	46	457	192	16	208
Professional.....	266	168	434	228	164	392
Clerical.....	276	397	673	276	391	667
Transportation.....	366	¹	371	339	¹	344
Communication.....	43	36	79	43	36	79
Commercial.....	217	152	369	216	134	350
Financial.....	46	¹	49	33	¹	35
Service.....	235	284	519	220	260	480
Agricultural.....	755	47	802	110	12	122
Fishing, logging and trapping.....	123	¹	124	96	¹	97
Mining.....	76	¹	77	75	¹	76
Manufacturing and mechanical ²	792	186	978	759	182	941
Construction.....	351	¹	353	307	¹	309
Labourers and unskilled workers (not agricultural, fishing, logging or mining).....	371	18	389	368	17	385
Totals.....	4,328	1,346	5,674	3,262	1,223	4,485

¹ Fewer than 10,000.
with electric-power production.

² Includes stationary enginemen and occupations associated

Women in Industry.—Employment opportunities for women have expanded with the growth of the Canadian economy. The most notable developments in recent years are the increase in the employment of married women, the concentration of growth in those occupations in which women have been traditionally employed and the reduction in the proportion of teen-age girls in the labour force. Of all the women with jobs in Canada at Oct. 20, 1956, 663,000 were single, 546,000 were married, and 137,000 were widowed, divorced or legally separated.

Women in the Canadian Labour Force, Oct. 20, 1956

Region	Women in Population 14 Years or Over ¹	Women in Labour Force ²	P.C. of Women in Labour Force	P.C. of Women to Total Labour Force in Region
	No.	No.		
Atlantic.....	578,000	115,000	19.9	21.0
Quebec.....	1,549,000	367,000	23.7	22.5
Ontario.....	1,880,000	555,000	29.5	26.3
Prairie.....	936,000	214,000	22.9	21.2
British Columbia.....	472,000	113,000	23.9	23.9
Totals.....	5,415,000	1,364,000	25.2	23.6

¹ Excludes women inmates in institutions and Indian women on reserves. ² Women with jobs and those seeking work.

The proportion of working women in the older age groups has been increasing rapidly. The greatest growth has taken place in the age group 45 to 64, although the largest number are still to be found in the 25 to 44 age group.

The age distribution of women with jobs at Oct. 20, 1956, was: 14-19 years, 230,000; 20-24 years, 247,000; 25-44 years, 544,000; 45-64 years, 293,000; 65 years or over, 32,000.

Employment in 1956

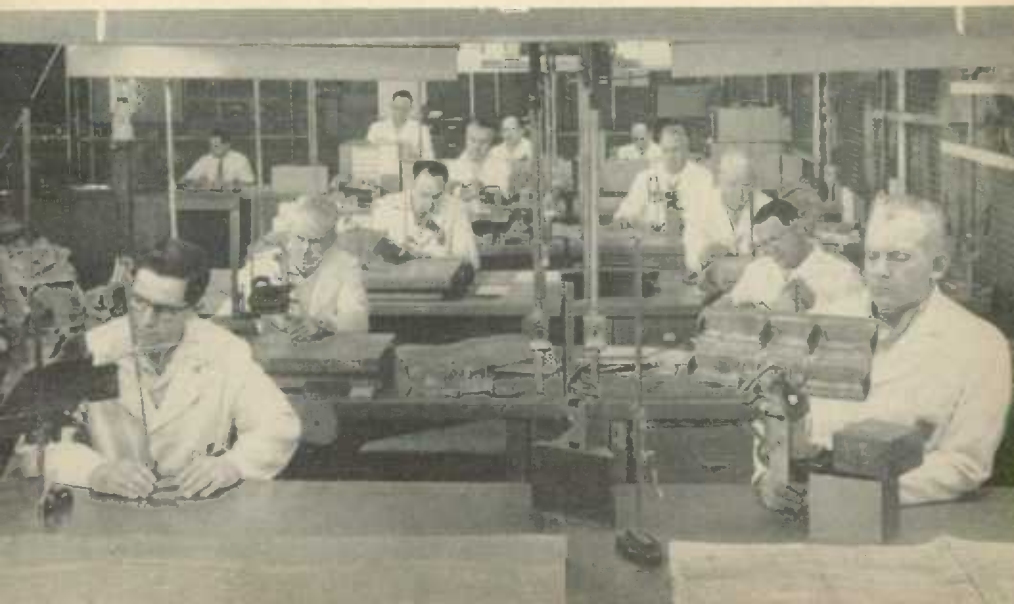
For most Canadian workers 1956 was a year of unequalled prosperity. Following a sharp upturn in economic activity in 1955, total output and income continued to expand at almost record rates throughout 1956. Job opportunities were abundant throughout Canada. The problems of the year were those arising from the scarcity of manpower and materials, for in many areas the rate of expansion tended to outstrip supplies of these resources.

While employment in 1956 did not increase at the previous year's record rate, it rose about as much as manpower and other resources would permit. In the third quarter it was 3 p.c. higher than a year earlier, and labour shortages were quite extensive in Ontario and the western provinces. In Quebec employment rose substantially but, except for logging and construction in some areas, the supply of available workers was adequate for most industries. The work force in the Atlantic region was also more fully employed than it has been for a good many years.

The abundance of job opportunities encouraged an increasing proportion of the adult population to take jobs, thus reversing the trend of the past few years. Until 1955 labour force participation was declining gradually. This was particularly noticeable in the younger and older age groups—a probable reflection of longer schooling and earlier retirement.

The upsurge in activity during 1956 has resulted in large employment gains in particular industries. Examination of average employment during the summer months shows that total non-agricultural employment increased

Precision inspection of purchased castings and forgings in the receiving department of an aircraft plant. To ensure quality control in the production of aircraft, the latest technological advances in the fields of chemistry and physics are applied by ultra-violet and X-ray examinations, and magnetic and ultra-sonic tests. All instruments and equipment are calibrated by scientific processes.



by about 250,000 from the previous year. Manufacturing, construction, and the distribution and service industries accounted for more than 90 p.c. of this gain. Construction played a dynamic role in this expansion, the increase in employment of approximately 60,000 represented a gain of 14 p.c. in this industry, compared with about 5 p.c. in manufacturing.

It should not be forgotten, however, that in a number of industries the employment gains in 1955 and 1956 were attained in the wake of the losses that occurred during the period preceding the 1955 upturn. Thus in transportation and communication, for example, the number of workers increased by 28,000 during the year, but employment in mid-summer was only slightly higher than three years earlier. In manufacturing, employment in the summer of 1956 had increased about 10 p.c. from the low point reached in 1954, but the net gain since May 1953 was less than 3 p.c.

Many of the new jobs, not only in construction but in other industries too, were filled by former farm workers. In all, the net movement out of agriculture from the previous summer amounted to some 60,000 workers, about twice the average for the past ten years. As a result, farmers in many areas of the country experienced great difficulties in recruiting labour and in many cases had to resort to hiring urban workers for evening and weekend work during the harvest period.

The general average of weekly wages and salaries was \$63.53 during the first nine months of 1956, a new high 4.9 p.c. above 1955. The construction industry recorded a 9.1-p.c. rise but finance, forestry, mining, and services were also above the national average. The mining industry continued having the highest average of weekly wages and salaries—\$76.69 as compared with \$72.55 in 1955. Provincially, Alberta showed the greatest increase in average weekly earnings at 6.9 p.c., the other provinces recording advances ranging from 2.3 p.c. for Prince Edward Island to 5.7 p.c. for British Columbia. The average number of hours worked in manufacturing remained the same during 1956 as in 1955.

Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Province, 1955 and 1956

(1949 = 100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Province	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1955	1956	P.C. Change	1955	1956	P.C. Change	1955	1956	P.C. Change
							\$	\$	
Newfoundland.....	125.8	132.7	+ 5.5	181.1	199.6	+10.2	53.86	56.22	+ 4.4
Prince Edward Island..	109.3	115.1	+ 5.3	148.8	160.3	+ 7.7	45.92	46.96	+ 2.3
Nova Scotia.....	95.4	100.6	+ 5.5	129.2	141.1	+ 9.2	50.70	52.48	+ 3.5
New Brunswick.....	100.8	108.7	+ 7.8	138.3	156.2	+12.9	51.95	54.30	+ 4.5
Quebec.....	109.5	117.3	+ 7.1	154.9	174.3	+12.5	58.05	60.94	+ 5.0
Ontario.....	111.6	119.1	+ 6.7	159.3	177.6	+11.5	63.10	65.97	+ 4.5
Manitoba.....	103.7	106.9	+ 3.1	141.3	151.7	+ 7.4	57.93	60.28	+ 4.1
Saskatchewan.....	115.2	117.7	+ 2.2	160.6	172.3	+ 7.3	57.60	60.43	+ 4.9
Alberta.....	130.0	144.2	+10.9	180.3	213.8	+18.6	61.50	65.72	+ 6.9
British Columbia.....	108.8	118.8	+ 9.2	156.1	180.3	+15.5	65.38	69.12	+ 5.7
Composite.....	110.5	118.2	+ 7.0	156.6	175.7	+12.2	60.56	63.53	+ 4.9

Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Industrial Group, 1955 and 1956

(1949 = 100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Industrial Group	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1955	1956	P.C. Change	1955	1956	P.C. Change	1955	1956	P.C. Change
							\$	\$	
Forestry (chiefly logging).....	92.1	105.3	+14.3	139.0	168.0	+20.9	60.30	63.68	+ 5.6
Mining.....	112.3	120.6	+ 7.4	158.7	180.0	+13.4	72.55	76.69	+ 5.7
Manufacturing.....	108.0	114.3	+ 5.8	155.7	172.2	+10.6	62.98	65.80	+ 4.5
Durable goods.....	115.6	124.7	+ 7.9	166.1	187.0	+12.6	67.42	70.31	+ 4.3
Non-durable goods..	101.6	105.4	+ 3.7	145.4	157.6	+ 8.4	58.62	61.21	+ 4.4
Construction.....	109.0	124.8	+14.5	161.6	202.9	+25.6	61.43	67.03	+ 9.1
Transportation, storage and communication..	109.4	116.2	+ 6.2	146.2	160.3	+ 9.6	64.09	66.15	+ 3.2
Public utility operation	118.2	123.9	+ 4.8	174.5	190.2	+ 9.0	70.26	73.04	+ 4.0
Trade.....	116.1	123.4	+ 6.3	163.2	180.7	+10.7	52.20	54.41	+ 4.2
Finance, insurance and real estate.....	132.1	135.0	+ 2.2	175.2	191.3	+ 9.2	56.03	59.92	+ 6.9
Service.....	113.4	123.2	+ 8.6	156.8	179.1	+14.2	40.23	42.37	+ 5.3
Composite.....	110.5	118.2	+ 7.0	156.6	175.7	+12.2	60.56	63.53	+ 4.9

Indexes of Employment, Average Hours and Earnings in Manufacturing, by Month, 1955 and 1956

Month	Employment Index (1949 = 100)		Average Hours Worked		Average Hourly Earnings		Average Weekly Wages	
	1955	1956	1955	1956	1955	1956	1955	1956
			No.	No.	cts.	cts.	\$	\$
Jan. 1.....	103.2	109.8	39.3	39.0	142.8	147.5	56.12	57.53
Feb. 1.....	103.6	110.2	41.0	41.2	142.7	147.3	58.51	60.69
Mar. 1.....	105.7	112.3	41.2	41.3	143.5	148.5	59.12	61.33
Apr. 1.....	106.5	113.4	41.1	41.1	144.3	150.5	59.31	61.86
May 1.....	107.3	114.1	41.2	41.4	145.4	151.1	59.90	62.56
June 1.....	109.3	115.4	41.0	40.9	145.5	151.9	59.66	62.13
July 1.....	111.6	118.0	40.9	41.2	145.0	152.7	59.31	62.91
Aug. 1.....	111.4	117.9	40.8	40.8	145.1	152.4	59.20	62.18
Sept. 1.....	114.0	118.0	41.2	41.1	143.8	152.1	59.25	62.51
Oct. 1.....	113.4	118.6	41.5	41.5	144.8	153.3	60.09	63.62
Nov. 1.....	112.8	118.6	41.7	41.6	145.4	154.7	60.63	64.36
Dec. 1.....	112.3	118.0	41.6	41.5	146.1	155.5	60.78	64.53
Annual Average..	109.3	115.4	41.0	41.1	144.5	151.5	59.25	62.27

Wage Rates, Hours of Labour and Working Conditions

Indexes of wage rates of non-office employees are compiled by the Department of Labour but these indexes measure only the year-to-year changes in rates of wages in different industries and cannot be used to compare wage levels in one industry with those in another. The basic statistics are average straight-time wage rates or average straight-time piece-work earnings for selected occupations by industry and do not, therefore, include overtime or other premium payments. The information is collected by means of a survey of employers conducted as at Oct. 1 each year.

Index Numbers of Wage Rates for Certain Main Groups of Industries, 1920-55

(Rates in 1949 = 100)

Year	Logging	Coal Mining	Metal Mining	Manu- fac- turing	Con- struc- tion	Steam Rail- ways	Tele- phones	Per- sonal Service	General Average ¹
1920.....	65.9	57.8	56.9	47.0	57.5	63.6	60.9	45.2	52.3
1925.....	44.0	49.0	51.6	42.4	54.2	53.6	58.8	50.8	45.8
1930.....	45.1	49.5	51.9	43.8	64.7	58.8	62.5	52.3	48.8
1935.....	33.8	48.4	51.2	39.9	50.8	52.9	61.4	49.5	43.2
1940.....	48.5	52.1	56.9	47.9	56.7	58.8	66.9	54.1	50.8
1945.....	70.9	74.6	70.9	67.2	71.2	73.7	82.9	69.4	69.3
1950.....	97.0	102.8	106.8	106.1	104.8	105.1	104.8	102.9	105.5
1951.....	109.6	111.1	121.6	120.3	118.6	121.9	115.7	110.6	119.1
1952.....	133.3	124.0	130.1	128.4	128.6	136.8	128.4	117.6	127.7
1953.....	135.5	124.0	132.3	134.6	136.2	137.2	136.6	123.3	133.6
1954.....	138.0	123.5	136.7	138.5	140.0	137.8	147.6	128.6	137.9
1955.....	138.2	122.8	140.3	142.2	145.4	137.8	152.8	132.3	141.7

¹ Includes other main industries not shown in this table.

The trend toward the 40-hour week, usually a five-day schedule, continued between April 1955 and April 1956. In the latter month, 62 p.c. of the 800,000 plant workers in manufacturing establishments surveyed were on a work week of 40 hours or fewer and almost 86 p.c. were on a five-day week. Of the 205,000 office employees covered in manufacturing, 63 p.c. were on a work week of 37½ hours or fewer in April 1956 as compared with 60 p.c. a year earlier. The proportion of office employees on a five-day week (90 p.c.) was practically unchanged during the year.

Two vacation tendencies have been apparent since 1954—a trend toward shorter service requirements for two-week and three-week vacations and an increase in the practice of granting vacations of three weeks or longer. The proportion of plant workers in establishments granting two-week vacations after various periods of service was 92.3 p.c. in April 1956 as compared with 81.0 p.c. in October 1949. The proportion in establishments granting three-week vacations was 63 p.c. and 60 p.c. in the same comparison. Most plant workers receive three-week vacations after 15 years of service but the proportion with longer qualifying requirements is diminishing. Almost 99 p.c. of office workers in manufacturing enjoyed annual vacations of two weeks in 1956, most of them after one year or less of service; over 71 p.c. become eligible for three-week vacations usually after 15 years of service. About 10 p.c. of plant workers and almost 13 p.c. of office workers received four-week vacations, usually granted only after 25 years.

Establishments employing slightly less than 65 p.c. of the plant workers in manufacturing reported having pension plans for their non-office employees; the proportion of office employees was almost 79 p.c. Group life-insurance plans were available in establishments employing 87 p.c. of plant employees and 90 p.c. of office employees. Some type of plan providing cash compensation for wage loss caused by illness was available to most employees.

Labour Legislation

Under Canada's federal system of government, labour laws may be enacted either by provincial legislatures or by Parliament depending on the nature of the employment. The field in which federal legislation applies

includes such industries as navigation and shipping; interprovincial transportation systems, air transport, telegraphs, radio, banking, and operations of federal Crown companies. Most of the employment in factories, mines, construction work, commercial firms and the service industries is subject to provincial legislation.

