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CANADA 1956



*A step beyond the roar of trade,
The great land lies in tranquillity and peace.*

*North Strakey, Que.,
by George Hunter*



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The OFFICIAL HANDBOOK
of PRESENT CONDITIONS
and RECENT PROGRESS

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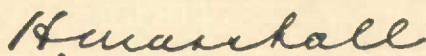
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Foreword

THE Canada Handbook was instituted in 1930 to give Canadians and the people of other lands a concise, balanced, factual account of the annual progress of the Canadian nation and economy. In text, in table, in map and illustration, *Canada 1956* seeks to portray the present conditions of the Canadian people, their country, government, cultural development and welfare. It endeavours to present the recent progress of the many-sided Canadian economy of today, the operation and achievements of which are based upon the rich and varied natural resources of Canada, the skill and enterprise of its business and industrial community, the far-flung network of transport and communication facilities, and the character of its people.

For its information *Canada 1956* draws heavily on the several divisions of the Dominion Bureau of Statistics and the various departments of the Government of Canada. The illustrations are secured from a wide range of governmental, commercial, press and private sources.

Canada 1956 is edited and produced in the Canada Year Book Section of the Information Services Division by Miss Margaret Pink, Assistant Editor of the Handbook, Mr. John F. McVea, Chief of the Section, and Dr. C. C. Lingard, Editor and Director of the Division.

A handwritten signature in dark ink, reading "H. Marshall". The signature is fluid and cursive, with a large initial "H" and a long, sweeping underline.

Dominion Statistician

Dominion Bureau of Statistics,
Ottawa, March 31, 1956

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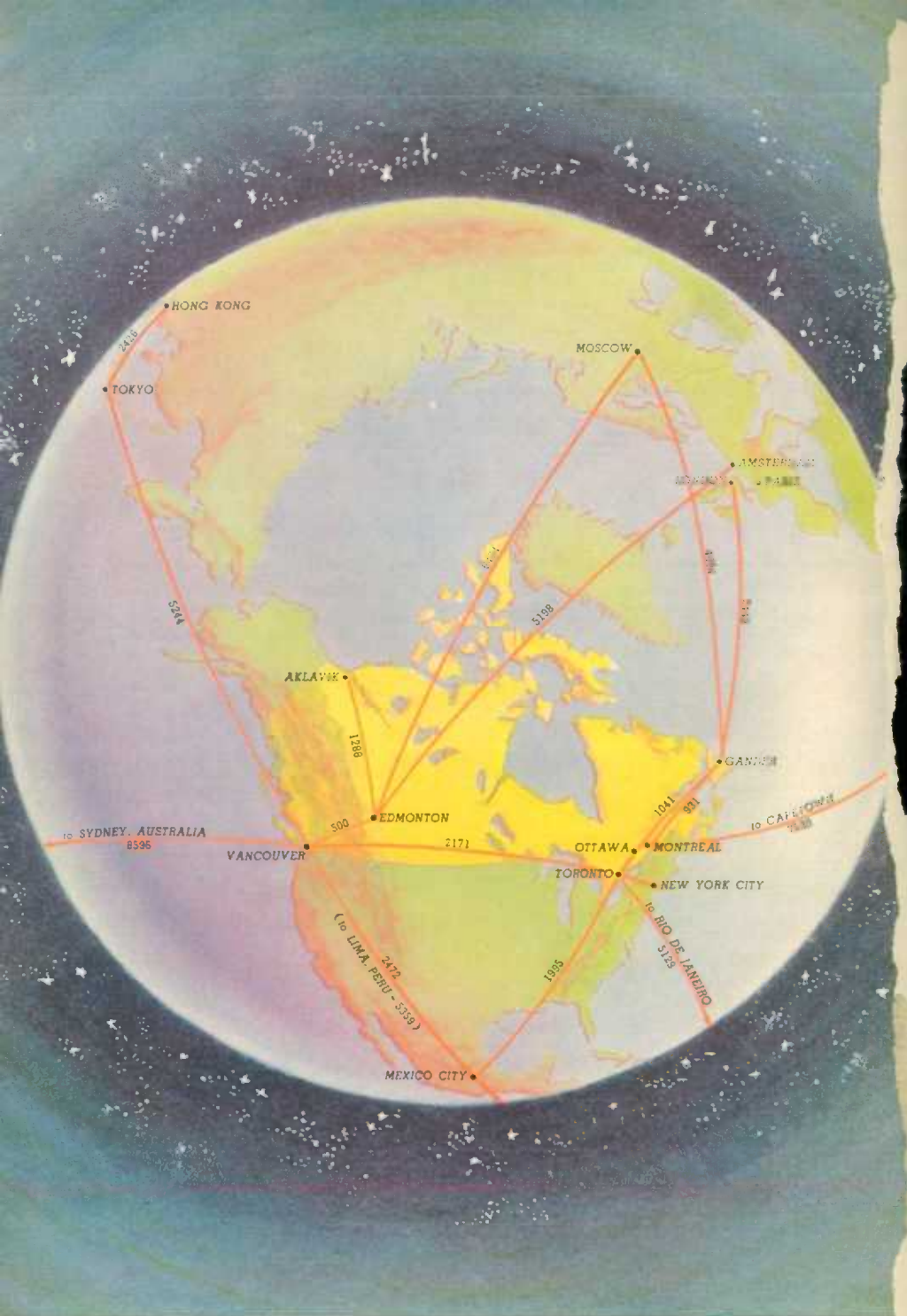
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Gordon Fairbairn

Canada stands astride the crossroads of the world—the dead centre of the new heartland of air geography.

The Country

• Canada's Strategic Position Among the Nations

CANADA today occupies a highly strategic position among the nations of the world as a result of its geographical location in the western and northern hemispheres, its heritage of the two great formative traditions of Western Europe which have been adapted to a North American continental environment, its vast storehouse of natural resources, the unsurpassed intensity of its post-war industrial growth, its role in Commonwealth, regional and world organizations, and the distinctive national characteristics and traditions which the Canadian people have developed during their struggle of nation-building in defiance of geographical and economic forces.

The second largest country in the world, with an area of 3,845,774 sq. miles, Canada comprises the northern half of North America (with the exception of Alaska and Greenland). Shaped like a distorted parallelogram, Canada's four corner salients emphasize its strategic position as the nearest neighbour of the paramount powers of the modern world. On the east lies the Province of Newfoundland as the sentinel of the St. Lawrence gateway, commanding the shortest oceanic routes to the United Kingdom and France—homelands of Canada's dual cultural traditions. On the south, the salient of peninsular Ontario thrusts deep into the industrial heart of the United States with which Canada shares close and extensive contacts across four thousand miles of common frontier. On the west, British Columbia, flanked by Alaska, faces the populous Far Eastern nations of Japan and China across the North Pacific. On the north, the Canadian Arctic Archipelago guards the approaches to this continent from the Eurasian land mass and makes Canada in the new age of air transportation neighbour to the USSR.

In this new air age, which has mastered vast oceanic distances and polar solitudes but has made universal the terror of nuclear warfare, Canada stands astride the crossroads of the world—"the dead centre of the new heartland of air geography".

The building of Canada "*a mari usque ad mare*" has witnessed an arduous and tenacious struggle in defiance of geographical and economic forces and its achievement as a distinct national entity has constituted no mean challenge to the vision, character and resourcefulness of its people. The major topographical and physiographic trends in the North American continent being longitudinal, the 'Fathers of Confederation' in building a transcontinental Dominion overcame such north-south features as the eastern Appalachians and the western Cordilleras, linking the Maritimes to New England and British Columbia to the Pacific states; the vast forbidding Canadian Shield separating east from west and crowding settlement southward to the shores of the Great Lakes; and to the west, the great Interior Plains whose structural continuity embraces the heart of the continent.

However great the north-south trends with their sectional influence, the builders of Canada have found support in many other features of relief and

drainage following a latitudinal trend. The extensive arc-like waterway of the St. Lawrence, the Great Lakes, Rainy River, Lake of the Woods and Lake Winnipeg provided not only water routes for the early explorers and fur traders but induced settlement and economic and political development along an east-west course. Later, Canada's pioneer statesmen and railway builders found Nature their ally as they sought to link the Maritime Provinces, Lower and Upper Canada, the Prairies and British Columbia in a trans-continental political and economic union. Direct east-west rail connections through such valleys as Matapédia in eastern Quebec and such mountain passes as Crowsnest, Kicking Horse and

COMMONWEALTH



The Rt. Hon. C. D. Howe, Minister of Trade and Commerce, and his Deputy, Mr. W. F. Bull, visited Australia and New Zealand in the summer of 1955 to discuss trade and other matters of mutual concern.

UNITED STATES



Mr. John Foster Dulles, Secretary of State of the United States (right), in Ottawa to confer with Canadian Government leaders, is shown with Prime Minister St. Laurent, the Hon. L. B. Pearson, Secretary of State for External Affairs, and Mr. R. D. Stuart, United States Ambassador to Canada.

Yellowhead in the western Rockies tended to offset the north-south geographical pressures and their accompanying sectionalism, and became indeed the very warp of Canadian national unity and identity.

Many facets of Canada's development, from its earliest colonial beginnings to its present stature among the nations, are the product of a delicate harmonizing of diverse geopolitical forces and interests. In the pathway of westward European colonial expansion, Canada early became the beneficiary of priceless institutional and cultural traditions which immigrant peoples brought to their new homeland. Paramount among these inferences were, on the one hand, the British parliamentary institutions, conventions of responsible government and democratic concept of freedom of the individual and, on

UNITED NATIONS

Canada has assumed a constructive and intermediary role in Commonwealth and international relationships, devoting untiring efforts to the cause of freer trade, co-operation and peace among the nations of the world.

NATO



Canadian jet fighters zoom over their base in Germany.



Capt. W. R. Mathieu, Member of the Canadian Truce Team in Indo-China, discussing strategy at the village of Muong Peun with the Royal Loatian Army post commander.

the other, the distinctive ethnic, linguistic and religious institutions and traditions of the French Canadians. The achievement of Canadian nationhood on a transcontinental basis that reconciled both internal physiographic and cultural diversities and at the same time resisted the

manifold cumulative attractions and pressures from the United States called not only for the unique development of a combination of the British parliamentary system of Cabinet government with a distinctly Canadian adaptation of the United States system of federalism, but also for the persistent application by its builders of such qualities as resourcefulness and tenacity, moderation and tolerance, adaptability and compromise.

While Canada's national heritage and development and the fibre of the Canadian character are the wealthier for having as their basis two diverse but closely related cultures, strengthened and enriched by the flow of peoples and cultures from many other lands, it is in the enormous wealth and variety of natural resources (including many of the key materials of power) and in the intensity of current industrial growth that one finds a major basis for Canada's strategic position in the post-war world.

At present Canada ranks first among the nations in the production of newsprint, nickel, asbestos and platinum; second in the world's output of wood pulp, gold, aluminum, zinc, uranium and hydro-electric power; third in silver and sawn lumber; and fourth in wheat, copper and lead. None the less,

the recent discoveries of vast new resources of energy—oil, natural gas, uranium—coupled with the continued expansion of low-cost hydro-electric power, basic to its aluminium, pulp and paper, electro-metallurgical and electro-chemical industries among others; the widely distributed non-ferrous metal developments; the revolutionary growth of the iron-ore developments; the sudden opening of the heretofore inaccessible and untapped resources of the Canadian Shield through the application of new scientific and technological methods in the fields of transportation, surveying and resource exploitation: all these post-war advances greatly broaden Canada's industrial base, provide the essential elements of vast economic power and yet demand unswerving endeavours on behalf of the cause of freer international trade.

Canada since the War has been steadfast in the practice and advocacy of policies dedicated to the extension of international trade. Enlightened self-interest—the prosperity of the Canadian people, the continued rapid expansion of the Canadian economy (as indicated by the rise of the gross national product from over \$12,000,000,000 in 1946 to \$26,600,000,000 in 1955 and by the increase of the index of industrial production from 171.9 to 265.9 during the same period) and the need for export markets—provide every assurance that Canada as the fourth world trader will continue to pursue the path of multilateral trade on a broad front and in so doing contribute not a little to the removal of barriers among nations.

Moreover, Canada's national development in close association with kindred nations of the British Commonwealth and in peaceful co-operation with the United States, with which it shares a continent, has enhanced its strategic position among the nations and has given it an influence on the world stage far beyond what might be expected of a nation of 16,000,000 people. Noteworthy for leadership in the evolution of the modern Commonwealth by the most pragmatic of processes, Canada shares in a co-operative partnership of sovereign nations that straddles four continents, cuts across various racial divisions and cultures and, in its very variety and tolerance, offers an example to the world of how nations may live in the pursuit of peace, liberty and progress. Such intimate association on a world-wide scale has broadened Canada's understanding, strengthened its powers of mediation and equipped it for a leading role on behalf of world peace and freedom in the larger international sphere—the United Nations.

Canada's association with the United States has also been close and extensive from the days of their common origin in colonial America, through expansion and settlement over their respective halves of the continent, to their inevitable present-day intimacy arising from the facts of geography, economics and defence and the concepts of freedom and democracy which they share. Across their common frontier flows unprecedented floods of cultural communications, economic goods, investment capital and friendly intercourse, while the accident of geography, which makes Canada in the new age of air transportation a northern buffer between the United States and the great land mass of the USSR, links the two neighbours in the closest co-operation on behalf of joint continental defence, exemplified in the three radar warning lines on Canadian soil.

But Canada's strategic position in the northern hemisphere in the era of the hydrogen bomb and the supersonic jet plane, impaled as it is between the two most powerful nations of the modern world, ensures that its thinking and acting cannot be restricted to matters of defence. Hence, its statesmen at



Canadian Pacific Air Lines, on June 3-4, 1955, inaugurated the first new travel route in centuries—a polar route "over the roof of the world" to Europe. CPA's "Empress of Amsterdam" arrived at Schiphol Airport which serves the Netherlands city of Amsterdam after an 18-hour flight from Vancouver, a distance of 4,825 miles.

home, at the United Nations and at the capitals of the world have been devoting their untiring efforts to the lessening of international fears, suspicions and misunderstandings, to the opening of channels of communication between nations, to the application of nuclear energy to peaceful endeavours, and to the preservation and strengthening of the peace. Canada brings into the present world situation of uneasy tensions no mean record of resourcefulness, moderation, compromise and toleration. On the march to a great destiny and conscious of all the implications of strategic position, the constant application of these distinctive traditions to the progressive building of an era of global peace and goodwill constitute the supreme challenge to the character of Canada's people and to every resource of Canadian statesmanship.

• *The Provinces—Their Physiography and Economy*

Politically, Canada is divided into ten provinces and two territories. The first step in the federal union of British North American possessions took place in 1867 when the three provinces known as Canada (Ontario and Quebec), New Brunswick and Nova Scotia were united into one Dominion under the name of Canada. British Columbia entered the Union in 1871 and Prince Edward Island in 1873. The vast central-northern area now included

in the three Prairie Provinces and the Yukon and Northwest Territories was transferred from the Hudson's Bay Company to Canada in 1870 and from portions of this territory Manitoba was created in the same year and Saskatchewan and Alberta in 1905. Newfoundland became a province of Canada in 1949. Each province is sovereign in its own sphere; the Yukon and Northwest Territories, while enjoying a measure of self-government, are under the jurisdiction of the Federal Government.

This great country, with a total area of 3,845,774 sq. miles, is characterized by a wide diversity of contour, soil, climate and resources and therefore of development and settlement.

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.....	219,723	26,789	246,512
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.....	3,562,857	282,917	3,845,774

The main physical and economic features of each of the provinces and territories are given below.

Newfoundland.—Canada's newest and most easterly province was Britain's oldest colony before it elected to become part of Canada in 1949. The Province consists of a triangular island of 42,734 sq. miles, lying across the mouth of the Gulf of St. Lawrence, and the Coast of Labrador, an area of 112,630 sq. miles on the mainland.

The Island is part of the Appalachian mountain range which extends southward through the Maritimes and the eastern United States. Much of the Island is a waste of barren-lands, bogs and lakes unsuitable for cultivation or habitation but the river valleys and the west coast are thickly forested. The climate is moderate with average temperatures ranging from about 20°F. in January to 60°F. in July. The prolific fishing grounds off the southeastern part of the Island attracted the first settlers and until recently the fishing industry was the mainstay of the economy. Today, a large proportion of the Island's 404,000 people, many of them descendants of fisher folk who came from the British Isles, are scattered along the southeastern coasts in small communities, living simple picturesque lives and for the most part still dependent upon the sea for their livelihood, their transportation and communication. One-fifth of the population live in the metropolitan area of St. John's, the capital city. However, although fishing and fish-processing occupy a large part of the labour force, two other basic industries are of greater importance in point of value of production and as producers of income. The

A Newfoundland village built around a snug harbour. Most of the Island's people live beside the sea in small communities such as this.



forested areas provide the raw materials for thriving sawmilling and pulp and paper industries, and extensive mineral deposits yield large quantities of zinc, iron ore, lead, fluorspar and copper. Recently an intensive government development program has been instrumental in opening up many new small manufacturing industries.

The region of Labrador forms part of the Canadian Shield and is a great plateau whose surface is a mosaic of bare rocks, forested valleys, swamps and innumerable lakes. No development of the area's resources has as yet taken place with the exception of the production of iron ore from the large hematite deposits on the Quebec-Labrador boundary.

Prince Edward Island.—This, Canada's smallest province, lies in the semi-circular arm of the Gulf of St. Lawrence, separated from the Provinces of New Brunswick and Nova Scotia by the Strait of Northumberland. It is about 120 miles long and varies in width from two to 34 miles, so that no part of it is more than 17 miles from the sea. The surface is a rolling lowland overlain by rich, sandy, deep red loam which is the basis of its distinct agricultural economy. About 85 p.c. of the land is arable and almost half of the Island's 108,000 people live on farms, obtaining the major part of their income from the sale of seed potatoes, live stock and poultry, dairy products and eggs. Fishing and fish-processing are also of great importance to the Island's economy. There are no great extremes of temperature in Prince Edward Island because of the moderating influence of the sea and in summer months visitors throng the Island attracted by its rural charm and by the splendid bathing beaches on its northern coast.

Nova Scotia.—The peninsular Province of Nova Scotia, almost entirely surrounded by salt water, is connected with the mainland only by the Isthmus of Chignecto, 17 miles in width. The Province is 381 miles long and from 50 to 105 miles wide. The northern portion, Cape Breton Island, has recently been joined to the mainland by a mile-long causeway. The Atlantic coast of Nova Scotia is low and rocky, indented by many fine harbours. The Bay of Fundy coast, bolder and almost unbroken, presents many fertile plains and river valleys, while inland the country is well forested and has excellent farming and orchard areas. Much of the scenery of the Province is very beautiful.

The sea moderates the temperature in both summer and winter and the lack of extremes of heat and cold assists the rapid growth of vegetation. Agriculture supports a larger proportion of the population than any other industry in the Province, live stock and poultry, dairy products, eggs and fruits bringing the highest returns to the farmers. Mining and fisheries are the other basic industries. Coal-mining contributes 70 p.c. of the mineral production which also includes gypsum, salt and barite, and the chief fishery products are lobster, cod and haddock. These three industries together with forestry provide raw materials for the Province's growing manufacturing industries which account for 39 p.c. of the total value of its production. More than one-third of Nova Scotia's 683,000 people are concentrated in the metropolitan area of Halifax, the provincial capital and the largest Atlantic port, and in the metropolitan area of Sydney-Glace Bay, the main centre of the mining industry. Another 20 p.c. reside in the counties bordering Northumberland Strait.

New Brunswick.—The Province of New Brunswick, the largest of the three Maritime Provinces, is almost rectangular in shape, measuring from east to west about 190 miles and from north to south 230 miles. It has a 600-mile coast line on the east and south, adjoins the United States on the west and the Province of Quebec on the north and northeast. There are only two high-land areas in the Province, one in the south and the other in the northwest and the remainder of the Province is rolling countryside with varied and picturesque vistas, many lakes and winding waterways. The St. John River, the largest east of the St. Lawrence, drains a basin of 21,500 sq. miles and in its valley live about 40 p.c. of the Province's 558,000 people. Settlement generally in the Province follows the coast line and the river valleys. The climate is relatively moderate and dry with occasional extremes in both summer and winter. The production of forest products is by far the most important element in the Province's economy. About 81 p.c. of the area is under forest, most of it merchantable timber within reach of transportation by water, rail or road. Agriculture is also significant as well as fishing. Mineral production is small but the discovery in 1952 and subsequent development of one of Canada's largest base-metal orebodies near Bathurst has been a highlight of metal-mining activity in Eastern Canada. The major manufacturing industries are based on the primary resources of forestry, agriculture and fisheries.

Quebec.—The Province of Quebec lies on both sides of the St. Lawrence River which is the great waterway of Eastern Canada. About 50,000 of its 595,000 sq. miles are south of the River and to the north and west it stretches to Labrador and Hudson Bay. This northern region is part of the Canadian Shield and the portion beyond the Saguenay River is largely unexplored and sparsely settled. Except for the treeless zone north of latitude 58°, most of the Province supports a valuable tree growth, the exploitation of which gives Quebec first place in the production of pulp and paper, Canada's leading industry. Quebec is also foremost among the provinces in the development of hydro-electric power, and its mining industry ranks next to Ontario's and Alberta's. The Province produces 60 p.c. of the world output of asbestos and is a leading Canadian producer of copper, gold, zinc and iron ore as well as the only producer of molybdenite and titanium. The valley of the St. Lawrence, extending from Quebec city to the western extremity of the Province, is a very fertile plain where the climate and soil, especially in the Eastern Townships, is well suited to general farming. In this valley is concentrated the



Prince Edward Island is really one big farm—85 p.c. of the land is cultivated and agriculture is the Province's specialty.

The peninsular Province of Nova Scotia is almost entirely surrounded with salt water. The low rocky Atlantic coast is indented with harbours, large and small, that shelter its fishing fleets.



The rolling hills of New Brunswick are clad with coniferous forests that form the basis of its great pulp and paper industry.



Province's great manufacturing industries and the greater part of its population. Montreal, the largest city and the largest port of Canada, contains about one-third of the Province's 4,520,000 people; another million live in the southwestern triangle below the St. Lawrence River and the remainder are located within 35 miles of the Ottawa, St. Lawrence and Saguenay Rivers and Lake St. John. Quebec accounts for 30 p.c. of the value of Canada's manufactured goods, and its products are greatly diversified.



The broad St. Lawrence has had an immeasurable influence on the development of Canada's central provinces, Quebec and Ontario. It was the original avenue of commerce along it the people settled and along it they established their industries. Its role in the future is one of brilliant promise.

Ontario.—This Province, lying between Quebec on the east and Manitoba on the west, is usually regarded as an inland province but its southern boundary has a fresh-water shore line of 2,362 miles on the Great Lakes and its northern limits have a salt-water shore line of 680 miles on Hudson Bay. The surface of Ontario is characteristic of the Canadian Shield, except in the southern triangle lying between the lower lakes and the Ottawa River where the surface is undulating to rolling. The southern part of this triangle supports Canada's greatest concentration of population and is recognized as one of the world's major industrial areas. Almost 3,500,000 people, 68 p.c. of Ontario's population and 22 p.c. of the population of Canada, live and work in the urban centres and rich farming areas south of a line running from near Oshawa, just east of Toronto on Lake Ontario, to Georgian Bay and approximately one-third of these live in the metropolitan area of Toronto. Another 20 p.c. of Ontario's population live east of a line connecting Oshawa on the south and North Bay, and the remaining 12 p.c. are located at the head of Lake Superior in the northern mining districts. Ontario has the greatest diversification of manufacturing production of any province and predominates in the production of many of the forty leading industries of the country. The tremendous natural resources of the Province have been a contributing factor in this development. Ontario has long been Canada's leading producer of minerals. It accounts for 82 p.c. (excluding USSR) of the world output of nickel, is a leading world source of copper and platinum metals and is rapidly gaining prominence as a source of iron ore and uranium. Great forest resources in proximity to hydro-electric power form the basis of its large pulp and paper industry. The lands along the St. Lawrence and the lower lakes, where the

climate is very moderate and rainfall plentiful, possess excellent soil, and constitute a highly productive general farming and fruit-growing district.

Manitoba.—Manitoba, the most central province of Canada, is a land of wide diversity, combining 400 miles of sea-coast along its northeastern boundary on Hudson Bay, great areas of mixed forests, large lakes and rivers and a belt of treeless prairie with very fertile soil of great depth. Most of that part of the Province lying north of Lake Winnipeg is underlain by rocks of the Canadian Shield. Within this area are numerous deposits of base metals and from mines developed there Manitoba obtains all its metal output. The southern portion of Manitoba forms part of the great plains region of central Canada and it is this region that supports 90 p.c. of the population of the Province, half of them engaged in grain-growing, cattle-raising and dairying. The metropolitan area of Winnipeg itself contains almost half of the Province's population. There, a large number of small and medium-sized establishments manufacture a great diversity of products, but the majority are concerned with the production of meat and other food products, clothing and petroleum products. Winnipeg is the main railway centre for Western Canada, which necessitates the operation of large shops for the maintenance of rolling-stock. The Province is well supplied with available and developed water power. The climate is especially invigorating with an unusual range of temperature which is modified by low humidity. Rainfall is abundant in the growing season.

Saskatchewan.—This Province lies in the centre of the Great Plains Region and reaches, as do the Provinces of Manitoba and Alberta, from the International Boundary on the south to the 60th parallel of latitude on the north. The Canadian Shield extends over the northern third and this portion of the Province is abundantly watered by lakes and rivers and contains rich timber resources, base metals and uranium. The development of large uranium deposits in the Beaverlodge area north of Lake Athabasca is proceeding rapidly. The plains of the southern two-thirds of the Province, with their deep fertile soils, support Canada's most intensive wheat cultivation and have valuable oil, gas and coal reserves. The economy of Saskatchewan is largely



More than half the people in Saskatchewan live on farms. The great plains stretching from the southern border over two-thirds of the Province are Canada's main wheat-producing areas.

agricultural. Almost half of the 889,000 people live on farms and another 20 p.c. live in rural non-farm areas. The population is spread fairly evenly over an area stretching 300 miles from the United States boundary, while only 20,000 persons live in the northern half of the Province. Power in the more settled areas is generated in fuel plants. The climate of Saskatchewan is given to extremes of temperature but the humidity is low. Most of the rainfall, averaging 15 to 18 inches a year, falls during the growing season.

Alberta.—Within the borders of Alberta there exists a great wealth of natural resources. It possesses large coal resources, its oil and gas reserves are almost unlimited, it has millions of acres of fertile soil, plentiful hydro-electric power, timber in abundance, and an invigorating healthful climate. The Province has three marked physical features—the plains, the foothills and a portion of the Rocky Mountains within its borders. The prairie section in central and southern Alberta is devoted to the growing of wheat and vegetables. In parts of this area rainfall is uncertain and irrigation is necessary for crop-raising. Cattle ranching is common in the very dry unirrigated sections and in the Rocky Mountain foothills. Northward, extending beyond the city of Edmonton, are the parklands where vegetation is more abundant and mixed farming is carried on, with emphasis on dairying and hog-raising. Northward again this area merges into mixed and coniferous forest. Over half the Province's 1,066,000 people reside in the central section in the great oil and grain-producing area, a belt about 100 miles wide extending roughly 200 miles from Calgary to Edmonton. To the south the population is more scattered. Permanent agricultural settlement reaches its farthest northern point in Canada in the Peace River Valley in northwestern Alberta. Slaughtering and meat-packing holds first place among the Province's manufacturing industries followed by petroleum products. Industrial activity is increasing rapidly. Many of the new establishments are producing supplies for the oil and gas industries, and chemicals based on these industries have made striking gains.

British Columbia.—The Province of British Columbia lies almost entirely within the Cordilleran Region of North America and is traversed from south to north by three principal ranges of mountains—the Rocky Mountains to the east, the Columbia and Cassiar Systems in the interior and the Coast Range to the west. This great mountainous province, which is 760 miles from north to south and averages more than 400 miles in width, supports almost all of its population in the extreme southerly portion. Forty per cent of its 1,305,000 people live in the Vancouver-Howe Sound area, 180,000 live in the adjoining Lower Fraser Valley and another 200,000 in the southern part of Vancouver Island. In other words, three-quarters of British Columbia's population lives in about 5 p.c. of its area. Half of the remainder are in the southeastern corner. This Province is highly industrialized, manufacturing representing almost half of the value of its output. The Province's own great wealth of natural resources provide the raw material and the power requirements for these industries. The forests support the lumbering, pulp and paper and wood products industries which are of primary importance. The estuarial salmon fisheries have resulted in the establishment of large canneries. Cattle raised on the southern interior grazing lands are the basis of the slaughtering and meat-packing industry and the famous fruit and vegetable-growing districts in the southern river valleys and on Vancouver Island supply the

food industries. The mountains themselves are rich in minerals. The Sullivan mine at Kimberley is one of the world's leading producers of lead and zinc and was the basis of the establishment of what is now the largest smelting, refining and chemical company in Canada. Considerable quantities of gold, copper, silver, tungsten, iron ore and coal are also mined. A feature of recent progress in British Columbia is that new developments are taking place in areas far removed from established industrial centres. Growing lines of communication and transportation are fanning out from and leading into formerly locked interior areas to tap a vast new potential.

The Yukon and Northwest Territories.—These vast northern territories include all that part of the North American Continent lying between the 60th parallel of latitude and the North Pole, except for Alaska and Greenland. They occupy 39 p.c. of the surface of Canada and are areas of contrast and extremes in topography, flora, fauna and climate. Surface features vary from the treeless plains of the far north, the rolling hills of the Canadian

British Columbia's development, until recently, has been mainly in the south-western corner of the Province where about three-quarters of its people live and work. But industry is fanning out—the great mountain fastnesses with their wealth of forest and mineral resources are being invaded and are beginning to yield up their treasures.



Shield in the east and the forested valley of the Mackenzie River, to some of Canada's highest mountain peaks in the west. The Mackenzie River and the Yukon River, two of the longest in Canada, together with Great Slave and Great Bear Lakes, both over 11,000 sq. miles in area, are important transportation routes. Mineral production, though of potential importance, is limited. Gold is mined in considerable quantity in Yukon, as well as silver, lead and zinc. Oil from the Norman Wells area, pitchblende products from the Great Bear Lake area and gold from the Yellowknife area are the chief minerals of the Northwest Territories. Forestry and agriculture are locally important in some areas. Population of the Territories numbers about 28,000—native Indians and Eskimos, fur traders, fishermen, miners, missionaries, scientists and government officials; 26,000 of them live in the Yukon-Mackenzie River District. The realization of the strategic importance of these northern wastes as well as the growing use of air transport has added to activity in this part of the country both for defence and for economic purposes.

Canada's National Capital

In 1855, the community of Bytown, which had grown up at the junction of the Ottawa and Rideau Rivers around the headquarters of the Royal Engineers commissioned to build the Rideau Canal, was incorporated and its name changed to Ottawa. Two years later, Ottawa, then a city of 10,000 people, was selected by Queen Victoria as the seat of the Government of Canada. Quebec, Montreal, Kingston and Toronto had each been for a time the Capital of Canada and each aspired to become the permanent Capital but, though they were all at the time more important centres, "in the judgment of Her Majesty" Ottawa combined "more advantages than any other place in Canada for the permanent seat of government". However, it was not until 1865 that the public services were moved to the new buildings erected originally by the Province of Canada and a proclamation issued fixing the Capital permanently at Ottawa. In 1867, when the Provinces of Nova Scotia and New Brunswick were joined with the Province of Canada, Ottawa became the Capital of the new Dominion which, within a decade, was extended from sea to sea.

Ottawa is today a city of 205,000 people dwelling in an area of 27,220 acres. Its early growth was comparatively slow because it was a city of government workers and did not encourage industry to any extent. Even now, of its labour force of approximately 90,000 people, 30,000 are employed by the Federal Government.

Ottawa is a self-governing municipality but, as the political Capital, its planning and development has long been the concern of the Federal Government. The splendour of its natural setting high above the river from which it took its name and facing the rolling horizon of the Gatineau Hills has been enhanced by the beauty and dignity of its public buildings, its driveways and its parks, making it one of the more picturesque Capitals of the world. Now a new Ottawa within a beautified preserve of some 900 sq. miles is growing from a master plan approved by Parliament in 1951. The National Capital Planning Committee, under the Federal District Commission, has made considerable progress in planning new buildings, removing crosstown railway tracks, rebuilding a main artery on which are located several national buildings and residences, acquiring land and constructing parkways. Gatineau Park,



Each May, a million tulips emblazon Ottawa's parks and driveways with a riot of colour. On the curve of the hill around Dow's Lake alone, fifty thousand of them, planted in colour groups of four or five thousand, are a delight to the eye.

a 50,000-acre area in the Gatineau Hills just north of the city, a district long loved and widely used for recreational purposes by the people of Ottawa, is under development as a park and game sanctuary.

In the course of the years, through this plan, loftily conceived and far-seeing, allying the aesthetic and the practical, there will emerge a Capital that will be worthy of Canada's achievements and of the international role that is her future.

Land Resources

The area of Canada, including fresh-water, is classified by tenure 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..... 1,788,346
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	TOTAL AREA..... 3,845,774
Federal forest experiment stations..... 186	

¹ Duplication of 1,668 sq. miles in Manitoba, see p. 16.

The high figure for federal land is accounted for by the fact that it includes the total areas of the Yukon and Northwest Territories.

Of Canada's total land area of 3,562,857 sq. miles, 7.6 p.c. is occupied agricultural land—under crop, in woodland or unimproved. Forested land, both productive and unproductive, accounts for 41.7 p.c. of the total and the remainder includes rock, muskeg, urban land, road allowances, etc.

National and Provincial Parks

The National and Provincial Parks of Canada have a total area of almost 71,500 sq. miles. They are areas of particular natural beauty and special interest that have been set aside for the benefit and enjoyment of the Canadian people and visitors from other countries.

The National Parks had their beginning in 1885 when an area of 10 sq. miles around the hot mineral springs at Banff, Alta., was reserved for public use. Since then the system has been extended to include an area of more than 29,000 sq. miles in 29 separate units—scenic and recreational parks, wild animal parks set aside for the protection and propagation of species in danger of extinction, and national historic parks. In addition, about 500 sites of historic importance have been marked. The Parks are supervised by the National Parks Branch, Department of Northern Affairs and National Resources. Many of them are easily accessible by highway, rail or air and offer every type of accommodation from camping facilities to palatial hotels and cosy cabins. Their names and areas are as follows:—

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

Six 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 hotels and other tourist accommodation and have 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.



Our hands can rarely hold too wide a beauty
Enough to love one wooded trail, one wanted sight,
One green cathedral's dappled light.





THE PEOPLE, THEIR GOVERNMENT and SOCIAL DEVELOPMENT

Population

Government

Education

Scientific Research

Health and Welfare

Labour

Cultural Relationships



Population

THE Canadian population is a blending of many cultural groups. 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, bringing with them their industrial and social heritages which, in the Canadian atmosphere, have been integrated to form a new and distinctive culture. While recent adult newcomers, of which there have been many thousands during the past few years, may long remain merely transplanted nationals carrying cultural gifts from other lands, their children, brought up in Canadian schools, under Canadian laws and ideals, will readily become integrated into the Canadian community and, intermarrying with Canadians of other ethnic origins, will enrich the mosaic of the national character and in due course contribute to a heightening of Canadian cultural achievement.

Throughout the years, there have been periods of intensive immigration of particular ethnic groups and periods when new arrivals were few, depending upon economic conditions in this new country and in the countries from which they came. At the taking of the 1951 Census, after six years of fairly high post-war immigration, 85.3 p.c. of the population had been born in Canada but, in order to continue the record of settlement that began with the 1881 Census, the 'origin' was recorded of every member of the population whether he was a new arrival or had generations of ancestors born in this country. The language spoken by himself or by his paternal ancestor before coming to Canada was generally used to establish origin as distinct from country of birth or nationality. The many who spoke English were usually distinguishable as of English, Scottish, Irish or Welsh descent. Persons of mixed Indian and white parentage living on reserves were recorded by the Census as "Native Indian" but those living off reserves were recorded according to the origin on the father's side. Similarly, persons of mixed white and Chinese, Japanese, Negro and other parentage were recorded through the father's family.

The earliest settlers in what is now Canada were French. British immigration was very small until the arrival of the United Empire Loyalists during and immediately following the American War of Independence. After 1784 British interest in Canada increased and with the economic dislocations that accompanied the industrial revolution settlers from the British Isles came in great numbers. By 1881, when the first information on the origins of the people as a whole became available through the Census, 59 p.c. of the population were of British Isles origins and 30 p.c. of French descent, together comprising almost 90 p.c. of the whole population. The closing years of the century inaugurated a new stage in the growth and ethnic variety of Canada's population. The development of new mining areas, the expansion of forest industries, the abundance of free homesteads on the fertile western plains and the new wave of railway construction brought a rapid increase in immigration that witnessed an influx of many new ethnic groups from the European continent. The outbreak of war in 1914 and the depression of the 1930's reduced the number of entrants to a mere trickle until the aftermath of a second world war once again brought hundreds of thousands of newcomers to Canada's shores in search of peace and freedom and a new life.



Quebec City, the heart of French Canada. The city was founded early in the seventeenth century by French colonists, the first to settle permanently in what is now Canada, and even today more than 90 p.c. of its people are of French descent.

Thus by 1951, when the latest decennial census was taken, the proportion of the population belonging to the two basic stocks was found to have decreased to 78.3 p.c.—the British group had declined to 46.7 p.c. and the French had risen slightly to 31.6 p.c. The changes in the numbers and percentage importance of the main origin groups in the country in the 1881-1951 period are given in the following table.

Distribution of the Population, by Origin, 1881, 1911 and 1951

Origin	1881		1911		1951	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles	2,548,514	58.9	3,999,081	55.5	6,371,905	46.7
French	1,298,929	30.0	2,051,719	28.6	4,309,326	31.6
German	254,319	5.9	403,417	5.6	619,627	4.5
Italian	1,849	2	45,963	0.6	152,142	1.1
Jewish	667	2	76,199	1.1	181,356	1.3
Netherlands	30,412	0.7	55,961	0.8	264,091	1.9
Polish	—	—	33,652	0.5	219,766	1.6
Scandinavian	5,223	0.1	112,682	1.6	282,358	2.1
Ukrainian	—	—	75,432	1.0	395,023	2.9
Asiatic	4,383	0.1	43,213	0.6	72,315	0.5
Native Indian and Eskimo	108,547	2.5	105,611	1.5	164,480	1.2
Other	71,967	1.7	193,713	2.7	615,127	4.5
All Origins	4,324,810	100.0	7,206,643	100.0	13,648,013	100.0

¹ Excludes Newfoundland for comparison with previous census years: 93.5 p.c. of Newfoundland's population were of British Isles origins and 2.7 p.c. of French descent.

² Less than 0.05 p.c.



A Scottish family, recently come to Canada, exploring the beauties of Ottawa. More than one-third of the immigrants arriving in this country in the post-war years are of British Isles origins.

The regional settlement of the larger origin groups in 1951 is given in the following table. About 46 p.c. of the people of British Isles origin lived in Ontario, which had about one-third of the total population of Canada, and 11 p.c. were in British Columbia. Over three-quarters of the people of French origin were in Quebec Province and 11 p.c. were in Ontario. The families of many of these people have lived in Canada for several generations and the same is true of people of German origin. About 80 p.c. of them were born in Canada and 83 p.c. of them live in Ontario and the Prairie Provinces. More than two-thirds of the people of Ukrainian and about three-fifths of the people of Scandinavian origin live in the Prairie Provinces and, of these two origins, more than two-thirds were born in Canada, mainly descendants of people who came in the early years of the present century. Those of Netherlands origin live mostly in Ontario and the Prairies, 37 p.c. and 38 p.c., respectively, and although there was a considerable immigration of persons of Netherlands origin to Canada in the years between the end of World War II and 1951, nevertheless three-quarters of this origin reported Canada as their



Canadian industry has greatly benefited from its foreign-born manpower. These workers represent four of the almost thirty nationalities employed at Atlas Steels Limited—some have been in Canada for many years but the majority have come since the end of the War.

birthplace. Over 83 p.c. of the population of Polish origin in 1951 were about equally divided between Ontario and the Prairie Provinces. Only about 55 p.c. of these people had been born in Canada, many having entered during the years immediately following the War. A large number of the post-war Netherlands and Polish immigrants located in Ontario. Over 81 p.c. of the Jewish population in Canada in 1951 were about equally divided between Ontario and Quebec and 58 p.c. of persons of Italian origin were in Ontario and 23 p.c. in Quebec.

Of the Asiatic population in Canada, about half the Chinese were living in British Columbia in 1951 and just over one-fifth in Ontario, while two-fifths of the Japanese were in Ontario and one-third in British Columbia. Before the relocation of the Japanese during the War, 95 p.c. of this group were in British Columbia. About 45 p.c. of the Negro population lived in Nova Scotia in 1951 and 40 p.c. in Ontario. Over two-fifths of the Native Indians were found in the Prairie Provinces and one-quarter in Ontario, while 70 p.c. of the Eskimo population was located in the Northwest Territories.

Percentage Distribution of the Major Origins by Regions, 1951

Origin	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
British Isles.....	17.8	7.3	45.9	17.4	11.4	100.0
French.....	6.9	77.0	11.1	4.0	1.0	100.0
German.....	5.2	2.0	35.8	48.0	8.9	100.0
Italian.....	2.1	22.5	57.6	6.5	11.3	100.0
Jewish.....	1.8	40.2	41.2	14.1	2.7	100.0
Netherlands.....	10.5	1.2	37.2	38.4	12.6	100.0
Polish.....	1.3	7.7	40.9	42.5	7.4	100.0
Scandinavian.....	2.6	1.9	13.2	58.8	23.2	100.0
Ukrainian.....	0.3	3.3	23.7	66.9	5.7	100.0
Asiatic.....	5.5	10.6	30.4	18.2	35.2	100.0
Native Indian and Eskimo ¹	3.8	10.0	22.6	39.0	17.2	100.0
All Origins.....	11.6	29.0	32.8	18.1	8.3	100.0

¹ In addition, 2.5 p.c. of the Indian and 70.1 p.c. of the Eskimo population live in the Northwest Territories.

Certain origins have a marked preference for urban residence and others for rural communities. Jewish people, because they favour manufacturing,

Many voluntary organizations take an active interest in new young Canadians, providing contacts for them until they feel confident that they belong to the established social structure of the community.



commercial and professional, and managerial and proprietary occupations, are the most highly urbanized of the racial groups. In 1951, 99 p.c. of them lived in urban areas. Persons of Italian origin are also mainly employed in the urban occupations of manufacturing and construction so that 88 p.c. of them were in urban areas. About two-thirds of the people of British Isles origin and 60 p.c. of those of French origin were urbanized and the Ukrainian group was about equally divided between town and country. On the other hand, while only 38 p.c. of the total population of Canada in 1951 lived in rural areas, 60 p.c. of those of Netherlands origin, 56 p.c. of the German origin group and 53 p.c. of the Scandinavians were rural dwellers. These people, of course, were well represented among the agricultural workers of the country. More than one-third of all the male workers of German, Netherlands, Scandinavian and Ukrainian origins were employed in agriculture.

Since the end of the Second World War it has been the policy of the Federal Government to foster the growth of the population of Canada by the encouragement of selective immigration in such numbers as can be absorbed advantageously in the national economy and to assist these people as much as possible to become quickly and satisfactorily settled in a Canadian community. In the nine years 1946 to 1954, 1,112,373 persons have come to Canada. Over one-third of them were immigrants of British Isles origin, 13 p.c. of German origin and roughly 10 p.c. each of Italian and Netherlands origins. These people made up more than two-thirds of the total immigration to Canada in those years. The following table gives more detail and separates the numbers arriving from 1946 to the Census date in 1951, which are included in the previous analyses of the Census figures, and those arriving from that date to the end of December 1954. From June 1, 1951, there was a decline to 28 p.c. in the proportion of immigrants of British Isles origin, the proportion of German origin rising to 20 p.c. and of Italian and Netherlands origins to 14 p.c. and 11 p.c., respectively.

Post-War Immigration to Canada, by Origin, 1946-54

Origin	1946- May 31, 1951		June 1, 1951- Dec. 31, 1954		Total Post-War Immigration	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles.....	208,594	42.5	173,103	27.8	381,697	34.3
Baltic.....	28,154	5.7	10,438	1.7	38,592	3.5
Belgian.....	4,802	1.0	5,955	1.0	10,757	1.0
Czechoslovakian.....	7,123	1.5	3,766	0.6	10,889	1.0
French.....	12,486	2.5	17,253	2.8	29,739	2.7
German.....	25,877	5.3	120,926	19.5	146,803	13.2
Greek.....	4,159	0.8	8,857	1.4	13,016	1.2
Hungarian.....	6,264	1.3	5,941	1.0	12,205	1.1
Italian.....	27,293	5.6	89,348	14.4	116,641	10.5
Jewish.....	25,142	5.1	16,512	2.7	41,654	3.7
Netherlands.....	41,237	8.4	69,150	11.1	110,387	9.9
Polish.....	40,653	8.3	20,303	3.3	60,956	5.5
Scandinavian.....	8,565	1.7	15,101	2.5	23,966	2.2
Ukrainian.....	24,803	5.1	9,396	1.5	34,199	3.1
Yugoslavic.....	6,909	1.4	8,784	1.4	15,693	1.4
Asiatic.....	4,819	1.0	9,943	1.6	14,762	1.3
Other.....	13,865	2.8	36,552	5.9	50,417	4.6
All Origins.....	490,745	100.0	621,628	100.0	1,112,373	100.0

In the first nine months of 1955, Canada received 86,607 immigrants. Of this total, British arrivals from overseas countries totalled 24,032, representing

27.7 p.c. of the flow. Italians followed with 15,512 or 17.9 p.c.; German and Austrian, 15,297 or 17.7 p.c.; Netherlands, 6,367 or 7.4 p.c.; French, 1,750 or 2.0 p.c.; others from overseas countries numbered 15,750 or 18.2 p.c. Canada absorbed 7,899 immigrants from the United States during this period.

The relative addition to the numbers of the various origins in Canada through natural increase as compared with migration cannot be determined for the latest year because of lack of the necessary birth and emigration statistics. However, for the year 1951, which showed a record post-war immigration of 194,000 persons, it is possible to compare the excess of births over deaths, by origin, with additions caused by immigration for the same origins. By this procedure it has been found that for the basic British Isles and French origins natural increase accounted for 71 p.c. and 94 p.c., respectively, of the increase in population of these groups before allowing for emigration. Approximately one-half of the total increase in 1951 among all origins was contributed by the British Isles and French groups. Of the other European origins shown in the following table, only the Ukrainian recorded a larger growth by natural increase than by immigration; for most of the origins, immigration accounted for 70 to 90 p.c. of the growth in 1951, before allowing for a small number of emigrants.

*Relative Rate of Growth of Population through Immigration
and through Natural Increase, by Origin, 1951*

Origin	Immigration		Natural Increase		Total Increase	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles.....	35,361	28.6	88,395	71.4	123,756	100.0
Baltic.....	8,796	—	1	—	8,796 ¹	—
Belgian.....	2,655	80.3	652	19.7	3,307	100.0
Czechoslovakian.....	3,199	79.9	804	20.1	4,003	100.0
French.....	6,949	6.4	102,055	93.6	109,004	100.0
German.....	33,234	73.0	11,672	26.0	44,906	100.0
Greek.....	2,918	90.9	293	9.1	3,211	100.0
Hungarian.....	4,421	81.0	1,035	19.0	5,456	100.0
Italian.....	24,532	88.8	3,086	11.2	27,618	100.0
Jewish.....	2,167	71.1	2,918	28.9	10,085	100.0
Netherlands.....	19,405	74.8	6,525	25.2	25,930	100.0
Polish.....	13,078	73.5	4,714	26.5	17,792	100.0
Scandinavian.....	6,671	57.9	4,850	42.1	11,521	100.0
Ukrainian.....	6,949	47.2	7,761	52.8	14,710	100.0
Yugoslavic.....	4,175	90.7	428	9.3	4,603	100.0
Asiatic.....	3,203	85.0	567	15.0	3,770	100.0
Other.....	11,678	53.5	10,158	46.5	21,836	100.0
All Origins.....	194,391	44.1	245,913	55.9	440,304	100.0

¹ Not available.

² Does not include natural increase.

Citizenship

All persons born in Canada, as well as children born of Canadian parents outside of Canada if registered according to law, are Canadian citizens and cannot be deprived of their citizenship unless they themselves take definite steps to acquire another nationality. A Canadian citizen holds also the status of a British subject. Immigrants who are naturalized in Canada become citizens and British subjects and retain their citizenship so long as they remain domiciled in Canada or have authority for absence from Canada and do not commit acts that result in revocation.

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



New mining developments mean new towns.

Sept-Îles, the port terminal of the railway to the Quebec-Labrador iron ore development, came into existence with the commencement of construction in that area in 1950.

an adequate knowledge of Canadian history, geography, form of government and of the responsibilities of citizenship. During the year ended Mar. 31, 1955, certificates of Canadian citizenship were granted to 23,630 aliens. 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.

The Department of Citizenship and Immigration administers the Canadian Citizenship Act and provides leadership in the building of true citizenship among all Canadians.

Population Statistics

The Census of Canada is the source of official information on the detailed characteristics of Canada's population. The Dominion Bureau of Statistics is preparing to take a limited census on June 1, 1956, which will

give a picture of the increase in the population and their movements during the previous five years. In the meantime, the latest figures available are those for 1951, except for the intercensal estimates prepared from annual birth, death and immigration figures. Estimates for 1955 are given in the following table compared with 1951 and 1941 Census figures.

Population of Canada, by Province, 1941, 1951 and 1955

NOTE.—Figures for 1941 and 1951 are Census figures and those for 1955 are estimated as at June 1, 1955.

Province or Territory	1941	1951	1955
	No.	No.	No.
Newfoundland.....	...	361,416	412,000
Prince Edward Island.....	95,047	98,429	108,000
Nova Scotia.....	577,962	642,584	683,000
New Brunswick.....	457,401	515,697	558,000
Quebec.....	3,331,882	4,055,681	4,520,000
Ontario.....	3,787,655	4,597,542	5,183,000
Manitoba.....	729,744	776,541	849,000
Saskatchewan.....	895,992	831,728	889,000
Alberta.....	796,169	939,501	1,066,000
British Columbia.....	817,861	1,165,210	1,305,000
Yukon Territory.....	4,914	9,096	10,000
Northwest Territories.....	12,028	16,004	18,000
Canada.....	11,506,655	14,009,429	15,601,000

Intercensal estimates are also compiled of the age and sex composition of the population. The high birth rates of recent years are reflected in the age figures for 1955. In that year there were 235 persons under the age of ten

Hardy, a new northern Ontario town serving the Hardy mine and mill of Falconbridge Nickel Mines Limited. The mine started production in 1954.



years for every 1,000 of total population as compared with 223 in 1951, 182 in 1941 and 213 in 1931. The trend toward 'aging', indicated by the fact that 114 persons per 1,000 population were 60 years or over in 1951, compared with 102 in 1941 and 84 in 1931, turned downward in 1955 to 111 persons.

Space permits only very brief information on certain phases of the more important census analyses.

Rural and Urban. Census figures show that on June 1, 1951, 38 p.c. of Canada's population was established in rural localities and about 52 p.c. of those rural dwellers lived on farms. Thus the farm population constituted about 20 p.c. of the nation's total. In 1941 the proportion of the population residing in urban areas was 57 p.c., and in rural areas 43 p.c. The recent trend towards urbanization in Canada is no exception to that noted in many other countries. In the 1941-51 decade, the urban population, exclusive of Newfoundland, increased 30 p.c. and the rural population 3 p.c.

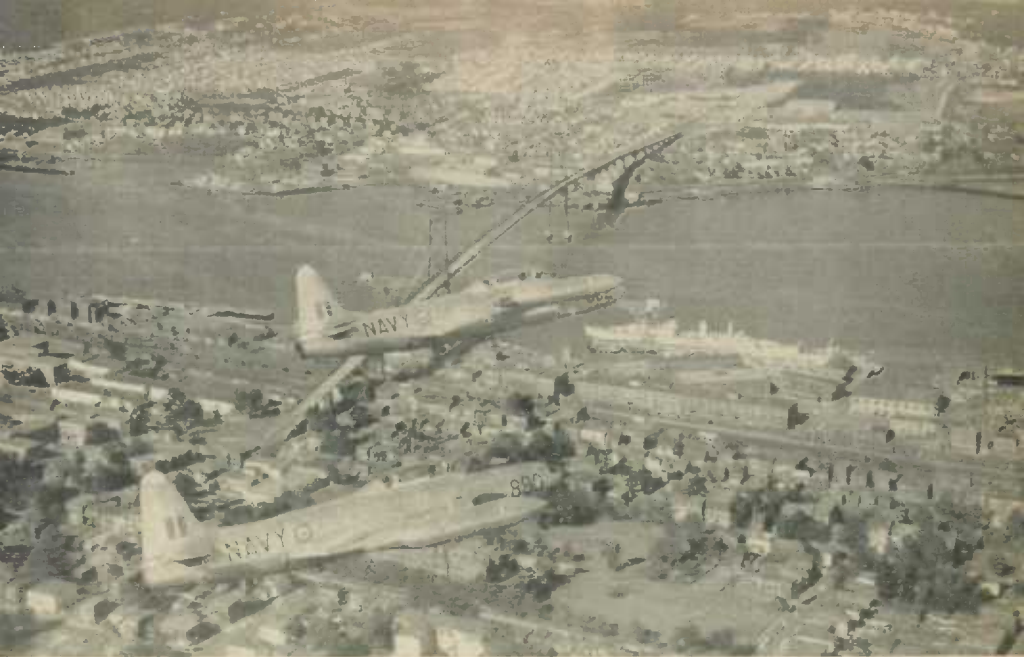
The growth of the urban centres with more than 15,000 population in 1951 and of the metropolitan areas is shown in the following tables.

Populations of Incorporated Urban Centres with 15,000 or More Inhabitants, 1941 and 1951

Urban Centre	1941	1951	Urban Centre	1941	1951
	No.	No.		No.	No.
Belleville, Ont.	15,710	19,519	Ottawa, Ont.	154,951	202,045
Brandon, Man.	17,383	20,598	Outremont, Que.	30,751	30,057
Brantford, Ont.	31,948	36,727	Owen Sound, Ont.	14,002	16,423
Calgary, Alta.	88,904	129,060	Peterborough, Ont.	25,350	38,272
Cap de la Madeleine, Que.	11,961	18,667	Port Arthur, Ont.	24,426	31,161
Charlottetown, P.E.I.	14,821	15,887	Prince Albert, Sask.	12,508	17,149
Chatham, Ont.	17,369	21,218	Quebec, Que.	150,757	164,016
Chicoutimi, Que.	16,040	23,216	Regina, Sask.	58,245	71,319
Cornwall, Ont.	14,117	16,899	St. Boniface, Man.	18,157	26,342
Dartmouth, N.S.	10,847	15,037	St. Catharines, Ont.	30,275	37,984
Edmonton, Alta.	93,817	159,631	St. Hyacinthe, Que.	17,798	20,236
Forest Hill, Ont.	11,757	15,305	St. Jérôme, Que.	11,329	17,685
Fort William, Ont.	30,585	34,947	St. Johns, Que.	13,646	19,305
Fredericton, N.B.	10,062	16,018	St. John's, Nfld.	44,603 ²	52,873
Galt, Ont.	15,346	19,207	St. Laurent, Que.	6,242	20,426
Glace Bay, N.S.	25,147	25,586	St. Thomas, Ont.	17,132	18,173
Granby, Que.	14,197	21,989	Saint John, N.B.	51,741	50,779
Guelph, Ont.	23,273	27,386	Sarnia, Ont.	18,734	34,697
Halifax, N.S.	70,488	85,589	Saskatoon, Sask.	43,027	53,268
Hamilton, Ont.	166,337	208,321	Sault Ste. Marie, Ont.	25,794	32,452
Hull, Que.	32,947	43,483	Shawinigan Falls, Que.	20,325	26,903
Jacques Cartier, Que.	1	22,450	Sherbrooke, Que.	35,965	50,543
Joliette, Que.	12,749	16,064	Stratford, Ont.	17,038	18,785
Jonquière, Que.	13,769	21,618	Sudbury, Ont.	32,203	42,410
Kingston, Ont.	30,126	33,459	Sydney, N.S.	28,305	31,317
Kitchener, Ont.	35,657	44,867	Thetford Mines, Que.	12,716	15,095
Lachine, Que.	20,051	27,773	Three Rivers, Que.	42,007	46,074
Leaside, Ont.	6,183	16,233	Timmins, Ont.	28,790	27,743
Lethbridge, Alta.	14,612	22,947	Toronto, Ont.	667,457	675,754
London, Ont.	78,134	95,343	Valleyfield (Salisbury Isle), Que.	17,052	22,414
Medicine Hat, Alta.	10,571	16,364	Vancouver, B.C.	275,353	344,833
Moncton, N.B.	22,763	27,334	Verdun, Que.	67,349	77,391
Montreal, Que.	903,007	1,021,520	Victoria, B.C.	44,068	51,331
Moose Jaw, Sask.	20,753	24,355	Welland, Ont.	12,500	15,382
New Westminster, B.C.	21,967	28,639	Westmount, Que.	26,047	25,222
Niagara Falls, Ont.	20,580	22,874	Windsor, Ont.	105,311	120,049
North Bay, Ont.	15,599	17,944	Winnipeg, Man.	221,960	235,710
North Vancouver, B.C.	8,914	15,687	Woodstock, Ont.	12,461	15,544
Oshawa, Ont.	26,813	41,545			

¹ Not incorporated in 1941.

² Census of Newfoundland, 1945.



Halifax and Dartmouth bordering the magnificent natural harbour that is Canada's most important Atlantic port and Naval Base. The two jet trainers are from Shearwater Air Base and the cruiser "Quebec" lies to the right of the new Angus L. Macdonald Bridge.



Quesnel, a small town at the junction of the upper Fraser and Quesnel Rivers in the central interior of British Columbia.

Population of Census Metropolitan Areas, 1941 and 1951

Area	1941 ¹	1951	Area	1941 ¹	1951
	No.	No.		No.	No.
Montreal, Que.	1,145,282	1,395,400	Windsor, Ont.	123,973	157,672
Toronto, Ont.	909,928	1,117,470	Calgary, Alta.	93,021	139,105
Vancouver, B.C.	377,447	530,728	Halifax, N.S.	98,636	133,931
Winnipeg, Man.	299,937	354,069	London, Ont.	91,024	121,516
Ottawa, Ont.	226,290	281,908	Victoria, B.C.	75,560	104,303
Quebec, Que.	224,756	274,827	Saint John, N.B.	70,927	78,337
Hamilton, Ont.	197,732	259,685	St. John's, Nfld.	59,474 ²	67,749
Edmonton, Alta.	97,842	173,075			

¹ Areas of 1951.

² Census of Newfoundland, 1945.

Dwellings, Households and Families.—In 1951 there were approximately 3,400,000 occupied dwellings in Canada and 3,300,000 resident families compared with about 2,600,000 dwellings and 2,500,000 families in 1941. The increases were shared by all provinces. Because dwellings and family units increased at a faster rate than population generally, the average number of persons per household in 1951 was 4.0 compared with 4.3 in 1941 and the average per family 3.7 compared with 3.9. The average size of rural farm families in 1951 was 4.4 persons, rural non-farm 3.9 persons, and urban 3.5 persons. In about 90 p.c. of all families, the family head was also head of the household. Some 320,645 families, or about 10 p.c., were living as relatives or lodgers in the households of other persons. At the Census date, 6.7 p.c. of the households in Canada contained two or more families; among the cities of 100,000 or more population, 10.4 p.c. were in this category.

Dwellings, Households and Families, and Persons per Household and Family, by Province, 1951

Province	Population	Dwellings		Families	Persons per Household ²	Persons per Family
		Total ¹	Occupied ²			
	No.	No.	No.	No.	No.	No.
Nfld.	361,416	78,024	70,980	74,858	5.0	4.4
P.E.I.	98,429	24,114	22,454	21,381	4.3	4.0
N.S.	642,584	159,795	149,555	145,127	4.2	3.9
N.B.	515,697	120,639	114,007	111,639	4.4	4.1
Que.	4,055,681	898,914	858,784	856,041	4.6	4.2
Ont.	4,597,542	1,232,081	1,181,126	1,162,772	3.8	3.4
Man.	776,541	210,565	202,398	191,268	3.7	3.6
Sask.	831,728	237,406	221,456	196,188	3.7	3.7
Alta.	939,501	266,939	250,747	223,326	3.6	3.7
B.C.	1,165,210	356,651	337,777	299,845	3.3	3.3
Canada	13,984,329³	3,585,128	3,409,284	3,282,445³	4.0	3.7

¹ Includes institutions, hotels and camps as well as vacant dwellings and dwellings under construction.

² Excludes institutions, hotels and camps.

³ Figures for Canada are exclusive of 25,100 persons and 4,939 families located in the Yukon and Northwest Territories; comparable figures for dwellings are not available.

Birthplace.—Of the 14,009,429 people in Canada on June 1, 1951, 11,949,518 were born in Canada, 912,482 in the United Kingdom, 20,567 in other Commonwealth countries, 801,618 in Europe, 282,010 in the United States, 37,145 in Asia and 6,089 elsewhere.

Religious Denominations.—Religious denominations in Canada are many and diverse. However, in 1951 more than 92 p.c. of the population belonged or adhered to one of the seven numerically largest religious denominations as follows:—

	No.		No.
Roman Catholic.....	6,069,496	Baptist.....	519,585
United Church of Canada.....	2,867,271	Lutheran.....	444,923
Anglican Church of Canada.....	2,060,720	Jewish.....	204,836
Presbyterian.....	781,747	Other.....	1,060,851

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 are in Canada, according to the 1951 Census, 155,874 persons 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. They are divided into about 600 bands and live on 2,223 reserves set aside for their use and benefit. Their welfare is the responsibility of the Indian Affairs Branch of the Department of Citizenship and Immigration.

The Federal Government demonstrated its confidence in the abilities of Canadian Indians by passing, in 1951, a new Indian Act which gave them more responsibility in handling their own affairs. Indians today are building their own homes, repairing the roads on their reserves, or joining forces in some other worthwhile undertakings. The band councils, most of them

Some of the twenty-six Indian delegates selected by their respective band councils to attend a meeting called at Ottawa in January 1956 by the Superintendent General of Indian Affairs to discuss the administration of the Indian Act and give their views on suggested amendments thereto.



chosen in democratic elections set up under the provisions of the new Act, pass by-laws for the good of their communities and operate as efficiently as do most town councils, using band funds wisely and well. In the year ended Mar. 31, 1955, Indians built 837 houses and repaired 2,259 others. They added 14,746 acres to the amount of land under cultivation in the Prairie Provinces and increased the Indian Trust Fund by \$983,899.

Indians everywhere are becoming more interested in good education and training as aids to better living. They 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. Where Indians attend provincial schools, they have no trouble in keeping pace with the other students. In the 1954-55 academic year, 1,853 Indian students attended secondary schools, colleges and special courses; 115 of these pupils were taking trades courses, 63 commercial courses, 28 nurse-training courses and nine were studying at teacher-training schools.

Adults are learning also. During 1955, the Welfare Division of the Indian Affairs Branch continued its Indian Social Leaders' Training Program, in which representatives of Indian communities are enabled to study social welfare and community leadership. There are indications that this program is resulting in stimulation of organized group activity on the reserves directed toward the betterment of social conditions of Indian people. Representatives of all except the Maritime regions attended study courses held during the year. Active Homemakers' Clubs, of which there were 169 in 1954, were responsible for many home improvements on the reserves and took leadership in sewing, welfare and social activities.

In 1954, 789 Indians were enfranchised, that is, they elected to be considered on a full citizenship basis as are other Canadian citizens.

Eskimos.—Canada's most northerly people, the Eskimos, are believed to have been the last of the prehistoric immigrants from eastern Asia to North America. At the 1951 Census they numbered more than 9,600 and their population is increasing. They began to spread over the Eastern Arctic about



Life is changing in many ways for the Eskimos, but they still retain their native dress. It is the most suitable type of clothing that has been devised for Arctic weather.



The helicopter from the "C.D. Howe", a Federal Government supply and inspection ship which makes an annual tour of the Eastern Arctic, is of great interest to the residents of Arctic Bay.

2,000 years ago. Because their culture was based largely on the hunting of sea mammals, the greater part of the population lived close to the coasts. Even today there are few Eskimos in the interior of northern Canada, and all of them live north of the tree line. With the coming of the whalers and the search for the Northwest Passage, the coastal Eskimos came in contact with European civilization and their way of life began to change. The gun replaced the bow, and quantities of Arctic fox pelts, a fur that had been of little value to the Eskimo, were demanded by fashion centres in Europe. Thus the Eskimo became a trapper and the white fox assumed a place of importance in his economy.

Today the Eskimo is still in a period of transition. Depressed fur prices since the Second World War have brought hardship to many Eskimos who were, and still are, dependent on fur for the major portion of their incomes. To some extent family allowance and old age assistance have helped to alleviate this condition, and the Department of Northern Affairs and National Resources, which is charged with general administration of Arctic and Eskimo affairs, is making a continuing study of the situation, with a view to meeting the problems created by changing conditions. In this it has the co-operation of other government departments and of agencies directly concerned with Arctic affairs.

Because the people have built up little immunity to certain diseases, Eskimo health is a major problem. When treatment is required, the Eskimos are moved to hospitals in various parts of Canada. In 1955 more than 700 Eskimos, most of whom were being treated for tuberculosis, were in hospitals in the south. Extended periods of hospitalization in a vastly different environment create social problems which are being minimized as much as possible. Rehabilitation centres are being established in the north so that patients may be returned as quickly as possible to convalesce there.

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 places where their parents may receive some types of instruction and vocational training. A number of Eskimos receive vocational training in the south and return north to put their newly acquired skills to use.

Means of broadening the precarious "one-crop" Eskimo economy are being studied and implemented. Some projects will capitalize on native skills; others will involve the development of skills that are completely unfamiliar to the Eskimo. In 1955 Eskimos were employed in the relocation of Aklavik townsite, a long-term project, and received on-the-job training as carpenters and mechanics. Some were also working on defence installations at such places as Churchill and Frobisher Bay, and others were employed by mining companies. Several herds of reindeer run on ranges east of Aklavik, and Eskimo herdsmen are in charge of them. In other regions of the Arctic the Department has encouraged and assisted in the development of small local industries and is studying several others which could be of regional benefit. Eskimo carvings, which have recently received world-wide renown, represent a small but increasing portion of the income of Eskimos in the Eastern Arctic. A fund makes loans available to individual Eskimos or to groups for use on approved projects that will strengthen their economy.

Vital Statistics

Since 1921, when national vital statistics were first collected, the Canadian population has increased from less than 9,000,000 to over 15,000,000. Although immigration has contributed a small part to this increase, the most significant factor has been the high rate of natural increase. This in turn has been primarily accounted for by the high level of the birth rate, at present the highest recorded for a major industrial nation. In the same period, Canada has made tremendous strides in reducing the death rate in general and the rate of maternal mortality in particular. Canada's low death rate is second only to that of the Netherlands and her rate of maternal mortality second only to the United States. Only half a dozen countries have lower rates of neo-natal mortality. A marked contrast, however, appears in regard to infant mortality in which Canada falls to twelfth place, though recent improvement in this respect has been impressive. For example, Sweden with the lowest rate of infant mortality had a reduction in that rate from 61.4

per 1,000 live births between 1920-24 to the current level of 18, while Canada's rate during the same period dropped from 104.3 to 32.

Births.—The birth rate has been the most dynamic element in determining rate of natural increase. From 29 per 1,000 population in 1921, the rate declined steadily until it was below 21 in 1937. It rose to a plateau of 24 during the war years and to peaks of 28.9 in 1947 and 28.7 in 1954. The 1954 birth rates in Ontario, Alberta and British Columbia were the highest on record since 1921 while Saskatchewan recorded its highest rate since 1922. New Brunswick was the only province with a lower rate in 1954 and a general decline since 1947. Newfoundland's rate (34.3) was the highest among the provinces with Alberta in second place (32.3); Prince Edward Island had the lowest rate (25.9).

Marriages.—The root of the wide increase in births has been the larger number of married couples rather than increase in the average size of family. Between 1941 and 1951 the proportion of married women rose from 38 p.c. to 51 p.c. in the age group 20-24, from 66 p.c. to 79 p.c. in the age group 25-29, and from 76 p.c. to 84 p.c. in the age group 30-34. While much of this difference may be attributed to postponement of marriage during the depression period of the early 1930's there is evidence that a higher proportion of women are now marrying and at a somewhat earlier age than formerly. The marriage rate has remained at a high level since 1940 and reached a post-war peak of 10.9 in 1946 thereafter declining to 8.5 in 1954. The recent decline is mainly a result of fewer unmarried females in the marriageable age groups.

A special camera photographs babies in their cribs within twenty-four hours of birth. The registration of every birth in Canada is compulsory, resulting in an accurate record of the birth rate which is high compared with most other countries. It reached its post-depression peak in 1947 and has since remained at a slightly lower point.



Deaths.—In 1954 Canada's crude death rate at 8.2 was the lowest on record, representing the eleventh consecutive annual decrease from the rate of 10.1 in 1943 and a decline of almost 20 p.c. in a little over a decade. The 1954 drop resulted from a decline in total deaths to 124,520 from the record high of 127,381 in 1953. There were corresponding drops in rates from 1953 in all provinces except Newfoundland and Prince Edward Island. Provincial rates varied from 7.2 in Saskatchewan and Alberta to 9.8 in British Columbia which, of all provinces, had the highest proportion of aged persons.

Tremendous reductions have taken place in the mortality pattern since the early 1920's, with the most important decreases in the childhood and early adult ages. In 1926, over 19 p.c. of all male deaths were of persons five to 45 years of age; in 1954 these accounted for less than 11 p.c. of total deaths. The reduction in mortality among females in this age group from 22 p.c. to approximately 9 p.c. is equally remarkable. Death rates for males up to age 45 have been roughly halved during the past 25 years and those for females in the same ages have been reduced as much as three to four times.

These reductions in the mortality rates in early and middle years of life have had the effect of increasing the number of people in the older age groups and of raising the average age of the population as a whole. Consequently a much larger proportion of deaths is now occurring in the older age groups. Further, the reductions in rates will eventually raise the average age at death. In 1921 the average age at death of males was 39.0 years and of females 41.1 years; by 1954 it had been advanced to 57.3 and 60.0, respectively.

Despite reductions in infant mortality over the past thirty years, more deaths still occur in the first year of life than in any other single year. Of the 107,000 deaths occurring in 1926, 31,000 or almost 30 p.c. were of children under five years of age and three-quarters of those were of children under one year of age. Of approximately 124,500 deaths in 1954, over 16,000 or nearly 13 p.c. were of children under five years of age and more than five-sixths of those were under one year. Most of the reduction has taken place among children over the age of one month but there has been a notable decrease in all childhood ages up to five years.

The increased life span has reflected the remarkable success that has attended the attack by health authorities on the infective and contagious diseases which at one time constituted such a great hazard in the early and young-adult years of life. Diphtheria, for example, has been almost wiped out and tuberculosis has been greatly reduced. On the other hand, the aging of the population has increased the proportion of deaths from certain causes that affect older people; cancer and the diseases of the cardio-vascular-renal systems now account for a substantially larger proportion of all deaths. At present about 80 p.c. of all deaths are within the following groups: diseases of the heart and arteries, cancer, accidents, diseases of early infancy, the respiratory diseases—tuberculosis, pneumonia and influenza—and nephritis.

In general, the healthy conditions of Canadian life may be indicated by the fact that, according to the 1951 Canadian Life Tables, the expectation of life at birth is over 66 years for males and over 70 for females while the infant mortality rate is now only 32 per 1,000 population, and fewer than one mother dies per 1,000 live births.

Births, Marriages and Deaths, 1926-54

(Exclusive of the Yukon and Northwest Territories; Newfoundland included from 1949)

Year	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ²
Av. 1926-30...	236,521	24.1	71,886	7.3	108,925	11.1	1,339	5.7
Av. 1931-35...	228,352	21.5	68,594	6.5	103,602	9.8	1,153	5.0
Av. 1936-40...	228,767	20.5	96,824	8.7	109,514	9.8	1,043	4.6
Av. 1941-45...	276,832	23.5	113,936	9.7	115,144	9.8	791	2.9
Av. 1946-50...	354,869	27.4	126,687	9.8	119,975	9.3	523	1.5
1951.....	380,101	27.2	128,230	9.2	125,454	9.0	405	1.1
1952.....	402,527	27.9	128,301	8.9	125,950	8.7	374	0.9
1953.....	416,825	28.2	130,837	8.9	127,581	8.6	324	0.8
1954.....	435,142	28.7	128,385	8.5	124,520	8.2	312	0.7

¹ Per 1,000 population.

² Per 1,000 live births.

Births, Marriages and Deaths, by Province, 1954

(Exclusive of the Yukon and Northwest Territories)

Province	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ²
Nfld.....	13,653	34.3	2,952	7.4	2,916	7.3	22	1.6
P.E.I.....	2,724	25.9	605	5.8	966	9.2	2	0.7
N.S.....	18,909	28.1	5,265	7.8	5,692	8.5	10	0.5
N.B.....	16,649	30.4	4,278	7.8	4,286	7.8	12	0.7
Que.....	133,178	30.4	35,516	8.1	33,169	7.6	140	1.1
Ont.....	136,261	27.0	45,028	8.9	44,515	8.8	69	0.5
Man.....	22,248	26.9	6,837	8.3	6,719	8.1	11	0.5
Sask.....	24,981	28.5	6,953	7.9	6,323	7.2	22	0.9
Alta.....	33,593	32.3	9,960	9.6	7,520	7.2	11	0.3
B.C.....	32,946	26.0	10,991	8.7	12,414	9.8	13	0.4
Canada	435,142	28.7	128,385	8.5	124,520	8.2	312	0.7

¹ Per 1,000 population.

² Per 1,000 live births.

A collective high chair helps in the feeding of the eighty children who spend the day at this Edmonton pre-school nursery while their mothers are at work. The day nursery is now recognized as a community essential.





The Peace Tower, Parliament Buildings, Ottawa.

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.—Though Her Majesty Queen Elizabeth II is "Queen of Canada", 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 elected 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		
Manitoba.....	14		
Saskatchewan.....	17	TOTAL.....	265

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 and 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, 1956, 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 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. None the less, 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.

Canadian Senators are summoned for life by the Governor General, on the nomination of the Prime Minister, with equality of representation for



His Excellency the Right Honourable Vincent Massey, Governor General of Canada, and his guests, Lord and Lady Alexander, stroll over familiar terrain—the grounds of Government House. Lord Alexander is Mr. Massey's immediate predecessor in the role of first citizen of the land.

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



Canada's top government officials, the Prime Minister and the Premiers of the ten provinces, gathered at Ottawa to discuss topics of both federal and provincial interest. Left to right are: T. C. Douglas (Sask.), A. W. Matheson (P.E.I.), D. L. Campbell (Man.), H. D. Hicks (N.S.), L. M. Frost (Ont.), L. S. St. Laurent (Prime Minister of Canada), M. L. Duplessis (Que.), H. J. Flemming (N.B.), W. A. C. Bennett (B.C.), E. C. Manning (Alta.), and J. R. Smallwood (Nfld).

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, 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 at Ottawa.

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.