The general principles of labour relations legislation in Canada have not been greatly changed since they were established at the end of World War II by a federal Act in the federal field of jurisdiction and an Act in each province. Generally, these Acts assert the right of employees to belong to trade unions and an employer is required to recognize a representative union as the bargaining agent of the employees in the unit, and to negotiate with it concerning conditions of employment. Conciliation services are made available if the parties cannot reach an agreement, and a strike or lockout is prohibited until an effort has been made to resolve the differences by negotiation and conciliation. Collective agreements are binding on the union, the individual employees and the employer. Some variations have been introduced in some of the provincial Acts. The main development in recent years has been to make special provisions for the settlement of disputes for certain classes of employees performing public services where strike action to settle disputes is not consistent with the nature of the responsibilities. In 1956, for instance, the Manitoba Legislature passed an Act dealing with the negotiation of conditions of employment for teachers, providing for arbitration as a final means of settling disputes. Policemen and firemen are other groups for whom special provisions for dispute settlement have been made in a number of provinces.

Laws which prohibit discrimination in respect to employment by an employer or a trade union on grounds of race, colour, religion or national

Workers using dangerous materials are well protected at all times. To prevent contamination from a lye vat, this operator wears special clothing that can be washed off quickly in a conveniently placed shower.



origin are a recent development, having been enacted by six provinces and by the Federal Parliament since 1951.

Specific minimum standards are fairly generally established in the provincial field for the basic conditions of employment such as wage rates and hours of work. Minimum wage rates are set on the recommendation of a government board in every province except Prince Edward Island. In Alberta, where new rates were established in 1956, the general minimum weekly rate in centres of over 5,000 population is now \$30 for men and \$28 for women. In British Columbia, where rates are fixed by industry, the minimum rate for manufacturing was set during the year at 75 cents an hour for men and 60 cents for women. In general, minimum rates established in the other provinces tend to be somewhat lower.

Equal pay laws for men and women have been enacted by the Federal Government and by five provinces in the past five years. Five provinces have hours-of-work laws of general application. In Alberta, British Columbia and Ontario limits of eight hours a day and 44 or 48 hours a week are imposed, while in Manitoba and Saskatchewan the laws do not limit hours absolutely but require that overtime rates be paid after specified limits. In seven provinces, minimum wages and maximum hours in some industries are regulated through industrial standards or similar laws.

British Columbia in 1956 passed a new Annual Holidays Act to come into force on July 1, 1957, providing for a two-week vacation with pay after a year of employment for most workers in the province instead of one week as at present. Three other provinces provide for a two-week vacation after varying lengths of service—Saskatchewan after one year as in British Columbia, Alberta after two years and Manitoba after three years. A one-week vacation with pay is required in Alberta and Manitoba for workers who have worked for one year but have not completed the requirement for a two-week vacation. In Ontario, Quebec and New Brunswick, workers are entitled to a one-week vacation with pay after a year of employment.

Legislation, which may be federal, provincial and in some instances municipal, plays an important part in securing safe and healthy working conditions. In all provinces in which mining is carried on, laws designed to ensure the safest possible working conditions in mines are in effect. Factories Acts set standards aimed at reducing hazards in the working environment in a large part of industry. Steam boilers must meet certain standards, and only persons who hold certificates of competency may operate them. With respect to railways, a Board established by federal legislation has authority to issue safety rules having the force of law. Safety measures for the protection of seamen are prescribed in the general federal law respecting shipping. In construction, inspection by municipal inspectors plays a significant part.

Under a workmen's compensation law in each province, a worker who is disabled by an industrial accident or a disease caused by the nature of his employment is entitled to compensation. Compensation is based on the amount of earnings and, if the disability is permanent, upon the extent of the disability. While the worker is totally disabled, it is 75 p.c. of earnings in most provinces, subject to the provision that earnings above a specified amount (\$5,000 a year or less depending on the province) may not be taken into account. In fatal cases, widows, children or other dependants are awarded fixed monthly sums. Compensation and medical aid are payable

from an accident fund to which employers are required to contribute and which provides a system of mutual insurance.

Apprenticeship laws in all provinces provide for the training of young people in designated skilled trades through a combination of on-the-job training and class instruction. Most provinces have agreements with the Federal Government for financial assistance in promoting apprenticeship. In a few provinces legislation is in effect requiring tradesmen in certain designated trades to hold certificates of competency, without which they may not engage in the trade.

Labour Organization

More than 1,250,000 men and women from Newfoundland to British Columbia are members of labour unions, an increase of almost 7 p.c. during 1956. In that year over 1,000,000 of these members were united into a central organization, the Canadian Labour Congress.

In 1956, at the largest labour convention ever held in Canada, the Canadian Labour Congress was founded, merging the Trades and Labour Congress of Canada and the Canadian Congress of Labour. For the first time in over 50 years a Prime Minister of Canada addressed a labour convention. The Rt. Hon. Louis S. St. Laurent was welcomed to the platform by the co-chairmen, Claude Jodoin and L. R. Mosher. Mr. Jodoin is the first president of the Congress.



During the first six months of 1956 a total of 892,044 initial and renewal claims were received in local offices, 622,056 initial and renewal claimants were in the category "entitled to benefit" and benefit payments amounted to \$157,274,749. Comparable data for the same period in 1955 were 1,132,653 claims received, 814,070 entitlements to benefit and \$175,144,229 paid in benefit. These payments include \$39,064,122 (1956) and \$29,478,958 (1955) paid to claimants unable to qualify for benefit under the regular terms of the Act but who fulfilled the requirements for the receipt of benefit under the seasonal benefit regulations (operative Jan. 1 to Apr. 15); the number of such persons was 232,016 in 1956 and 228,600 in 1955.

Persons Insured under the Unemployment Insurance Act, by Industrial Group, Sex and Province, as at June 1, 1955

Industrial Group	Males	Females	Province	Males	Females
	No.	No.		No.	No.
Agriculture.....	3,560	580	Newfoundland.....	42,680	7,360
Forestry and logging..	74,690	1,650	P.E. Island,	6,270	2,280
Fishing, hunting and trapping.....	310	10	Nova Scotia.....	89,840	21,480
Mining, quarrying and oil wells.....	94,720	3,840	New Brunswick.....	68,610	17,940
Manufacturing.....	911,580	272,940	Quebec.....	678,950	241,610
Construction.....	262,980	7,960	Ontario.....	957,110	366,180
Transportation, storage and communication.....	269,150	50,510	Manitoba.....	116,650	45,470
Public utility operation.....	35,840	5,040	Saskatchewan.....	68,260	22,820
Trade.....	356,040	210,260	Alberta.....	149,050	44,660
Finance, insurance and real estate.....	47,130	76,880	British Columbia.....	231,700	78,020
Service.....	242,140	170,300			
Unspecified.....	11,120	3,370			
Claimants.....	99,860	44,480			
Totals.....	2,409,120	847,820	Totals.....	2,409,120	847,820

The National Employment Service.—The Unemployment Insurance Commission operates the National Employment Service rendering service to all workers and employers in Canada through a national chain of about 200 offices. In 1955 a total of 953,576 vacancies were filled by the Service for Canadian employers. Of these, 683,745 were jobs for regular employees and 231,721 were casual placements; the number of persons transferred to jobs in other areas was 38,110.

Vocational Training

Various types of training are conducted by the Federal Government in co-operation with the provinces under the Vocational Training Co-ordination Act of 1942. Such projects include the training of unemployed persons to fit them for suitable occupations, special programs for handicapped persons, training of supervisors and foremen in industry, training for members of the Armed Forces, rehabilitation training for disabled civilians and short courses for young people in rural communities and for persons engaged in fishing, forestry, mining and other primary industries. The Federal Government

pays the full costs for the training of service men and pays half of all other training costs under this agreement.

Under an agreement covering the ten years ended Mar. 31, 1955, the Federal Government appropriated \$20,000,000 to assist the provinces in the establishment and operation of vocational and technical schools and classes of lower than university grade. An additional \$10,000,000 was made available to match capital expenditures by the provinces on the construction, extension and equipping of vocational schools, trade schools and technical institutes. Extension of the agreement to Mar. 31, 1957 made available a further \$2,000,000 a year for distribution on the same basis.

The training of apprentices in classes and their supervision on the job is supported by the Federal Government up to 50 p.c. of the provincial expenditures under an apprenticeship agreement covering the fiscal years 1955-64. The Federal appropriation for the year ended Mar. 31, 1957 was \$1,069,500 and during the previous year more than 10,000 apprentices were given training under the plan.

The total budget of the Training Branch of the Department of Labour, which is responsible for the administration of the Vocational Training Act, was \$4,595,895 for the year ended Mar. 31, 1957.