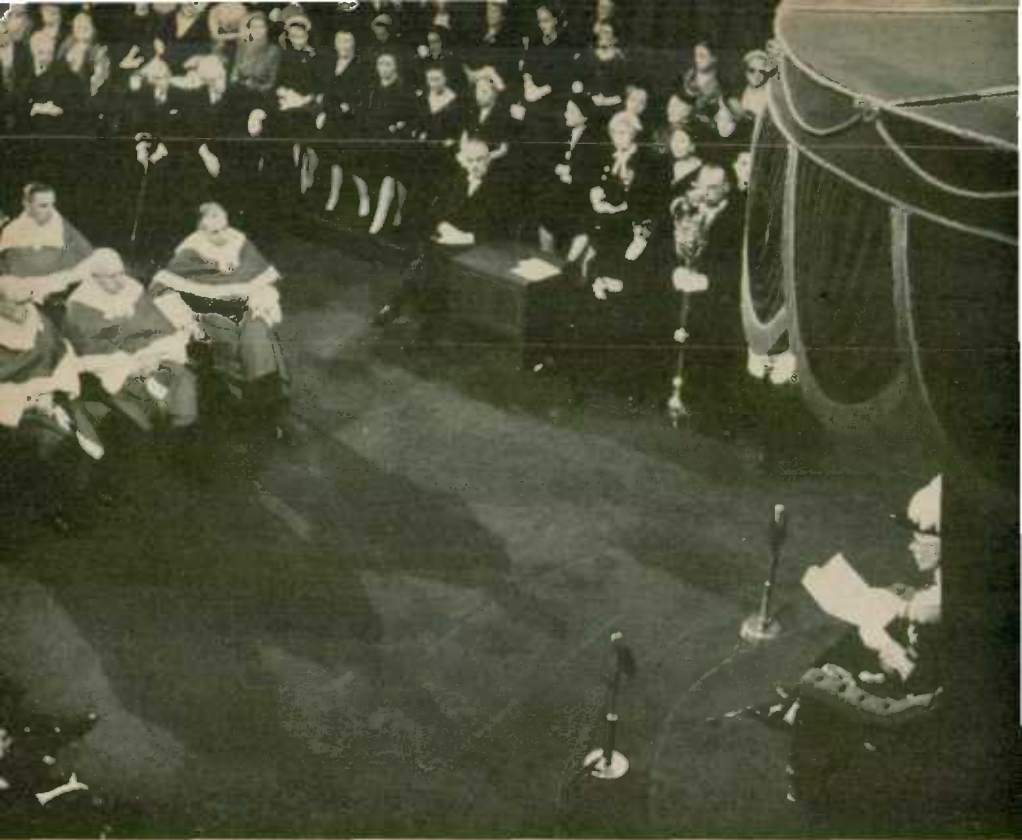
The Judiciary.—The Canadian judiciary interprets the law and administers justice. The provinces are authorized to administer justice in the territories under their jurisdiction, including the organization of civil and criminal courts and the establishment of procedure in civil matters in those courts.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

Legislators of the Northwest Territories received from the Governor General of Canada the gift of a Mace, embodying elements representing life in the North and created by the skill of the Eskimos. At the presentation ceremony, the Deputy Minister of Northern Affairs and National Resources places the Mace in the custody of an R.C.M.P. Sergeant.





His Excellency the Governor General of Canada reading the Speech from the Throne in the Senate Chamber at the opening of Parliament on Jan. 10, 1956. Senators and guests occupy the Chamber while Members of the House of Commons are called to the Bar just inside the entrance. Directly in front of His Excellency sit the Judges of the Supreme Court of Canada.

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**

The British North America Act of 1867 divided Canadian legislative and therefore financial responsibility between the Parliament of Canada and the provincial legislatures. All those matters not specifically assigned to the provinces and of national concern were placed under the jurisdiction of Parliament, while matters of private and local interest within the province were to be provincially administered. The Provinces in turn delegated varying powers of government and financial responsibility to municipal authorities, depending on requirements arising out of geographical and population differences.

This basic division of financial responsibility has changed little through the years, but the degree of responsibility has changed much. Greater

aggregations of population with an increasing divergency of economy and a rising standard of living have demanded an increasing complexity of services. There is a definite tendency for people, either individually or collectively, to expect and to depend upon government service in almost every field, from the provision of local utilities, highways, hospitals, education and police protection to such large-scale national services as housing assistance, unemployment insurance, defence, research, radio and television, air and rail transport and so on. Also in recent years many social problems have come to be regarded as partly or wholly federal matters, necessitating a great amount of co-operative activity between federal and provincial governments, financially as well as administratively.

All these services together with the general rise in prices have greatly added to the expenditures of government at all three levels and therefore to the need for the raising of more and more revenue through direct and indirect taxation. The continual increase in combined revenues and expenditures during the war and post-war periods is shown in the following table.

Government of Canada, Provincial and Municipal Revenue and Expenditure, 1939-53

NOTE.—Figures are for fiscal years ended nearest to Dec. 31. Inter-governmental transfers such as subsidies paid by the Government of Canada to the provinces are excluded.

Year	Government of Canada	Provincial and Municipal			Grand Total
		Provincial	Municipal	Total	
REVENUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
1939.....	480,027	236,223	316,964	553,187	1,033,214
1941.....	1,389,433	301,842	331,206	633,048	2,022,481
1943.....	2,522,414	250,646	340,690	591,336	3,113,750
1945.....	2,694,116	316,724	356,289 ¹	673,013	3,367,129
1947.....	2,663,310	533,857	413,351 ¹	947,208	3,610,518
1949 ²	2,411,218	730,842	511,835 ¹	1,242,677	3,653,895
1950.....	2,905,578	827,286	560,437 ¹	1,387,723	4,293,301
1951.....	3,739,353	945,408	650,806	1,596,214	5,335,567
1952.....	4,124,876	921,034	739,931	1,660,965	5,785,841
1953.....	4,143,032	991,957	804,469	1,796,426	5,939,458
EXPENDITURE					
	\$'000	\$'000	\$'000	\$'000	\$'000
1939.....	571,198	354,883	304,580	659,463	1,230,661
1941.....	1,718,787	311,260	292,517	603,777	2,322,564
1943.....	4,907,475	300,997	300,579	601,576	5,509,051
1945.....	4,652,841	370,875	334,261 ¹	705,136	5,357,977
1947.....	1,762,472	625,539	454,477 ¹	1,080,016	2,842,488
1949 ²	2,010,587	873,929	619,106 ¹	1,493,035	3,503,622
1950.....	2,494,731	923,740	682,146 ¹	1,605,886	4,100,617
1951.....	3,283,926	1,039,370	772,817	1,812,187	5,096,113
1952.....	3,685,333	1,169,688	898,562	2,068,250	5,753,583
1953.....	3,700,578	1,215,527	991,720	2,207,247	5,907,825

¹Figure for the Province of Quebec is estimated.

²Newfoundland included from 1949.

The above figures are on a net basis. Offset against expenditure are such revenue items as grants-in-aid and shared-cost contributions from other governments, interest revenue, institutional revenue, and certain sales of commodities and services. It should also be noted that expenditure excludes debt retirement but includes expenditure financed from capital borrowings.

Finances of the Federal Government

Revenue of the Government of Canada reached an all-time record in the year ended Mar. 31, 1954, and the highest expenditures were made in the year ended Mar. 31, 1944, during World War II. 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. A deficit of \$152,000,000 in 1954-55, less adjustments of about \$5,000,000 in respect of previous years' transactions, resulted in an increase for the year of \$147,000,000 in the net debt.

Inflation in the general price level through the years has 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, 1954, the net debt amounted to only 46.8 p.c. of the national product.

Finances of the Federal Government, Years Ended Mar. 31, 1868-1955

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 representing 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	457,720,435	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
1945	2,687,334,799	224.96	5,245,611,924	439.11	11,298,362,018	935.91
1947	3,007,876,313	244.70	2,634,227,412	214.30	13,047,756,548	1,039.58
1949	2,771,395,075	216.13	2,175,892,332	169.69	11,776,134,152	875.74
1950	2,580,140,615	191.87	2,448,615,662	182.09	11,644,609,199	849.23
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	4,369,822,789	302.21	4,337,275,512	300.57	11,161,734,269	755.14
1954	4,396,319,583	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

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 outstanding unmatured funded debt (including treasury bills) of the Government of Canada at Mar. 31, 1955, amounted to \$14,496,441,853, a decrease of \$79,726,397 from the previous year. The portion of the unmatured funded debt payable in Canada was 97.2 p.c., the portion payable in London amounted to 0.4 p.c. and in New York 2.4 p.c.

The following table shows the sources of federal revenue and the expenditures of the different departments of government for the years ended Mar. 31, 1953 to 1955.

Revenue and Expenditure of the Federal Government, Years Ended Mar. 31, 1953-55

Item	1953	1954	1955
	\$	\$	\$
Revenue			
Tax Revenue—			
Income tax.....	2,473,790,089	2,432,603,505	2,265,297,267
<i>Personal</i>	1,180,025,562	1,187,655,616	1,183,447,835
<i>Corporation</i>	1,240,090,150	1,191,186,598	1,020,585,823
<i>On interest, etc., going abroad</i>	53,671,377	53,761,291	61,263,609
Excise tax.....	841,890,103	883,356,506	824,205,245
<i>Sales tax</i>	566,213,167	587,331,544	572,214,713
<i>Other</i>	275,656,936	296,024,962	251,990,532
Excise duties.....	241,360,370	226,732,460	226,458,438
Customs import duties.....	389,442,109	407,312,241	397,228,330
Succession duties.....	38,070,530	39,137,594	44,768,028
Other taxes.....	13,039,736	14,112,147	15,480,772
Totals, Tax Revenue.....	3,997,592,937	4,003,584,453	3,773,438,080
Non-tax revenue.....	280,134,664	318,186,875	321,236,446
Special receipts and credits.....	83,095,188	74,548,305	28,838,774
Totals, Revenue.....	4,360,822,789	4,396,319,583	4,123,513,300
Tax credited to Old Age Security Fund, not included above—			
2 p.c. sales tax.....	141,558,292	146,832,886	143,053,678
2 p.c. personal income tax.....	45,250,000	90,700,000	100,900,000
2 p.c. corporation income tax.....	36,850,000	55,600,000	46,000,000
Expenditure			
Agriculture.....	106,710,890	108,361,384	81,804,056
Atomic Energy Control Board.....	12,948,027	12,700,987	14,983,927
Auditor General's Office.....	576,211	614,880	672,474
Canadian Broadcasting Corporation.....	8,235,311	24,996,275	29,236,931
Chief Electoral Officer.....	464,487	5,527,130	312,058
Citizenship and Immigration.....	23,646,348	25,481,123	27,968,175
Civil Service Commission.....	1,909,508	2,051,348	2,333,042
Defence Production.....	88,817,141	47,898,563	18,878,447
External Affairs.....	39,251,463	45,718,964	43,777,922
Finance.....	946,967,875	971,375,876	934,075,801
Fisheries.....	10,776,926	9,254,771	11,151,813
Governor General and Lieutenant-Governors.....	396,924	399,086	400,385
Insurance.....	448,619	492,230	477,088
Justice, including Penitentiaries.....	11,908,495	15,017,396	16,423,823
Labour.....	67,021,861	67,561,441	69,771,586
Legislation.....	6,157,261	5,600,210	6,654,556
Mines and Technical Surveys.....	29,658,169	38,536,620	43,747,296
National Defence.....	1,882,418,468	1,805,914,922	1,665,968,960
National Film Board.....	2,919,779	2,997,528	3,430,589
National Health and Welfare.....	406,564,698	430,533,808	496,699,592
National Research Council.....	15,395,339	15,308,844	15,700,525
National Revenue.....	47,313,178	49,937,839	55,010,594
Northern Affairs and National Resources.....	35,557,644	19,118,141	20,155,118
Post Office.....	105,553,191	113,581,752	123,611,055
Privy Council.....	3,720,571	3,732,910	3,800,361
Public Archives.....	306,714	346,910	421,302
Public Printing and Stationery.....	1,607,237	2,036,771	2,068,013
Public Works.....	81,847,470	114,956,865	130,780,634
Royal Canadian Mounted Police.....	31,141,321	33,845,572	35,549,795
Secretary of State.....	2,201,462	3,278,154	2,671,242
Trade and Commerce.....	16,502,669	16,526,422	17,494,834
Transport.....	103,905,716	118,012,795	159,241,707
Veterans Affairs.....	241,424,530	238,711,852	240,089,187
Totals, Expenditure.....	4,337,275,512	4,350,522,378	4,275,362,888

¹ Contributions to the provinces under the Trans-Canada Highway Act were transferred from Northern Affairs and National Resources to Public Works in 1953-54.

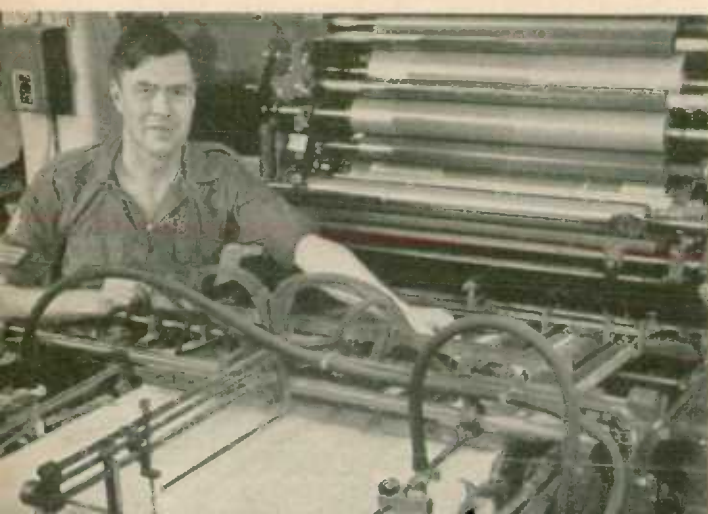
Income Tax

The income tax has been the chief source of revenue of the Federal Government since before World War II. Rates were increased considerably and other forms of income tax were introduced to help finance the War but after hostilities ceased a succession of reductions in rates and increases in exemption allowances relieved some of the burden for the individual taxpayer. Taxes on corporation incomes were also reduced and the excess profits tax ended. However, the expansion of personal income, the growth of the labour force and the growth of industry generally in the post-war 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 presently ranges from 18 p.c. on the first \$1,000 of taxable income to 83 p.c. on income in excess of \$400,000, including an Old Age Security Tax of 2 p.c. with a maximum of \$60.

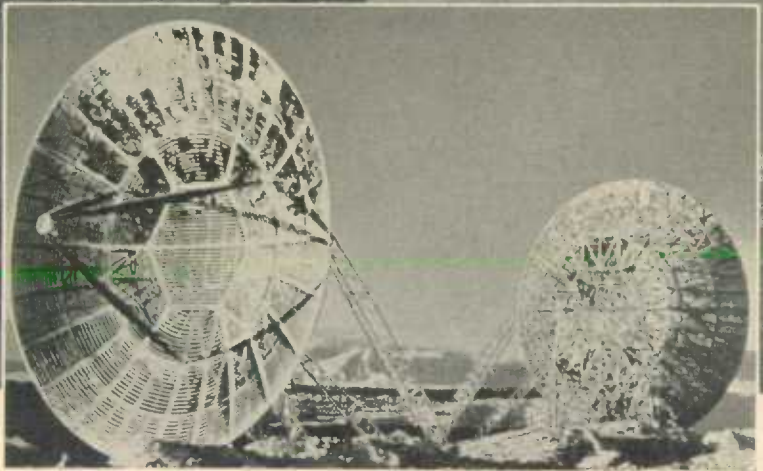
Taxpayers classified by Income Group, Alternate Years, 1941-53

Year	Taxpayers by Income Group					Total Taxpayers	Total Tax
	Under \$2,000	\$2,000-\$2,999	\$3,000-\$4,999	\$5,000-\$9,999	\$10,000 or Over		
	No.	No.	No.	No.	No.	No.	\$'000,000
1941...	534,337	198,252	92,047	34,325	12,523	871,484	223
1943...	1,434,243	513,875	153,936	45,954	15,346	2,163,354	801
1945...	1,487,984	529,202	167,269	53,242	16,549	2,254,246	642
1947...	1,238,560	773,780	249,800	76,190	28,126	2,366,456	622
1949...	745,520	848,960	485,130	113,570	38,790	2,231,970	501
1951...	732,910	961,620	855,400	176,890	51,130	2,777,950	812
1953...	756,430	991,490	1,285,000	292,140	64,470	3,389,530	1,147



Maps required preliminary to the construction of the Mid-Canada Line were prepared and printed by Army engineers from RCAF aerial photographs and Army ground surveying. The work took two years to complete.

The most spectacular of Canada's defence construction jobs is the new and complex communications network being set up to act as a protective radar system across the top of the continent, secondary to the Distant Early Warning Line in the far north.



New communities have been scattered across the great subarctic wastes as this vital defence line takes shape and whole new sets of conditions have been faced and mastered. Operating airfields and seaplane bases along with a major air-lift are now run-of-the-mine jobs as is the work of transporting people and material—everything from lumber, cement and pre-fabricated building material to delicate electronic equipment, food and mail—by helicopter, tractor train, barge, muskeg tractor and even pack horse.

The Mid-Canada Line, one of three basic radar networks, stretches along the 55th parallel of latitude from the Peace River area in Alberta—where it hooks up with the Pinetree network running southwest across the Rockies to the West Coast—to Labrador and then turns downward along the east coast of Labrador and the Island of Newfoundland to Cape Race.

Number of Taxpayers, Total Income Assessed and Taxable, and Tax Payable Thereon, by Province and Occupational Class, 1953

Province or Class	Taxpayers	Total Income Assessed	Net Taxable Income	Total Tax
	No.	\$'000	\$'000	\$'000
Province				
Newfoundland	41,520	136,536	57,460	12,070
Prince Edward Island	7,100	20,779	8,183	1,627
Nova Scotia	99,070	304,538	121,222	24,925
New Brunswick	68,560	207,183	81,091	16,484
Quebec	775,560	2,617,489	1,127,131	248,804
Ontario	1,473,960	5,064,754	2,510,498	535,116
Manitoba	168,130	538,046	240,268	50,848
Saskatchewan	146,850	498,147	232,352	46,576
Alberta	228,530	769,360	370,665	77,229
British Columbia	360,290	1,251,185	612,740	126,014
Yukon Territory	3,580	12,436	7,370	1,488
Non-residents	16,380	46,268	28,146	6,081
Totals	3,389,530	11,466,721	5,397,106	1,147,262
Class				
Primary producers	74,390	288,542	133,870	25,989
Professionals	34,640	280,508	203,439	57,460
Employees	2,988,730	9,392,446	4,163,801	839,068
Salesmen	39,790	185,625	98,345	22,503
Business proprietors	167,250	857,181	495,143	127,640
Financial	71,340	397,865	269,893	68,051
Estates	5,220	31,418	15,713	2,843
Deceased	7,360	30,788	15,858	3,499
Unclassified	810	2,348	1,042	209

Active Taxable Companies Reporting a Profit, by Industrial Group, 1953

Industrial Group	Taxable Companies	Average Current Year Profit	Total Current Year Profit	Average Tax	Total Tax
	No.	\$	\$'000,000	\$	\$'000,000
Agriculture, forestry and fishing	573	17,452	10.0	5,933	3.4
Mining	506	288,537	146.0	132,609	67.1
Manufacturing	9,095	159,054	1,446.6	71,567	650.9
Construction	2,673	39,431	105.4	15,526	41.5
Transportation	1,671	118,253	197.6	53,561	89.5
Public utilities	134	405,224	54.3	173,134	23.2
Wholesale trade	5,699	36,164	206.1	14,617	83.3
Retail trade	6,515	27,598	179.8	11,573	75.4
Finance	4,493	51,502	231.4	20,721	93.1
Service	3,301	18,964	62.6	6,937	22.9
Unclassified	4	—	—	—	—
All Companies	34,664	76,154	2,639.8	33,184	1,150.3

Collection statistics are gathered at the time the payments are made and are thus quite up to date. However, because collections are made before the filing of income tax returns and are subject to adjustment, they cannot be directly related to the figures for taxpayers given above.

Collections under the Income Tax Act, Years Ended Mar. 31, 1951-55

Fiscal Year	General Income Tax		Tax on Un-distributed Income	Non-resident Tax	Total Income Tax
	Individuals	Corporations			
	\$	\$	\$	\$	\$
1951	652,328,680	711,576,735	87,619,776	61,610,319	1,513,135,510
1952	975,776,320	1,418,067,202	14,612,872	55,017,014	2,163,473,408
1953	1,225,275,562	1,266,556,794	10,383,356	53,674,377	2,555,890,089
1954	1,378,355,616	1,238,015,309	8,771,289	53,761,291	2,578,903,505
1955	1,284,347,834	1,060,148,926	6,436,897	61,263,609	2,412,197,266

Provincial Finance

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. In 1952 the nine provinces received \$303,000,000 in tax-rental fees compared with \$96,000,000 received by the eight provinces in 1951.

The largest single item of provincial government tax revenue is paid by the motor-vehicle owner in the form of gasoline tax, which ranges from 9 cents per gallon in Manitoba to 17 cents in Newfoundland and Nova Scotia.



The revenue received from the Federal Government as a result of these agreements together with revenue from taxes, chiefly gasoline and general sales taxes, made up about 60 p.c. of the total receipts of the provincial governments in 1953. Privileges, licences and permits derived from natural resources accounted for another 15 p.c. Almost three-quarters of provincial expenditure goes for the construction and maintenance of transportation and communication facilities, for education and for health and social welfare.

Provincial revenues and expenditures and analyses thereof are shown in the following tables.

**Net General Revenue and Expenditure of Provincial Governments,
Fiscal Years Ended Nearest Dec. 31, 1951-53**

Province or Territory	Net General Revenue			Net General Expenditure ¹		
	1951	1952	1953	1951	1952	1953
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	25,183	31,734	31,641	29,995	28,881	32,802
Prince Edward Island....	6,048	7,288	7,671	8,368	7,064	7,167
Nova Scotia.....	38,794	46,647	49,348	51,855	46,464	51,254
New Brunswick.....	40,697	46,555	49,220	44,624	44,927	47,813
Quebec.....	277,406	284,703	299,417	275,500	313,117	310,999
Ontario.....	303,842	364,507	370,897	367,726	372,019	384,215
Manitoba.....	46,073	55,456	55,822	48,717	42,023	46,702
Saskatchewan.....	74,777	91,094	98,415	77,449	80,187	85,783
Alberta.....	105,751	144,504	185,851	84,840	103,583	118,150
British Columbia.....	157,102	185,368	186,337	170,436	168,875	171,780
Yukon Territory.....	1,187	—	1,460	1,163	—	1,154
Totals.....	1,076,860	1,257,856	1,336,079	1,160,373	1,207,140	1,257,819

¹ Exclusive of debt retirement.

**Analysis of Net Revenue of Provincial Governments, Fiscal
Years Ended Nearest Dec. 31, 1952 and 1953**

Source	1952	1953	Source	1952	1953
	\$'000	\$'000		\$'000	\$'000
Taxes.....	487,429	506,651	Non-revenue and surplus receipts.....		
Federal tax-rental agreements.....	303,313	309,441		3,219	2,715
Privileges, Licences and Permits—			Totals.....	1,257,856	1,336,079
Motor-vehicles.....	80,911	88,247			
Natural resources.....	154,852	194,962	SUMMARY OF LIQUOR CONTROL REVENUE (included above)—		
Other.....	45,324	48,040			
Sales and services.....	18,271	20,736			
Fines and penalties.....	3,483	4,006			
Other Governments—					
Government of Canada					
Share of income tax on power utilities.....	4,369	6,831		1,765	1,863
Subsidies.....	25,757	24,944		30,850	31,838
Municipalities.....	830	272		690	786
Government enterprises.....	129,331	128,517		125,579	124,922
Other revenue.....	767	717		32	59
			TOTALS.....	158,916	159,468

**Analysis of Net Expenditure¹ of Provincial Governments, Fiscal
Years Ended Nearest Dec. 31, 1952 and 1953**

Function	1952	1953	Function	1952	1953
	\$'000	\$'000		\$'000	\$'000
General government.....	47,628	51,620	Contributions to local governments.....	26,732	29,545
Protection of persons and property.....	67,064	76,819	Contributions to government enterprises.....	14,334	12,923
Transportation and communications.....	367,194	353,107	Other expenditures.....	5,736	6,183
Health.....	192,316	209,465	Non-expend and surplus payments.....	2,357	6,969
Social welfare.....	94,688	103,543	Totals.....	1,320,238	1,339,089
Recreation and cultural services.....	7,692	8,096			
Education.....	221,073	234,030	Totals, exclusive of Debt Retirement (included above).....	113,098	81,270
Natural resources and primary industries.....	93,849	102,323	Totals, exclusive of Debt Retirement.....	1,207,140	1,257,819
Trade and industrial development.....	6,955	7,144			
Local government planning and development.....	2,348	2,856			
Debt charges.....	170,272	134,166			

¹ Ordinary and capital.

The total debt of all provinces continued to increase in 1953. Advances in direct debt in Nova Scotia, New Brunswick, Quebec, Ontario and Saskatchewan more than offset decreases in the other provinces. All provinces except Nova Scotia, New Brunswick and Alberta recorded increases in their indirect debt.

The total gross bonded debt, exclusive of bonds assumed by the provinces, as at the fiscal year ends nearest Dec. 31, 1953, amounted to \$2,560,844,000, payable as follows: Canada only, \$1,623,245,000; London (England) only, \$9,587,000; London and Canada, \$2,974,000; New York only, \$472,973,000; New York and Canada, \$284,614,000; London, New York and Canada, \$167,451,000.

**Details of Direct and Indirect Debt of Provincial Governments,
as at Fiscal Year Ends Nearest Dec. 31, 1952 and 1953**

Detail	1952	1953	Detail	1952	1953
	\$'000	\$'000		\$'000	\$'000
Direct Debt—			Indirect Debt—		
Bonded debt.....	2,372,798	2,562,159	Guaranteed bonds.....	1,049,107	1,201,023
Less sinking funds.....	423,254	445,972	Less sinking funds.....	5,301	8,212
Net Bonded Debt..	1,949,544	2,116,187	Net Guaranteed Bonds.....	1,043,806	1,192,811
Treasury bills, long term.....	78,613	75,528			
Net Funded Debt..	2,028,157	2,191,715	Guaranteed bank loans.....	18,558	20,490
Treasury bills, short term.....	42,853	13,494	Municipal Improvement Assistance Act loans.....	3,682	3,395
Savings certificates and deposits.....	1,474	1,856	Other guarantees.....	26,078	27,053
Temporary loans and overdrafts.....	9,311	989	Totals, Indirect Debt.....	1,092,124	1,243,749
Accounts and other payables.....	172,830	176,992			
Accrued expenditures.....	26,017	27,896	Grand Totals.....	3,372,766	3,656,691
Totals, Direct Debt..	2,280,642	2,412,942			

**Debt of Provincial Governments, as at Fiscal Year Ends
Nearest Dec. 31, 1952 and 1953**

Province or Territory	Direct Debt		Indirect Debt	
	1952	1953	1952	1953
	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	14,706	14,208	33,552	36,912
Prince Edward Island.....	17,574	16,989	391	535
Nova Scotia.....	181,117	188,287	3,918	2,044
New Brunswick.....	170,681	171,293	10,509	10,348
Quebec.....	385,819	394,640	289,828	332,298
Ontario.....	847,984	976,756	717,134	778,295
Manitoba.....	154,862	154,672	393	12,355
Saskatchewan.....	173,832	180,387	705	3,571
Alberta.....	101,115	98,389	5,016	4,697
British Columbia.....	232,952	217,321	30,678	62,694
Yukon Territory.....	—	—	—	—
Totals.....	2,280,642	2,412,942	1,092,124	1,243,749

Municipal Finance

There were in Canada at the end of 1954, 4,220 municipalities varying greatly in size and in services provided. These municipalities are locally governed and the areas so governed may be either urban or rural. Urban municipalities are usually distinguished by the official names of city, town and village, although in Quebec villages are officially regarded as rural. The official designation is sometimes misleading—municipalities may be incorporated in the rural classification though they have become urbanized extensions of the greater metropolitan cities. A very few have rural designations but are partly urbanized, as where a mining centre has grown up within the boundary of a municipality.

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



The money allocated to education by the three levels of government in 1953 amounted to about \$564,000,000. Education is the principal item of municipal expenditure and the second item of provincial expenditure.

Montreal children learning to make puppets at a class held in one of the city parks. Municipal playgrounds are supervised in the summer months, usually by high-school students, who give a certain amount of informal direction to the play of the children using them.



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.

Municipal Assessed Valuations, Tax Levies, Collections and Receivables, 1949-53, and by Province, 1953

Year and Province	Valuations on which Taxes were Levied	Tax Levies	Tax Collections (Current and Arrears)	Percentage of Levies to Collections	Total Taxes Receivable and Property Acquired ³ for Taxes
	\$'000	\$'000	\$'000	p.c.	\$'000
1949 ¹	7,232,125 ²	334,138	325,109	97.3	87,423
1950	10,251,875	367,554	356,838	97.1	97,072
1951	11,849,707	569,512	410,798 ⁴	96.5 ⁴	128,832
1952	12,681,395	643,753	476,863 ⁴	98.4 ⁴	126,693
1953					
Newfoundland	—	1,942	1,938	99.8	593
Prince Edward Island	36,172	1,410	1,278	90.6	362
Nova Scotia	333,310	20,122	19,345	96.1	5,745
New Brunswick	407,763	17,106	15,502	90.6	5,584
Quebec	4,090,775	173,945	—	—	25,826
Ontario	5,043,591	283,133	279,738	98.8	31,171
Manitoba	680,339	40,670	38,465	94.6	13,433
Saskatchewan ³	904,403	49,041	47,163	96.2	18,528
Alberta ³	1,027,544	58,289	56,714	97.3	23,966
British Columbia	771,130	52,889	52,727	99.7	9,181
Totals, 1953	13,355,027	698,547	512,870	97.8	134,389

¹ Quebec not available.

² Includes cities and towns only for Quebec.

³ Includes

information for Local Improvement Districts for Saskatchewan and Alberta.

⁴ Not available.

Estimated municipal revenue for 1953 was \$828,300,000; 69.8 p.c. was derived from taxes on real property, 13.3 p.c. from other taxes, and the remaining 16.9 p.c. from licences and permits, public utility contributions, provincial subsidies and other sources. Support of local schools currently requires the largest expenditure by municipal governments. In 1953 estimated total expenditures were \$818,400,000 and the proportion of that total spent on education was 31.8 p.c. Public welfare took 12.9 p.c., transportation 12.8 p.c. and debt charges together with provisions for debt repayment, 14.9 p.c.

Municipal Bonded Indebtedness 1919-53, and by Province, 1952 and 1953

Year	Gross Bonded Indebtedness	Total Sinking Funds	Province	Gross Bonded Indebtedness	
				1952	1953
	\$'000	\$'000		\$'000	\$'000
1919	729,715	1	Newfoundland	4,136	4,499
1925	1,015,950	1	Prince Edward Island	4,250 ²	4,526 ²
1930	1,271,390	1	Nova Scotia	51,974	59,126
1935	1,372,026	267,709	New Brunswick	52,397	55,279
1940	1,244,001	259,343	Quebec	546,274	607,527
1945	965,350	168,365	Ontario	521,992	632,345
1950	1,220,345	133,587	Manitoba	71,995	75,165
1951	1,431,013	116,633	Saskatchewan	39,629	46,382
1952	1,611,184	103,274	Alberta	119,751	155,006
1953	1,844,175	92,483	British Columbia	198,786	204,320
			Totals	1,611,184	1,844,175

¹ Not available before 1934; Alberta showed net debt to 1928.

² Excludes rural schools.

• *Canada's External Relations*

The close relationships of Canada with the other members of the Commonwealth and with the United States, strong support of the United Nations, of the North Atlantic Treaty Organization, and of other constructive international organizations, and interest in the maintenance of a high level of international trade, continued to be the main factors influencing the conduct of Canada's external policy in 1955.

NATO and Western Europe.—In May 1955 the North Atlantic Council met in Ministerial Session at Paris to welcome the accession to the North Atlantic Treaty of the Federal Republic of Germany. At the same time both Germany and Italy became members of the Western European Union (revised Brussels Treaty of 1948). The WEU is designed to promote co-operation among Western European countries and to provide a means of controlling and limiting the armed strength of its members. This important development marked the culmination of the efforts of the Western Powers to associate the Federal Republic of Germany with the West in accordance with the terms of settlement arrived at by the 1954 London Nine-Power Conference, which was ratified by the NATO Council at Paris in October 1954. With its sovereignty fully restored, the Federal Republic of Germany is taking steps to make a significant contribution to the NATO build-up-of-forces program.

Canada continued in 1955 to support NATO with contributions of armed forces to the unified NATO commands, with end-item assistance to other NATO countries and with financial contributions to common budgets. The First Canadian Infantry Brigade, which was stationed in the Soest area of Germany, was replaced on completion of its two-year tour of duty by the Second Canadian Infantry Brigade. The Canadian air contribution of 12 jet fighter squadrons to SACEUR remained unchanged. The Royal Canadian Navy had 43 ships earmarked for the defence of the Canada-United States area and for the protection of convoys under the control of SACLANC. For 1954-55, Parliament was asked to approve an appropriation of \$257,400,000 for Mutual Aid. Out of this amount Canada's proposed share of the cost of the NATO common infrastructure program was \$11,500,000, and Canada continued to provide facilities under the NATO aircrew training program for close to 1,000 NATO trainees.

The joint construction by Canada and the United States of continental defence installations in the Canadian north involves the defence of territory expressly included in the area covered by the North Atlantic Treaty.

The Far East.—Canada's main preoccupation in the Far East during 1955 was its participation, together with India and Poland, in the supervision of the armistice settlement for Indochina which had been reached at the Geneva Conference in July 1954. Canadian representatives sat on each of the three International Supervisory Commissions that were established in August 1954 in Vietnam, Laos and Cambodia. Throughout 1955 there were some 135 Canadian officers and men and 35 foreign service personnel serving in Indochina on the Canadian delegations to the Commissions and on the inspection teams.

During 1955 the International Commission in Vietnam supervised the completion of the regroupment of the armed forces of the two sides, involving the transfer of the Viet Minh forces to the regroupment zone north of the military demarcation line at the 17th parallel, and the transfer of the French Union Forces to the zone south of the line. Also during the first half of the year the Commission was much preoccupied with the question of freedom of movement for the civil population.

One of Canada's most important contributions to NATO is its provision of facilities for the training of pilots and aircrew for other member countries. About 1,000 such trainees were under instruction in 1955.



The International Commission in Cambodia in the first half of 1955 was mainly concerned with the reintegration into the national community of the members of the ex-Khmer resistance forces. General elections took place on Sept. 11 and the Commission later declared that these completed the electoral obligations of the Cambodian Government under the Geneva settlement. As a result, the Commission was reduced in number.

In Laos, the International Commission followed closely the negotiations between the Royal Laotian Government and the Pathet Lao aimed at a political settlement as called for by the cease-fire agreement. Various military incidents occurred in the two northern provinces where the Pathet Lao forces are concentrated. The International Commission was able to assist the parties in trying to settle these incidents as well as in narrowing down their differences in the military negotiations.

The three above-mentioned Commissions have the continuing task of supervising the implementation of such provisions of the respective agreements as those restricting the import of arms and war material and those forbidding reprisals or discrimination.

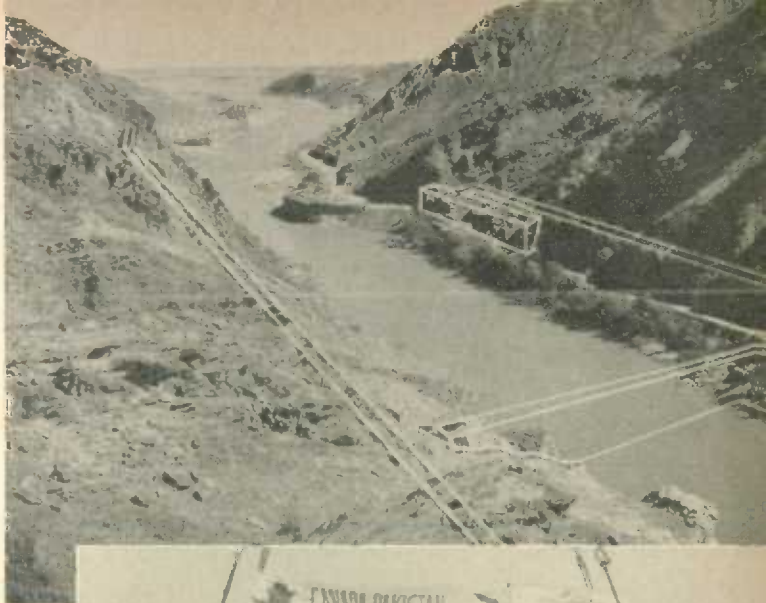
Commonwealth Affairs.—A meeting of Commonwealth Ministers took place in London from Jan. 31 to Feb. 7, 1955. Such periodic meetings provide the Heads of Commonwealth Governments with an opportunity to review the Commonwealth situation and to arrive at a deeper understanding of the approach of the various members to Commonwealth and world problems. The 1955 meeting convened under the shadow cast by the dispute over the Chinese off-shore islands and the consideration of Far Eastern affairs took up almost half of the plenary sessions. Concurrently with the meeting of Commonwealth Prime Ministers, the Government of Pakistan informed the other Commonwealth Governments that, under the new constitution soon to be adopted, Pakistan would become a sovereign, independent republic, while continuing its full membership in the Commonwealth.

Relations with the United States.—Particular problems in economic and trade relations between Canada and the United States were discussed from time to time during the year. In September 1955 the second meeting of the Joint United States-Canadian Committee on Trade and Economic Affairs took place in Ottawa. This Committee, which is composed of cabinet ministers of both countries, discussed a wide range of economic matters, including the problems created for Canada by United States measures to dispose of surplus agricultural products.

Canada and the United States continued the joint construction and extension of continental defence installations in the Canadian north. Co-operation in research and experimental projects was also a feature of Canada's special defence relations with the United States during 1955.

Debate on the International Rivers Improvement Act which was passed by the Parliament of Canada in June 1955 served to stress the tremendous hydro-electric potential of the Columbia River basin and also emphasized the necessity of continuing negotiations and compromise between the United States and Canada in order that divergencies of interest of the two countries may be reconciled.

Part of Canada's direct assistance under the Colombo Plan is the building of a power project in northwest Pakistan which will give 180,000 kw. of electricity to a power-starved country and irrigate over 110,000 acres of parched land.



The Kabul River and the position of the dam, power-house and two of three tunnels.

Heavy construction equipment and stores valued at \$2,500,000 have been shipped to the site.



Construction of the power and seaway projects in the St. Lawrence River continued on schedule during 1955, the St. Lawrence Seaway Authority and The Hydro-Electric Power Commission of Ontario in Canada and the Power Authority of the State of New York in the United States working in close co-operation. The International Joint Commission continued to hear evidence on and to deal with problems arising out of common boundary waters along the border of the two countries.

Latin America.—Relations with Latin America have continued to grow in recent years. While not a member of the Organization of the American States, Canada in 1955 maintained membership in several inter-American agencies and continued to send representatives to conferences dealing with matters of common interest.

The United Nations.—Canada continued its active participation in the work of the United Nations. One of the main achievements of that Organization during 1955 was the success of the International Conference on the Peaceful Uses of Atomic Energy held at Geneva in August. Canada took part in this Conference and also in the renewed efforts of the United Nations Disarmament Sub-committee to solve this vital issue during private discussions held in London and New York between the representatives of Canada, France, the United Kingdom, the United States and the Soviet Union.

In the course of the Tenth Session of the General Assembly, which opened on Sept. 20, 1955, Canada was elected to the Economic and Social Council for a three-year term from Dec. 31, and announced an increase of \$300,000 in its contribution to the UN Expanded Programme of Technical Assistance to Under-developed Countries, a total of \$1,800,000 (U.S.) for the year 1956-57. Canada also signed and deposited the instrument of accession to the International Finance Corporation established by the United Nations to promote the financing of productive private enterprise in under-developed countries, and subscribed to the Corporation's capital by the purchase of stock in the amount of \$3,555,000.

One of the most important actions taken by the General Assembly and the Security Council during the Tenth Session was the approval of the membership applications of sixteen countries. This decision broke a deadlock on the important membership question which had existed since 1950, from which time no applicant had been able to obtain the necessary affirmative vote of seven members of the Security Council. The Canadian delegation took the initiative during the Tenth Session in seeking support for the admission of all outstanding applicants other than the temporarily divided countries of Korea and Vietnam. As finally adopted, the relevant resolution provided for the entry to the UN of all applicants on the "Canadian" list except Japan and Outer Mongolia. They are: Austria, Ceylon, Albania, Finland, Hungary, Ireland, Italy, Jordan, Libya, Nepal, Portugal, Cambodia, Laos, Roumania, Bulgaria and Spain.

Economic Affairs.—In 1955, as in previous years, Canada attended most of the major international conferences concerned with economic affairs. In September 1955 the second meeting of the Joint United States-Canadian Committee on Trade and Economic Affairs was convened in Ottawa at which trade and economic problems of common concern were examined.

From the Ninth Session of the Contracting Parties to the General Agreement on Tariffs and Trade, opened in Geneva in the autumn of 1954, there emerged a revised Agreement and a proposal to set up an Organization for Trade Co-operation. Canada was again represented at the Tenth regular Session of the Contracting Parties which opened in Geneva in October 1955.

In 1955, Canada made available some \$26,400,000 to provide economic and technical assistance to the under-developed countries of south and south-east Asia under the Colombo Plan. The Canadian contribution in each of the four preceding years was \$25,400,000. At the meeting of the Consultative Committee of the Colombo Plan held in Singapore in October, it was agreed that the first planning period of the Plan which was to conclude in mid-1957 would be extended to mid-1961. Canada's contribution to the United Nations expanded Technical Assistance Programme was also increased.

Missions Abroad.—No new diplomatic missions were opened during 1955, although the missions in Norway and Portugal were raised in status from Legations to Embassies. At the end of 1955, Canada was represented abroad by the following missions:—

Embassies (30)—

Argentina
Belgium
Brazil
Chile
Colombia
Cuba
Dominican Republic
Egypt
France
Germany
Greece
Haiti
Indonesia
Israel
Ireland
Italy
Japan
Mexico
Netherlands
Norway
Peru
Portugal
Spain
Switzerland
Turkey
USSR
United States
Uruguay
Venezuela
Yugoslavia

Legations (7)—

Austria
Czechoslovakia
Denmark
Finland
Lebanon
Poland
Sweden

Offices of High Commissioners (7)—

Australia
Ceylon
India
New Zealand
Pakistan
South Africa
United Kingdom

Consulates General or Consulates (11)—

Brazil:
São Paulo
Philippines:
Manila
United States:
Boston
Chicago
Detroit
Los Angeles
New Orleans
New York
Portland
San Francisco
Seattle

Permanent Delegations and Missions (4)—

Berlin (Military Mission)
Geneva (United Nations)
New York (United Nations)
Paris (North Atlantic Council and Organization for European Economic Co-operation)

Canada does not maintain missions in Iceland and Luxembourg but the Ambassador to Norway is accredited to Iceland as Minister and the Ambassador to Belgium is accredited to Luxembourg as Minister. The Ambassador to Greece is also accredited as Ambassador to Israel and the Minister to Sweden as Minister to Finland. The Ambassador to Cuba is also accredited as Ambassador to the Dominican Republic and to Haiti. Trade Commissioners were also situated in the Belgian Congo, Federation of Rhodesia and Nyasaland, Guatemala, Hong Kong, Jamaica, Singapore and Trinidad.

Princess Margriet of the Netherlands laying the cornerstone of the new Canadian Embassy at The Hague. The Princess was born in Canada during the Second World War, Canadian Ambassador Thomas Stone (left) looks on.





The process of education requires time, work and striving—the ability to think straight, some knowledge of the past, some vision of the future, and some skill to give useful service to the community are the vital aims of that process.



Education

VARIETY is one of the most distinctive characteristics of educational institutions and programs in Canada. It is intended here to give an impressionistic rather than a definitive view of Canadian education, one that will help to point up this amazing variety.

Many Authorities.—There is no national ministry of education in Canada; by constitutional provision, education falls within provincial jurisdiction. In each of the ten provinces there is a provincial department of education responsible for public elementary and secondary schools. In addition, there are agricultural schools operated by departments of agriculture, apprenticeship programs operated by departments of labour, reform schools operated by departments of attorneys general or of welfare, forest ranger schools operated by departments of lands and forests, prospector courses operated by departments of mines. In Newfoundland there are two departments of the provincial government operating schools or concerned in some direct way with programs of education or training. In Prince Edward Island there is but one; in Nova Scotia, 5; New Brunswick, 5; Quebec, 9; Ontario, 8; Manitoba, 4; Saskatchewan, 3; Alberta, 5; and British Columbia, 6.

Within the province, co-operating with the provincial department of education, district boards of school trustees administer elementary and secondary education at the local level. There are more than 20,000 such local boards across Canada. Although there is no federal department of education, there are federal departments responsible for or concerned with certain segments of the field. The education of native Indians is the responsibility of the Department of Citizenship and Immigration. Education in the Yukon Territory and in the Northwest Territories and of all Eskimos is the responsibility of the Department of Northern Affairs and National Resources. Provision of school facilities on military stations is made by the Department of National Defence. The Department of Labour is the medium through which vocational training in the provinces is subsidized by the central government. The Department of Finance is the channel for payment of federal grants to universities. One might list also, as agencies of adult education, the Canadian Broadcasting Corporation, the National Film Board, the National Museum and the National Gallery. And still the list would not be complete.

Add to these governmental authorities in education, the many churches, voluntary associations and other private corporations which operate independent schools, institutes, colleges and universities, and one has a notion of the multiplicity of administering bodies in Canadian education.

Pre-school Education.—Day-care centres are to be found in the larger cities—places where working mothers may leave their infants under skilled supervision. Organized play is provided for the older of these children. For children from three to four or five years of age nursery schools are becoming more and more popular in urban centres. Most of them under private control—sometimes in a church hall, sometimes in the director's home, less

often in a building designed for the purpose—these nursery schools teach the art of group living and introduce children to music, painting and the simpler crafts. The kindergarten, in many respects like the nursery school, serves children of four and five years (more often five). Here the atmosphere is still essentially one of play, but as the child nears the age of six he is given an opportunity to become acquainted with the rudiments of reading and numbers, in preparation for his imminent entry to the elementary school. In some of the cities of Canada kindergarten classes are to be found in public elementary schools, but there are many private kindergartens as well.

Elementary Schools.—At the age of six a child may enter the elementary school. (In half the provinces he must enter at this age; in the others he must attend from the age of seven.) If he lives in the city the chances are that he will find a relatively large brick school within walking (or zig-zagging) distance of his home. If he lives in a rural area he may have to walk a mile or more to a one- or two-room frame building, heated in winter by a wood fire in an iron stove set in the middle of the classroom. In many parts of the country the farm child's walk to school is now replaced by a ride in a school bus which makes the circuit of distant pupils' homes to take them to and fro.

The religious persuasion of a child's parents, or the language he speaks, may determine to which school he goes. In Newfoundland, for example, there are public denominational schools of six sorts: Anglican, Pentecostal, Roman Catholic, Salvation Army, Seventh Day Adventist and United Church, and there are, as well, some inter-denominational and some non-denominational schools.

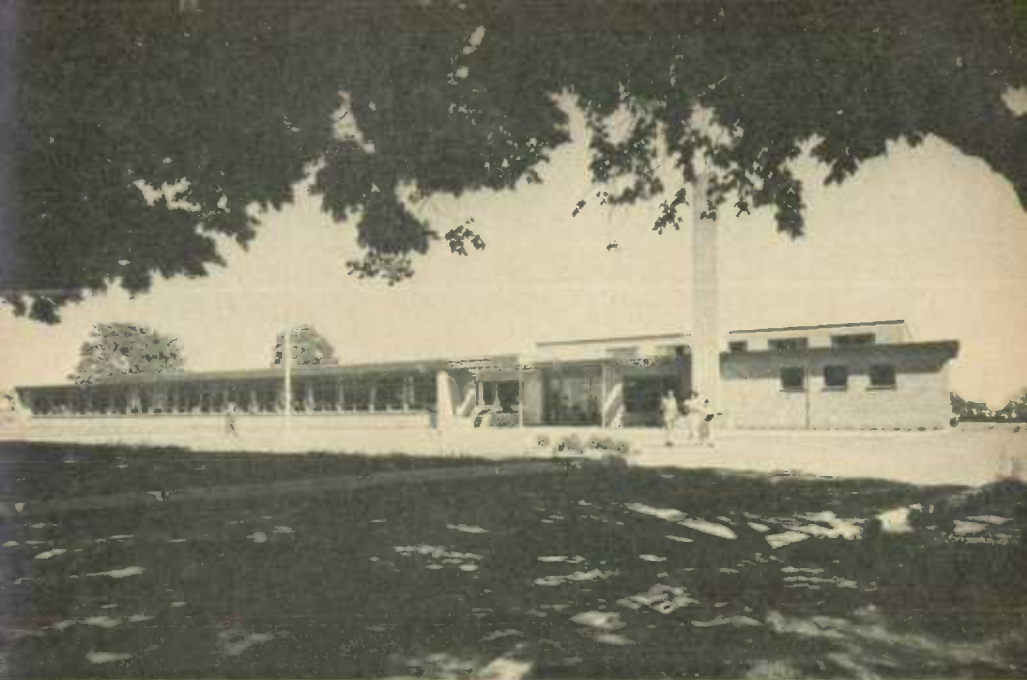
The Province of Quebec has a dual system of public schools—Roman Catholic and Protestant—and of the former there are both French- and English-language institutions. In Ontario, there are public (for the most part non-Catholic) and separate (chiefly Roman Catholic) public schools, including those for English-speaking children and those for French-speaking children. Saskatchewan and Alberta, too, have both public and separate schools under public control.

In all provinces, including those in which public provision has been made for denominational schools, there are private church or parish schools established and financed by minority religious groups.

The children of servicemen who are resident on military stations, whether they be in Canada, Germany or France, are provided with schools on the stations. These schools follow regular provincial public-school curricula, but in the overseas centres draw on the rich milieu about them to add glimpses of other cultures to the regular fare.

While some Indian children attend provincially operated public schools, most of them are served by schools of their own. The older pattern of denominational residential schools is being supplanted gradually by day schools located on the Indian reservations. Schooling for Eskimos is more difficult to provide because they are a migratory people. Teachers are made available, though, even when instruction can continue only through a short season.

Secondary Schools.—Depending on the city or province in which he lives, a child may progress from the elementary school to one of the many types of secondary school in his seventh, eighth or ninth school year.



There has been a great up-surge in the building of new schools in the past few years, particularly in the growing city suburban areas—bright, spacious, light-filled structures in which stainless steel, aluminum, glass and plastic and other prefabricated finishes have replaced heavier construction materials and cut down costs. Even so, today's school building costs are estimated at from \$1,000 to \$1,200 per pupil in urban centres.

There was a time when secondary schooling in Canada was primarily a preparation for entry to university and was undertaken by a relatively small proportion of children. Now the majority of pupils go on to this stage. In order to meet the various needs of such a heterogeneous group, both institutions and curricula have been diversified. There is more variety, of course, in large urban centres where larger numbers of students and greater ability to finance education exist than in rural areas. By the introduction of larger school administration units and centralized, regional high schools, however, variety of curricula has also been made available in many of the more sparsely settled parts of the land.

In some centres there are both junior and senior high schools. The former provides a relatively general program of studies, with opportunity for exploration in a number of different specialized fields. In addition to the usual college preparatory program, the latter frequently offers curricula leading to other types of post-secondary training, or to employment in business or industry, or one which may be designed simply as further general education. In other centres the institutions themselves are differentiated: academic high schools, commercial high schools, technical high schools. The composite high school, with a multilateral program, finds its place too.

In addition to the public high schools, both denominational and non-denominational private schools also occupy the secondary education field. Except in Quebec, most public secondary schools are co-educational. In all

provinces, most private secondary schools are not. Although Canadian adaptations have been made, the basic pattern of the private secondary school in English-speaking Canada is the British "prep" school, with pupils in residence, taught by "masters", and grouped in "forms" rather than grades.

The private secondary school in Quebec is unique. Although there are several varieties, they are typified by the *collège classique*. Operated by religious communities, these schools receive their pupils from the primary schools and take them through two four-year stages to the baccalaureate degree. In recent years some less classical options have been allowed, but the basic curriculum of the *collège classique* is the study of religion, language (French, Latin, Greek and English), history, philosophy and science. Historically, the whole of this curriculum was called *secondaire*, as is its model in Europe. Recently, however, it has become customary to refer to the first four-year stage as *secondaire* (thus comparable to the term "high school" in general use in Canada) and the second four-year stage as *supérieur* (at the level of studies for the bachelor's degree in arts in other provinces).

Provision for Exceptional Children.—Nowhere is there more variety than in the educational facilities established for exceptional or atypical children. If a child is unable to attend or to profit from instruction in a regular school, it is likely that somewhere in the country (often in many places) there is an educational program designed for children with his particular type of abnormality or difficulty. Public provision is normally made for the special instruction of children whose exceptionality is shared by relatively large numbers, provided that they are educable. Public provision is made also for those who, though virtually ineducable, are in need of institutionalization. Such public effort is supplemented by private initiative for groups of children in other categories.

In urban public schools it is usual to find special class groupings and special instructional aids, within the regular school, for children whose hearing or sight is impaired, for children whose general health requires specially planned rest or sunshine or both, for children who are slow learners, and occasionally for exceptionally gifted children. Special schools, most of them under public control, are located in the main regions of the country for the education of the blind, the deaf and the dumb.

There are both publicly and privately operated orphanages for children of school age as well as for those who are younger. There are school programs in reform institutions for juvenile delinquents. Children hospitalized for long periods of time (for tuberculosis, for example) may be provided with resident tutors or correspondence instruction or both. Indeed, correspondence courses are available to children who for other reasons, such as distance from school, are unable to attend regular classes. In at least two cities there are schools for crippled children. There are facilities combining physio-therapy and private tutorial for children suffering from cerebral palsy.

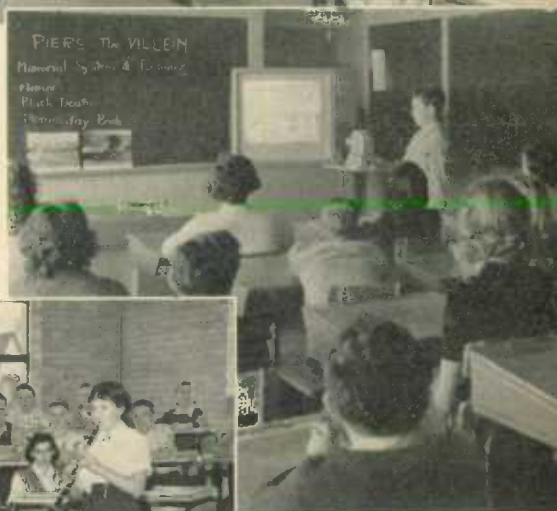
In every province there is at least one association of parents and other interested citizens concerned with the mentally retarded child. Under such auspices, and sometimes with a measure of public support, there are classes for retarded children. For mentally defective children there are large residential institutions, often called "training schools", operated by provincial departments of health where, to the extent possible, schooling is carried on.



Information dispensed through the use of audio-visual teaching aids is filling the gap between textbook and reality—still and motion picture projectors, radios and disc and tape recorders are becoming standard school equipment.



Canada has achieved a leading position in the production and use of educational films and film strips. Radio programs, especially planned by educationalists are broadcast daily to all parts of Canada and experiments are under way to evaluate the place of television in the school.





Vocational training is very often included as part of the general education program in provincially operated high schools.

Vocational Training. Quebec is the only province in which vocational training is sharply differentiated from general education. The Quebec Department of Education operates the academic schools, while other departments, notably the Department of Social Welfare and Youth, operate vocational schools of many sorts.

In that Province also are trade schools and apprenticeship schools for those with elementary school background, technical schools which include four-year courses up to the junior college level, agricultural schools with short and longer courses, institutes of family living for potential homemakers, and specialized schools for the training of paper-makers, dairymen, sawmill-operators, furniture-makers, artists and architects.

In most provinces vocational education has been made a part of general education, especially where the composite high school exists. In such a school a boy might include in his general course special study of agriculture, wood-working, metal-working, electricity, art or book-keeping, and a girl might include home economics or stenography. (The list is illustrative only.)

There are, in addition, many strictly vocational schools and institutes under public control and many private trade schools and business "colleges". These range from a post-secondary technical institute with 24 different courses and more than 6,000 day and evening students to a private welding school with less than a dozen trainees. Trade and apprenticeship training programs, many of them subsidized by the Government of Canada, prepare plumbers and plasterers, bricklayers and electricians, auto mechanics and welders. Provincial agricultural schools provide courses in scientific farming for boys, in household science for girls, and, during the winter season, short courses on such special subjects as the care of farm implements.

Other types of vocational schools and courses include those for textile workers, in mining technology, for prospectors, in hotel management, for forest rangers and for fishermen. For young women there are hospital schools of nursing, schools for nurses' aides, courses in laboratory technology, schools of interior decoration.

Training of Teachers.—Until comparatively recently most elementary school teachers were trained in one year in a "normal school", entered after graduation from high school, and high school teachers obtained professional certificates by taking a one-year course, usually in university, after achieving the bachelor's degree in arts or science.

There are still some one-year normal schools, although the term "teachers' college" is gaining currency as the name for these institutions. More and more, however, teacher-training is being related to the university. In three provinces—Newfoundland, Alberta and British Columbia—and in the Protestant system of the Province of Quebec, all teachers are now university trained. In Nova Scotia, New Brunswick and Saskatchewan, and in the Roman Catholic system of the Province of Quebec, there are still normal schools but they are more closely related to the universities than was the case ten years ago.

As in many phases of education, the Province of Quebec has teacher-training institutions which differ markedly from those of the other provinces.

Nova Scotia teachers attending summer school.

Knowledge, attitude, skills and ideals are the teacher's stock in trade and continuous study, individually or through special summer courses, keeps them abreast of new methodology and advances their capabilities.



These are the *écoles normales*, operated, with provincial government assistance, by religious communities—some for young men, most for young women—and *scholasticats-écoles normales*, also run by religious communities, for the training of brothers and nuns as teachers.

Universities and Colleges.—Each of the provinces has at least one provincially controlled university or college, or a provincially controlled professional school attached to a private university. Each of the larger religious denominations, and many of the smaller ones, operates at least one university or college. The Federal Government's Department of National Defence operates three military colleges. There are also many institutions of higher education which are independent of both state and church.

Student bodies range in size from fewer than 100 to over 10,000. There are institutions in which the English language is the medium of instruction, there are those that teach in French, and a few that are bilingual.

Among institutions of higher education there are junior colleges, taking students just one or two years beyond high school graduation; there are some that offer only the bachelor's degree, some up to the master's in selected fields and some that offer the doctorate. A small college may be limited to a single faculty of arts, while the larger universities have a score or more of faculties, professional schools and research institutes, and often a number of affiliated colleges.

Most but not all universities are co-educational. Some have residential accommodation for their students. The universities are usually located in the larger cities or their suburbs, while the colleges are found in both urban and rural settings.

Adult Education.—Except for the programs of voluntary associations, those of few other institutions are devoted exclusively to adult education. The chief agencies in the field are the provincial authorities that administer secondary and vocational education, the local city school boards, and the universities.

A city dweller may attend night classes to finish his high school course, to acquire office skills, to learn a trade, or to develop a hobby, serious or frivolous. He may work toward a university degree or profit by attendance at regular or occasional lectures on subjects as varied as the interests of the nation's cadre of professors. One who lives in a town, village or rural area may be served by university extension lectures or projects, taken from the seat of the university to its hinterland; by institutes, courses or discussion groups arranged for farmers and their wives by provincial departments of agriculture, by farm-women's organizations, or by their own initiative; by correspondence courses available from provincial departments of education, from universities and from private correspondence schools.

Whether he lives in the city or works in a mine or a lumber camp, the recent immigrant will find opportunities to learn one of the two languages of the country and the elements of its history and form of government.

Whoever has a radio or a television set has in his home the tremendous range of educational programs of the Canadian Broadcasting Corporation and the private stations: talks, interviews, panel discussions, symposia, news reports and analyses, demonstrations and on-the-spot reports, not to mention

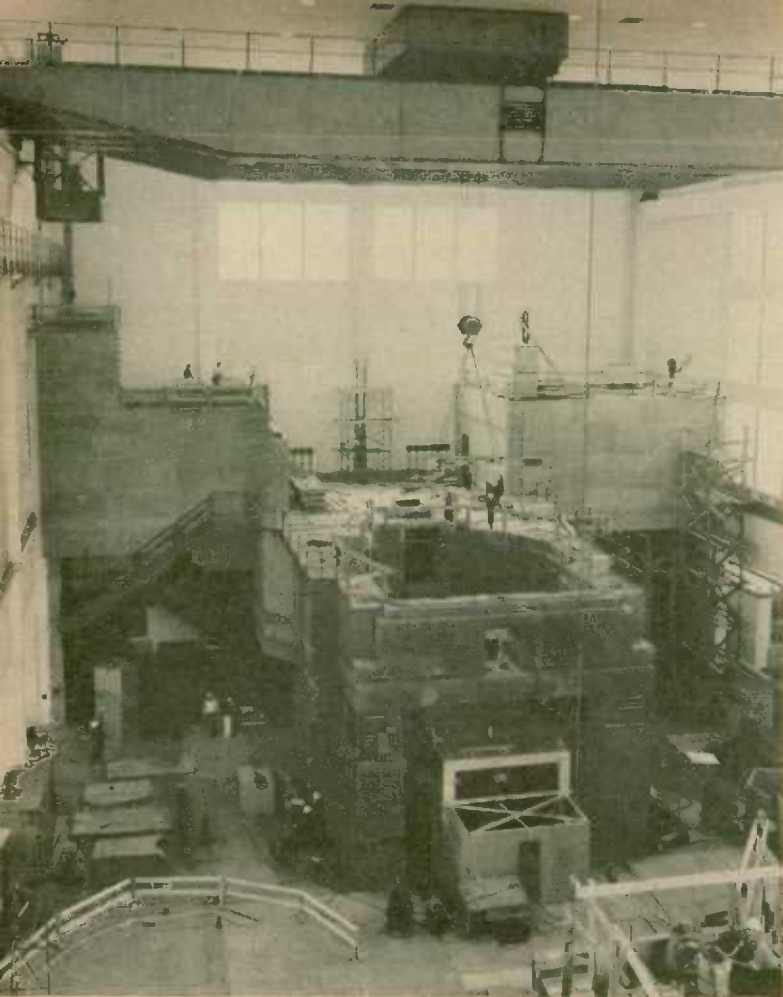
a wealth of music and drama. Whoever goes to the cinema may tap not only the world of entertainment, but may see documentary films on every conceivable topic, produced by the National Film Board and a growing number of private film producers. Library services, too, have been extended beyond city and town limits by railway car, bookmobile and mail: books are available to the one who wishes to pursue his further education alone.

Statistics of Canadian Education, Academic Year 1952-53

Type of School	Schools	Teachers	Pupils
	No.	No.	No.
Elementary and Secondary Schools (incl. some vocational training)			
Regular public.....	30,731	98,125	2,666,216
Regular private.....	1,169	7,830	167,042
Schools for the blind and deaf.....	13	310	2,054
Indian schools.....	456	842	25,949
Evening classes.....	—	—	223,493
Teacher training.....	140	1,481	12,378
Normal schools.....	117	1,257	10,216
University faculties.....	23	224	2,162
Universities and colleges (excl. teacher training)...	262	10,878	106,386
Full-time university grade.....	—	5,823	60,879
Other (incl. university extension).....	—	5,055	45,507

The University of Manitoba at Winnipeg is the nucleus of higher education in that Province. The University was established in 1877 and its original instruction in the fields of science and medicine has since grown to include a great range of faculties and affiliates.





Canada's third and most powerful reactor, known as NRU, now in final stage of construction, will permit considerable expansion in research and in production of radio-active isotopes.



Plastic model of Canada's first experimental nuclear-electric generating station, to be built 150 miles northwest of Ottawa, shows the reaction from uranium fuel from the time it is placed in the reactor until steam is produced to turn the turbo-generators.

Scientific Research

CANADA has taken immense strides during the past decade or more in scientific and industrial research through a typically Canadian co-operative approach—the co-ordination of expanding research activities of government, university and industry by means of associate committees of specialists and an intimate flow of personnel and information that tend to bridge facilities scattered across the vast expanse of a transcontinental state.

While many Canadian industrial establishments have in recent years become research conscious and have enhanced thereby their respective contributions to the recent emergence of Canada as a highly industrialized nation, most of the industrial research 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—an outline of which concludes this brief survey on scientific research.

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 the cobalt bomb. 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. While some of this aid is available for research undertaken by university professors or by students doing post-graduate work under the direction of a professor, the major portion is expended on behalf of larger research projects undertaken on a faculty basis in the university laboratories or in special institutions such as agricultural colleges or medical research laboratories.

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



Model of a power plant on the Bow River, west of Calgary, Alta., under study in the Hydraulic Laboratories at the University of Toronto.

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 through federal funds from the National Research Council, the Defence Research Board and the Department of National Health and research grants from provincial branches of the Canadian Cancer Society and such government foundations as the Ontario Cancer and Research Foundation, not to mention the noted Banting Research Foundation, or various fraternal societies, service clubs and pharmaceutical companies, etc. With help from such diverse sources as these, active research programs are in progress in each of the twelve Canadian medical schools where notable contributions to medical knowledge are being made by Canadian scientists. Outstanding among these research programs are those of the Connaught Medical Research Laboratories at the University of Toronto, and the Montreal Neurological Institute.

A representative picture of *industrial research* in Canada, which has been expanding rapidly in recent years, may be gained by a brief reference to the research facilities of a few leading Canadian manufacturing establishments. Aluminium Laboratories Limited conducts research at Arvida in the production of metallic aluminium and at Kingston in various aspects of metallurgy. Ayerst, McKenna and Harrison Limited carries on original investigations in the fields of vitamins, hormones, antibiotics and chemotherapeutic agents. Canada Packers Limited has research groups studying meat production, edible oils, manufacturing processes and the development of by-products of pharmaceutical and industrial interest. Canadian Industries (1954) Limited carries on research in the utilization of Canadian raw materials to meet the needs of basic industries in Canada. Canadian Chemicals and Cellulose Company Limited, through its operating subsidiaries, conducts intensive cellulose and petrochemical research at Prince Rupert and Edmonton. The Consolidated Mining and Smelting Company of Canada Limited carries on investigations in extractive metallurgy and chemical processes. The

Dominion Rubber Company Limited and Polymer Corporation Limited maintain well-equipped laboratories for the development of new and improved chemicals required by the rubber industry. Imperial Oil Limited, International Nickel Company of Canada, Limited and Shawinigan Chemicals Limited are each actively engaged in fundamental and applied research looking to the development of new processes, products and uses, while the research division of The Hydro-Electric Power Commission of Ontario and the Pulp and Paper Research Institute of Canada are leading examples of the Canadian practice of co-operation between industry and government or university in the advancement of scientific knowledge.

National Research Council.—Since its inception in 1917, NRC has had a profound effect upon Canadian research. Its first act was to establish a system of grants and scholarships to stimulate research in universities and to assist students in financing post-graduate training—still an important part of the Council's activities. (More than 3,000 scholarships have been granted to date.) The next step was to set up the associate committee mechanism to co-ordinate research of a national character.

RCN ships are used by the Defence Research Board for under-water sound experiments and studies of oceanographic conditions, the results of which will aid in the detection of enemy craft and the development of equipment for harbour protection.



The Pacific Naval Laboratory at Esquimalt, B.C., is one of two established by DRB for the study of problems of special interest to the Royal Canadian Navy.



It was not until 1925 that NRC began its own laboratory work and not until 1932 that the National Research Building housing four divisions (Physics and Engineering, Biology and Agriculture, Chemistry, and Research Information) was opened on Sussex Street in Ottawa. The Mechanical Engineering Division was established in 1936, and in 1939 a 130-acre building site was acquired on the Montreal Road near Ottawa, a site that has now been extended to 400 acres.

World War II brought a ten-fold expansion to NRC—in 1945 it had more buildings than it had scientists in 1939. Twenty-one laboratories were opened from coast to coast during the War, their interests ranging from cold weather research to aeronautical engineering and atomic energy. NRC was engaged in almost every field of war research and contributed much to the war effort. For example, more than 30 types of radar equipment were designed and wartime production of these was worth over \$300,000,000. Canadian radar gear protected not only the cities and coasts of Canada but also the Panama Canal Zone and the cities of the United Kingdom. Canada also provided the Commonwealth's naval forces with two of the most important types of radar gear used in the later years of the War.

NRC's growth was continued in the post-war era—1946 saw the establishment of the Medical Research Division and the transfer of the atomic energy project from the University of Montreal to Chalk River in Ontario; 1947, the formation of the Building Research Division and the Radio and Electrical Engineering Division; 1948, the beginning of the Prairie Regional Laboratory at the University of Saskatchewan in Saskatoon; 1952, the opening of the Maritime Regional Laboratory at Dalhousie University in Halifax.

Today, the staff of NRC numbers 2,400, of whom about 600 are scientists (average age is 34). About half of NRC's scientists hold degrees at the doctorate level and the remainder hold degrees at the master's or bachelor's level; about 150 of these scientists are also engineers. The Council operates on an annual budget of about \$17,000,000, of which \$16,000,000 comes from the Federal Government and \$1,000,000 from royalties and fees (NRC also does special research for industry on a fee basis). Foundation work (scholarships, assisted research grants, associate committees) takes about \$2,500,000 and the laboratories the remainder of the Council's funds. An Advisory Council, responsible to a committee of seven Cabinet Ministers, has direct and final authority on grants and scholarships, and 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. Frozen storage of living cells and small organisms is under investigation as well as studies on blood plasma albumins, on the production of citric acid by submerged fermentation of beet-sugar molasses, and on the carbohydrate composition of various grains and seaweeds.

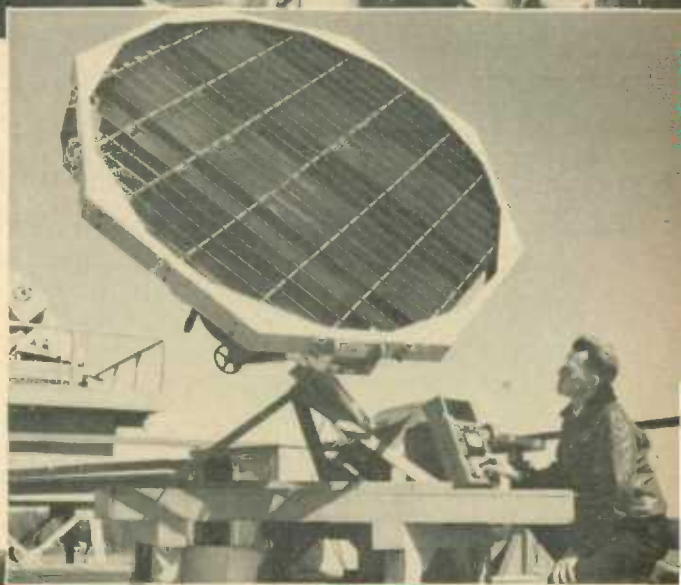
The *Division of Pure Chemistry*, concerned with investigations in the organic, inorganic, physical and colloid fields of chemistry, is endeavouring to

NATIONAL RESEARCH
COUNCIL ACTIVITIES

*Stereoscopic plotter that
may be used for rapid
survey mapping, es-
pecially in city planning.*



*Radio telescope used for
solar noise observations.*



*Operating panel for a
pilot oil cracking plant
operated in the NRC
laboratories where re-
search is being carried
out on the thermal and
catalytic cracking of
Canadian heavy crude
oils.*



discover why certain chemical reactions behave as they do, 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 and, at present, petroleum products are receiving special attention. Study is also being given to corrosion in automatic cooling systems. In the rubber laboratory, research has been directed towards the use of lignin as a reinforcing agent for rubber, and improvements have been made in an adhesive based on cyclized rubber and suitable for bonding rubber to metal.

Important contributions have been made by the *Division of Pure Physics* on various fundamental problems including X-ray diffraction, cosmic rays, spectroscopy, solid state physics and theoretical physics.

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 close co-operation with the construction industry and Central Mortgage and Housing Corporation, is conducting an extensive program of research in building materials, house heating, insulation, fire research, building physics, design characteristics and soil mechanics. The National Building Code has been revised and brought up to date.

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. High-speed wind tunnels are used to study aircraft characteristics at supersonic speeds. A thermodynamics laboratory has begun work on combustion, compressors and turbines. The low temperature laboratory has developed an automatic system of electrothermal de-icing of aircraft.

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, and the explosion hazards of static electricity generated by grain handling.

The *Medical Research Division* promotes medical research through fellowships and grants-in-aid to workers in Canadian medical schools. Since 1946, 244 fellowships have been taken up by 148 graduates. Seventy of these fellows are known to be attached to medical faculties in Canadian universities. 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.

Atomic Energy

Atomic Energy of Canada Limited, a 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., on a site bordering the Ottawa River about 120 miles west of the Capital. The project was started in the late stages of the War when Canada was co-operating with the United States and the United Kingdom in an effort to make atomic energy a decisive factor in that struggle. Since 1945 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 1956, the Government of Canada has voted a total of approximately \$160,000,000 for the development of atomic energy, and 2,100 persons are now employed at Chalk River.

Much of the work that has been carried out was made possible by the operation at Chalk River of the two reactors ZEEP and NRX. These reactors, in which uranium and heavy water are the two most essential materials, have been in operation since 1945 and 1947, respectively. ZEEP is operated only at very low power and is used for research on improved reactor systems. NRX, on the other hand, normally operates at 40,000 kw. and for several years held its place as the world's most powerful research reactor. In 1955, as part of the program of technical assistance under the Colombo Plan, Canada offered to aid India in the setting up of an almost identical reactor near Bombay, thereby making available facilities similar to those which Canada has enjoyed.

Through the operation of NRX, it has been possible to produce large quantities of radioactive isotopes for numerous different applications in industry, agriculture and medicine. These isotopes have been made available to many organizations in Canada and in a large number of other countries through the Commercial Products Division of Atomic Energy of Canada Limited, which has its own separate laboratories in Ottawa.

A Conference on the Peaceful Uses of Atomic Energy was organized by the United Nations and held at Geneva in August 1955. Canada was represented on the seven-nation Scientific Advisory Committee set up to plan the program, a Committee that has since been established on a continuing basis to advise the United Nations on the other aspects of atomic energy development.

On the Canadian delegation were representatives not only of the Crown companies but also of Canadian industry and universities and of several Federal Government departments. Technical papers were presented on various aspects of atomic energy and on its future place in Canada's economic development. An exhibit was set up adjacent to the Conference rooms at which there were displays showing uranium mining, instruments and models of the Chalk River reactors and two cancer therapy units, manufactured in Canada for use with radioactive cobalt.

The Conference marked the end of a decade which, of necessity, had been characterized by government controls and secrecy; it marked the opening of one in which the development of atomic energy will increasingly become the responsibility of private industries rather than of governments and in which, it is hoped, many of the promises of fruitful applications will be fulfilled. The Canadian project is planning a number of new developments. In the five years between 1956 and 1961, it is expected that the Canadian Government investment in atomic energy will amount to \$100,000,000 and that private industry will be making an increasing contribution.