Civilian Rehabilitation

Canada is moving rapidly in the development of a nation-wide plan of civilian rehabilitation. The Civilian Rehabilitation Branch of the Department of Labour is responsible for the co-ordination of effort necessary to bring together federal departments, provincial governments, the voluntary health and welfare agencies, organized employers and workers and other groups working in the interest of the disabled. This is designed to ensure that adequate medical treatment is provided, that the social problems of the disabled are dealt with and that training is made available for those handicapped persons who may be made capable of taking a place of usefulness in the community. The plan also provides for specialized assistance in securing employment through the National Employment Service of the Unemployment Insurance Commission and for the promotion of employer acceptance of the disabled after they have benefited by whatever form of rehabilitation they have experienced.

Nine provinces have signed Co-ordination of Rehabilitation Services Agreements with the Federal Government and have appointed Provincial Co-ordinators, whose salaries and expenses may be shared equally by the two levels of government. The provincial staffs are working to co-ordinate on a regional and local basis the efforts of all agencies working with the disabled and to stimulate the interest of the medical profession, the universities, management, labour, and vocational guidance and placement services in the potential value of such persons. Closest co-operation is maintained with the Department of National Health and Welfare in order that the greatest possible use may be made of the medical rehabilitation grant and other health grants. The Department of Veterans Affairs, whose achievements in the rehabilitation of Canada's war veterans have been outstanding, is of great assistance and contributes guidance, experience and in some cases facilities, all of which help in the successful operation of the plan.



The National Ballet conducted a fifty-city tour of Ontario, Quebec and the United States in the 1956-57 season. Some seventy dancers, musicians and stage hands travelled with the tour.

Cultural Relationships

THROUGHOUT 1956 vitality and progress characterized the whole field of cultural activity in Canada, and the country's postwar interest in artistic matters continued to grow. In the past decade Canadians have developed a new attitude toward these matters, discarding the former view that cultural activities were needless frills and accepting the belief that a nation's cultural growth must run parallel to its political and economic development. Not only has this change of attitude been noted among individual Canadian citizens but, of great importance, also in the thinking of governments—national, provincial and municipal—corporations, institutions and the press. The most notable event in this progression was the enquiry into the state of Canada's cultural life by the Massey Commission during 1949-51, an undertaking sponsored by the Federal Government. The report of this Royal Commission focussed public attention upon the great need for early encouragement and promotion of many forms of artistic and educational activity, and gained widespread support for its recommendation that a Canada Council be established by the Government of Canada as a permanent, state-supported agency in the field.

In November 1956 the Prime Minister announced the Government's intention of setting up a Canada Council forthwith and indicated the nature of it. The Council would consist of appointees representing the several main regions of Canada and would be endowed financially in a manner to give it maximum independence in its operations. In the first instance the Council would receive a gift of \$50,000,000 as an endowment fund, the earnings from this capital sum to be used to finance continuing activities in the cultural field, and another \$50,000,000 to be used over a period of ten years to assist Canadian universities with their physical building programs. Subsequently the public learned that the Government looked favourably upon the principle of devoting "windfalls" of succession-duty tax collections to the financing of the Canada Council. Plans were fully developed for securing statutory approval of the Canada Council early in the 1957 session of Parliament, with a view to having the new agency in operation before April. This whole development was a matter of great satisfaction throughout Canada, although some editors and political leaders adopted a wait-and-see attitude, wondering how a federally inspired agency operating in the cultural and educational field could avoid collision with the deeply entrenched feelings about supreme autonomy of the provincial governments in the field of education. In any event, the emergence of the long-awaited Canada Council gave an exciting year-end fillip to a year that brought forth many indications of cultural growth.

All forms of the arts thrived in Canada in 1956, and a growing concern with domestic achievement *vis-a-vis* the rest of the world clearly indicated a rapidly developing maturity and sophistication. The exchange of persons and artistic exhibitions and performances between Canada and other countries continued and Canadians were particularly interested in the notices their writers, painters and actors received from critics in other countries. The Canadian business and financial community continued to show its interest in the development of the arts in Canada by the commissioning of many works for public relations programs. All the leading artistic societies enjoyed a

successful year and art galleries, theatres, symphony orchestras, ballet companies and amateur artists in all the provinces experienced a year of lively and rewarding activity.

The provincial governments continued their important support and encouragement of the arts. In Quebec generous help has been given to writers, painters, musicians, sculptors and ceramists for many years and in 1956 this program of encouragement was continued. The Saskatchewan Arts Board and the Alberta Cultural Development Board were important factors in the progress of cultural developments during 1956, while the Ontario Community Planning Division, the Nova Scotia Adult Education Division and similar agencies in other provinces provided help and support in their respective regions. Although support of the arts by municipal governments is not well developed in Canada, there were some notable steps taken in 1956 in Montreal, Toronto, Winnipeg, Edmonton, Calgary and Vancouver.

Music

From the earliest times of settlement in Canada and throughout the country's history, music has been an important element in the way of life of the people, making itself felt in religion, education, social life and entertainment. The variety of ethnic groups within the Canadian population has given vitality to musical life—the French-Canadian influence tending to perpetuate and develop the spirit and pattern of the music of Old France, the Anglo-Saxon tradition creating an atmosphere favourable to English, Scottish, Irish and Welsh themes and melodies, and the several generations of immigrant peoples bringing the beauty and excellence of centuries-old Slavic, Scandinavian, Teutonic and Gallic music to their new homeland. Canada's physical closeness to the United States and the resultant ease of inter-communication between the two countries has led to an inevitable Canadian interest in American musical phenomena—'modern' music and all its emanations, folk music, jazz and rock-and-roll. With all these influences at work, Canadian music is something of a hodge-podge; and this has been particularly noticeable since the end of World War II.



Love of music has drawn thousands of Canadians into an international movement which was launched some fifteen years ago in Belgium and France. The organization, "Jeunesse Musicale", knows no barriers of race, creed or occupation but was founded for the sole purpose of introducing the young into the world of music.



The Vancouver Symphony Orchestra and the Bach Choir of Vancouver rehearse for a performance of Beethoven's Choral Symphony.

During 1956 there was a continuing development of Canadian musical interests in many ways. Perhaps of first importance was the appearance of the first issue of *The Canadian Music Journal* published at Sackville, N.B., under the auspices of the Canadian Music Council. Its featured articles by notable musical persons and its general excellence gave the impression that Canada was to have a much-needed and long-awaited journal to reflect the interests of music lovers from coast to coast. The second music festival held in conjunction with the famous Shakespearean Festival at Stratford, Ont., proved to be an outstanding success artistically and financially, and many visitors from the United States as well as from all parts of Canada were pleased and impressed. A noteworthy event in Montreal was the celebration of the twenty-first anniversary of the *Young Peoples Symphony/Matinée Symphonique pour la Jeunesse*, sponsored by the Montreal Symphony Orchestra Society and directed throughout all its years by the distinguished Canadian musician Dr. Wilfrid Pelletier. Also of considerable importance was the continued growth of the *Jeunesse Musicale* movement throughout the Province of Quebec and into many Ontario centres. Two of Canada's leading musical organizations, the Canadian Music Council and the Canadian League of Composers, enlarged their usefulness and influence during 1956 and welcomed as a new colleague organization the Canadian Music Associates, a body devoted to the "composition, publication and performance of contemporary Canadian music". Of great significance, too, was the arrival of many highly trained musical people among the thousands of Hungarian people who came to make their homes in Canada. Foreshadowing the early development of a



Students from the New Brunswick School of Arts and Crafts at Alma sketching at Point Wolfe.

national opera company was the decision made late in 1956 to separate the Toronto Opera Festival Association from its former patron the Royal Conservatory of Music of Toronto. Local opera groups enjoyed growing box-office success in Halifax, Montreal, Ottawa, Winnipeg, Edmonton and Vancouver. Symphonic orchestras in a dozen Canadian cities made interesting headway during the year and the twenty-odd music festivals conducted across Canada from Newfoundland to Vancouver Island attracted unprecedented audiences. The Canadian Broadcasting Corporation continued to be the most important patron of Canadian music throughout the year, providing a continuous fare of fine and popular music and many spectacular symphonic and operatic programs as well as encouragement for Canadian composers and opportunities for young Canadian performers.

Outside of Canada an event of major importance was a full-length public concert by the famous French National Radio and TV Orchestra devoted entirely to the work of Canadian composers. Broadcast from Paris in January 1956 from the *Théâtre des Champs-Élysées*, the program elicited favourable comments from music critics throughout Europe and was an event of great encouragement to creative music in Canada.

Visual Arts

Throughout 1956 there was a notable development of Canadian interest in painting, etching and engraving, graphic arts and sculpture—an interest which was evident in all the main cities, in Parliament, in commercial and financial circles and in educational institutions. The interest was an outcome of continued attention directed toward these art forms since the end of World War II, by UNESCO efforts, by increased circulation of art publications, by radio and television programs, by travellers and by stepped-up art education in schools and colleges throughout Canada.