A new heavy-water reactor known as NRU is expected to go into operation at Chalk River in 1956. Producing 200,000 kw. of heat, it will be five times as powerful as NRX and will permit a considerable expansion in research work and in the production of radioactive isotopes. This reactor will not generate electricity but will provide facilities for experiments in which all the conditions of a power-producing reactor can be simulated.

At the same time and in co-operation with private industry and with The Hydro-Electric Power Commission of Ontario, design is well under way for the first Canadian power-producing reactor. This, to be known as NPD, is planned for completion in 1958 and will be located at Des Joachims about twenty miles from the Chalk River Project. It is to be built in the tradition of NRX and NRU, using heavy water and natural uranium, and is expected to generate 20,000 kw. of electric power for the Hydro system. Experience gained through the operation of this small reactor will be of great benefit when larger, more economical units are built. Intense efforts will continue toward the goal of large-scale production of electricity by the 1960's.

The whole Canadian power utility industry is kept informed on progress towards the realization of economic atomic power through the medium of an Advisory Committee which meets annually at Chalk River and is composed of representatives of power-producing and distributing companies.

Finding the answers to such problems as the choosing of materials that can survive the quite exceptional conditions existing inside a nuclear reactor and the safe disposal of radioactive wastes can best be achieved by stimulating a free exchange of ideas between all who are likely to be able to contribute. To this end, the Canadian Project will continue to publish as far as possible the results of its work. Canada will continue to co-operate with the United States and the United Kingdom to determine what information must remain guarded and, as a result of a recent review of the work of the past ten years, a large amount of atomic energy information will be published and made available to Canadian industry.

While primary emphasis is placed on the production of electricity, other beneficial applications of atomic energy are by no means neglected. Cancer



Secretary-General of the United Nations visiting the Canadian exhibit at the Conference on the Peaceful Uses of Atomic Energy held at Geneva, Switzerland, in 1955.



Top atomic research scientists examining the model of NRX displayed at the Conference. Dr. A. G. Ward (right) was one of the six Vice-Presidents of the Conference.

therapy units manufactured in Canada have been supplied to hospitals in the United States, the United Kingdom, France, Italy, Brazil, Switzerland and New Zealand as well as in Canada. One has recently been offered to Burma under the Colombo Plan. The current production of cobalt is such that approximately thirty hospitals each year can be equipped with these cobalt beam therapy units.

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. Also on every hand it is becoming apparent that the availability of radioactive substances and their radiations is bringing improvements in many industrial operations.



A great organization, highly mechanized and efficiently planned, and the daily work of hundreds of people whose occupations may be classified into about 75 different categories from scientist to labourer, is here resolved into the health and happiness of one small human being.

Health and Welfare

THE spectacular rise in the general level of living in Canada that has occurred particularly in the post-war years has been accompanied by important improvements in the health of the population and in the establishment of protective health measures. The Canadian people today have a higher life expectancy than ever before—66 years for men and 71 years for women—and are freed from the threat of many diseases that afflicted previous generations. A system of income security programs, developed and expanded since the 1930's, provides some measure of protection against extremes of poverty for aged, disabled or unemployed persons and for families where the breadwinner is incapacitated or lost. There has been a great post-war expansion of hospital and local health facilities as well as a substantial extension and improvement of welfare services at the provincial and local levels. Some progress has been made toward ensuring that no one is deprived of necessary health care because of inability to pay or residence area.

• Health in Canada

The results of recent advances in medical and allied sciences and in health services which have so markedly improved the health of the Canadian people are easily illustrated by the fact that in the past ten years the infant mortality rate has dropped nearly 40 p.c. to 32 deaths per 1,000 live births and maternal mortality almost 70 p.c. to 0.7 deaths per 1,000 live births.

Progress in overcoming communicable diseases has been perhaps the greatest single factor in improving health conditions; communicable diseases now account for only about 2 p.c. of all deaths, one-sixth of the rate of thirty years ago. Such diseases as smallpox, diphtheria and typhoid fever have been practically eliminated through immunization and improved environmental sanitation. Extension of case-finding and treatment methods has reduced the incidence and severity of tuberculosis to a point where its control can be foreseen. Pneumonia, rheumatic fever and venereal disease are but some of the illnesses that have been markedly decreased through the use of antibiotics. Salk vaccine is now recognized to have great promise for the eventual overcoming of poliomyelitis.

At the same time, reduction of mortality in all age groups and the much greater number of people living longer have inevitably resulted in increasing disability and death from the chronic and degenerative illnesses generally associated with the middle and older age groups. Cardio-vascular diseases, vascular lesions of the nervous system and cancer now account for 60 p.c. of all deaths, double the proportion thirty years ago and the mental illnesses have become increasingly important in the older and more urban population. Much progress has, however, been made in treating chronic conditions. In particular, cortisone and other steroids, chlorpromazine and other hypotensive drugs have been used effectively for their relief and reduction. Canadian-discovered insulin continues to play the major role in the control of diabetes.

Increasing concern is being given to accidents as an important cause of injury and death in all age groups. They are now the leading cause of death in

childhood; motor-vehicle accident deaths are increasing rapidly, particularly among adolescents, and in industry over 400,000 accidents are reported annually.

A picture of sickness experience in the population that has never before been available was provided through the Canadian Sickness Survey of 1951. The Survey indicated that nearly half the population were confined to bed at some time during that year. Another tenth suffered illness that interfered with normal activity and another fifth showed various symptoms and suffered minor illnesses. Only one-fifth had no sickness during the year. Of the estimated 34,000,000 illnesses occurring during the Survey year, about two-fifths were common cold and influenza. The Survey showed that duration of illness increased with age—for children under 15, sickness lasted about 12 days, for persons 65 and over, for 60 days. Approximately 3 p.c. of the population suffered from severe or total permanent physical disability and about 60 p.c. of disabled persons were 45 years or over. The leading causes of permanent physical disability were heart disease, arthritis and rheumatism, residual impairments from accidents, blindness and deafness.

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 constitutionally and by tradition been confined 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 programs being administered by the Department of Veterans Affairs (see p. 96) and the Department of National Defence. The Dominion Bureau of Statistics is responsible for the compilation of health and hospital statistics (see p. 87), 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. In addition, 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 certain national voluntary agencies.



The promotion and maintenance of a high standard of health among workers in almost every type of occupation is the concern of the Department of National Health and Welfare. In any one year investigations may include the control of noise in a factory, potential health hazards in air transport, fumes from industrial plants, excessive dust in a textile mill or spray hazards in apple orchards. The Department works in conjunction with provincial governments, industry, labour groups, local health and other organizations.



The National Health Program.—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 seven years of the Program, \$241,332,000 were made available to the provinces. Amounts expended totalled \$153,883,000 or 64 p.c. of the total funds available.

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 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 resulted from the development of preventive immunization techniques. Smallpox, diphtheria, tetanus, typhoid fever and whooping cough have been eliminated or greatly reduced by mass immunization programs undertaken by provincial and local health departments. Federal, provincial and local health authorities are co-operating in an immunization program against poliomyelitis as rapidly as supplies of Salk vaccine can be produced. 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.

Voluntary agencies have taken a prominent part in the provision of services for, and the carrying on of educational programs concerned with, certain disease problems such as arthritis and rheumatism, cerebral palsy, multiple sclerosis, alcoholism and mental deficiency, through publicity, fund-raising and support of clinical services, rehabilitation and research.

Expansion of hospital facilities has been rapid in the post-war period. This 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 from 1948 to the end of 1954 included 30,481 active treatment, 5,158 chronic-convalescent, 14,254 mental, 4,339 tuberculosis, 6,648 bassinets and 8,084 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, costs 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.

Summary Statistics of Hospitals, 1954

Item	General	Special	Mental	Tuber- culosis	Total
	No.	No.	No.	No.	No.
Public Hospitals—					
Number reporting.....	762	55	73	56	946
Bed capacity.....	66,081	9,397	52,008	13,942	141,428
Average daily population.....	58,078	8,438	59,823	12,590	138,929
Admissions.....	2,205,335	46,702	25,661	16,046	2,293,744
Private Hospitals—					
Number reporting.....	62	107	2	1	172
Bed capacity.....	1,180	2,285	295	21	3,781
Average daily population.....	2,729 ¹	2	288	1	3,018
Admissions.....	60,490 ¹	2	1,744	—	62,234
Federal Hospitals—					
Number reporting.....	39	7	—	7	53
Bed capacity.....	11,696	308	—	1,211	13,215
Average daily population.....	10,903 ¹	2	—	1,093	11,996
Admissions.....	83,512 ¹	2	—	1,143	84,655
All Hospitals—					
Number reporting.....	863	169	75	64	1,171
Bed capacity.....	78,957	11,990	52,303	15,174	158,424
Average daily population.....	71,710	8,438	60,111	13,684	153,943
Admissions.....	2,349,337	46,702	27,405	17,189	2,440,633

¹ Includes general and special hospitals.

² Not available.

The Canadian Paraplegic Association is devoted to the care of injured and chronically ill persons. In addition to providing facilities for the restoration of physical functions, it has established a pattern of rehabilitative medicine, whereby despair is often supplanted by hope and confidence.





The new Montreal General Hospital was ready for occupancy in May 1955. This great institution, like other large hospitals, is a city within itself, operating efficiently twenty-four hours a day and seven days a week. It replaces and extends the service formerly provided in the old Montreal General and Western Hospitals.

In 1954, Canadian hospitals had 1,043 beds for every 100,000 of the population. Of this bed capacity, 89.3 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 8.3 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, as well as for quarantine and other purposes.

Of the 2,440,633 admissions in 1954 to Canadian hospitals, 2,349,337 or 96.3 p.c. were to general hospitals, 1.1 p.c. were to mental institutions and 0.7 p.c. to tuberculosis institutions. However, only 46.6 p.c. of the average daily population of all hospitals was in general hospitals. Mental institutions accounted for 39.0 p.c. and tuberculosis institutions for 8.9 p.c. These differences in proportion are explained by the greater turnover of patients in general hospitals where the average stay was approximately ten days as compared with over ten months in tuberculosis institutions. The average stay of patients who were discharged from mental institutions in 1954 was 8.6 months and 25.0 p.c. of those who died in such institutions in 1954 had been there for ten years or more.

Hospital personnel in 1954 numbered nearly 130,000 persons, or about 2.4 p.c. of the total labour force of Canada.

Personal Health Care

Of the \$1,000,000,000 Canadians spend annually on health care, about \$400,000,000 is expended for hospital services, the most costly single item. General and allied special hospitals account for about two-thirds of this cost and mental and tuberculosis institutions and federal hospitals for the remainder. Prepaid hospital care is provided through province-wide hospital insurance programs in British Columbia and Saskatchewan and through

The new University Hospital erected on the campus of the University of Saskatchewan not only provides additional treatment and research facilities but serves as a training centre for senior medical students and other members of the health team.



General hospitals—whether large city institutions combining treatment with research and teaching, little hospitals uniting the skills of the doctors in small communities, or outpost hospitals—came into being as they are needed, usually through the efforts of public-spirited citizens. Most of the money that builds, equips and maintains them comes from public subscription, government grants and tax allotments. All of them are devoted to a common objective—the restoration of health and the saving and prolongation of life. Many, serving as health centres, also assist in preserving and raising the physical well-being of their respective communities.



A convalescent hospital serving the district of Rimbey, a community in Alberta of fewer than a thousand persons.

The hospital ship "Lady Anderson", operated by the Province of Newfoundland, serves the Placentia Bay area. It makes about thirty-four ports of call every month.





The Blue Cross Plan for Hospital Care has become a very important factor in the financing of hospitalization. This Plan is in operation almost all across the country and has an enrolment of over 3,350,000 persons. Each of these files in the Subscriber Records Department contains about 35,000 application cards, any one of which may be located immediately.

municipal schemes subsidized by the province in Alberta. In Newfoundland, the provincially operated Cottage Hospital Program provides hospital care and physicians' services to large areas of the Island, excluding St. John's. About 20 p.c. of the total population of Canada is covered under public plans and about 40 p.c. to varying degrees under hospital association plans, commercial insurance companies, co-operatives and fraternal organizations.

Most Canadians make private arrangements for physicians' services, with individual payment being made at the time of service. In recent years, however, private insurance plans, administered by both professionally sponsored non-profit and commercial companies, have expanded at a rapid rate. It is estimated that, in 1953, some 30 p.c. of all Canadians were covered to different degrees under these plans. Public medical care is 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 provincial governments to sufferers from specific diseases such as cancer, tuberculosis, mental illness and polio, as well as, in some provinces, to social assistance recipients; and by municipalities to indigents, not otherwise covered, as well as, under "municipal doctor schemes", to residents of certain municipalities in Western Canada.

Most Canadians purchase home-nursing care directly without prepayment by insurance, although public health nursing and groups such as the Victorian Order of Nurses provide services to substantial numbers. Dental care is provided by private arrangements with dentists with almost no prepayment. Drugs to out-of-hospital patients are also purchased privately, with minor exceptions for public assistance recipients in some provinces and those benefiting from federal programs. In-hospital drugs are usually available as benefits under hospital insurance plans.

Rehabilitation Services

The internationally famous rehabilitation services provided for certain classes of disabled persons by voluntary agencies such as the Canadian National Institute for the Blind, by the federal Department of Veterans Affairs and by Workmen's Compensation Boards have been increasingly buttressed and strengthened by federal and provincial support since the National Conference on the Rehabilitation of Disabled Persons was held in 1951. Since then, co-ordinated programs have been started in most provinces and national and provincial co-ordinators have been appointed, a Medical Rehabilitation Grant has been added to the National Health Grant Program and other grants of the program are being increasingly used for the establishment of rehabilitation services and facilities.

Medical Research

Medical research activities in Canada have expanded rapidly in the post-war period and Canadian scientists have made many significant contributions to the advancement of knowledge in numerous health fields. In the year ended Mar. 31, 1953, almost \$7,000,000 was spent on medical research, of which sum more than \$3,500,000 was contributed by Federal Government agencies. Federal support for medical research comes from the National Research Council, the Defence Research Board, the Department of Veterans Affairs and from the Department of National Health and Welfare, through the National Health Program. Projects embrace a wide variety of techniques, medical fields and types of diseases. In 1953, over 17 p.c. of all research in Canada related to malignant neoplasms; 7.4 p.c. investigated problems of heart disease; 7.4 p.c. concerned various mental disorders and 7.1 p.c. the arthritic and rheumatic diseases.

• Welfare

The Welfare needs of Canadians before the turn of the century were met largely by charitable institutions developed usually under private or religious

Many research groups are working to combat mental illness. Here a Director of Research in a psychiatric hospital plots stresses and stimuli on a patient who wears electrodes attached to her wrists to record responses on electrical instruments.



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, 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 in some 65 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. Some agencies are organized regionally and nationally as well as locally, with centralized services to improve and consolidate their activities. 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.

The importance and complexity of social welfare, which involves a public expenditure of over \$1,000,000,000 annually, has placed increased emphasis on improving the quality of administration and of services in both the public and private 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. These include unemployment insurance, by the Unemployment Insurance Commission (see p. 110); welfare services for veterans, by the Department of Veterans Affairs (see p. 96); services for Indians and Eskimos, by the Departments of Citizenship and Immigration and Northern Affairs and National Resources (see p. 31); and the Prairie Farm Assistance Act by the Department of Agriculture (see p. 158).

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 1955, allowances were paid in respect of some 5,225,000 children in 2,213,000 families and expenditures totalled about \$378,000,000 for the year. The average allowance payment per family ranged from \$12.53 to \$17.93 and the average payment per child from \$5.98 to \$6.07 in the different provinces.

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 pension is supplemented in some provinces on a means-test basis. The pension is financed through a 2-p.c. sales tax, a 2-p.c. tax on net corporation income and, subject to a limit of \$60 a year, a 2-p.c. tax on individual net taxable incomes. Taxes have not been sufficient to meet pension payments since the commencement of the program in 1952 and the difference has been met by loans or grants from general revenue. In June 1955, pensions were paid to some 754,000 persons; expenditures were about \$360,000,000 in 1955.

Federal-Provincial Programs

Old Age Assistance.—Assistance of up to \$40 a month (\$30 in Newfoundland) 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.

A Red Cross worker from Jamaica and a medical student from Uruguay, delegates attending a Junior Red Cross Study Centre at Queen's University, visit Sunny View, a special school for crippled children.



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 1955, some 94,000 persons or 21.0 p.c. of the population aged 65 to 69 were in receipt of Old Age Assistance; the federal contribution toward that assistance was about \$21,000,000 in 1955.

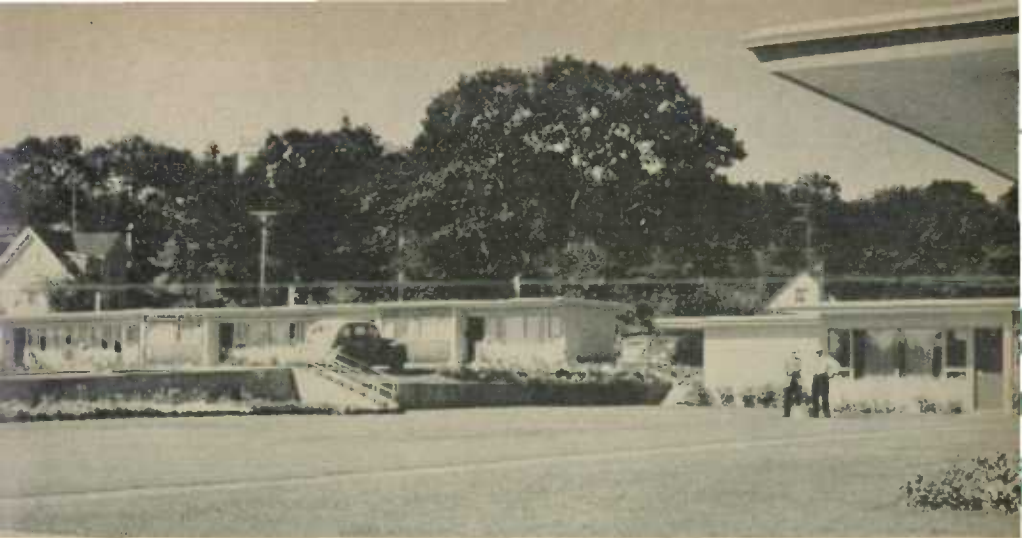
Blindness Allowances.—Allowances of up to \$40 a month are paid to needy persons who are blind, aged 18 or over and who have been resident in Canada for at least ten years. The Federal Government pays 75 p.c. of \$40 per month, or of the allowance, whichever is less. The province administers the program 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 1955, there were some 8,000 persons in receipt of the allowance. The annual federal contribution towards blindness allowances is about \$2,880,000.

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. By August 1955, there were 16,762 recipients of allowances. The Federal Government's contribution for that month was \$605,000.

Unemployment Assistance.—Federal aid to provincial governments for unemployment assistance was introduced in 1955, subject to agreements with each province joining in the scheme. Under this program the Federal Government will pay one-half the cost of assistance for the number of needy unemployed receiving aid in each province in excess of 0.45 p.c. of the provincial population, with some adjustments for special situations. The starting point of 0.45 p.c. is used as a measure of the basic load of unemployables,



Blind X-ray technicians, trained to perform the responsible task of developing films, work by sense of touch in total darkness.



A cottage village made up of low-rental houses of charm and comfort has been built by the Kiwanis Club of Victoria, B.C., for senior citizens living on pensions. The project won for its designer, Charles E. Craig of Victoria, the top award of the 1955 Massey Medals for Architecture.

thus making it unnecessary for the Federal Government to distinguish between employables and unemployables. Payments to the unemployed are to be made by provincial and municipal authorities and the scale and condition of payments are to be determined 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 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, 1954, approximately 39,500 families with some 107,300 children were receiving mothers' allowances. The total cost of these allowances for the fiscal year 1954 was approximately \$21,578,000.

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.

Workmen's Compensation.—While Workmen's Compensation may be considered a welfare program, the subject falls more clearly within the general field of labour and is therefore dealt with under that heading on p. 108.

Welfare Institutions

The latest figures available on welfare institutions are for 1951. In that year there were 533 charitable, benevolent and welfare institutions operating in Canada, including 218 homes for adults, 102 homes for adults and children, 170 orphanages and Children's Aid Societies, and 43 day nurseries. Welfare organizations that do not operate institutions are not included in this number nor are licensed boarding homes for welfare patients. Of the total institutions reporting, 52 p.c. were operated by religious organizations, the provincial percentages of institutions thus operated ranging from a high of 88 in Quebec to a low of 32 in Nova Scotia, Ontario and British Columbia. Boards operated about 30 p.c., the provincial percentages ranging from 44 in Ontario to 10 in Quebec. The institutions, with almost 40,000 persons under care, operated with a total full-time staff of 9,573 and part-time personnel numbering 1,041.

• 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. The head offices of both the Department and the Commission are in the Veterans Memorial Building at Ottawa but administration is decentralized as far as possible through offices located in the major population centres across the country and through the overseas office in London, England.

At the end of December 1955, there were 160,438 disability pensions being paid to veterans and 33,954 pensions being paid to the dependants of deceased service men. The year's expenditure for these pensions amounted to approximately \$130,264,000.

An amendment to the War Veterans Allowance Act, effective Apr. 1, 1955, increased the maximum monthly allowances to \$60 for single persons and \$108 for those who are married. The permissible annual income ceilings were also raised to \$840 and \$1,440, respectively. All veterans who served in a theatre of war, in both wars, or who are in receipt of disability pensions are eligible for these allowances at age 60, or earlier if they become unemployable. Dependants of such veterans are also eligible. When need exists, the allowances may be supplemented from an Assistance Fund up to the income ceilings set by the Act. At the end of 1955, there were 50,424 WVA recipients, and the year's expenditure for this purpose was \$39,487,000.

All matters of interpretation, appeals and rulings relative to the War Veterans Allowance Act are looked after by the War Veterans Allowance Board which reports to Parliament through the Minister of Veterans Affairs. A District Authority receives and adjudicates on applications and awards in each of the DVA districts but his decision may be appealed or reviewed by the Board.

Medical treatment is provided in DVA hospitals and in public general hospitals and other institutions under contractual arrangements. At Dec. 31, 1955, 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, because of age or physical handicap, require domiciliary care. All of the Department's active-treatment hospitals are approved for teaching in internal medicine and general surgery and seven are also approved for advanced post-graduate teaching in specialties.

In 1955 the Department was engaged in about 85 medical research projects, 20 of which were directly related to geriatrics. This is a subject in which the Department is vitally interested and is in a unique position to investigate as it is responsible for the health and well-being of a large number of older veterans.

Substantial numbers of veterans are still being assisted to settle on the land, either as farmers, small holders, or commercial fishermen. At the end of 1955 the cumulative total of veterans who had received such assistance was 71,600 and the public investment made on their behalf was approximately \$339,000,000. Their payment record is very satisfactory. The Veterans' Land Act, under which this assistance is given, was amended in 1954 to provide for additional loans to new veterans being established as well as for full-time farming veterans already established. Provision was also made for granting financial, technical and other necessary assistance to veterans who are approved for a loan under the National Housing Act and who are willing and able to undertake contracts to build their own homes. During the period Aug. 1, 1954, when the new Act came into force, and Dec. 31, 1955, 515 such loans were approved and 488 contracts let to veterans to build their own homes on city-size lots.

The need for rehabilitation services for veterans has declined over the years but the Department, through its Welfare Services Branch, continues to take a special interest in the welfare of veterans and dependants who are, or may become, beneficiaries under the federal legislation for veterans. This includes the training and placement of seriously disabled veterans, the employment of older veterans and assistance for the children of war dead to obtain advanced education. Veterans and their dependants may bring any kind of problem for help. The Branch maintains close liaison with community welfare agencies so that problems that cannot be resolved through the Veterans' Charter may be referred to the proper body.

A Veterans' Land Act farmer harvesting a forage crop. The small farmer avoids over-capitalization in farm machinery by choosing versatile, matched equipment.





Forest operations of individual pulp and paper mills are thoroughly modern undertakings in which up-to-date means of communication are used to direct tens of thousands of men over areas measured in tens of thousands of square miles.

Labour

CANADA'S industries have experienced a period of spectacular development since the turn of the century. In 1901 industry employed fewer than two million persons. Today well over five and one-half million Canadians, men and women, ranging from unskilled labourers to highly trained technicians and executives and from labour on the farm to workers 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 is timing its contracts so that as much work as possible may be done during the winter months. 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 rapidly, particularly since 1940. Today about 1,300,000 persons are members

of unions. Through their organizations they have negotiated more than 6,500 collective bargaining agreements which generally embody joint labour-management decisions on work-rules and conditions of employment. The agreements are usually re-negotiated each year, sometimes with the assistance of government conciliation services and very often without work stoppages. Only about one-seventh of one per cent of the estimated total working time in all Canadian industry was lost by strike action in 1954.

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.

Industrial Distribution of Persons with Jobs, by Sex, Week Ended Oct. 22, 1955

(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.....	745	29	774	88	1	95
Forestry.....	136	1	139	115	1	117
Fishing and trapping.....	19	1	20	1	1	1
Mining and quarrying ²	112	1	116	110	1	114
Manufacturing.....	1,132	299	1,431	1,070	294	1,364
Construction.....	415	1	422	348	1	354
Transportation ³	349	56	405	321	55	376
Public utilities.....	58	1	63	58	1	63
Trade.....	582	257	839	448	217	665
Finance, insurance ⁴	105	82	187	91	81	172
Service.....	569	512	1,081	481	472	953
Totals.....	4,222	1,255	5,477	3,136	1,143	4,279

¹ Fewer than 10,000. ² Includes oil wells. ³ Includes storage. ⁴ Includes real estate.

About three out of four people 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 4,703,000 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.



About 5,000 nurses are graduated each year from some 150 hospital training schools across Canada, which have a constant under-graduate complement of well over 15,000. Although many of these graduates do not immediately enter the labour force, most of them sooner or later take their places among the professional group of workers.

Occupational Distribution of Persons with Jobs, by Sex, Week Ended Oct. 22, 1955

(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,	415	47	462	188	16	204
Professional,	269	159	428	232	155	387
Clerical,	256	379	635	256	373	629
Transportation,	358	1	361	335	1	338
Communication,	44	35	79	44	35	79
Commercial,	220	146	366	217	129	346
Financial,	49	1	51	36	1	37
Service,	218	253	471	200	227	427
Agricultural,	753	29	782	96	1	103
Fishing, logging and trapping, ..	124	1	124	96	1	96
Mining,	73	1	74	72	1	73
Manufacturing and mechanical ¹ , ..	780	182	962	752	178	930
Construction,	332	1	333	285	1	286
Labourers and unskilled workers (not agricultural, fishing, logging or mining),	331	18	349	327	17	344
Totals,	4,222	1,255	5,477	3,136	1,143	4,279

¹ Fewer than 10,000.
with electric-power production.

² Includes stationary engineers 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. 22, 1955, 643,000 were single, 484,000 were married, and 128,000 were widowed, divorced or legally separated.

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. 22, 1955, was: 14-19 years, 209,000; 20-24 years, 246,000; 25-44 years, 520,000; 45-64 years, 257,000; 65 years or over, 23,000.

Women in the Canadian Labour Force, Oct. 22, 1955

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.....	567,000	109,000	19.2	20.2
Quebec.....	1,518,000	360,000	23.7	22.5
Ontario.....	1,851,000	518,000	28.0	25.5
Prairie.....	923,000	187,000	20.3	18.9
British Columbia.....	458,000	106,000	23.1	23.2
Totals.....	5,317,000	1,280,000	24.1	22.8

¹ Excludes women inmates in institutions and Indian women on reserves.

² Women with jobs and those seeking work.

Employment in 1955

The DBS monthly surveys of industrial employment and payrolls recorded a slight improvement in the period Jan. 1 to Sept. 1, 1955, over the same months of 1954. The index of employment (1949=100) averaged 110.5 which was 1.4 p.c. above the 1954 average and, except for the 1953 figure of 112.6, was the highest on record for the time of year. The 1955 index of industrial payrolls at 156.6 and the average weekly wages and salaries at \$60.56 have never been exceeded.

Moderate increases in employment were reported in the 1955 period in all provinces except Nova Scotia and Saskatchewan where the declines were small. The most marked of the increases were in British Columbia, Alberta and New Brunswick.

Employment in manufacturing industries moved steadily upward during the 1955 period, except for a minor recession reported at Aug. 1, and by Sept. 1 had advanced more than 10 p.c. since the first of the year. However, the monthly indexes were all lower than those for the corresponding months of 1954 until May 1 when they continued at the same or a higher level, so that the averages for the two periods Jan. 1 to Sept. 1, 1955 and 1954 were about the same. An easing of employment in plants producing durable goods was offset by a gain in factories manufacturing non-durable goods.

Employment in each of the non-manufacturing groups of industries surveyed was, on the whole, brisker in 1955 than in 1954. The logging index

rose by 8.2 p.c. although it was below its position in 1953 and preceding years since 1950. Increases in the other industrial groups were rather small.

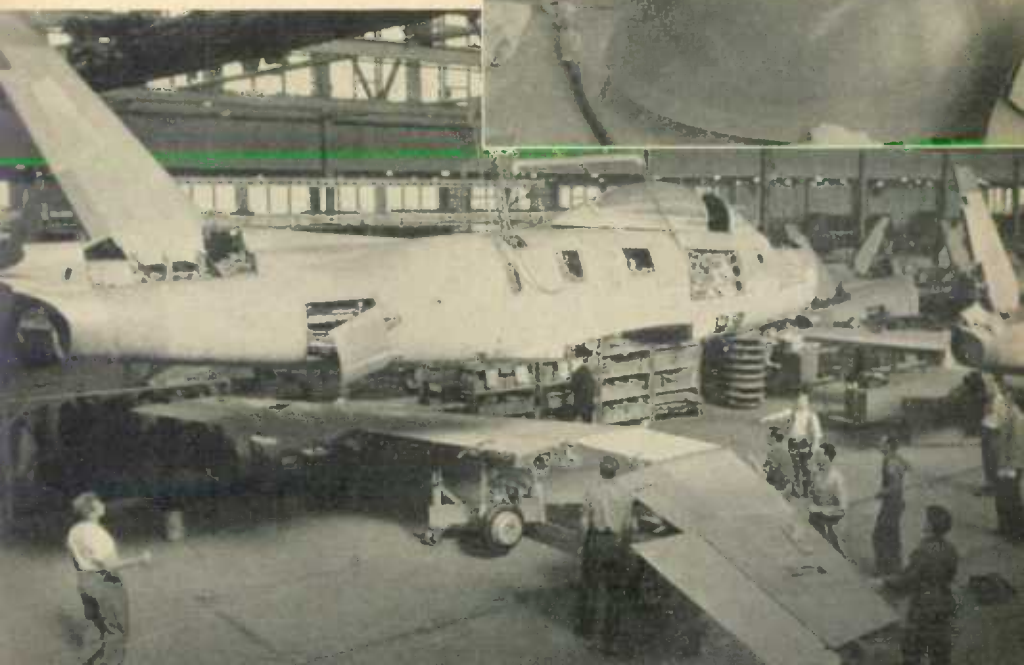
There were widespread though generally moderate advances in the payroll indexes in all provinces and in each of the leading industrial divisions, including those areas and industries in which 1955 levels of employment were a little lower than in 1954. Average weekly wages and salaries declined slightly in Newfoundland mainly because of a reduction in premium overtime work in construction, but they were higher in all the other provinces. The trend was also upward in most industrial groups and new all-time highs were established in many industries and areas.

Average hours worked in manufacturing during the 1955 period were higher than in the same months of 1954. Average hourly earnings also continued upward, following the general trend in evidence since the record was

The aircraft and aircraft parts industry which was of minor importance in Canada in 1946 now provides the livelihood of more than 38,000 employees.

Sabre snout starts as fibreglass cloth which is impregnated with resin, molded and oven-cured. Final product is extremely hard but very light.

Fuselage of an F-86E Sabre jet is joined to swept-back wings on the assembly line at the Canadair plant, Montreal.



started late in 1944. The average for the 1955 period was 144.3 cents which was 2.4 p.c. above the figure for 1954. The average weekly wage, also a peak figure, was \$58.94, an amount \$1.99 higher than the average for Jan. 1 to Sept. 1, 1954.

Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Province, 1954 and 1955

(1949 = 100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Province	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1954	1955	P.C. Change	1954	1955	P.C. Change	1954	1955	P.C. Change
							\$	\$	
Newfoundland.....	124.2	125.8	+ 1.3	180.1	181.1	+ 0.6	54.45	53.86	— 1.1
Prince Edward Island..	106.9	109.3	+ 2.2	141.0	148.8	+ 5.5	44.49	45.92	+ 3.2
Nova Scotia.....	96.7	95.4	— 1.3	128.2	129.2	+ 0.8	49.61	50.70	+ 2.2
New Brunswick.....	96.7	100.8	+ 4.2	128.3	138.3	+ 7.8	50.19	51.95	+ 3.5
Quebec.....	107.7	109.5	+ 1.7	147.3	154.9	+ 5.2	56.18	58.05	+ 3.3
Ontario.....	110.8	111.6	+ 0.7	152.4	159.3	+ 4.5	60.90	63.10	+ 3.6
Manitoba.....	103.6	103.7	+ 0.1	136.8	141.3	+ 3.3	56.16	57.93	+ 3.2
Saskatchewan.....	116.2	115.2	— 0.9	156.4	160.6	+ 2.7	55.74	57.60	+ 3.3
Alberta.....	125.4	130.0	+ 3.7	168.4	180.3	+ 7.1	59.61	61.50	+ 3.2
British Columbia.....	105.0	108.8	+ 3.6	147.7	156.1	+ 5.7	61.18	63.38	+ 3.6
Composite.....	109.0	110.5	+ 1.4	149.5	156.6	+ 4.7	58.66	60.56	+ 3.2

Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Industrial Group, 1954 and 1955

(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					
	1954	1955	P.C. Change	1954	1955	P.C. Change	1954	1955	P.C. Change
							\$	\$	
Forestry (chiefly logging).....	85.1	92.1	+ 8.2	127.5	139.0	+ 9.0	59.84	60.30	+ 0.8
Mining.....	108.8	112.3	+ 3.2	148.1	158.7	+ 7.2	69.91	72.55	+ 3.8
Manufacturing.....	108.1	108.0	— 0.1	149.8	155.7	+ 3.9	60.66	62.98	+ 3.8
Durable goods.....	116.6	115.6	— 0.9	161.2	166.1	+ 3.0	64.92	67.42	+ 3.9
Non-durable goods..	100.7	101.6	+ 0.9	138.6	145.4	+ 4.9	56.40	58.62	+ 3.9
Construction.....	106.3	109.0	+ 2.5	156.2	161.6	+ 3.5	60.91	61.43	+ 0.9
Transportation, storage and communication..	108.3	109.4	+ 1.0	140.6	146.2	+ 4.0	62.29	64.09	+ 2.9
Public utility operation	114.6	118.2	+ 3.1	162.6	174.5	+ 7.3	67.70	70.26	+ 3.8
Trade.....	113.4	116.1	+ 2.4	155.0	163.2	+ 5.3	50.59	52.20	+ 3.2
Finance, insurance and real estate.....	126.3	132.1	+ 4.6	160.6	175.2	+ 9.1	53.67	56.03	+ 4.4
Service.....	110.9	113.4	+ 2.3	147.3	156.8	+ 6.4	38.49	40.23	+ 4.5
Composite.....	109.0	110.5	+ 1.4	149.5	156.6	+ 4.7	58.66	60.56	+ 3.2

Monthly Indexes of Employment in Manufacturing, 1949-55

(1949=100)

Month	1949	1950	1951	1952	1953	1954	1955
January 1.....	98.9	97.2	103.7	104.4	111.4	108.0	103.2
February 1.....	98.8	96.9	104.9	105.3	111.9	108.3	103.6
March 1.....	99.0	97.5	105.9	106.5	112.7	108.3	105.7
April 1.....	99.0	97.8	107.3	107.0	112.9	107.9	106.5
May 1.....	99.1	98.1	108.0	107.3	113.1	107.3	107.3
June 1.....	99.9	99.7	109.2	108.5	113.4	107.7	109.3
July 1.....	101.0	101.5	110.2	108.8	114.7	108.8	111.6
August 1.....	100.5	102.1	110.3	110.3	114.4	108.0	111.4
September 1.....	101.8	103.8	110.3	112.8	115.6	108.3	114.0
October 1.....	101.6	105.5	110.4	114.2	115.2	108.1	113.4
November 1.....	100.6	105.4	108.5	113.6	113.1	106.3	112.8
December 1.....	99.6	105.3	107.5	113.5	110.9	105.4	112.3
Annual Average.....	100.0	100.9	108.0	109.3	113.3	107.7	109.3

Average Hours and Earnings in Manufacturing, by Month, 1954 and 1955

Month	Average Hours Worked		Average Hourly Earnings		Average Weekly Wages	
	1954		1955		1954	
	No.	No.	cts.	cts.	\$	\$
January 1.....	38.5	39.3	140.4	142.8	54.05	56.12
February 1.....	40.7	41.0	140.4	142.7	57.14	58.51
March 1.....	41.1	41.2	140.6	143.5	57.79	59.12
April 1.....	40.9	41.1	141.0	144.3	57.67	59.31
May 1.....	40.6	41.2	141.8	145.4	57.57	59.90
June 1.....	39.8	41.0	142.2	145.5	56.60	59.66
July 1.....	40.5	40.9	141.6	145.0	57.35	59.31
August 1.....	40.7	40.8	140.9	145.1	57.35	59.20
September 1.....	40.9	41.2	139.5	143.8	57.06	59.25
October 1.....	41.3	41.5	139.7	144.8	57.70	60.09
November 1.....	41.3	41.7	140.5	145.4	58.03	60.63
December 1.....	41.2	41.6	141.2	146.1	58.17	60.78
Annual Average.....	40.6	41.0	140.8	144.5	57.16	59.25



An apprentice machinist learns his trade under the supervision of an accomplished tradesman.

Wage Rates, Hours of Labour and Working Conditions

Index numbers of wage rates by industry are compiled by the Department of Labour but these indexes measure only the trend in rates of wages of non-office employees 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 October 1 each year, with a sample survey in April and October to determine the intervening trend.

Index Numbers of Wage Rates for Certain Main Groups of Industries, 1901-54

(Rates in 1949 = 100)

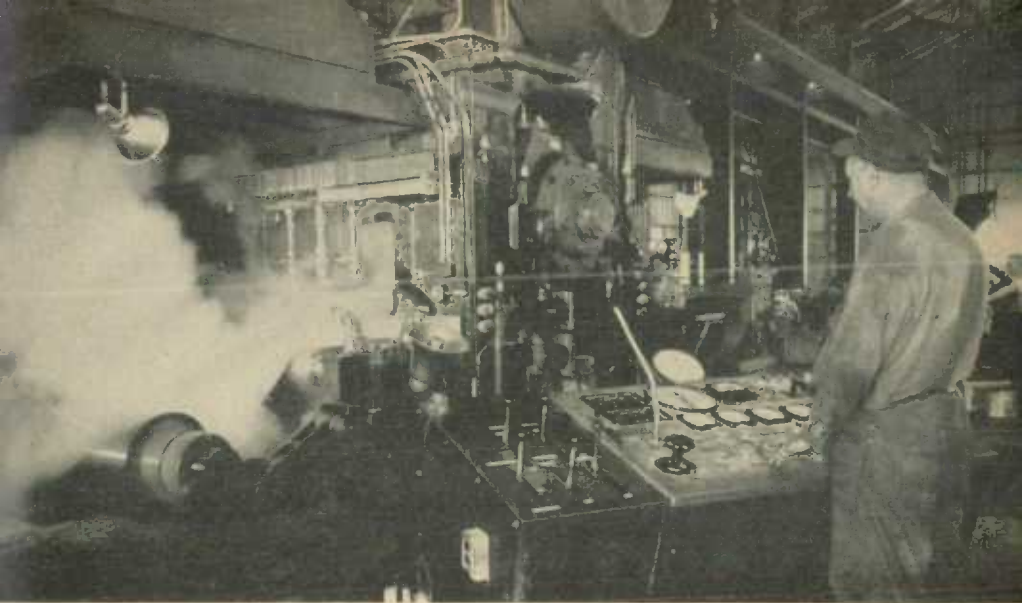
Year	Lumber	Coal Mining	Metal Mining	Manufacturing	Construction	Steam Railways	Telephones	Personal Service	General Average ¹
1901	23.8	24.2	33.8	—	19.2	19.8	—	—	18.6
1905	26.4	25.2	32.5	—	23.2	21.4	—	—	21.1
1910	29.6	27.5	34.6	—	27.6	25.9	—	—	24.4
1915	28.3	29.9	36.6	23.0	32.2	29.3	—	24.4	26.0
1920	65.9	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	124.3	133.6
1954	138.0	123.5	136.7	138.5	140.0	137.8	147.6	128.6	137.9

¹ Includes other main industries not shown in this table.

The index numbers reveal a general increase in wage rates from 1949 to 1953 of 33.6 p.c.; from October 1952 to October 1953 the increase was 4.6 p.c.; from October 1953 to October 1954, 3.2 p.c.; and from October 1954 to April 1955, 0.6 p.c.

The trend toward the 40-hour week, usually a five-day schedule, continued between April 1954 and April 1955. In the latter month, 58 p.c. of the 765,000 plant workers in manufacturing establishments surveyed were on a work week of 40 hours or less and 84 p.c. were on a five-day week. Of the 196,000 office employees covered in manufacturing, 60 p.c. were on a work week of 37½ hours or fewer in April 1955 as compared with 56 p.c. a year before. The proportion of office employees on a five-day week (90 p.c.) was practically unchanged during the year.

With regard to vacations, the 1955 survey revealed a continuation of two tendencies that had become apparent in the 1954 survey. One was a trend toward shorter service requirements for two-week and three-week vacations. The other was an increase in the practice of granting vacations of three weeks or longer. The proportion of plant workers in manufacturing who were in establishments granting two-week vacations after various periods of service was 92.4 p.c. in April 1955 as compared with 89.2 p.c. in October 1951. At



An automatic "brain" controls the process of thinning out steel strip after it can no longer be reduced by hot rolling. The operator stands at the desk where he can start and stop the mill and control speed, tension and thickness.

the earlier date, only 40 p.c. of plant employees were granted two-week vacations after service of three years or less, whereas in April 1955 this proportion had risen to 54 p.c. The proportion of plant employees in establishments granting three-week vacations was 60 p.c. in April 1955 as compared with 54 p.c. a year earlier. Most plant workers who receive vacations of three weeks do so after 15 years of service and the proportion with longer qualifying requirements has diminished steadily in the years preceding 1955. Almost 99 p.c. of office workers in manufacturing enjoyed annual vacations of two weeks in 1955, and in the vast majority of cases the qualifying period was one year or less. Over 69 p.c. of office workers may become eligible for vacations of three weeks, usually after 15 years of service. About 7 p.c. of plant workers and a slightly higher proportion of office workers were in establishments that reported four-week vacations, usually granted after 25 years of service.

Over 47 p.c. of plant employees received eight paid statutory holidays and an additional 9 p.c. received nine or more. Almost 82 p.c. of office employees enjoyed eight or more statutory holidays.

Establishments employing slightly more than 61 p.c. of the plant workers in manufacturing reported having pension plans for their non-office employees. The proportion of office employees was almost 75 p.c. Group life-insurance plans were available in establishments employing 85 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. Plans providing hospitalization benefits were available in establishments employing 86.5 p.c. of plant workers and 91 p.c. of office workers. Other plans provided for surgical benefits and for physician services both in and out of hospital. The combination of services provided under various plans varied as did the size of worker and employer contributions.

Labour Legislation

Provincial Legislation.—Provincial labour laws may be grouped under the following headings; safety laws; laws providing compensation for employment injury; laws regulating hours, providing for paid vacations and establishing a minimum wage; laws governing collective bargaining and industrial disputes; laws providing for apprenticeship training; laws requiring examination and certification of certain tradesmen; and laws forbidding discrimination in employment.

In all provinces in which mining is carried on, laws designed to create the safest possible working conditions in mines are in effect. Factories Acts seek to provide control over the working environment in a large part of industry.

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. This is based on the extent of his disability and the amount of his earnings, subject, in respect of earnings, to a specified percentage rate (which may be 66 $\frac{2}{3}$, 70 or 75, depending on the province) and an annual ceiling of \$4,000 or less. 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.

Five provinces have general hours-of-work laws. These either limit daily and weekly hours to eight and 48 or fewer, as in Alberta, British Columbia and Ontario, or require the payment of overtime rates after specified limits, as in Manitoba and Saskatchewan. In seven provinces, working hours in some industries are regulated through industrial standards or similar laws under which the wages and hours reached by agreement in a representative section of the industry may be declared by Order in Council to apply to all employers and workers in the industry and area.

Annual vacations with pay of one or two weeks are provided by law in seven provinces. A Board with minimum-wage-fixing powers has been set up in every province but Prince Edward Island and most industrial workers are protected by a minimum wage set by law, of particular importance where prevailing rates are low and where workers are unorganized.

To promote collective bargaining and the settlement of disputes in undertakings within provincial jurisdiction, all provinces have labour relations Acts. Under these Acts an employer is required to bargain with a trade union which has been certified as bargaining agent for his employees for the conclusion of a collective agreement to establish conditions of employment binding on both parties for the duration of the agreement. Every agreement must contain a grievance procedure which may be invoked if any dispute arises out of the terms of the agreement. A strike or lockout is forbidden while an agreement is in effect. If efforts to obtain an agreement are unsuccessful, government conciliation services are available and a strike or lockout is prohibited until the procedure for settlement set out in the Act has been carried out.

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.

Equal pay laws in British Columbia, Ontario and Saskatchewan require women to be paid at the same rate as men when they do the same or comparable work in the same establishment, and fair employment practices laws in Manitoba, Nova Scotia and Ontario prohibit discrimination in hiring and employment on grounds of race, creed, colour or national origin.

Federal Legislation.—Under a federal law, a system of unemployment insurance covers most workers in Canada and a nation-wide free employment



Officers of six railway labour organizations and officers of the Canadian railway companies formed a Board in 1918 with a view to avoiding disputes or misunderstandings that would tend to lessen the efficiency of transport service in Canada. The Board has continued in existence since that time and functions so smoothly that only those close to the railway industry are aware of its existence.

service is available to all workers and employers (*see p. 110*). The Vocational Training Co-ordination Act authorizes the Minister of Labour to co-operate with the provinces in carrying on various types of vocational training (*see p. 112*). The Canada Shipping Act sets standards for the welfare and safety of seamen. Two federal laws provide compensation for workers injured in their employment—the Merchant Seamen Compensation Act applying to seamen not covered by a provincial workmen's compensation law and the Government Employees Compensation Act applying to Federal Government employees.

Fair wages legislation requires contractors for federal public works and government equipment and supplies to pay wages generally accepted as current in the district. Hours must be limited to eight a day and 44 a week or, on supplies contracts, to those fixed by the custom of the trade in the district.

A Fair Employment Practices Act, applicable to industries under federal jurisdiction, forbids an employer to discriminate against any person seeking employment or already in his employ because of his race, national origin, colour or religion and also forbids a trade union to discriminate on any of these grounds against any person with regard to membership.

The Industrial Relations and Disputes Investigation Act applies to industries within federal jurisdiction including navigation and shipping; interprovincial railways, canals, telegraphs, steamship lines and ferries; aerodromes and air transport; radio broadcasting stations; and works declared to be for the general advantage of Canada.

The legislation provides for the right of free association of employees and employers, for the safeguarding of that right by prohibiting unfair labour practices, for the certification by the Canada Labour Relations Board of a trade union as bargaining agent for a group of employees, and for compulsory collective bargaining.

Labour Organization

A third of the wage and salary workers in Canada's non-agricultural industries belong to unions. They are distributed across the country in approximately the same proportions as the population generally. The heaviest proportion of the members—63 p.c.—are in Ontario and Quebec and 14 p.c. are in British Columbia.

Most of the unions to which the Canadian workers belong are affiliated to one of the three large central labour congresses—the Trades and Labour Congress of Canada (601,000 members), the Canadian Congress of Labour (361,000 members) and the Canadian and Catholic Confederation of Labour (100,000 members). In the first two, most of the unions are international in their scope, having headquarters in the United States. There is, however, one large group of workers belonging to unaffiliated unions which comprise the International Railway Brotherhoods, numbering approximately 40,000 members. At conventions in 1955 both the Trades and Labour Congress of Canada and the Canadian Congress of Labour approved an agreement for merging their organizations. The new Canadian Labour Congress, with an affiliated membership of one million workers, will hold its first convention at Toronto in April 1956.

Collective bargaining is a basic function of all the unions. More than 6,500 agreements are in effect throughout the country. In total, they affect the working conditions of almost 40 p.c. of the non-agricultural wage and salary workers, although the percentage of the workers covered varies by industrial groups. For example, in transportation and communications 82 p.c. of the workers are covered by agreement and in mining 74 p.c. are covered; other industries have lesser proportions of their working force covered. In manufacturing, 55 p.c. of the workers carry on many of their activities under the terms of a collective agreement, in public utilities 47 p.c., service 13 p.c. and trade 9 p.c.

Unemployment Insurance

The Unemployment Insurance Act, which came into operation in July 1941, provides for a contributory scheme of unemployment insurance and a nation-wide free employment service. The Act is administered by an

Recent clerical work has been revolutionized in the past few years. With the use of modern machines, fewer people are able to handle a larger volume of work faster and more accurately.



Unemployment Insurance Commission, consisting of a Chief Commissioner and two Commissioners—one appointed after consultation with organized labour and one after consultation with employers. Regional and local officers strategically located across the country handle applications for employment and claims for unemployment insurance benefit.

All persons employed under a contract of service are insured unless specifically excepted. Exceptions include such employments as agriculture, fishing, domestic service, school-teaching, and those employed on other than an hourly, daily, piece or milage basis with annual earnings exceeding \$4,800. Persons employed on an hourly, daily, piece or milage basis are insured regardless of earning level. Employers and their insured workers contribute equally, the contributions being based on the wages or salaries earned. The Federal Government adds one-fifth of the total employer-employee contributions and pays administration costs.

Rates of Contribution and Benefit under the Unemployment Insurance Act

(Effective Oct. 2, 1955)

Range of Earnings	Weekly Contributions		Employee's Average Weekly Contribution	Weekly Benefit	
	Em- ployer	Em- ployee		Without Dependant	With Dependant
	cts.	cts.	cts.	\$	\$
While Earning in a Week—					
Less than \$9.00	08	08			
\$ 9.00 and under \$15.00	16	16	Less than 20	6.00	8.00
\$15.00 and under \$21.00	24	24	20 and under 27	9.00	12.00
\$21.00 and under \$27.00	30	30	27 and under 33	11.00	15.00
\$27.00 and under \$33.00	36	36	33 and under 39	13.00	18.00
\$33.00 and under \$39.00	42	42	39 and under 45	15.00	21.00
\$39.00 and under \$45.00	48	48	45 and under 50	17.00	24.00
\$45.00 and under \$51.00	52	52	50 and under 54	19.00	26.00
\$51.00 and under \$57.00	56	56	54 and under 58	21.00	28.00
\$57.00 and over	60	60	58 to 60	23.00	30.00

During the calendar year 1955 there were 1,921,644 initial and renewal claims filed, 1,307,270 claimants were considered entitled to benefit on initial and on renewal claims, and benefit payments totalled \$199,660,050. Comparable figures for 1954 were 2,096,930 claims, 1,566,761 entitlements to benefit, and payments of \$227,028,976.

In addition, supplementary benefits are paid during the period Jan. 1 to Apr. 15 each year to certain classes of claimants unable to qualify for the regular benefit. In the 1955 period such benefits amounted to \$29,205,047 paid to an estimated 228,600 persons. This compares with \$14,132,015 paid to 193,000 beneficiaries in the 1954 period.

Persons Insured under the Unemployment Insurance Act, by Industrial Group, Sex and Province, as at Apr. 1, 1954

Industrial Group	Males	Females	Province	Males	Females
	No.	No.		No.	No.
Agriculture	2,030	630	Newfoundland	43,410	6,190
Forestry and logging..	53,760	1,430	P. E. Island	7,060	2,530
Fishing, hunting and trapping	70	40	Nova Scotia	85,300	21,940
Mining, quarrying and oil wells	92,230	3,030	New Brunswick	77,950	17,900
Manufacturing	875,430	268,920	Quebec	680,180	242,100
Construction	175,400	6,580	Ontario	941,020	356,890
Transportation, storage and communication	276,340	51,970	Manitoba	119,160	47,960
Public utility operation	32,060	4,740	Saskatchewan	67,650	23,210
Trade	321,820	200,450	Alberta	141,240	42,020
Finance, insurance and real estate	46,270	71,460	British Columbia	231,260	76,140
Service	192,650	152,820			
Unspecified	17,330	4,650			
Claimants	308,840	71,060			
Totals	2,394,230	836,880	Totals	2,394,230	836,880

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 225 offices. In 1954 a total of 861,588 vacancies were filled by the Service for Canadian employers. Of these, 588,572 were jobs for regular employees and 239,038 were casual placements; the number of persons transferred to jobs in other areas was 33,978.

Vocational Training

The Vocational Training Co-ordination Act, introduced in 1942, provides, in co-operation with the provincial governments, various types of training considered in the public interest. Projects under the Vocational Training Agreement include training for unemployed persons who require such assistance to fit them for suitable employment, 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 intensive 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-year period ended Mar. 31, 1955, the Federal Government provided the provinces with approximately \$20,000,000 to assist in the establishment and operation of vocational and technical schools and classes of lower than university grade. Of that amount, each province was entitled to \$10,000 annually and the Northwest Territories to \$1,500 annually as an outright grant. The remainder was apportioned annually on the basis of the 15-19 age group to reimburse the provinces up to 50 p.c. of their expenditures on vocational school projects. An additional \$10,000,000 was also made available to match, to the extent which that amount permitted, 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, 1956, made available a further federal assistance of about \$2,000,000 for distribution on the same basis.

The total budget of the Training Branch of the Department of Labour, which is responsible for the administration of the Vocational Training Act, was \$4,496,345 for the year ended Mar. 31, 1956.

Civilian Rehabilitation

A Civilian Rehabilitation Branch was established within the Department of Labour in February 1951 for the purpose of co-ordinating all activities, both public and private, directed towards the rehabilitation of so-called disabled persons. Working co-operatively with the Department of Labour in this matter are the Departments of National Health and Welfare and of Veterans Affairs. Nine provinces have signed Co-ordination of Rehabilitation 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, management, labour, and vocational and placement services in the potential value of such persons. Training of any type required may be obtained for a disabled person through the Vocational Training Co-ordination Act, provided such training would result in his rehabilitation. Health grants have been supplemented to fill gaps in existing services.

The Older Worker

Canada's steadily aging population, coupled with trends that result in rejection or withdrawal from employment of an important segment of older workers, presents a national problem demanding close scrutiny. In 1881, the number of Canadians over 40 years of age constituted 20 p.c. of the population; by 1951 this had increased to approximately 32 p.c. This trend should be considered in relation to the fact that one of the chief difficulties facing the National Employment Service in matching unplaced applicants with unfilled jobs is a tendency on the part of employers to reject applicants over 40 (over 35 for women). An Interdepartmental Committee, set up as a sub-committee of the National Advisory Council on Manpower, is engaged in a broad program of education and is conducting surveys to fill gaps in Canadian knowledge of many aspects of the full utilization of the abilities and experience of the older worker.



An informal art exhibit held in a pasture not far from Ottawa reflects the enthusiasm of teacher and students. Original paintings to the value of over \$10,000,000 are sold in Canada each year and the greatest stimulus to this interest is the amateur painter movement, now with tens of thousands of adherents from every walk of life.

Cultural Relationships

SINCE the end of World War II there has been a noticeable upsurge of public interest in all forms of cultural activity in Canada; an interest which is widely diversified as far as the individual arts are concerned and one which tends to break down regional cultural isolation. Until recently, the arts were regarded mainly as frills and unessentials by Canadians; but the attitude has changed notably since 1945 and there is now an inclination to consider cultural development as a natural parallel to the nation's impressive economic and political growth.

This tendency received important impetus between 1949 and 1951 when a Royal Commission appointed by the Federal Government made a notable investigation into the condition of the arts, letters and sciences throughout Canada and reported to Parliament and to the people in the remarkable "Massey Report". Many of the recommendations contained in that report have been implemented, either wholly or in part, but one important proposal—the setting up of a "Canada Council" to promote the Federal Government's interest in cultural and intellectual matters—still awaits official action.

During 1955 all the arts thrived in Canada and in many ways an increasing cultural maturity and sophistication was observed. The exchange of persons and artistic exhibitions between Canada and other countries reached a new high point, and throughout the country there were many evidences that this development of two-way traffic in the arts received both popular and official approval. Canadian musicians, painters, sculptors, actors and writers ventured into many foreign fields and, in a number of instances, received favourable notices from experienced writers and critics.

A recently expressed interest in the arts by the Canadian business and industrial community continued through 1955, and there now appears to be no doubt that many forms of cultural activity have achieved permanent places in public relations programs. The commissioning of paintings, musical compositions and decorative sculpture, the subsidizing of art exhibitions and ballet performances, the financing of awards and scholarships, and other similar activities, are now placing Canadian business enterprises forcefully behind the development of the arts.

The provincial governments have continued their support of the arts and are now important factors in the cultural picture. The Province of Quebec has provided generous and direct encouragement for many years to painters, writers and musicians resident in the Province, and its scholarship scheme is extensive. In Saskatchewan an Arts Board, and in Alberta a Cultural Development Board have been growing in importance and during 1955 took a leading part in the Golden Jubilee celebrations of the two provinces. Many imaginative and successful cultural development activities are initiated and supported by the Community Planning Division of Ontario and the Adult Education Branch of Nova Scotia.



Music was an added attraction at the 1955 Stratford Shakespearean Festival. The appearances of Elizabeth Schwarzkopf, famed German soprano, and Marcel Marceau's mime were perhaps the most successful performances. Under the auspices of the Royal Conservatory of Music, Mme. Schwarzkopf conducted master classes in voice.

Music

Music has always been an important part of the Canadian way of life—in education, social life, religion and entertainment—and 1955 saw a continuation and enlargement of many of the forms of musical activity. Of notable importance was the international Congress of Musical Youth (*Jeunesse Musicales*) held in Montreal from Aug. 7 to 13, attended by delegates from 18 nations. At Stratford, Ont., a successful musical festival was held in conjunction with the Shakespearean Festival and in several cities the growing Canadian League of Composers sponsored successful concerts featuring the works of music writers living in Canada. Two notable musical books published in Canada in 1955 were *Music in Canada*, written by an

impressive group of experts and edited by Sir Ernest MacMillan, and *Folk Songs of Canada*, by Edith Fowke and Richard Johnston. The Ottawa Philharmonic Orchestra gained notice early in 1955 with its national competition for a small symphonic work written by a Canadian. The winning work was written by Neil McKay of London, Ont. Symphonic orchestras throughout Canada continued to gain public support and appreciation, with special approval being directed toward the groups in Toronto, Winnipeg and Vancouver.

The greatest single factor in the encouragement of serious music in Canada is the public-owned Canadian Broadcasting Corporation. The music festival movement, which extends across Canada and involves full-fledged festivals in about 25 cities, enjoyed another extremely successful year in 1955. The Provinces of Alberta and Saskatchewan both offered "jubilee awards" for musical composition and performance, as features of their 50th birthday celebrations. In the spring of 1955 considerable interest developed in connection with the future plans of the McGill University Faculty of Music and its Conservatorium. The Principal of the University, Dr. F. Cyril James, predicted important development of the faculty and enlargement of its usefulness to the university and the Montreal community; it is probable that the new plans will include an opera school, expanded summer study facilities and a radio-television school for musicians.

The Toronto Symphony Orchestra in rehearsal before the opening of the 1955-56 season. Sir Ernest MacMillan is directing his twenty-fifth and final season as permanent conductor of the orchestra. Symphonic orchestras in Montreal, Winnipeg and Vancouver are also staffed with full-time professional musicians.





Robert Christie as Julius Caesar making his entry onto Stratford's famous stage and launching the third annual Shakespearean Festival during which the Merchant of Venice and Sophocles' Oedipus Rex were also performed.

Theatre

The theatre has always been one of Canada's most widespread and most successful cultural activities, and 1955 was no exception. Notable was the third annual Shakespearean Festival at Stratford, Ont., which attracted 126,500 box office customers and grossed an income of \$421,000 for its nine-week program in July and August. *Julius Caesar*, *The Merchant of Venice* and *Oedipus Rex*, directed by Tyrone Guthrie and Michael Langham, and employing a large cast of Canadian players, received favourable notices from foreign and Canadian drama critics and served to increase the already considerable prestige of the Stratford Festival. The Dominion Drama Festival, the culmination of Canada's annual country-wide competition among amateur theatre groups, was held at Regina, Sask., from May 9 to 14. The University of British Columbia Players' Club Alumni, presenting Arthur Miller's *The Crucible*, were named top winners for 1955. The adjudicator was Gerda Wrede, noted Finnish actress, drama teacher and theatre manager, and the Festival's first woman adjudicator in twenty-three years. Of particular interest was the invitation extended to Montreal's *Théâtre du Nouveau Monde* to present three *Molière* one-act plays at the Paris Drama Festival. It was the first time a Canadian group had been invited to take part in such a distinguished European drama event. Repertory theatre was available to Canadians in Montreal, Toronto and Ottawa in 1955 and summer stock companies were more numerous than ever before. A new venture which attracted considerable attention was the theatre portion of the new Festival of the Arts at Kingsmere, Que. The seventh annual Shakespearean Festival of the Earle Grey Players, performed outdoors in the quadrangle of Trinity College, Toronto, was a notable success. In the autumn of 1955 a visit to Montreal, Ottawa, Toronto and Quebec by the famous *Comédie Française* troupe of players from Paris was a memorable highlight of the year for theatre-goers in Eastern Canada. The well-established Little Theatre movement and many drama groups in Canadian universities kept Canada's bilingual

amateur theatre activities moving at a satisfactory pace, and children's theatres operated successfully in Ottawa, London, Winnipeg, Regina, Edmonton, Vancouver and other centres. The Halifax Theatre Arts Guild celebrated its 25th anniversary in 1955 and at Tatamagouche, N.S., the School of Community Arts introduced highly successful courses in elementary and advanced theatre techniques. The Newfoundland Drama Festival Society held an important conference to make a study of problems peculiar to the new Atlantic Province. In Montreal the well-known Montreal Repertory Theatre announced important plans for expansion, including a new building and a professional wing project.

Literature

Considerable interest and some controversy was aroused in April 1955 when it was announced that the Governor General's award for fiction for the year went to Igor Gouzenko, former cipher clerk in the Russian Embassy at Ottawa, for his novel *The Fall of a Titan*. Other winners of the top-flight awards were: creative non-fiction, Hugh MacLennan's *Thirty and Three*; academic non-fiction, Arthur M. Lower's *This Most Famous Stream*; poetry, Patricia K. Page's *The Metal and the Flower*; juvenile, Marjorie Wilkins Campbell's *The Nor'westers*. Robertson Davies, newspaper editor in Peterborough, Ont., won the Leacock Medal for Humorous Writing with his novel *Leaven of Malice*. In Canada, book writing and book publishing have prospered in recent years, despite the new forms of competition from television and

Performance of "The Crucible", play by Arthur Miller, won for the University of British Columbia Players' Club Alumni the top award of the 1955 Dominion Drama Festival.



The new Canadian books displayed at the 1955 Convention of the Canadian Authors Association were a great source of interest to its members.



Mrs. Marjorie Wilkins Campbell accepting the Governor General's award for her book "The Nor'westers", winner in the 1955 juvenile category.

magazines, and the whole literary scene has been marked with eagerness and vitality and a form of sophistication which were largely lacking in the country's earlier years. Playwriting has recently become a satisfying and even financially profitable outlet for creative writers in Canada, with particular encouragement being offered by the many opportunities to write for Canadian radio and television broadcasting programs. The Ottawa Little Theatre Workshop's 16th annual playwriting competition brought sixty-eight entries from many parts of Canada. Norman Williams of Toronto won first award, and later in the year published a volume of one-act plays.

Ballet

While ballet in general continued to thrive throughout Canada in 1955, the exploits of the country's two major companies gained widespread attention, the Royal Winnipeg Ballet Company for its phoenix performance and the National Ballet Company for its *Swan Lake* in four acts. The entire assets

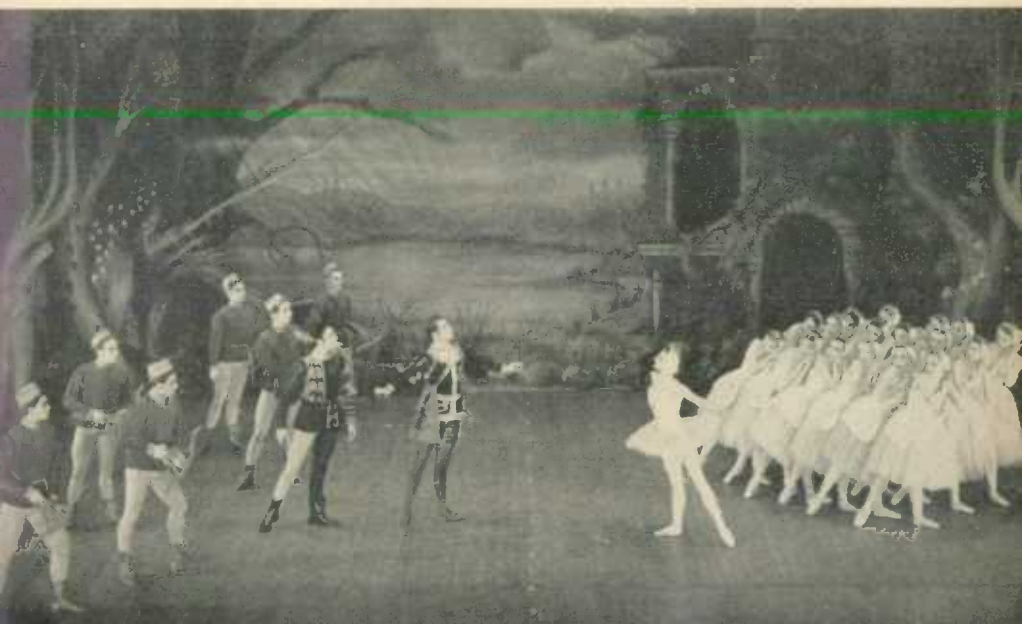
of the Winnipeg company were completely destroyed by fire in June 1954 and, as a consequence, its corps of dancers had to find employment elsewhere. Eighteen months later the company, with the devoted backing of the people of Winnipeg, had raised \$50,000 and was able to renew its professional career with an opening performance to packed houses. The company intends to go on tour in 1956. Meanwhile, the noted Toronto-based company gained in stature and prestige as it presented a varied and difficult repertoire (including a four-act *Swan Lake*) to critical audiences in Canada and the United States. The company's work in New York and Washington stood up well in the opinions of the time-hardened critics of the large metropolitan papers and some of the world's most noted dance experts. The company received invitations to return to the American cities and offers came from impresarios in England, South Africa and Australia for tours in 1956 and 1957. The development of young Canadians into leading dancers for Canadian companies is a matter of considerable satisfaction, although the importance of the contribution of experienced European dancers who have come to make their homes in Canada is not under-estimated. There seems little doubt that ballet has an opportunity for notable development and financial success in Canada.

Visual Arts

All forms of the visual arts showed vitality and growth in 1955, perhaps the most interesting event being the appointment of a new Director of the National Gallery of Canada. The new top man in Canada's art world is Alan Jarvis, an able sculptor and an administrative officer trained in British and European art galleries following schooling and basic art education in Canada. He succeeded Dr. H. O. McCurry, who retired after 36 years of devoted and successful service to Canada's national centre of art.

Early in 1955 it was announced that Miss Frances Loring of Toronto had won the national competition for a sculptured work to serve as a memorial to

Scene from the full-length ballet "Swan Lake", performed by the National Ballet Company before Canadian and United States audiences during the Company's 1955 and 1956 tours.



the former Canadian Prime Minister, Sir Robert Borden. Notable interest in the world of sculpture was created by several exhibitions of carvings by Canadian Eskimos, and the strength and simplicity and skill of the native work won high praise. Purchases by galleries and individuals were brisk. Public interest in painting was considerable in 1955, with healthy controversy developing over the merits of "modern" painting by Canadian artists. In Winnipeg a heated outburst followed an exhibition by the Manitoba Art Association and in Montreal attention centred for a while on a noted philanthropist-painter's offer of scholarship assistance to young painters who indicated proper appreciation of the virtues of conservative, representational art. Exhibitions by the several senior art bodies in Canada were well patronized and one-man shows by young artists were more numerous than ever before. Dealers reported that the sales of paintings by Canadians were good, and the utilization of high-class work by Canadians in the field of graphic arts reached an all-time high. The number of successful exhibitions abroad by Canadian painters was a source of gratification, while an offsetting increase in the exhibitions in Canada of the works of foreign artists indicated a sound two-way interest. Of special interest was the honouring, in May 1955, of Emily Carr, one of Canada's most noted artists, by the unveiling of a stone and bronze memorial in Victoria, B.C. Formal art schools and informal art classes continued to enjoy unprecedented popularity during the year, and a growing interest in art and esthetics at the academic level was noted in several of the larger Canadian universities. Coverage of art news in the daily and periodical press of Canada showed a significant increase in 1955—a reflection of the rapidly growing general public concern with the arts.

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.



Works of the Masters are a never-ending source of inspiration and education to art students.

CANADIAN PAINTINGS

NATIONAL GALLERY OF CANADA

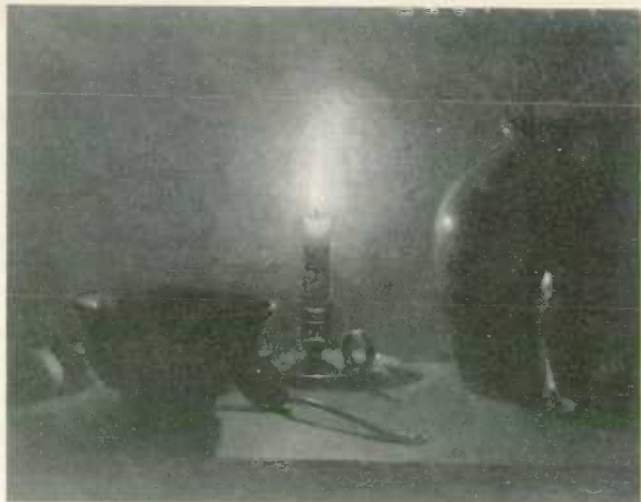


A View of Chateau Richer Church
Near Quebec, taken in 1788

Thomas Davies
(circa 1737-1812)

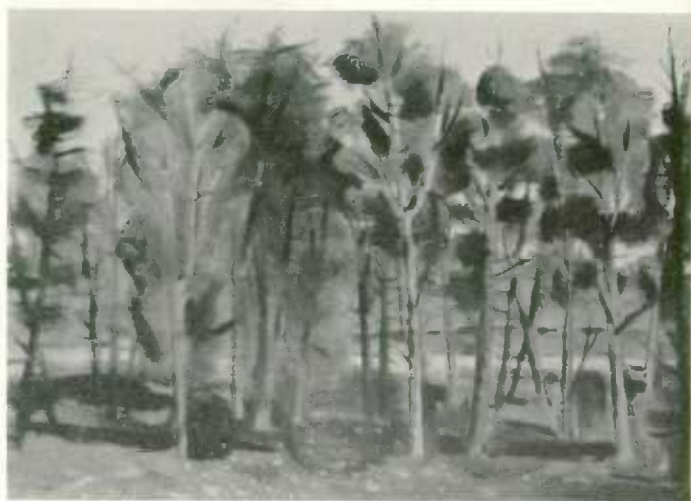
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This early Canadian water colour is one of a group of twenty recently discovered in the library of the Earl of Derby and now in the collection of the National Gallery of Canada. Thomas Davies of the Royal Regiment of Artillery arrived in Halifax around the year 1757 and during the course of his service in North America painted this series of water colours which are remarkable not only as geographical records—for the making of topographical drawings was part of the general training of British officers of that period—but for the unusual freshness of vision and richness of colour with which he portrayed these scenes of eighteenth-century Canada.



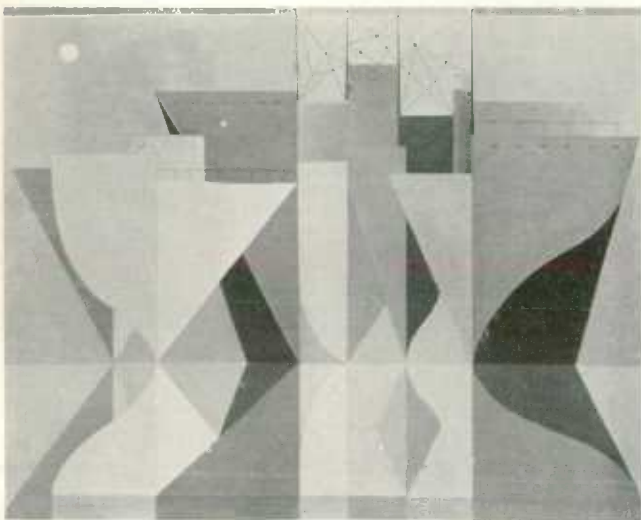
Le Repas du Colon

Ozias Leduc
1864-1955



Landscape

Stanley M. Cosgrove
1911—



Ships in Classical Calm

B. C. Binning
1909—



Pruned Trees

Gordon Applebe Smith
1919—

The Car Ferry at Sidney, B.C.

Edward John Hughes
1913—





Barnston Pinnacle

John Lyman
1886—



Girl Seated

Jacques de Tonnancour
1917—

Part of a mural painted by George Pepper, A.R.C.A., O.S.A., symbolizing the treatment services provided for Canada's war veterans; it is one of three painted by prominent Canadian artists for the new Veterans Affairs building at Ottawa.



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 teach and organize 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 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

Cultural organizations, serving as focal centres for Canadian painters, musicians, writers, dancers, dramatists and others concerned with the arts, have grown in number and importance in recent years and for many of them 1955 was a banner year of activity. Most societies serve very effectively on a local basis but a number of them have national ramifications and exercise



Restored Indian village at Midland, Ont., is a scene familiar to explorers and fur traders three hundred years ago. Reconstruction was based on information unearthed in many excavations of Huron Indian villages in this district and on the written records of the first white men who visited them.

considerable influence in the moulding of public opinion. The Canadian Arts Council, now in its twelfth 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. The Royal Canadian Academy of Arts is the officially sponsored prestige body in the field of fine art, although most of the newer and more specialized art groups are vigorous and influential.

Summer schools of the arts in many parts of Canada were well patronized in the 1955 season. Some of the more noted are: the Banff School of Fine Arts at Banff, Alta.; the Doon School near Galt, Ont.; Maritime Summer School of Mount Allison University, Sackville, N.B.; Queen's University, Kingston, Ont.; L'École des Beaux-Arts, Quebec, Que.; and the Regina College Summer School at Emma Lake, Sask.

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 provincial and local ones through generous programs of travelling exhibitions,

The Saskatchewan Museum of Natural History, opened at Regina in May 1955, is a monument to the pioneers of the Province. It is a long, low, strikingly designed building, around the top of which is a sculptured frieze containing more than 300 animals, birds and fish, most of them indigenous to the Province. Through its zoological, geological and archaeological exhibits and its extension program, the Museum is striving to create a deeper appreciation of the aesthetic and practical value of wildlife resources and thereby to foster individual responsibility toward their conservation.



Animals and birds are realistically displayed in their natural environments.

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 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.

The Public Archives of Canada at Ottawa has accumulated valuable collections of public and private papers, newspapers, manuscripts, maps and pictures concerned with Canadian history. Several provincial governments also support archival collections, some in collaboration with provincial universities located at such cities, as at Halifax, Toronto and Saskatoon.