Canadians welcomed the first steps taken toward better housing for their National Gallery—a complicated operation which involves the building of new temporary quarters in downtown Ottawa to provide adequate space for the nation's artistic treasures for the next ten years or so, pending construction of the long-projected gallery building which will occupy space now in use for other purposes. The National Gallery has been crowded into a portion of the National Museum building for many years and the current willingness of Parliament to improve this situation is a reflection of growing national concern for artistic matters. Parliament's approval in 1956 of greatly increased expenditures for the purchase of costly paintings for the national collection was also significant. The Gallery's world-renowned collection of drawings and prints received an important addition in 1956 when a group of Toronto businessmen presented *A Nude Woman with a Staff*, a drawing made in 1503 by the great German master Albrecht Durer. The Director of the National Gallery travelled from coast to coast during the year, speaking to large audiences in almost every Canadian city.

Canadian painters achieved more than ordinary success abroad during the year, with numerous one-man exhibitions attracting favourable attention in Paris, London, Rome, Tel Aviv, Mexico, New York and other art centres. Works by five young Canadians—William Ronald, Paul Borduas, Jean Riopelle, Takao Tanabe and Gordon Smith—were selected as entries in the first Guggenheim \$10,000 International Award competition, held in Paris. A New York exhibition of work by the Painters Eleven group of Toronto non-objectivists received lively and favourable notices from the Manhattan critics. One of the most important exhibitions in Canada, organized by the Art Gallery of London, Ont., and circulated from coast to coast, brought together a series of *before* and *after* paintings by seventeen leading Canadian painters who had spent some time abroad in recent years. Throughout Canada there was widespread satisfaction when it was announced that an adequate art gallery would be included in the Canada building at the Brussels

Onlookers are inevitable when an etcher works on a busy thoroughfare, reversing his subject by means of a mirror.



International Exhibition to be held in 1958, this being the first attempt at presenting the country's cultural development at a world fair.

During the year the patronage of art by commercial and financial corporations showed a notable increase; art schools were crowded to capacity in every Canadian city; amateur painters were active in ever-increasing thousands; exhibitions were more numerous and well attended; commercial galleries enjoyed brisk business and professional painters were making a better living than ever before. National, provincial and municipal governments took an unprecedented interest in art developments and showed a new willingness to commit the taxpayers' funds to cultural enterprises.

Literature

Book writing and book publishing continued in the Canadian wave of postwar prosperity throughout 1956, contrary to the predictions of some observers who believed the competition offered by television and radio would create serious reverses for the printed word. There was good demand for non-fiction, fiction, poetry, drama and biography and Canadian creative writers experienced the best market in many years for their work. Of considerable importance was the discontinuance of *Northern Review*, Canada's main English-language magazine of literary criticism and encouragement during the past decade; the revival of *Nouvelle Revue Canadienne/National Review of Canada*, bilingual magazine of literature and opinion; and the launching of *Tamarack*, a new quarterly devoted to Canadian creative writing and literary criticism. Four medals for outstanding contributions to Canadian literature were awarded by the Royal Society of Canada in June 1956: to Dr. G. Lyman Duff (scientific writing), Victor Morin (French-Canadian literature), Thomas H. Raddall (English-Canadian literature) and



In this day of simplicity in architectural, industrial and aesthetic design, the sculptor finds relatively limited scope for professional service. This golf trophy by Pauline Redsell, standing about thirty inches high, was eventually cast in solid bronze and valued at \$1,000.

More and more of the drama presentations of radio, television and theatre in Canada are original works by Canadian playwrights or are Canadian adaptations. During the past few years a number of very gifted dramatists have come to the fore. This scene from Patricia Joudry's "Teach Me How to Cry" was first produced for radio and then adapted for television. It won the top award at the 1956 Dominion Drama Festival and has since been often performed on the amateur stage.



Rev. Olivier Maurault (history). Several new schemes of awards for Canadian writers were announced during the year, the most important being the Canada Foundation's Fellowships in Creative Writing for the encouragement of young novelists, poets, dramatists, essayists and critics. Eric Nicol of Vancouver became the first twice-winner of the Stephen Leacock Medal for humorous writing with his book *Shall we Join the Ladies?*. The Canadian Library Association's award for the best English-language book for children was won by Miss Louise Riley of Calgary, Alta. The selection of winners of the Governor General's Awards for books written by Canadians was received with general approval throughout the country. The winners were: *The Sixth of June* (fiction) by Lionel Shapiro; *Friday's Child* (poetry) by Wilfred Watson; *Man's Emerging Mind* (creative non-fiction) by N. J. Berrill; *John A. Macdonald—the Old Chieftain* (academic non-fiction) by Donald G. Creighton; and *The Map-Maker* (juvenile) by Kerry Wood.

Theatre

Throughout 1956 the theatre continued to be one of Canada's most successful cultural activities. The Stratford Shakespearean Festival was again front-page news with its successful fourth season, its bilingual development, its decision to build a new theatre and its excursions into films and playing abroad. The 1956 Festival of this world-famed Canadian enterprise was the final one in the great tent which has been a special attraction to many thousands of people. The canvas structure is being replaced by a permanent theatre costing in the neighbourhood of \$2,000,000, and the 1957 Festival will open in the new building. The 1956 Festival featured presentations of *The Merry Wives of Windsor* and *Henry V*, and in the latter play Quebec actors handled the French parts with notable distinction and audience approval. An added feature of the Festival was the presentation of three short Molière plays in French by the Quebec players. Gross revenues from the Festival totalled \$475,486, an increase of \$11,000 over 1955, but there was a net loss of about \$25,000 on the season's operations. The foundation

which sponsors and promotes the Stratford Shakespearean Festival launched a public appeal for \$1,500,000 to finance the new building and more than half the amount had been raised by the end of the year. A film version of *Oedipus Rex* was produced under the sponsorship of the Stratford Foundation in 1956 and a company of the Stratford players appeared successfully during the late summer at the Edinburgh Festival, although a Broadway production of *Tamburlaine the Great*, early in 1956, by the Stratford company was not notably successful.

The Dominion Drama Festival, Canada's long-established and highly successful amateur theatre development, gained more than ordinary attention in 1956 when a controversy developed over the subject of financial support provided by a leading distillery company. The Festival was held at Sherbrooke, Que., and the top honours were gained by a three-act play written by a Canadian—the first time this had occurred. The winning play *Teach Me How to Cry*, by Patricia Joudry, was presented by the University of Toronto Alumni Dramatic Club. The nation-wide Little Theatre movement, that vigorous network of amateur theatrical groups which provides the background for the Dominion Drama Festival, enjoyed an exceptionally successful year in 1956, and growing public interest in professional theatre was shown in a number of Canadian cities. The Canadian Broadcasting Corporation's well-planned policy of providing the publicly controlled networks with good and frequent dramatic works was continued and enlarged throughout 1956, and radio and television work provided a good livelihood for many Canadian actors. Summer stock theatres operated in Canada in greater number than ever before although the 1956 weather was not particularly favourable. The teaching of dramatic art in universities and drama schools throughout Canada as well as in the amateur drama movement has resulted in the development of an impressively increasing number of young Canadian actors who

French Canadian actors have a dynamism, a fluidity and a vitality that is markedly their own. The two Canadian schools of acting—English and French—were brought together on a grand scale at the 1956 Stratford Shakespearean Festival with complete success.



The highlight of the amateur theatre year is the Dominion Drama Festival. The Governor General congratulates the Ottawa Little Theatre Workshop on winning the 1957 Eastern Ontario regional trophy with its presentation of "Pygmalion".



A Canadian production of the English musical "Salad Days" was one of the successes of the 1956-57 season in Toronto and Montreal.



Scene from the 1956 Shakespearian Festival production "Henry V". The Festival is entering its fifth year—it has established an impressive record of artistic success and has come to be regarded as a national institution.

are making a name for themselves and for Canada in drama media in many foreign countries. The fact that teaching and acting are in both English and French in Canada has been an important factor in the projection of Canadian dramatic talent abroad.