Libraries

Public library service in Canada is conducted through large urban libraries and their branches in metropolitan areas, sometimes augmented by book-mobile service to outlying districts; by smaller libraries in villages and hamlets; by regional service established on a county or wider basis; and by mail service to remote areas.

The 765 public libraries covered by the 1953 DBS library survey reported 8,405,375 volumes, a circulation of 30,946,730 books among 1,671,942 borrowers, and expenditures amounting to \$7,811,465. In relation to the total population of the ten provinces, these libraries, exclusive of travelling and open-shelf services, had 0.6 volumes per capita, circulated 2.1 volumes per capita and spent 53 cents per capita. Altogether, 11 p.c. of the population were registered public library borrowers.



The new Kalmusford Library at the University of Alberta. Library facilities at universities all across the country have been greatly increased in the past few years—new libraries have been built and existing collections re-organized and extended.

The following table gives the latest available information on the book stocks and staffs of the various types of library in Canada.

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	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	176,449	46	29	16
Quebec.....	244	5,426,246	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.

Services other than book lending are also provided by public libraries. Many of them have stocks of films and records 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 art exhibitions 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.

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 National Library requires, by law, the deposition of the following types of new books published in, or imported into, Canada for public distribution or sale: those manufactured in Canada; those written or illustrated by Canadians; and those about or relating in a significant way to Canada.

By the end of 1954, the National Union Catalogue contained information on the bookstock of 91 libraries holding 5,962,733 volumes.

Media of Mass Communication

The Press.—About 97 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 95 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 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 several of 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 \$247,000,000, 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 \$32,000,000, 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 \$68,000,000 and the latter to about \$3,200,000 in 1953. Hence, it appears that the per capita expenditure of Canadians on books, pamphlets and periodicals is in the neighbourhood of \$21 a year.



News-stand in the Toronto subway terminal at Union Station.

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 \$61,832,000 in 1954. Imports from the United Kingdom have shown a small annual increase in post-war years to about \$3,016,000 in 1954. In the same year, imports from France were valued at \$2,069,000.

Radio and Television.—Radio broadcasting and television in Canada are dealt with at pp. 284-288. 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 further declined to 487,200 in 1954.



Most of the films and filmstrips produced in Canada—about 600 a year—may be classed as "educational" and nearly all of them are sponsored by industry, business or government. In this field Canada is second to none as far as quality is concerned.

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 and 623,856 in 1954.

Motion Pictures.—In 1954 there were 1,938 motion-picture theatres in Canada with a seating capacity of 984,907, 230 drive-in theatres, 645 community halls offering screenings, and 658 halls serviced by itinerant operators. On the average, each Canadian attended 16 motion-picture programs and paid \$7.80 in admissions. Most of the films shown were produced in the United States although a small but increasing number of films came from the United Kingdom and a few from France and other European countries. In 1954 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 1954 was divided between private industry (45 firms) and seven federal and provincial government agencies.

The National Film Board plays a significant role in non-theatrical film distribution through the co-operation of provincial and municipal agencies. During the year ended Mar. 31, 1955, the Board reached a Canadian non-theatrical audience of 14,143,768 at 200,829 showings. Distribution was facilitated through 420 libraries and depots, aided by 462 film councils representing 11,227 film-using groups and by 534 film circuits embracing 6,868 showing points. Through the co-operation of provincial departments of education and the universities, NFB films and filmstrips are distributed extensively to rural and urban schools. During the year, a total audience of 6,550,923 viewed 86,077 school showings.

MEDIUMS AND MOODS

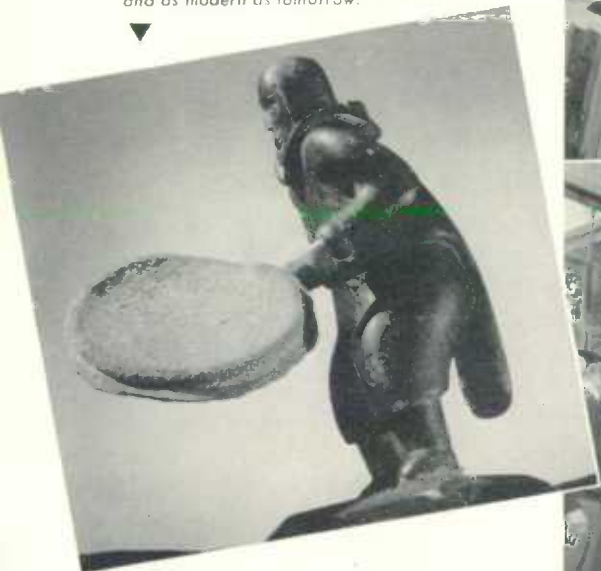
Classical design in clay.



A pine block comes to life under the chisel of a Quebec artist. The forest, basic to the life of the pioneer habitant, provides the perfect medium for the portrayal of his rugged individualism.



An Eskimo carving—grace and vitality in native stone—as primitive as his remote ancestors and as modern as tomorrow.



Simplicity, flow and clarity in stone follow the trend of architectural design.





Photographic Survey Corporation

*Sawmill at Chemainus, half-way between Victoria and Nanaimo,
Vancouver Island, B.C.*



RESOURCE and INDUSTRIAL DEVELOPMENT



Forestry

Agriculture

Water Power

Minerals

Fisheries

Manufactures

Capital Expenditures



Forestry

THE "bush", as the Canadian forest is familiarly called, has been intimately woven into the social and economic pattern of the country's development since the earliest times. The voyageurs of French Canada sought the prizes of furs which the forest concealed in its illimitable vastness, and hard on their adventurous forays the settler strove to clear the bush and till the land. The immense stands of maple, oak, spruce and pine furnished fuel for the pioneer settler and his family, the logs to build his cabins and, in time, the lumber to build the frame dwellings of his towns and cities; the surplus wood even yielded precious potash for soap; and the navies of France and England carried Canadian spars, masts and timbers in their warrings on the oceans of the world.

At the time logging on the upper reaches of the Ottawa, the Gatineau, and Saguenay Rivers and their many tributaries were yielding the squared white and red pine timbers of the trans-Atlantic timber trade, the forest was thought to be unlimited; but towards the end of the nineteenth century the famed white pine, whose stem had tapered above the gunports of many a British man-o'-war in the age of sail, was all but vanished from the land.

The industry turned from the production of squared timber to the sawing of lumber, and spruce supplanted pine as the chief species for manufacture. Lumbermen thrust further and further into the interior in the search for more timber and finally reached the great Douglas fir forests of the West Coast. It was then realized that the supplies of wood were neither unlimited nor inexhaustible.

In the first decades of the twentieth century came a growing awareness of the need for better forest management and better utilization of the products of the forest. Slowly but steadily the "mining" of the forest has been disappearing and its management as a renewable crop has been gaining ground. The trend towards better conservation and utilization was given tremendous backing by the demands of the pulp and paper industry, which in the past fifty years has risen to premier place among all Canadian manufacturing industries.

Sawmilling has been a relatively mobile industry. As the merchantable treeline receded through cutting, the sawmill owners followed with their equipment. But the heavy fixed establishments of the pulp and paper industry, representing heavy capital investment, presented the forest industries with inescapable economic fact: to make a profit, production had to be on a large scale, hence large mills were needed, and to feed the insatiable grinders and digesters that made the pulp from which a profusion of products flowed, a large hinterland of softwood forest was essential. The concept of the forest as a perpetually renewable resource became a practical matter of meeting the demand with production from a given area—the company's limits—and hence the management of the forest for sustained yield. Nearly all established forest industry now accepts the goal of sustained-yield forestry, and continuous research is carried on in the forest itself and in the laboratory to study the growth, yield, and utilization of wood.

The Importance of the Forests.—Canada's forests and the industries that spring from them have tremendous importance for every man, woman and child in the country—in fact, it would be hard to over-estimate their importance.



The Agawa River in northern Ontario flows through miles of forest on the border between the Boreal Forest Region, the source of much of Canada's timber and pulpwood wealth, and the Great Lakes-St. Lawrence Region where hardwoods are more prevalent.

All the wood, wood products and paper industries together, not including printing and publishing, accounted for over 14 p.c. of the value of factory shipments of all manufacturing industries in Canada in 1953. When the 1954 export values of the wood, wood products and paper group are taken together they form a favourable balance of \$1,213,000,000 to apply against a net imbalance of \$1,359,000,000 for all other groups of commodities, thus helping to reduce Canada's export deficit to \$146,000,000 (without taking into consideration exports of non-monetary gold).

The forest industries and the industries dependent on the forest for their raw materials give employment to tens of thousands of Canadians—in fact, it has been estimated that one out of every eleven Canadians is directly or indirectly dependent on the woods for a livelihood—and the multifarious uses of wood and its products enter into daily living today more widely than ever before in history.

The forests of Canada lie across the land in broad bands and tongues from Atlantic to Pacific. Eight Regions—the Boreal, the Subalpine, the Montane, the Coast, the Columbia, the Deciduous, the Great Lakes-St. Lawrence, and Acadia—are identified. Of these, by far the largest Region is the Boreal, which forms a continuous belt from the Atlantic Ocean westward to the Rocky Mountains and northwestward to Alaska, and covers 82 p.c. of the forested area of Canada. In this Region the conifers, Canada's most valuable pulpwoods, are predominant and among the conifers, spruce is king. Other prominent conifers of the Region are tamarack, balsam fir and jackpine, alpine fir and lodgepole pine—although the deciduous white birches and poplars are also found in quantity.

Altogether there are more than 150 tree species in Canada, of which 31 are conifers, commonly called softwoods. Only about twenty of these, and about a dozen of the hardwood species are commercially important.

Canada's forested area is estimated at 1,568,000 sq. miles or 44 p.c. of the total land area. Almost 710,000 sq. miles are classified as non-productive, leaving the total estimated productive forest area at 828,000 sq. miles. But though a forest may be classed as productive and hold much fine timber it may not be at present accessible to any recognized form of forest transport or it may be geographically too remote from present-day markets for economical development though it is possible to enter and log it. Therefore, of the total productive forest, only about 582,000 sq. miles is considered accessible. Canada's forest wealth is produced of course from this accessible forest area, the occupied portion of which at present is in the neighbourhood of 380,000 sq. miles. It must also be recognized that much of the occupied forest stands are young growth which must be retained to provide the sinews of the forest of the future.

Forest Tenure and Administration.—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 forest in the nearly 1,500,000 sq. miles of land area in the Yukon and Northwest Territories.

In order to perpetuate Canada's forest resources, most of the provinces now require timber operators on Crown lands to prepare forest inventories of their cutting area and to submit management plans for a stated period of time.

The Canada Forestry Act made provision for assistance to the provinces embracing virtually every field of forestry activity. It states: "The Minister may, with the consent of the Governor in Council, enter into agreements with any Province for the protection, development or utilization of forest resources, including protection from fire, insects and disease, forest inventories, silvicultural research, watershed protection, reforestation, forestry publicity and education, construction of roads and improvement of streams in forest areas, improvement of growing conditions and management of forest for continuous production".

Agreements so far entered into under the Act with eight of the ten provinces have resulted, by Mar. 31, 1955, in the aerial photography of all but about 137,000 sq. miles of an estimated 1,207,000 sq. miles to be covered and about three-quarters of the work of ground control survey, base mapping, photo interpretation and other operations required for up-to-date provincial forest inventories. In addition, under reforestation agreements, some 48,000,000 trees have been planted on nearly 50,000 acres and some 6,500 acres have been seeded. Total federal contributions to the provinces in the first four years of operations under the Federal-Provincial Forestry Agreements for inventory and reforestation totalled \$4,178,025 at Mar. 31, 1955.

Forestry Research

In Canada, forest research usually means research in the forest itself or research directed towards the perpetuation of the forest. The term, forest products research, on the other hand, embraces all research work connected with the utilization of the forest. The high rates of utilization of forest products and the continued high losses caused by fire, insects and disease have created a growing urgency in the need for improved forest management practices in Canada. This entails accelerated forest research programs which must find the solution to many technical problems. Moreover, economic, social and legislative forces generally are all tending to hasten the development of forest management practices suitable to Canadian conditions as the true renewable nature of the forest as a great economic resource and its importance to all Canadians is more fully realized.

Forest Research.—In Canada, federal and provincial governments, universities, industrial research organizations and operating companies all have a hand in forest research. One Federal Government agency, the Forestry Branch of the Department of Northern Affairs and National Resources, is almost entirely a research organization devoted to the study of the forest and its products. The Forest Biology Division of the Science Service of the Federal Department of Agriculture conducts research into forest pathology and entomology and its studies of insect pests and tree diseases is a fundamental part of forest development and protection.

It must be realized that planned research in forestry and forest products is a comparatively recent growth. Beginning about the turn of the century, forest research developed slowly until the 1920's when the pace of research and the rate of utilization both rose rapidly; in post-war years, more rapid expansion and development has characterized research activities in this vital field. One reason for the initial slow development—and for the continued need for

The species composition of forest areas may be determined by silvicultural practices now being developed. A forester at an Ontario Government research station checks one-year-old pine grafts in outdoor beds to see how they survived the winter.



progressive development—may be found in the fact that many of the problems under investigation are of a long-term nature and a practical analysis of findings may be long delayed. Because the life-span of forest trees and stands may vary from 60 to 150 or more years and cyclic variations in climate must also be taken into account, there are relatively few studies—except in the field of forest mensuration—in which reliable results can be obtained in less than ten years' time.

Another factor in the long-range nature of forest research is that the science of forestry draws from the subject matter of other related fields; the findings of the plant pathologist, geneticist and physiologist, the soil specialist, the meteorologist, and the organic chemist, for example, must be taken into account. For the forest is a complex living community—not only the nature of the individual tree must be studied, but the relationship of the tree to the surrounding plant community must also be considered.

In the field of silviculture and forest management, research studies the development of a satisfactory system for the classifying of forests and forest sites; determines the silvical characteristics of Canadian tree species and the ecological relationships of the associations in which they occur; develops methods of silviculture which are applicable to the more important forest types and to Canadian economic conditions; develops and tests practical methods for determining the actual and potential growth and yield of forests; develops improved techniques of reforestation, and of improved strains of tree species suitable to Canadian conditions; improves methods of organizing forest data into plans of regulation and silviculture for forest areas, which will be suitable to different intensities of management—the essence of the sustained-yield forest management program; improves research methods, mensuration techniques and the design of experiments.

An outstanding example of teamwork in forest research is an experiment started in 1953 on 375 acres of mixedwood forest in a pulpwood producing region on Lake Superior's North Shore. Its object is to determine the best methods of cutting and other suitable silvicultural treatments to achieve natural spruce regeneration in a region where re-establishment of spruce after logging is being handicapped by competition from herbs, shrubs and broad-leaved trees.

Various methods of treatment have been tried: certain areas have been sprayed with a toxic substance to poison growth of the competing plant life; in other areas, the soil has been scarified, using tractor and root rakes, to expose the mineral soil and allow nature herself to plant spruce seeds. The forest in the area is relatively old, has never before been cut over and was last burned over nearly 200 years ago. This experiment will have value in determining the approach to other overmature stands and even to younger, less mature stands growing under similar soil and climatic conditions.

Co-operating in the project are the Pulp and Paper Research Institute of Canada—which is co-ordinating the work—the Ontario Department of Lands and Forest, the Federal Forestry Branch of the Department of Northern Affairs and National Resources, the University of Toronto's Faculty of Forestry, the Abitibi Power and Paper Company and the owner of the experiment site, the Ontario Paper Company.

A stand of mature lowland white spruce in Riding Mountain National Park, southwestern Manitoba, with dense grass and tall herbs as ground cover. Framing this picture are specimens of common varieties of Canadian forest flora. Identification of such ground cover aids the forester in determining features for forest site classification.



There is a continuing need to assess the current and potential supplies of wood in the country and this involves forest surveys and preparation of forest inventories. Canada has been a pioneer in the use of aerial photographs for the mapping and describing of large forest areas.

Specifically, forest inventory research deals with such matters as the preparation of air survey volume tables; the determination of methods of air photography best suited to forest requirements; the development of instru-

ments for use in forest inventory; investigation of methods of forest surveying with particular emphasis on sampling techniques and the correlation of air and ground data.

Protection of the forest is another field in which continuous research is going on, and the early detection of fire outbreaks, the best methods of handling them and a knowledge of climatic conditions in relation to fire hazard and fire spread are all part of the study. Specifically, research into forest fire protection deals with the preparation and simplification of forest fire danger tables; studies of the weather and the development of devices for measuring and integrating climatic factors as they affect forest fire danger and fire behaviour; development of methods for determining the severity of fire seasons and effectiveness of control of fire; determining a system for classifying fuel types; developing means for increasing the effectiveness of forest fire control, including methods for testing the efficiency of fire fighting equipment and practices; study of the influence of silvicultural practices on the occurrence and behaviour of forest fires; the collection, compilation and analysis of forest fire statistics.

Forest Products Research.—In earlier times, trees were cut either for fuel or for lumber, including planks, shingles, lath, dowels and other shapes and forms suitable for use in building houses, vehicles, ships and furniture. Much wood also went up in smoke as the settler cleared land for farming. Woods were used for elemental purposes, and the vast range of wood uses and wood derivatives known today were unknown and unthought of. The development in the 1840's and 1860's of the mechanical and sulphite processes for making pulp and paper changed all that. Today, an amazing "family tree" of products—tars, oils, chemicals, wood and ethyl alcohol, acetic acid, acetone, formaldehyde, essential oils, vanillin, wood flour, wall boards, insulating boards, paper and cardboard in many variations, veneers and plywoods, laminated beams, rayon, imitation leather, cellophane, phonograph records, linoleum, plastics, surgical dressings, yeast cakes, gun-cotton, photographic film—may trace their ancestry, directly or indirectly, to the forest. Many of these are by-products of the chemical pulping processes, and are produced from what were formerly "waste" liquors.

Trees have two basic components: cellulose and lignin. From the cellulose (and hemi-cellulose) component, whose chain-like molecular structure forms the fibres which are the base of Canada's vast pulp and paper industry, comes also the raw material for a wide range of plastics, explosives, film and other substances, as well as rayon and wood sugar. From lignin, unused in chemical pulping processes, comes another wide range of chemical derivatives: resins, fertilizers, certain plastics, vanillin, alcohol and many chemicals. Lignin moreover can be converted into an excellent fuel.

In the manufacture of mechanical pulp, or "groundwood" pulp as it is sometimes called, no chemical by-products are present. All the contents of the wood, including the lignin, are utilized in making the pulp. Newsprint is produced from mechanical pulp.

Many studies are being undertaken in Canada today—part of the wider world interest in wood research—in the development of new uses for wood, in

the determination of the most suitable uses for wood, as well as in problems connected with utilization of wood in all its forms for most economic use. For example, binder boards of good quality are being made from sawdust and front planer shavings, and sawdust is also being used as a soil "amender"—fortified with nitrogen it adds to the humus content of the soil, acting in many respects like fertilizer.

The Pulp and Paper Research Institute of Canada in Montreal, in the field of pulp and paper, and the Forest Products Laboratories of the Department of Northern Affairs and National Resources in Ottawa and Vancouver, in the general field of forest products research, are the main research bodies; university science faculties and commercial laboratories set up by the forest industries themselves are engaged in more limited investigations in many phases of the structure of wood, its development and use.

Forest products research is a very wide field. It includes, for example, the study of timber mechanics and determining new forms of wood construction, including laminations and arches, and research into plywood production—cutting, gluing and bonding. In laminated construction especially, size



Improved equipment, detection and communication methods are making forest fire fighting more effective but such fires, caused mainly by careless campers and travellers in the woods, still result in tremendous damage. In 1954, 81,000,000 cu. feet of standing merchantable timber was consumed by fire.

The individual fire fighter with automatic or hand pump or other hand tools is the basis in active fire suppression.





A dielectrically heated press rapidly produces curved plywood forms.



The circular headrig sawmill, in operation at the Forest Products Laboratories of Canada in Ottawa, is highly instrumented for research work.



of the wood to be glued together to form large beams and trusses is quite independent of the size of the tree—quite small trees will furnish suitable wood. Plywood use in such fields as furniture-making, building construction, boat building, aircraft construction and container manufacture, for example, is well established.

Studies in wood preservation and in wood pathology are also necessary because, though wood under certain circumstances is one of the most durable of all materials, it will decay if improperly seasoned and is subject to attack by insects and fungi.

New and improved methods of cutting and of utilizing the tree from stump to top are being introduced and what was formerly considered wood waste—bark, slabs, edgings, sawdust—is now the focus of intensive experimentation for better utilization. Industry claims that much more pulp and paper is being produced from a cord of wood today than was being produced several years ago. Better means have been developed for using bark as a fuel, and more commercial products like alcohol, tanning liquor, road binders, turpentine and yeast are being made from what were formerly waste materials in the pulping process. Research has shown, moreover, that a number of species of trees once thought unsuitable can actually be used for pulping, thus increasing the yield per acre. In some areas industry has succeeded in making a virtually complete use of all species. Pulpwood goes to the pulp mill for

manufacture into paper, paper board, building board and hardboard; other trees are converted into plywood and sawlogs are turned into lumber. Slabs and edgings, chips and sawdust are likewise utilized.

Studies are continuously under way into the secrets of wood chemistry and wood structure. Here, wood waste experimentation endeavours to produce various kinds of building boards and other products and from this research new and more economical alternatives to other structural materials may come, and new test-tube products added to the bewildering array already produced. A knowledge of the physical properties and the microstructure of wood is helpful in determining the reasons for unequal wood shrinkage in the seasoning process, in determining the tensile strength of wood, in finding out the degree of penetration of wood preservatives and, not least, the fibre length. Though paper making, for example, is based on the long fibres in wood, there must also be a percentage of short fibres so that thin spots in the finished paper may be avoided. A knowledge of wood structure helps make paper-making processes more effective.

Engineering advances based on research and operational experience, moreover, have—especially in the West Coast forests—increased output per man, lowered unit production costs and opened up forest areas which were once considered to be economically inaccessible.

Canada's contributions to forestry research—especially in view of its small population in relation to its immense geographic area and wide range of problems—have been truly remarkable, whether in the forest research carried on in the field or in the forest products research in the laboratory, with its testing machines and test-tubes—and always the mill and the factory in the background.

Forest Biology.—One of the prime requisites for a sound system of forest management is the protection of the forest from damage by insects and disease. The Federal Department of Agriculture keeps a country-wide sample check on insects through its continuing Forest Insect Survey, which

Research in timber engineering has developed the use of laminated beams and trusses as heavy-duty architectural members, as in this church roof interior. Studies have shown that in certain types of structural assemblies, a ton of timber will carry more load than a ton of steel.



enables insect population trends to be forecast and which can warn of possible major outbreaks in time for preventive measures to be undertaken.

One of the largest and most dramatic chemical control operations ever undertaken against forest insects has been under way since the summer of 1952 against the spruce budworm in New Brunswick. The budworm is a defoliating insect which has seriously threatened the pulpwood forests in the northern half of the Province. By Mar. 31, 1955, a total of 3,600,000 acres were sprayed from aircraft and 600,000 acres were re-sprayed. At one stage in the spraying, studies showed from 87 to 99 p.c. mortality among the budworm larvae. Plans for 1956 call for spraying another 2,000,000 acres of forest using about seventy aircraft, operating from twelve airfields. Cost of the operation is being shared between the Federal Government, the Government of New Brunswick and the forest industries in the areas affected. The original three-year cost-sharing agreement between the Federal Government and the Government of New Brunswick, ending Mar. 31, 1956, has been extended for a further three years.

In the field of forest pathology, much research has been undertaken and remedial measures against forest diseases have been devised. A major cause of disease in trees is fungi, but bacteria, viruses and parasitic seed plants play their part. Research, moreover, has determined that there is a close correspondence between the incidence of disease and poor forest management practices, especially when cutting of overmature trees is neglected: an important function of forest pathology is to determine the age at which a tree species should be cut to give the maximum returns in sound wood.

Farm Woodlots.—Most farm woodlots—in Eastern Canada especially—are the cut-over remnants of the vast forests that once covered nearly all of



Scientifically managed, a farm woodlot can produce many forms of merchantable timber and can also be a source of beauty and pleasure near the farm home.

the now inhabited portions of Canada. Given adequate protection from fire, grazing and trampling by livestock, and careless cutting, the farm woodlot not only provides the farmer with a perpetual source of supplementary income but it aids in controlling moisture run-off and consequent soil erosion. In 1953 there was an estimated 22,780,000 acres in farm woodlots in Canada and these contributed about \$46,000,000 to farm income from the sale of wood products, excluding maple sap products. At present in Canada, farm woodlots produce mainly fuelwood for use on the farm, as well as merchantable quantities of pulpwood, fenceposts, poles, ties and lumber.

Forest Industries

In 1953, more than 354,000 people—one out of every 42 Canadians—were directly employed by the forest industries, and the salaries and wages they received amounted to an impressive \$1,098,000,000. This amounted to one-quarter of the salaries and wages paid to all the employees of Canada's 38,000 manufacturing establishments. The logging industry employed nearly 136,000 people (calculated on a man-year basis, because of the seasonal nature of much of this industry), the lumber industry hired 60,000, and the pulp and paper industry, 58,000. Wood-using industries and paper-using industries together employed 100,000 persons.

The net value of production of the forest industries in 1953 amounted to just under \$2,000,000,000 (\$1,987,974,000 more exactly), or about 25 p.c. of the net value of production of all Canadian manufacturing industries. The net value of production is the gross or sale value less cost of materials, fuel, purchased electricity and process supplies consumed.

Woods Operations.—The output of Canada's forests in 1953 was 0.4 p.c. higher in volume but 3.9 p.c. lower in value than in 1952. The actual "cut" in the forest in 1953 amounted to 3,579,336,000 cu. feet valued at \$783,546,958. Preliminary estimates for 1954 indicate an increase of approximately 100,000,000 cu. feet in the volume of the wood harvest over 1953. Ninety-four per cent of the merchantable timber cut in Canada in 1953 was retained in the country for immediate use or as raw material for further domestic manufacture and 6 p.c. was exported in manufactured or partly manufactured form.

Value of Primary Forest Production, 1952 and 1953

Product	1952	1953
	\$	\$
Logs and bolts.....	304,262,790	308,965,959
Pulpwood.....	396,102,104	370,912,264
Fuelwood.....	61,355,643	62,766,922
Hewn railway ties.....	1,292,636	771,421
Poles.....	16,961,456	15,798,908
Round mining timber.....	19,917,669	8,530,523
Fence posts.....	3,432,675	3,062,977
Wood for distillation.....	441,443	415,271
Fence rails.....	758,519	679,151
Miscellaneous.....	11,126,259	11,643,562
Totals.....	815,651,194	783,546,958

The most important primary forest product in Canada is pulpwood and this heads the list of forest products by value in Quebec, Ontario, New Brunswick, Newfoundland and Manitoba. Second in importance are logs and bolts: these come first in value of production for British Columbia, Alberta and Nova Scotia. Fuelwood is third in national importance, followed by poles, round mining timber, fence posts and hewn ties.

Pattern of the industry is seasonal except in British Columbia where operations are fairly uniform throughout the year. East of the Rockies, operations in the woods are conducted at a time when other work is at low ebb. This has a stabilizing effect on the general employment situation and is especially valuable to farmers who thus have a source of supplementary income during the winter.

Lumber.—Production of sawn lumber in Canada in 1953 reached an all-time high of 7,305,958,000 ft. b.m., an increase of 5.1 p.c. over the previous peak in 1951. Because of lower prices, however, the total value of output, amounting to \$494,385,993, was 2.6 p.c. below the 1951 record. This production, less some amounts from small producing mills as well as custom sawing for other wood-using industries, was obtained from 8,194 sawmills. Provinces having more than 1,000 sawmills included British Columbia (1,824), Quebec (1,788) and Ontario (1,207). 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. Seventy-nine mills, representing less than 1 p.c. of the total number of sawmills, accounted for over 45 p.c. of the total value of production. Most of the lumber cut in Canada is spruce with Douglas fir a close second. After these come hemlock, cedar, white pine and jack pine followed by balsam fir, yellow birch and maple. Spruce takes first place in total value.

Over 46 p.c. of the lumber produced in Canada in 1953 was exported at a value of just over \$283,000,000.

Production of Sawn Lumber and All Sawmill Products, 1953

Province or Territory	Sawn Lumber Production		Total Sawmill Products
	'000 ft. b.m.	\$	\$
Newfoundland.....	48,922	2,899,172	3,147,960
Prince Edward Island.....	10,504	563,416	637,918
Nova Scotia.....	295,868	17,560,898	19,055,939
New Brunswick.....	335,078	21,802,348	25,494,363
Quebec.....	1,200,598	82,083,803	96,026,261
Ontario.....	823,721	63,275,565	79,573,208
Manitoba.....	55,527	3,491,815	3,920,005
Saskatchewan.....	81,596	4,604,386	4,908,053
Alberta.....	400,822	20,991,533	23,781,960
British Columbia.....	4,045,724	276,564,562	323,474,522
Yukon and Northwest Territories.....	7,598	638,495	677,515
Canada	7,305,958	494,385,993	580,693,704



Huge stacks of pulpwood at the pulp and paper mills are a common sight across the country. Generally, it is trees of lesser diameter that are used as raw materials for the mills. There are vast areas of mature forests where the trees have not attained and never can attain sizes suited to the manufacture of good lumber. Their utilization as pulpwood has increased enormously the wealth of the forests of Canada.

The 1953 gross value of \$580,693,704 included: sawn lumber (\$494,385,993); shingles (\$19,897,877); ties (\$14,408,175); box shooks (\$2,691,128); hardwood squares (\$1,999,065); flatted mine timbers (\$1,776,844); lath (\$1,686,581); staves (\$1,109,860); and pickets and headings (\$927,115).

Pulp and Paper. From 1946 to 1954 continuously, the pulp and paper industry has ranked first in the gross value of its products among all manufacturing industry 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 is now second only to sawmills.

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, the adoption of technical improvements in the building and printing trades and the advance of modern merchandising techniques—the development of

product packaging and its display in self-serve supermarkets, for example. 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 with growing market potential.

In 1954, the value of factory shipments of the pulp and paper industry rose to \$1,241,558,451—an all-time record. The net value of production at \$641,410,070 was 6.9 p.c. above the 1953 figure and—as a measure of the industry's growth in the past three decades—was 425 p.c. higher than pre-depression 1929. In 1954 there were 125 operating mills: of these, 31 were classed as pulp mills, 25 as paper mills, and the remaining 69 as combined pulp and paper mills.

***Principal Statistics of the Pulp and Paper Industry, 1930, 1940,
1953 and 1954***

Item	1930	1940	1953	1954
Establishments.... No.	109	103	127	125
Employees..... "	33,207	34,719	58,194	60,837
Salaries and wages..... \$	45,774,976	56,073,812	235,741,660	252,598,383
Gross value of products... \$	215,674,240	298,034,843	1,179,665,443	1,241,558,451
Net value of products.... \$	107,523,731	158,230,575	599,934,934	641,410,070
Pulp produced..... tons	3,619,345	5,290,762	9,077,063	9,673,016
"..... \$	112,355,872	149,005,267	624,865,504	655,916,738
Paper produced..... tons	2,926,787	4,319,414	7,376,526	7,649,607
"..... \$	173,305,874	225,836,809	887,858,473	925,590,643
Pulp exported..... tons	760,220	1,068,516	1,950,152	2,180,416
"..... \$	39,059,979	60,930,149	248,674,880	271,418,005
Newsprint exported..... tons	2,332,510	3,242,789	5,375,251	5,521,530
"..... \$	133,370,932	151,360,196	619,033,394	635,669,692

Sixty-five mills accounted for 91.2 p.c. of the gross value of production of the industry in 1953. The 100 mills manufacturing pulp produced 9,673,016 tons valued at \$655,916,738 in 1954, representing increases of 6.6 p.c. in volume and 5 p.c. in value over 1953. About 23 p.c. of the total pulp production was made for export, 73 p.c. for use by the mills themselves in paper-making and 4 p.c. for sale in Canada. Groundwood or mechanical pulp formed 55 p.c. of the total pulp production; sulphite pulp, 27 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 70 p.c. of the total production.

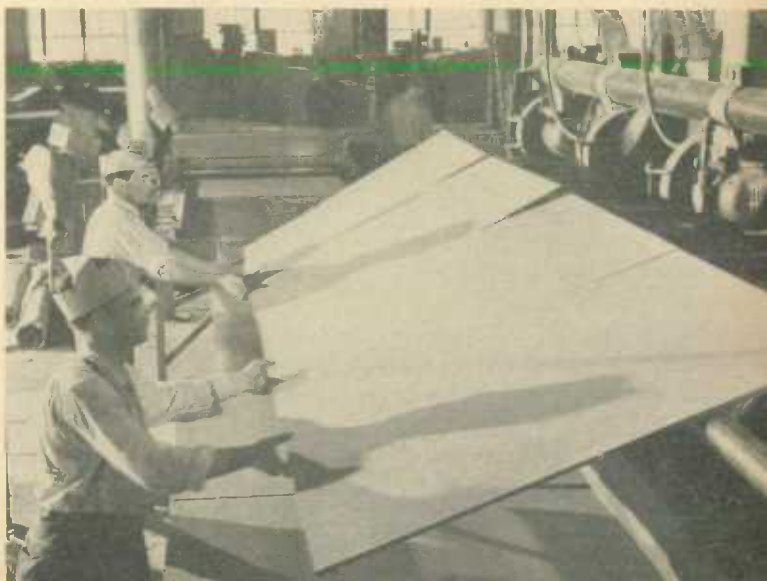
Among the many kinds and grades of paper and paper boards produced in Canada, newsprint is the top product, forming 78 p.c. of the total and 98 p.c. of the amount exported. Quebec and Ontario together accounted for 74 p.c. of all newsprint produced in Canada in 1954. Nineteen fifty-four's 6,000,895 tons of newsprint was the highest production ever recorded in Canada and was valued at \$657,487,344, increases of 4.3 p.c. in tonnage and 3.8 p.c. in value over 1953. Fifty-two per cent of world newsprint requirements was supplied by Canada in 1953 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 the fifteen leading commodities exported from Canada in 1953 and 1954, 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. In consequence, Canadian manufactures in this field are largely for domestic use and considerable quantities are also imported. In 1954, Canada imported paper and paper goods valued at nearly \$44,000,000, including fully manufactured articles and specially processed goods for use in Canadian paper-making industries. Domestic production of papers and paper boards in 1954 totalled 7,649,607 tons valued at \$925,590,643.

Wood-Using Industries.—This group comprises thirteen industries, other than sawmills and pulpmills, using wood as their principal raw material. In 1953, these industries, comprising 4,268 establishments, gave employment to 73,377 persons and paid out \$183,488,249 in salaries and wages. The gross value of their products was \$661,321,108 and the net value \$308,315,617. The furniture industry (which includes metal furniture as well) accounted for \$231,557,354 of the total output, the sash, door and planing mills industry for \$200,929,152, the veneer and plywood industry for \$97,259,976, and the hardwood flooring industry for \$14,142,420. The other industries making up the remaining \$131,574,626 included: boxes, baskets and crates; wood-turning; morticians' goods; cooperage; woodenware; lasts, trees and wooden shoefindings; beekeepers' and poultrymen's supplies; excelsior; and other wood-using industries.

Paper-Using Industries.—Three industries engaged primarily in manufacturing commodities of paper and paperboard constitute this group, which, in 1953 comprised 415 establishments, employed 36,242 persons and distributed \$74,366,047 in salaries and wages. The gross value of factory shipments was \$388,585,078 and the net value \$167,338,649. The paper box and bag industry contributed products valued at \$198,540,167 to the total output, the roofing paper industry \$42,773,977, and the miscellaneous paper goods industry \$147,270,934.

Wallboard being produced in a Gatineau, Que., mill. Butts, tops, sawdust and shavings—formerly tree waste—are processed into valuable building and other materials developed through the research of the forest products engineer.





The "mixed" farm, which produces grain to be used as feed for small herds of dairy or meat animals and small flocks of poultry, is still prevalent in most of the agricultural areas of Canada. Here father and son harvest a crop of oats which will be stored on the farm and fed to their livestock during the winter months.

Agriculture

CANADA has 174,000,000 acres of occupied agricultural land. Its 623,000 farms are distributed roughly across the southern portion of the country and on them live more than 2,800,000 of the nation's 16,000,000 people. The growing of agricultural crops is still Canada's leading primary industry and upon the prosperity of the farmer, particularly in the predominantly agricultural areas of the mid-west, depends the prosperity of other sectors of the economy.

As an employer, however, agriculture is giving way to manufacturing. In 1954 the number of people earning their livelihood on farms dropped to 889,000 from 1,364,000 in 1939. This does not mean that agricultural production has declined accordingly. Specialization and highly mechanized farm operations now permit much greater production with less manual labour. Harvesting, particularly on the larger prairie farms which not so long ago required thousands of part-time workers, can now be conducted with a great deal less seasonal labour and there is scarcely a farm of any size or type across the country that has not some mechanical equipment that assists the farmer to increase his productivity. Increasing population and rising income levels generally are creating greater demand for a constantly widening variety of foods in new forms, and the primary agriculture industry, together with the processing and distributing industries, is meeting the challenge. In 1953, 22.7 p.c. of the raw materials used in Canadian manufacturing industries came from Canadian farms.

Canada supplies most of its own needs for foodstuffs. Fruits from warmer climes as well as cane sugar, coffee, tea and spices and some out-of-season vegetables are imported, but otherwise Canada is largely independent in this sphere. Newfoundland is the only Province in which agriculture is of minor importance. The many variations in climate and soil of the country generally contribute to the production of a great assortment of farm products. In most of the provinces, the "mixed" farm predominates and even in areas that have become specialized in one type of farming or another, the mixed farm is still to be found. It usually produces one or more kinds of grain which is used as feed for small herds of dairy or meat animals and small flocks of poultry. The livestock is grazed on pasture in summer and, in winter, is fed (in addition to the grain) hay and other home-grown forage crops that have been stored on the farm.