Ballet

Before World War II, ballet was almost an unknown factor in the cultural life of Canada and only two companies—the Winnipeg Ballet and the Volkoff Ballet of Toronto—achieved any prominence. During the past decade, however, a notable change has occurred and today ballet is enjoyed in every large Canadian city and in many smaller centres, and two professional companies have been developed to a stage of excellence. The main inspiration for this growth of Canadian public interest in ballet has been the example of foreign ballet companies brought before Canadian audiences by motion pictures, television and personal appearances. First the Sadlers Wells

Company from London and Le Ballet de Paris, then the New York Theatre Ballet, and latterly, performances by unexcelled dancers from the Union of Soviet Socialist Republics, aroused great enthusiasm throughout Canada, and the basis for an enduring ballet movement was set. The Royal Winnipeg Ballet and Toronto's National Ballet are fully professional groups, performing in their home cities and on tour, and operating schools for the training of their own corps-de-ballet. Both groups pioneered in 1956 with new ballets, some with local-colour Canadian themes and some with music specially written by young Canadian composers. Both the Winnipeg and Toronto companies presented their programs to audiences in many Canadian cities in 1956 and made extensive and successful tours in the United States. In Canada, ballet receives no financial support from the state, but is financed entirely by private enterprise and the generosity of that portion of the public which admires ballet; a situation which leads to both disappointments and self-reliant vitality for ballet companies.

Handicrafts

The promotion and encouragement of handicrafts is highly developed throughout Canada, and organization is in the form of voluntary societies and government-sponsored groups at the national, provincial and local levels. Many skills and crafts have been practised in Canada since the earliest times when the actual needs of pioneer life demanded home manufacture of furniture, rugs, cloth, dishes, utensils, clothing and ornaments. To this knowledge and skill of indigenous crafting has been added the handicraft talent of immigrant peoples from every country in Europe, with a resultant variety probably not equalled elsewhere.

Provincial governments and the extension departments of universities maintain staffs of highly trained and skilled handicraft workers who organize groups, train leaders and sponsor exhibitions. Many civic governments employ skilled handicraftsmen to organize and teach at community centres, and civic exhibitions of crafts are frequent. In most cities, handicrafts are taught in the local schools. The Federal Government promotes handicraft activities among its wards—the Indian and Eskimo peoples.

The totem arts belong to the past and few remain today with knowledge of this unique craft of the Kwakiutl Indians, who watched the coming of the first white men to Vancouver Island. Mungo Martin, present chief of the tribe, is one of the last of the carvers.



The true handicraft artist finds his medium in the common gifts of nature that fall readily to his hand. With native talent and skill often handed down from generation to generation he transforms them into an expression of himself and his surroundings.

The Eskimo with crude tools and the stone at his feet amazes the sophisticated artistic world with his inherent ability to portray the life of his people.



Rugs, hooked with home dyed wool or materials, portray the Quebec scene, and in skilled hands the clays of Nova Scotia become articles of simple beauty.



Juniper roots from Alberta suggest their own eventual form.

Undyed wool from sheep raised on the Cowichan Indian reserve in British Columbia is transformed into wind and water repellent pullovers.



The Canadian Handicraft Guild, with a number of provincial subsidiary branches, is a strong and vigorous citizens' organization devoted to the promotion of all forms of handicraft. A number of individual crafts are organized within the general handicraft network and promote the welfare of their particular groups. The Canadian Guild of Potters and the Canadian Leathercraft Guild, representing a fine arts aspect of their crafts, are members of the Canadian Arts Council.

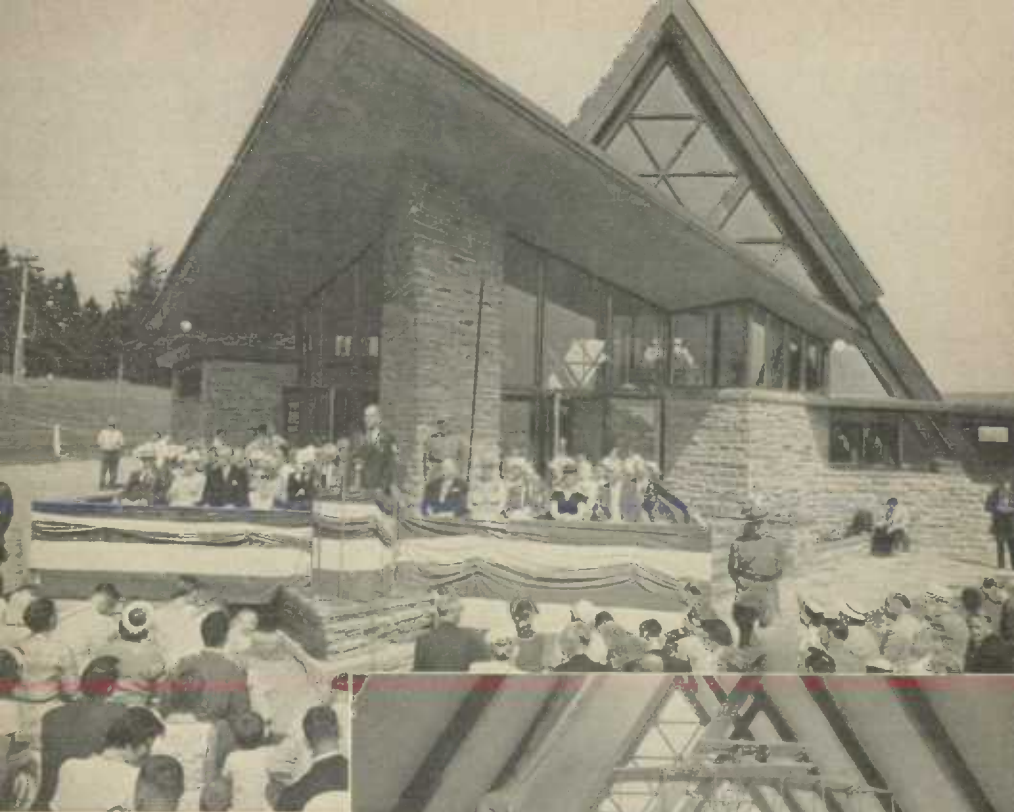
Cultural Organizations

The most important organizations in Canada engaged in the encouragement and promotion of cultural activities are financed and directed by private enterprise. Serving as centres of interest and inspiration for musicians, painters, dancers, dramatists and others working in the arts, these organizations have grown notably in the past ten years and now make their influence felt at the national, provincial and municipal levels. The Royal Canadian Academy of Arts is the oldest national prestige organization, an election to its full membership is regarded as the highest honour open to Canadian artists. Important bodies which have developed since World War II include the Canada Foundation and the Canadian Arts Council. The latter, now in its thirteenth year of existence, is a federation of national organizations which dominate much of the professional cultural life of Canada, including: 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.

Summer schools of the arts in many parts of Canada were well patronized in the 1956 season. Some of the more noted are: the Banff School of Fine Arts at Banff, Alta.; the Doon School near Galt, Ont.; Queen's University, Kingston, Ont.; L'École des Beaux-Arts, Quebec, Que.; and the Regina College Summer School at Emma Lake, Sask. The Summer Institute of Mount Allison University at Sackville, N.B., used *The Arts of Canada* as its theme in 1956, and the arts were a prominent part of the 1956 program at Camp Lacquemac in Quebec, sponsored jointly by McGill and Laval Universities. At the small town of Tatamagouche the annual Nova Scotia Summer Festival of the Arts is rapidly becoming one of Canada's leading cultural activities.

Museums and Art Galleries

Among the chief functions of museums and art galleries are the preservation of concrete records of the past and the presentation of these records in permanent or special exhibit groupings according to subject themes for the interest and enlightenment of the general public. Although there are in Canada no museums and art galleries comparable with the wealthy and long-established institutions to be found in other leading nations, those in the national capital and in the larger cities offer encouragement to the smaller



Canada's newest historical site overlooking the beautiful Bras d'Or Lakes in Nova Scotia, recalls the genius of Alexander Graham Bell—a remarkable monument to a remarkable man. It is designed on the tetrahedron, the structure so extensively used by Dr. Bell in his kite-flying experiments, and contains over a thousand exhibits of that renowned inventor's ideas and achievements.



provincial and local ones through generous programs of travelling exhibitions, lecture tours and reproductions, and in recent years a newly awakened consciousness of the significance of such institutions to the cultural life of the people has become evident at the federal, provincial and municipal levels.

The National Museum at Ottawa, although essentially a museum of natural history carrying on scientific research in zoology, botany and anthropology, has collected an extensive exhibit of Indian and Eskimo lore and many phonographic recordings of French-Canadian, English-Canadian and Indian



▲ The migratory habits of wild geese are explained to children at one of Canada's seventy-six bird sanctuaries. Most migratory birds are given absolute protection in all parts of Canada and, because of severe climatic conditions, most Canadian birds are migratory.



◀ Banding a Canada goose.

songs. Other federally operated museums include the Canadian War Museum, the nucleus of a historical museum housed in the Public Archives, a collection of aviation exhibits in the National Research Council, a farm implement exhibit at the Experimental Farm at Ottawa, and several historical museums situated in National Parks. All are modest in scope.

The Royal Ontario Museum at Toronto is the largest and best-known of the provincial museums. It specializes in the field of archaeology and carries on extensive work in research and publication. The New Brunswick Museum, though smaller, is noted for its exhibits designed for school use. Laval University, McGill University, the University of Western Ontario and the University of British Columbia all have sizable collections, and certain private

exhibits, such as that of the Hudson's Bay Company at Winnipeg and that of the Bell Telephone Company at Montreal, attract many visitors.

The National Gallery at Ottawa has assembled a permanent collection of paintings and sculpture, prints and drawings representative of past and present styles from various countries. The Canadian section is most inclusive and is made known to the whole country through catalogues, photographs, colour reproductions, films, radio broadcasts and, to a limited extent, by loans. The extension work of the Gallery includes organization of exhibitions from collections abroad and the fostering of Canadian industrial art. There are also important collections in most of the larger cities such as Toronto, Montreal and Vancouver.

Libraries

Public library service in Canada is conducted through large urban libraries and their branches in metropolitan areas, sometimes augmented by bookmobile service to outlying districts; by smaller libraries in smaller urban centres; by regional service established on a county or wider basis; and by mail service to remote areas. This service in each province, with the exception of Quebec, is under the jurisdiction of some branch of the provincial government as far as legislation is concerned, but the operation of libraries is under the control of municipal or private bodies. Financial assistance is provided by the provincial governments as well as administrative assistance.

Services other than book lending are also provided by public libraries. Many of them have stocks of films, records and paintings which may be borrowed by individuals or used for the instruction and entertainment of local audiences. Story hours and puppet shows for children are often conducted and special programs for adults such as lectures, fine arts exhibitions and concerts are arranged. Young Canada Book Week is sponsored each year by the libraries in co-operation with the Canadian Library Association to promote interest in reading among Canadian children and to acquaint them with the services provided by libraries.

An experiment in education and recreation has been undertaken by the Royal Ontario Museum in its new galleries of physical geology. A series of graphic exhibits and a spun aluminum revolving world show the fascinating story of the earth's birth, formation and evaluation.





The problem of keeping informed in the business and industrial world is finding some solution in the establishment of specialized company libraries to fill their own staff needs. Such libraries have more than doubled in number during the past ten years.

The following table gives the latest available information on the book stocks and staffs of the various types of libraries in Canada surveyed by the Dominion Bureau of Statistics.

Summary Statistics of Libraries, by Type and Province, 1953-54¹

Type and Province	Libraries ²	Volumes ³	Full-time Staff	Part-time Staff	Trained Staff ⁴
	No.	No.	No.	No.	No.
Public.....	765	8,405,375	1,595	1,403	620
University and college.....	268	7,630,261	545	615	290
Federal government.....	102	2,067,430	345	34	107
Provincial government.....	99	1,389,516	162	59	53
Business, professional and technical society.....	131	774,629	253	74	61
Travelling and open-shelf.....	9	411,200 ⁵	62 ⁵	8	21 ⁵
Totals (less duplication)	1,374	20,651,411	2,958	2,193	1,151
Newfoundland.....	10	225,264	28	7	7
Prince Edward Island.....	6	115,522	13	30	6
Nova Scotia.....	49	819,813	91	95	52
New Brunswick.....	30	476,449	46	29	16
Quebec.....	244	5,326,246	495	393	262
Ontario.....	703	9,678,850	1,507	1,036	550
Manitoba.....	31	740,912	124	87	31
Saskatchewan.....	93	847,406	113	122	46
Alberta.....	123	837,329	158	204	42
British Columbia.....	85	1,583,620	383	190	139

¹ Figures for federal and provincial government libraries are for the year ended Mar. 31, 1954; others are for the calendar year 1953. ² Main libraries only. ³ In main and branch libraries. ⁴ Degree status training in library science. ⁵ Includes some duplication in Newfoundland figures.

The National Library.—A National Library was formally established on Jan. 1, 1953, by the National Library Act. Plans for the building have been completed, but construction has not yet begun and the acquisition of book-stock is still on a limited scale. In the meantime, work has continued on three major projects: the completion of a National Union Catalogue of the holdings of major Canadian libraries; the preparation of various catalogues, bibliographies and check lists relating to Canadian publications; and the microfilming of rare books and periodicals of Canadian interest.

The Bookmobile is the public library's answer to expanding populations. This mobile unit circulates about 3,000 books a week in a new district not yet served by a permanent library.



By the end of 1956 the National Union Catalogue was estimated to represent 7,000,000 volumes in 122 libraries, thus forming a single reference system and facilitating inter-library loans. The national bibliography is kept up to date by *Canadiana*, a monthly classified record of new publications relating to Canada. An abridged version entitled *Canadiana Selections*, is published mainly for distribution abroad.

The Public Archives.—The purpose of the Public Archives, which was created in 1872, is to assemble and make available to the public a comprehensive collection of source material relating to the history of Canada. Its four main divisions deal with manuscripts, maps, pictures and books. A historical museum is open to the public during office hours and on Saturdays and Sundays and microfilm viewers are at the disposal of accredited research workers at all times. Branch offices are maintained at London, England, and at Paris, France.

Media of Mass Communication

The Press.—About 98 daily newspapers, counting morning and evening editions separately, are published in Canada, with an aggregate reported circulation of more than 3,770,000—about 83 p.c. in English and the remainder in French, except for a few in Yiddish or Chinese. Ten of the papers enjoying circulations in excess of 100,000 account for more than half of the circulation. Well over 90 p.c. of all newspaper circulation is in urban centres.

Weekly or monthly publications include a considerable variety of foreign-language publications including Ukrainian, German, Yiddish, Polish, etc. Weekly newspapers serve more people in rural communities than do the dailies.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 98 members with world and Canadian news and news photographs mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides to its fellow-members the news of its particular area and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the populations of the cities



The press clamours for news from the Prime Minister after an exciting Parliamentary discussion.

in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The British United Press, privately owned and affiliated with the United Press, with 12 bureaux, also provides a service of Canadian and world news, news photographs and related features for Canadian newspapers, radio and television stations. There are as well special news services operated by affiliated newspapers and individual newspapers. Several foreign news agencies have representatives in Canada to supply and interpret news of Canadian origin, as have also the leading United Kingdom and United States newspapers. Most of the latter are located at Ottawa.

Press Statistics.—Daily newspapers alone contribute 60 p.c. of the value of periodical publications, totalling \$265,000,000, produced in Canada each year, of which amount 73 p.c. is realized from advertising and 27 p.c. from sales. Printed and bound books are produced to the value of \$35,000,000, with fiction, non-fiction, scientific and text books making up somewhat less than half that amount. Recorded imports of books and other printed matter greatly exceed recorded exports, the former amounting to over \$73,000,000 and the latter to about \$3,600,000 in 1955. Hence, it appears that the per capita annual expenditure of Canadians on books, pamphlets and periodicals is in the neighbourhood of \$20.

The combined circulation of Canadian magazines is over 11,300,000. In order of popularity, magazines classified as home, social and welfare come first, agriculture second, trade and industry third, religion fourth and education fifth.

Purchases of books and other printed matter from the United States are significant, recorded imports having increased from \$28,585,000 in 1948 to \$66,883,000 in 1955. Imports from the United Kingdom have shown a small annual increase in postwar years to about \$3,072,000 in 1955. In the same year, imports from France were valued at \$2,000,000.

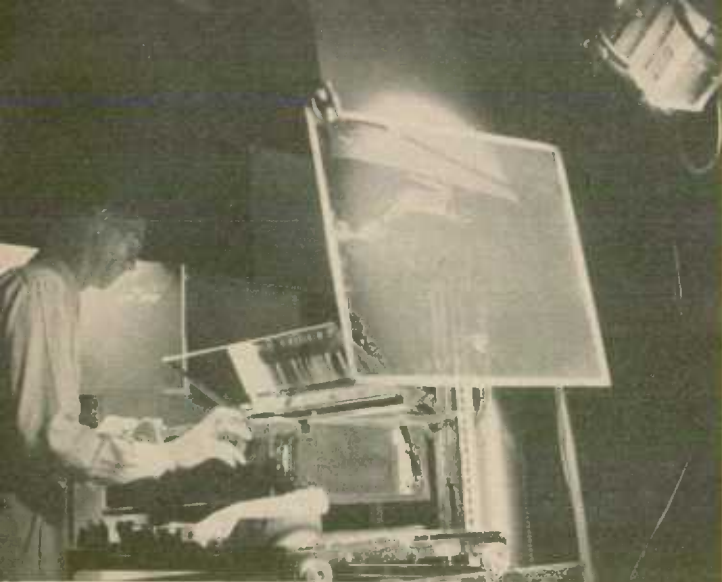
Radio and Television.—Radio broadcasting and television in Canada are dealt with at pp. 222-228. The number of radio receiving sets made available in Canada through domestic production and imports has averaged about 650,000 a year since the end of World War II. From a high of 836,419 in 1947, Canadian domestic sales by distributors declined to 620,860 in 1953 and to 487,237 in 1954, then increased to 609,993 in 1955 and 709,416 in 1956.

The establishment of television service by the Canadian Broadcasting Corporation in 1952 precipitated a tremendous increase in the demand for television receiving sets. Producers domestic sales mounted from 29,623 sets in 1950, to 39,185 in 1951, 137,236 in 1952, 366,498 in 1953, 623,856 in 1954 and 764,957 in 1955 but declined to 598,149 in 1956.

Motion Pictures.—In 1955 there were 1,950 motion-picture theatres in Canada with a seating capacity of 984,389, 242 drive-in theatres, 616 community halls offering screenings, and 590 halls serviced by itinerant operators. On the average, each Canadian attended 13 motion-picture programs and paid \$6.74 in admissions, the lowest in six years. There were 2,462 new titles released during 1955 for theatrical booking. Of this total, 1,124 were new feature films, over half (649) originating in the United States, 340 in France, 55 in Great Britain, 54 in Italy and 25 in other countries. In 1955 Canadian motion-picture studios made over \$3,500,000 worth of film for industry and government and proved themselves capable of producing the highest quality of documentary and educational films. Canadian film production in 1955 was divided between private industry (46 firms) and seven federal and provincial government agencies, with emphasis on non-theatricals, newsreel stories, television showings, commercials, and theatre trailers and newsclips.

CBC Music Transcription Service preparing a recording. Transcribed programs featuring Canadian composers and artists are made available to broadcasting systems around the world.





The National Film Board, whose specific job is the documentation of Canadian life, has a new plant on the outskirts of Montreal. It contains the finest modern laboratory and other equipment available for the production, processing and distribution of theatrical, non-theatrical and television films.

National Film Board.—The importance of the non-theatrical film, filmstrip and still photograph as a medium of information was recognized by the Federal Government in 1939 when the National Film Board was established. Since that time the Board has become increasingly well known in Canada and abroad as a national documentary film producing and distributing organization whose function it is to interpret Canada to Canadians and to the people of other nations in an interesting and factual manner. That it has done so with distinction is evidenced by the fact that more than 200 awards of Canadian and international significance have been made to NFB productions.

During the year ended Mar. 31, 1956, NFB completed 205 documentary films on Canadian life in all its aspects as well as 40 news stories, 12 newsclips and 12 TV stories. Contract films and newsclips numbered 39. Of the total of 308 productions, 169 were original films and the remainder were revisions and language versions of originals. In addition, the Board continued its production of four series for theatrical use in Canada.

NFB product is shown throughout the world in commercial theatres, on television where this medium is in operation and to non-theatrical audiences both at home and abroad. Non-theatrically, showings in Canada reached an audience of over 14,500,000 people in 1955-56 and an undetermined number saw NFB films that had been purchased by film libraries, schools, industry and other organizations. Abroad, Canadian films are distributed through many channels—through posts of the Departments of External Affairs and Trade and Commerce, through deposits with state and local distribution agencies, and through exchange agreements with various foreign governments. Altogether the non-theatrical audience in the latest fiscal year was estimated at 32,000,000. Films produced for theatrical use received 7,294 Canadian bookings and 21,519 bookings in other countries.

Hundreds of films from the NFB's non-theatrical library are made accessible to television stations in both Canadian and foreign markets. During 1955-56 there were 6,631 telecasts of NFB films, 3,211 in Canada and most

of the others in the United States and the United Kingdom. In that year, 74 films were produced specially for TV use.

The sale of prints has become an important part of the distributive operations of the Board, in 1955-56 accounting for 8,000 of the 17,500 prints placed in circulation for the first time. Films and filmstrips are sold direct by NFB offices in Canada, New York and London and through selected commercial distributors in many countries.

The National Film Board is a Crown corporation whose executive consists of a Commissioner, who is Chairman, and eight other members, three of whom are appointed from the public service. Members of the Board, other than the Commissioner whose tenure of office is five years, are appointed for three-year periods. The office of the Commissioner and certain headquarters personnel are located in Ottawa but the Board functions from its recently completed plant in St. Laurent, Que.



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CANADA

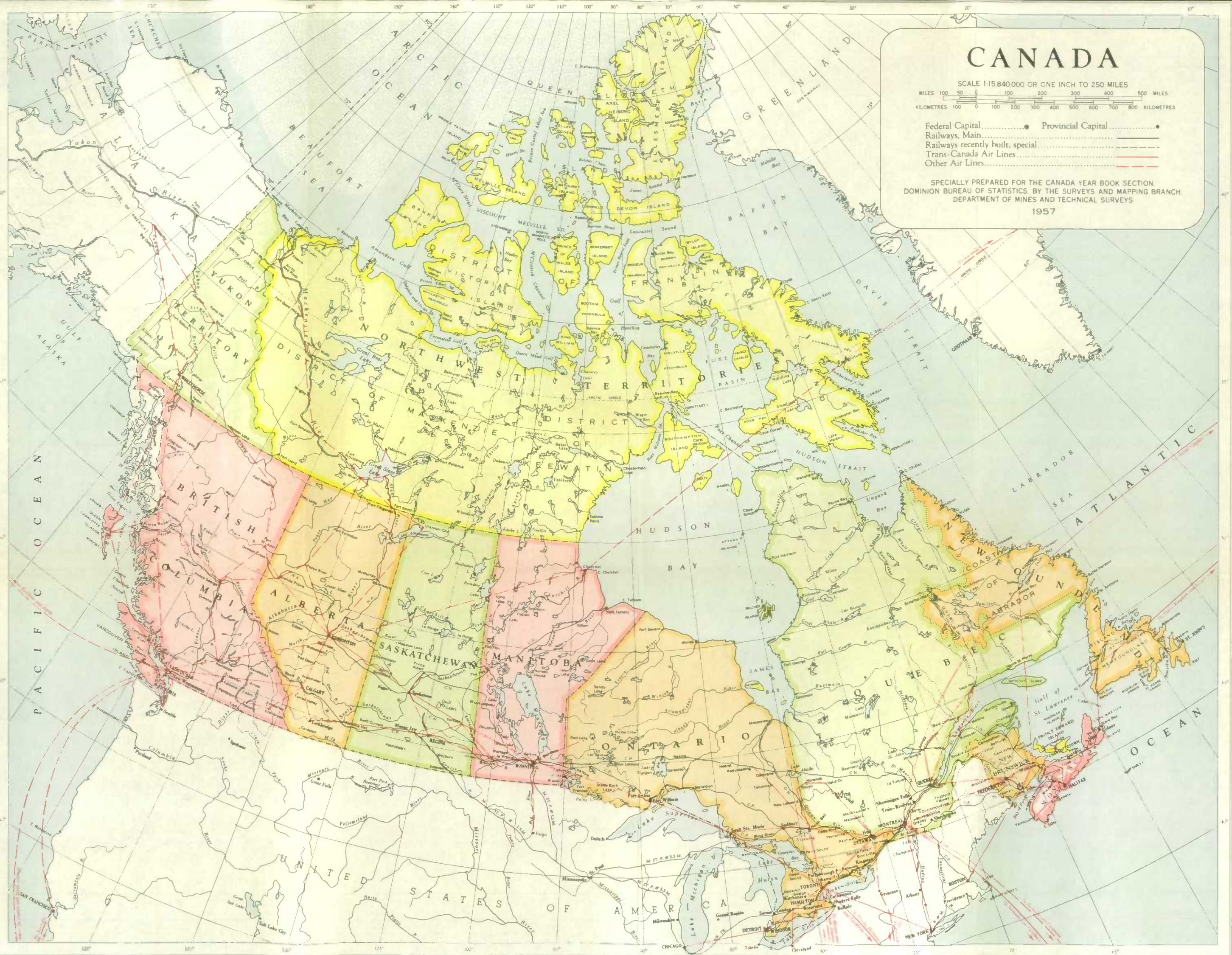
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