Farming in Canada was founded on this type of farm. Louis Hébert, Canada's first farmer, had a "mixed" farm. In 1617 he cleared and cultivated land where the city of Quebec now stands and raised grain, pumpkins and beans as well as animals from stock brought from France. In Eastern Canada generally, as incoming settlers cleared the forest, livestock grazed among the stumps while the land was being cleared for cultivation of crops of wheat, feed grains and hay. Later as the farmer became less isolated and less dependent on the work of his own hand for all his needs, when transportation opened up more distant markets, he turned to specializing in crops best suited

to his particular area. The first specialization was perhaps in the Bay of Fundy region of Nova Scotia where orchards were planted and, close to the towns, vegetables were grown as special crops.

This process of specialization was quite slow in the Maritimes and Quebec and also to some extent in Ontario. But in the mid-west the specialized farm came with settlement. Prairie land required only breaking, disking and seeding to produce abundant crops of wheat and other grains. Land was relatively cheap and large acreages could be handled by a farm operator with additional help at harvest without the labour of caring for livestock.

In recent years the introduction of power and labour-saving machinery has intensified the trend towards specialization because fewer machines are required to produce one or two types of crop or livestock and a larger volume of production per unit reduces operating costs. Also the standard of quality demanded by the consumer requires specialized knowledge and it is easier to acquire the skill necessary to produce one or two top-quality products than half a dozen.

There are, of course, varying degrees of specialization practised today. Because season and market conditions are so variable, few farmers risk dependence on a single source of income. In the drier areas of the prairies wheat is the major crop but in other sections wheat is supplemented by oats, barley or flax and, where forage crops can be grown, livestock is raised. Along the rivers in southern Alberta and southwestern Saskatchewan over a million acres of land are under irrigation or will be in the near future. Here 30,000 to 40,000 acres of sugar beets are harvested and more and more vegetable crops, such as peas and sweet corn, are required to supply the canning and freezing plants established in the area. Legume crops for seed and forage and winter wheat are also important. Large areas in the foothills and plateaux of the Rocky Mountains are devoted to cattle or sheep ranching and sheep are also ranched on the open plains. Farmers with dry land near irrigation projects keep their animals for fattening on the by-products of irrigated crops. Special crops for vegetable oil production, such as sunflowers, rapeseed, flaxseed and safflower, are grown in various parts of the Prairie Provinces.

Ontario's major farming area is in the triangular section between Lake Huron and Lakes Erie and Ontario. This area extends farther south than any other portion of Canada. Its southern tip is in the same latitude as northern California and, coupled with this fact, its climate is subject to the moderating influence of the Great Lakes and permits the growth of a great diversity of farm products. Over thirty different crops of commercial importance have been found adapted to this area. Corn grown for hybrid seed or sold to starch factories or as feed for livestock, soybeans for oil and meal, field beans, winter wheat and winter barley, tobacco, early potatoes, sugar beets and fruits such as apples, peaches, pears, cherries and grapes are the most important. A wide variety of vegetables is grown for both the fresh market and processing. Greenhouse crops for the vegetable and the florist trade are also important. This is the most densely populated section of Canada and most of the farm products are locally consumed, except tobacco and cheese.

The fertile farming area extends eastward along the St. Lawrence into Quebec as far as Quebec city and in this extension farmers depend particularly on the dairy industry, with bacon hogs, poultry and sheep as sidelines. Small areas of Quebec are adapted to fruit growing, chiefly apples, to special types of

tobacco, sugar beets and flax. Around Montreal and other urban centres, market gardening has an important place. Quebec also produces about 90 p.c. of Canada's crop of maple sugar products which has an annual value of six to ten million dollars.

Dairy farmers, those 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, and the sale of cash crops such as potatoes or grain, each selected according to its adaptability for a particular area.

The somewhat acid soils found in the Atlantic Provinces—New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland—are very suitable for the growing of potatoes. Along the St. John River valley in New Brunswick and in Prince Edward Island, large acreages per farm are grown, providing an excellent illustration of the development of a special crop in an area to which it is particularly adapted. The farmers of Prince Edward Island have specialized in seed potatoes to the extent that about 43,000 of the Province's 428,000 acres under crop are devoted to potatoes.

Prince Edward Island started another special type of farm—the first fur farm in Canada for the breeding of foxes in 1887. Ranches for foxes and other fur animals have since spread to all the provinces and by 1938 the number of fur farms in Canada reached 10,454. Loss of markets during the War reduced the number of fur farms to 3,492 in 1950 but the number of fur-bearing animals raised continued to increase gradually with mink replacing fox as the most popular type of fur. Among other animals now raised successfully on fur farms are: chinchilla, raccoon, marten, fisher, fitch and nutria.

The production of pure seed is also included as a specialized crop on farms in all sections of Canada, the types depending on location. Most of the

Shorn ewes with their lambs welcome the first warm sunshine of spring on a British Columbia hillside. Sheep-raising is fairly common on the ranchlands of southern Alberta and British Columbia, as well as in some sections of Ontario and Quebec.



seed requirements of Canadian farmers are met from Canadian-grown seed—imports and exports are about equal. British Columbia, because of its mild winters, is the chief producing area for vegetable seeds. The Province also specializes in fruit, growing apples, pears, peaches, plums and prunes, cherries, apricots, strawberries, raspberries, grapes and loganberries. Flowering bulbs and a small acreage of holly for the Christmas trade are also specialties.

In addition to the "mixed" farmer and the "specialized" farmer a third class has become quite prevalent in certain areas. This is the "part-time" farmer who owns and lives on a farm but takes seasonal work in other industries and is not dependent on the farm alone for his income. Most of them have small acreages on which they produce food for the family with sometimes a small surplus for sale to neighbours or the local market. In the coastal areas and around the large inland lakes, the part-time farmer is also a fisherman. In forested areas he works in the lumber camps in winter. Growth and decentralization of industrial enterprises, the five-day week, and the widespread use of the automobile, have made it possible for an increasing number of farmers near industrial plants to combine some farm operations with work in the factory. Individually small, the combined production of these part-time farmers is an important item in Canada's total food supply.

This gives some idea of the range of agricultural production in Canada and the degree of specialization. The growing of grain and forage crops and the raising of livestock provide by far the major source of farm income.

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 production 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 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 Federal 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 Federal 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

Part-time farming is becoming fairly prevalent as a result of the trend toward decentralization of industry, the shorter industrial work-week, the availability of labour-saving farm machinery and good transportation facilities.



This farmer works his land at night and on weekends and is employed during the week in the cafeteria of an industrial plant in a nearby town.



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 sorts or varieties were developed, more suited to the many different climatic and soil conditions. Today these crops are 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. To control a disease such as wheat bunt or stinking smut, the farmer has only to treat seed with a fungicide before sowing his grain. To control cereal rusts, which from time to time have threatened much of Canada's wheat crop, there is only one practical method of control, and that is by breeding rust-resistant varieties. Breeding and testing these varieties is so scientific and complex that government institutions have had to undertake the work.

There are some five million acres of wheat in Manitoba and southeastern Saskatchewan where a profitable crop is unlikely to be harvested unless farmers can sow rust-resistant varieties. In 1904, 1916, and almost every year until 1938 heavy losses occurred from wheat rust. Breeding for rust resistance began in earnest in 1925. From 1938, when sufficient seed of the first rust-resistant varieties was available to sow large acreages, until 1950 when these varieties began to be attacked by new races of rust, there was an annual saving of about 40,000,000 bu. of wheat. After 1950 the new rust races increased rapidly and in 1954 a rust epidemic destroyed an estimated 135,000,000 bu. But now a new rust-resistant variety, named *Selkirk*, has been introduced and losses in 1955 were again confined to susceptible varieties. Agricultural scientists are on the alert and are constantly breeding new varieties to combat different races of rust which might become epidemic in the future.

Production and Protection of Crops and Animals.—The Health of Animals Division and the Plant Protection Division are concerned with protection against importation of disease and pests and carry on extensive testing and control work within the country to keep down the spread of disease. 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 and 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



A test plot of wheat is harvested at the Central Experimental Farm, Ottawa. Much of the work of the federal experimental farms is concerned with crop plants for, after the soil itself, they are of chief importance. Breeding and testing of grain is under continual study.

Protective covers are placed on barley heads to prevent cross-pollination.



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 within provincial boundaries are inspected and graded. (See p. 240 for information on co-operatives.)

Price Stability.—Canada, like most agricultural countries, has measures designed to give price stability in marketing. Under the Agricultural Prices



Water conservation dam in the Lethbridge district of southern Alberta. Irrigation is transforming thousands of square miles of formerly arid lands into areas of high agricultural production.

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.

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 be made of the marshlands rehabilitation in Nova Scotia and New Brunswick, where the Federal Government, along with the two provincial governments, has undertaken on a joint basis to preserve, and in some areas to restore, the productivity of rich agricultural lands which are threatened by the sea in the Bay of Fundy. Some work has also been done in Prince Edward Island.

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

• Statistics of Agriculture

Farm Income

The net income of Canadian farm operators from farming operations has dropped each year since the record level of \$2,454,500,000 was reached in 1951. In 1954 net income was \$1,125,641,000, a figure considerably lower than the post-war average (1946-53) of \$1,611,600,000. Poor crops in Western Canada were the principal cause of the 33-p.c. drop in 1954 as compared with

A sprinkler system distributes water from a nearby slough over a 200-acre field in the semi-arid interior of southern British Columbia.





Tomatoes produced in greenhouses with the aid of electrically operated unit heaters, supply the off-season market.

1953. The decline of 19 p.c. in gross farm income far more than offset a 2-p.c. decrease in farm operating expenses and depreciation charges.

Net Income of Farm Operators from Farming Operations, 1951-54

Item	1951	1952	1953	1954
	\$'000	\$'000	\$'000	\$'000
1. Cash income	2,816,461	2,849,310	2,776,003	2,377,834
2. Income in kind	408,613	413,496	400,445	391,986
3. Value of changes in inventory	353,379	237,742	50,263	-145,088
4. Gross Income (Items 1 + 2 + 3)	3,578,453	3,500,548	3,226,711	2,624,732
5. Operating expenses and depreciation charges	1,434,282	1,582,206	1,528,678	1,501,518
6. Net income, excluding supplementary payments (Item 4-5)	2,144,171	1,918,342	1,698,033	1,123,214
7. Supplementary payments	10,356	5,131	1,572	2,427
8. Net Income of Farm Operators from Farming Operations	2,154,527	1,923,473	1,699,605	1,125,641

Cash income from the sale of farm products is the most important item of net farm income and represents receipts from all products sold off farms during the year together with participation payments on the grain crops of previous years. For 1954, this income was estimated at \$2,377,834,000, about 14 p.c. lower than the total for 1953 and 16 p.c. below the all-time high attained in 1952. Nearly all of the reduction in cash income took place in the Prairie Provinces and was the result of a substantial decrease in the marketings of grains, particularly of wheat, and lower prices for both wheat and barley.

Cash Income from the Sale of Farm Products, by Province, 1952-54

Province	1952	P.C. of Total	1953	P.C. of Total	1954	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	31,998	1.1	22,832	0.8	24,031	1.0
Nova Scotia.....	40,207	1.4	41,319	1.5	43,017	1.8
New Brunswick.....	53,445	1.9	46,141	1.7	48,419	2.0
Quebec.....	417,377	14.6	393,251	14.2	407,947	17.2
Ontario.....	736,887	25.9	718,862	25.9	704,544	29.6
Manitoba.....	249,634	8.8	220,038	7.9	186,508	7.9
Saskatchewan.....	710,738	24.9	742,236	26.7	472,297	19.9
Alberta.....	505,070	17.7	486,475	17.5	385,694	16.2
British Columbia.....	103,984	3.7	104,849	3.8	105,377	4.4
Totals.....	2,849,310	100.0	2,776,003	100.0	2,377,834	100.0

Cash Income from the Sale of Farm Products, by Source, 1954

Source	Cash Income	Source	Cash Income
	\$'000		\$'000
Grains, seeds and hay.....	630,426	Miscellaneous farm products....	44,634
Vegetables and other field crops...	167,710	Forest products sold off farms....	83,336
Livestock.....	841,535	Fur farming.....	12,192
Dairy products.....	426,188		
Fruits.....	46,380		
Eggs, wool, honey and maple products.....	125,433	Cash Income from Sale of Farm Products.....	2,377,834

Income from the sale of wheat declined from \$654,100,000 in 1953 to \$322,600,000 in 1954. Farmers' deliveries during the year totalled about 288,000,000 bu., only a little more than half the amount delivered in 1953. Wheat prices, too, were below the 1953 level and participation payments were

A trend is developing away from conventional farm buildings for the housing of cattle in Eastern Canada. Pole barns with self-feeding facilities are contributing to lower costs, labour savings and improved herd health.





Contestants study soil in a land-judging competition held on an Ontario farm.

down from \$125,400,000 to \$97,400,000. Lower marketings of oats and barley and lower prices for barley brought down substantially the income from the sale of coarse grains, and participation payments for these two grains were also down. Smaller returns were obtained from the sale of rye, corn, potatoes, vegetables and sugar beets but some increase was realized from flaxseed, hay, tobacco, and clover and grass seed.

Increased marketings of all classes of livestock and higher prices for hogs brought the receipts from the sale of livestock up 7 p.c. from the 1953 level. Income from dairy products reached a high point of \$426,200,000, increased production more than offsetting lower prices. However the higher marketings of eggs did not counterbalance substantially lower prices and income from this item dropped to \$112,200,000 from \$136,300,000 in 1953. On the other hand, income from poultry meat at \$136,500,000 was a little above 1953 receipts.

There was a sharp reduction in the value of year-end changes in farm inventories. Livestock numbers continued to build up during the year but their value was far more than offset by the much lower stocks of grain on farms at the year end. Farm operating expenses were about 2 p.c. lower than in 1953 and 5 p.c. below the peak level reached in 1952. The smaller prairie grain crops resulted in lower share-rent payments which in turn brought the gross farm rent down by nearly 41 p.c. Expenditures for hired labour were down by 8 p.c. mainly because lower wages were paid during the year. The 3-p.c. decrease in fertilizer outlay reflected a reduction in quantities used. Shipments of prepared stock and poultry feeds and the movement of western

grain under the Federal Freight Assistance plan were well above the 1953 level and, although prices were lower, the total cost of feed and seed purchased by farmers was more than 3 p.c. above 1953.

Estimates for 1955.—Early estimates indicate that farm cash income in 1955 will not be significantly different from the 1954 total. However, when a much higher value of year-end changes in inventories is added to this income and allowance made for only slightly higher farm operating expenses and depreciation charges, the resultant farm net income for 1955 is expected to be well above that of 1954. It is anticipated that income from the sale of wheat will be above 1954 as a result of higher total marketings. Marketings of live-stock, particularly hogs, will also be higher. Cattle prices will remain about the same but hog prices will average much lower so that returns from livestock may not vary greatly from 1954 experience. Higher share-rent payments resulting from substantially larger grain crops in 1955 will raise operating expenses and also, because of the larger crop and heavy carryover in commercial farm-held grain channels, stocks at the year-end will be significantly higher.



Field Crops

Seeding was somewhat late in many parts of Canada in 1955 but weather conditions during the summer and autumn were generally favourable to good growth and development of crops. Average yields per acre for all but four of the twenty-one field crops either equalled or exceeded those of 1954. The exceptions were buckwheat, dry peas, rapeseed and field roots. Estimated production was greater than in 1954 for all crops except winter wheat, fall rye, buck-

wheat, dry peas, field roots and sugar beets, and was also greater than the ten-year (1945-54) average for most major crops. New production records were set in 1955 for corn for grain, soybeans and mustard seed and next-to-record crops of flaxseed, mixed grains and rapeseed were harvested.

Total marketings of the five major grains in Western Canada in 1954-55 amounted to some 524,600,000 bu. compared with 608,300,000 bu. in 1953-54 and the ten-year (1943-44—1952-53) average of 558,100,000 bu. Combined exports of the five grains, including wheat flour, rye flour, rolled oats and oatmeal in grain equivalent, totalled 366,900,000 bu. as against 437,800,000 bu. in 1953-54 and the ten-year average of 381,700,000 bu. Largely as a result of the smaller 1954 crop, combined stocks of the five major grains in all positions at July 31, 1955, were estimated at 694,900,000 bu., a drop of 22 p.c. from the

previous year's record 895,200,000 bu. but 91 p.c. above the ten-year average of 363,700,000 bu. However, increased production in 1955 has resulted, with the exception of rye, in larger supplies for the 1955-56 crop year. Total supplies of the major grains for 1955-56, consisting of the July 31, 1955 carry-over and 1955 production, were estimated in millions of bushels as follows (1954-55 figures in parentheses): wheat, 993,800,000 (910,800,000); oats, 487,800,000 (432,600,000); barley, 343,300,000 (321,400,000); rye, 33,200,000 (33,500,000); and flaxseed, 22,700,000 (13,800,000).

More than 90 p.c. of the 1955 western crop of hard red spring wheat is expected to fall in grades 1 to 4 Northern. The average protein content of the crop was 13.0 p.c., 0.4 p.c. higher than the 1954 average. Taking into consideration the quantities of low-grade wheat still available from the 1954 crop, Canada is in a position to supply the market with a full range of milling and feed grades during the 1955-56 crop year.

With abnormally large supplies of grain in the country and a tendency toward contraction in foreign demand, the pressure on Canada's grain storage and handling facilities remains unrelieved. The Canadian Wheat Board has had to review continuously the situation with respect to the provision of adequate supplies of the various grains at the right time and in the desired positions to meet both domestic and export commitments. At the same time the Board has endeavoured to ensure that all western producers in the Board's 'designated area' have the opportunity of delivering grain in as equitable a manner as possible.

The delivery quota policy with respect to initial* and general† quotas in 1955-56 is essentially unchanged from that in effect in 1954-55. At the close of the 1954-55 crop year all but 28 closed stations were on an 8-bu. general quota and, with the storage position still very tight, it was necessary to extend this quota (on old crop grains) well into November of the new crop year. At Dec. 28, 1955, some 842 delivery points out of a total of 2,080 were on a 1-bu. general quota; 321 were on a 2-bu. quota; 92 were on a 3-bu. quota basis while

*The initial quota consists of 100 units, each unit being the equivalent of 3 bu. of wheat or 8 bu. of oats or 5 bu. of barley or 5 bu. of rye.

†The general quota is based upon bushels per 'specified' acre, the 'specified' acreage consisting of each permit holder's acreage seeded to wheat (other than durum), oats, barley or rye, plus his acreage in summerfallow in 1955.



Shelling and drying of corn is an automatic process. An electronic tester determines moisture content before it is put through the dryer.

Corn is almost exclusively an Ontario crop—22,000,000 bu. were harvested in that Province in 1954, adding \$13,000,000 to the farmers' cash income. Besides its popularity as canned food, it is used in breakfast cereals, as livestock feed and in the manufacture of syrup, starch, paper, textiles, cooking oils and even antibiotics.



\$14 were still on the initial quota. Some 11 stations were closed. Details on the operation of the quota policy will be found in DBS publications, *The Wheat Review* (monthly) and the *Course Grains Quarterly*.

Estimated Area, Yield and Production of Principal Field Crops, 1954 and 1955

Crop	Area		Yield per Acre		Production	
	1954	1955	1954	1955 ^a	1954	1955 ^a
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	24,266,800	21,504,400	12.7	23.0	308,909,000	494,090,000
Winter wheat.....	710,000	582,000	34.0	34.3	24,640,000	19,963,000
Spring wheat ¹	23,556,800	20,922,400	12.1	22.7	284,769,000	474,127,000
Oats for grain.....	10,160,600	11,178,000	30.2	36.1	306,793,000	403,835,000
Barley.....	7,855,900	9,912,300	22.3	25.4	175,509,000	251,781,000
All rye.....	850,500	778,000	16.7	18.9	14,176,000	14,711,000
Fall rye.....	672,500	566,700	17.7	19.9	11,922,000	11,301,000
Spring rye.....	178,000	211,300	12.7	16.1	2,254,000	3,410,000
Flaxseed.....	1,206,000	1,988,400	9.3	10.8	11,238,000	21,498,000
Mixed grains.....	1,632,600	1,705,200	37.6	38.2	61,454,000	65,154,000
Corn for grain.....	418,000	507,000	53.4	62.1	22,339,000	31,510,000
Buckwheat.....	130,500	127,400	17.7	17.6	2,316,000	2,243,000
Peas, dry.....	50,000	45,200	17.6	15.2	880,000	686,000
Beans, dry.....	72,500	81,000	14.2	15.9	1,027,700	1,286,000
Soybeans.....	254,000	214,000	19.5	26.4	4,953,000	5,650,000
Potatoes.....	299,700	308,300	172.8	206.2	51,783,000 ^b	63,578,000
Mustard seed.....	66,800	78,500	415	673	27,733,000	52,840,000
Rapeseed.....	40,000	136,200	722	410	28,900,000	55,780,000
Sunflower seed.....	20,000	18,000	700	800	14,000,000	14,400,000
Tame hay.....	10,802,000	11,055,000	1.81	1.81	19,549,000	20,018,000
Fodder corn.....	355,500	366,400	8.38	8.85	2,978,100	3,243,400
Field roots.....	42,800	42,400	10.28	10.16	440,000	431,000
Sugar beets.....	90,453	81,928	11.10	11.39	1,003,869	933,000

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



Prince Edward Island farmers specialize in potatoes. About 43,000 of the Province's 428,000 acres under crop are devoted to growing of this product.

Pricing arrangements for the 1955-56 crop year are little changed from those in effect for 1954-55. The initial payment to producers for No. 1 Northern is again \$1.40 per bu. with No. 1 C.W. amber durum at \$1.50 per bu. However, effective Sept. 7, 1955, the 10-cent-per-bu. premium charged on durums sold domestically was dropped. Class II durums continue to hold a substantial margin over domestic and IWA quotations for this variety. Apart from durums, current quotations for IWA domestic and Class II sales coincide.

The Canadian export quota under the third year (1955-56) of the current International Wheat Agreement is 153,100,000 bu. The maximum and minimum prices \$2.05 and \$1.55 per bu., respectively (in U.S. funds), remain unchanged from 1954-55.

Production, Imports and Exports of Wheat, Years Ended July 31, 1947-56

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.
1947	411,601	16	239,421	159,655
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	494,090	—	—	—

Marketing of Other Grains.—Aside from wheat, the largest volumes of grain marketed are oats and barley. In Western Canada, these two grains are currently marketed through compulsory crop-year pools administered by the Canadian Wheat Board. As in the case of wheat, producers receive a

fixed initial payment on a grade basis for oats and barley at the time of delivery and additional payments depending on the prices ultimately realized by the Board on its sales of the various grades. Other grains, of which the most important are rye and flaxseed, are sold on the open market in Western Canada.

In Eastern Canada where grains are not as extensively grown for sale as in the Prairie Provinces, facilities for grain marketing are less highly organized. Nevertheless, there are important cash markets, particularly in southwestern Ontario, for such crops as winter wheat, malting barley, soybeans, dry beans and shelled corn. Producer organizations exist for many of these and other cash crops and most of them take an active interest in storage and marketing arrangements.

From the standpoint of importance in terms of volume, however, marketing of western Canadian oats and barley is second only to that of wheat. Initial payments for both oats and barley in 1954-55 were the same as in 1953-54, i.e., on the basis of 65 cents per bu. for No. 2 C.W. oats and 96 cents per bu. for No. 3 C.W. Six-Row barley, in store Fort William-Port Arthur. The basic initial payments for oats and barley in 1955-56 are again unchanged.

Effective Mar. 21, 1955, and retroactive to Aug. 1, 1954, the initial payments on oats were increased by 7 cents per bu. for deliveries into the 1954-55 pool. Effective Mar. 14, 1955, and retroactive to Aug. 1, 1954, initial payments on barley were increased by 10 cents per bu. for deliveries into the 1954-55 pool.

Final payments on the 112,428,326 bu. of barley delivered to the 1954-55 pool averaged 5.814 cents per bu. after deduction of payment expenses and the

Haying on an eastern Canadian farm is a family and neighbourhood affair.



1-p.c. Prairie Farm Assistance levy. Total prices (basis in store Fort William-Port Arthur) realized by producers for representative grades, after deducting carrying charges in country and terminal elevators, Board administrative costs, etc., but before deducting the 1-p.c. PFAA levy, were \$1.10501 per bu. for No. 3 C.W. Six-Row barley and \$1.00653 per bu. for No. 1 Feed barley. Final payments on the 69,581,184 bu. delivered to the 1954-55 pool averaged 5.432 cents per bu. Total prices realized by producers for representative grades, on the same basis as for barley, were \$0.80742 per bu. for No. 2 C.W. and \$0.71351 per bu. for No. 1 Feed oats.

Some 13,200,000 bu. of rye and 8,800,000 bu. of flaxseed were delivered by farmers in Western Canada in 1954-55, both these grains being sold on the open market.

Livestock

The number of cattle on farms at June 1, 1955, was estimated at 10,239,000 head, about 3 p.c. more than at the same date of 1954. Milk cows increased about 2.5 p.c. Hogs on farms continued to advance in numbers; in 1955 there were 18 p.c. more than in 1954 and 24 p.c. more than in 1953. There was no significant change in the number of sheep and lambs on farms from June 1, 1954 to June 1, 1955, but horses continued to diminish, numbering 901,400 on the latter date, about 92,000 fewer than a year previously.

Livestock on Farms, by Province, as at June 1, 1955

Province	Milk Cows	Other Cattle	Hogs	Sheep and Lambs	Horses
	No.	No.	No.	No.	No.
Prince Edward Island	47,300	77,700	61,000	39,700	16,000
Nova Scotia	90,000	115,000	36,000	97,000	19,400
New Brunswick	98,000	104,000	72,000	66,000	23,000
Quebec	1,121,000	937,000	1,272,000	346,000	195,000
Ontario	1,058,000	2,008,000	1,840,000	413,000	155,000
Manitoba	201,000	473,000	408,000	57,000	82,000
Saskatchewan	280,000	1,170,000	715,000	159,000	206,000
Alberta	315,000	1,770,000	1,620,000	460,000	176,000
British Columbia	102,000	272,000	55,000	85,000	29,000
Totals, 1955	3,312,300	6,926,700	6,079,000	1,722,700	901,400
1954	3,233,000	6,721,000	5,141,000	1,716,400	993,300

The movement of cattle off Canadian farms into public stockyards and packing plants rose 13.6 p.c. above the 1953 total, calf marketings increased 10 p.c., sales of sheep and lambs rose 4 p.c. and hog deliveries were up 1.6 p.c. compared with 1953. Cattle prices, although unusually steady all year, averaged somewhat lower than in 1953. Steers up to 1,000 lb. good, averaged \$17.25 per cwt. (\$20.25 in 1953); common, \$14.67 (\$15.53). On the other hand, despite increased sales, hog prices during 1954 averaged 50 cents per cwt. above the 1953 average.

Meat animals were in good supply and consumer buying continued at a high level, so that per capita consumption of beef was again up. Beef disappearance reached 72.0 lb. per person in 1954 compared with 64.5 lb. in 1953 and 44.7 lb. in 1952, but per capita pork consumption continued its decline from 65.9 lb. in 1952 and 55.0 lb. in 1953 to 53.7 lb. in 1954.

Commercial Marketings of Livestock, by Province, 1954

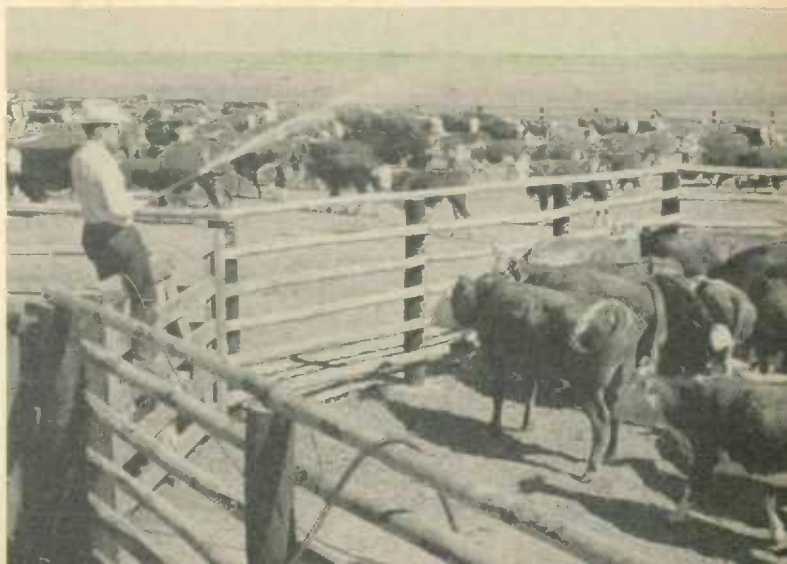
Province	Cattle	Calves	Hogs	Sheep and Lambs
	No.	No.	No.	No.
Prince Edward Island.....	12,407	2,466	82,413	14,532
Nova Scotia.....	5,872	3,751	20,951	9,466
New Brunswick.....	8,750	21,651	40,768	17,443
Quebec.....	96,990	292,392	898,581	148,920
Ontario.....	659,001	266,672	1,790,032	174,265
Manitoba.....	192,924	87,814	336,015	33,689
Saskatchewan.....	416,252	104,077	421,601	45,343
Alberta.....	561,647	132,496	1,476,249	122,225
British Columbia.....	54,258	10,966	32,291	26,534
Totals, 1954	2,008,101	922,285	5,098,901	592,417
1953	1,767,599	837,722	5,018,081	570,289

Estimated Meat Production and Consumption, 1953 and 1954

Item		1953	1954	1953	1954
		Beef		Veal	
Animals slaughtered.....	No.	1,983,800	2,266,100	1,172,000	1,464,600
Animals exported.....	"	67,300	85,971	2,205	3,223
Meat production ¹	'000 lb.	983,807	1,100,060	124,469	153,774
Total domestic disappearance.....	"	953,978	1,094,459	121,386	153,974
Per capita disappearance.....	lb.	64.5	72.0	8.2	10.1
		Pork		Mutton and Lamb	
Animals slaughtered.....	No.	6,892,100	7,081,800	679,300	708,400
Animals exported.....	"	21,124	26,508	2,347	2,402
Meat production ¹	'000 lb.	885,424	917,106	29,136	30,155
Total domestic disappearance.....	"	812,711	815,687	34,468	37,547
Per capita disappearance.....	lb.	55.0	53.7	2.3	2.5
		Offal		Canned Meat	
Production.....	'000 lb.	81,393	89,372	56,249	57,450
Total domestic disappearance.....	"	75,325	80,316	84,061	44,144
Per capita disappearance.....	lb.	5.1	5.3	5.7	2.9

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

Spraying cattle on a Saskatchewan ranch with DDT solution to combat horn flies and mosquitoes.



Dairying

Milk.—Canada's milk production reached a total of 16,883,621,000 lb. in 1954, 3 p.c. higher than for 1953. Reports from dairy factories show that the production of dairy products during the first ten months of 1955 amounted to the equivalent of 8,784,565,000 lb. of milk, which represents 59 p.c. of the total milk production of approximately 15,000,000,000 lb. for the period. The 1955 production is tentatively estimated at 17,000,000,000 lb., the highest output on record.

Butter. The total quantity of butter manufactured in 1954 amounted to 334,343,000 lb., the highest annual output since 1949. Creamery butter, of course, comprises the greater part of the butter supply. Production of dairy butter in recent years has fallen to quite low levels amounting to only 6 p.c. of the total output in 1954. During the ten months January-October 1955, creamery butter production reached a total of 285,198,000 lb., whey butter, 1,476,000 lb., and dairy butter 16,000,000 lb., making a total butter output for the period of 302,674,000 lb., compared with a combined total of 301,043,000 lb. for the same period in 1954. The domestic disappearance of butter in 1954 averaged 20·69 lb. per capita compared with 20·88 lb. per capita in 1953 and 26·69 lb. in 1948.

The increase in population is affecting total butter consumption—in the first ten months of 1955, it amounted to 264,523,000 lb., compared with 258,450,000 lb. in the same months of 1954—but the per capita consumption was up only from 17·01 lb. to 17·13 lb. in the same comparison. Since 1949, the manufacture of margarine has been a competitive factor in the domestic consumption of butter.

Cheddar Cheese.—At the present time, the greater part of the cheddar cheese produced in Canada is consumed domestically. In 1954, production increased approximately 10 p.c. over 1953 to 84,436,000 lb. but in the January-October period of 1955 production amounted to 71,600,000 lb. as against 77,525,000 lb. in the first ten months of 1954. However, the total quantity of



Technicians of provincial health laboratories guard against the sale of impure milk.

More milk was produced in Canada in 1955 than ever before. About 30 p.c. of the production is used in fluid form, the daily consumption per person averaging just under one pint.



cheddar cheese disposed of in Canada during 1954 amounted to 70,310,000 lb., compared with 68,251,000 lb. in 1953, representing a per capita consumption of 4.63 lb. and 4.62 lb., respectively. Of this amount, 37,798,000 lb. was used as cheddar and 32,512,000 lb. in processed cheese. These amounts, together with 12,913,000 lb. of cheese other than cheddar, amounted to a total domestic disappearance of 83,223,000 lb. in 1954, approximately 3,100,000 lb. more than in the previous year. Per capita disappearance of all types of cheese was 6.26 lb. in 1954, as compared with 6.21 lb. in 1953.

Dairy Production, by Economic Area, 1952-54

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.... 1952	1,026,830	325,307	16,808	3,889	1,400	2,541
1953	1,102,072	338,914	19,798	3,756	1,336	2,436
1954	1,139,192	350,395	21,035	3,213	1,713	2,425
Que. and Ont. 1952	10,442,330	3,415,808	181,261	7,076	62,462	15,884
1953	10,894,042	3,564,104	194,836	5,811	70,568	17,262
1954	11,241,708	3,640,517	202,612	5,221	77,981	17,222
Prairies..... 1952	3,607,834	666,593	79,007	12,062	3,490	5,873
1953	3,727,503	704,427	82,783	10,927	4,181	6,053
1954	3,733,502	738,538	82,140	10,338	3,955	5,938
B.C..... 1952	657,609	348,694	3,670	742	466	2,964
1953	725,062	359,710	5,366	675	659	3,058
1954	769,219	370,842	7,067	736	787	3,057
Totals..... 1952	15,734,603	4,756,402	280,746	23,769	67,818	27,262
1953	16,448,679	4,967,155	302,783	21,169	76,744	28,809
1954	16,883,621	5,100,292	312,854	19,508	84,436	28,642

¹ Not included in this table are: whey butter with a production of 1,981,000 lb. in 1954 and 1,738,000 lb. in 1953, other cheese with 7,229,000 lb. and 6,475,000 lb., respectively, and concentrated milk products with 450,189,000 lb. and 439,786,000 lb., respectively.

Concentrated Milk and Ice Cream.—In 1954 the production of concentrated milk products amounted to 450,189,000 lb., up 2 p.c. from 1953. A further increase in production occurred during the January-October period of 1955. Evaporated milk, the most important product, increased 5 p.c. over that produced in the ten-month period of 1954, and whole-milk powder advanced 16 p.c. Skim-milk powder, which amounted to approximately 75,000,000 lb. in the 1954 period, advanced approximately 1,000,000 lb. during this period of 1955. Ice cream production, which fell slightly in 1954, made a 16-p.c. advance in January-October 1955 as compared with the same period of 1954.

Income.—Farm income from dairying in 1954 amounted to \$462,486,000, of which \$426,088,000 was cash income and \$36,398,000 income in kind. Prices of all products declined in 1954 as compared with 1953, but advanced slightly in 1955.

Poultry

The estimated number of poultry on farms in Canada (exclusive of Newfoundland) at June 1, 1955, was 66,214,000 birds. This was a decrease of 8 p.c. from June 1, 1954. There were 8 p.c. fewer hens and chickens and 3 p.c. fewer turkeys.

Egg production in 1954 was estimated at 392,406,000 doz., an increase of 11 p.c. over the 353,199,000 doz. produced in 1953. The per capita consumption of eggs in 1954 was 24.4 doz., an increase of 1.6 doz. compared to the previous year. Poultry meat production, estimated at 421,456,000 lb. in 1954, was 9 p.c. greater than in 1953 and per capita consumption of poultry meat rose from 26.4 lb. to 28.7 lb. The total farm value of eggs and poultry meat produced in 1954 was \$311,092,000.

Poultry on Farms, by Province, June 1, 1953-55

(Exclusive of Newfoundland)

Province and Year		Hens over Six Months Old	Total Hens and Chickens	Turkeys	Geese	Ducks
		'000	'000	'000	'000	'000
Maritime Provinces.....	1953	1,575	3,490	92	30	23
	1954	1,635	3,970	100	30	23
	1955	1,750	3,803	89	32	24
Quebec.....	1953	3,300	9,800	375	14	53
	1954	3,650	10,859	460	15	56
	1955	3,476	9,282	420	14	57
Ontario.....	1953	7,200	23,400	568	147	168
	1954	7,300	24,000	655	135	150
	1955	7,055	20,860	700	120	180
Prairie Provinces.....	1953	7,340	23,370	1,355	182	217
	1954	7,150	24,650	1,830	172	237
	1955	7,570	24,200	1,740	177	254
British Columbia.....	1953	1,280	3,900	225	15	27
	1954	1,500	4,130	320	14	24
	1955	1,550	3,900	328	14	20
Totals.....	1953	20,695	62,960	2,615	388	488
	1954	21,235	67,609	3,365	366	490
	1955	21,401	62,045	3,277	357	535



Light Sussex chickens on a Nova Scotia poultry farm are fed from a truck. There are about 25,000 birds on this range.

Quantity and Value of Eggs and Poultry Meat Produced, by Province, 1954

Province	Eggs		Poultry Meat	
	Production	Value	Production	Value
	'000 doz.	\$'000	'000 lb.	\$'000
Maritime Provinces.....	33,500	13,764	24,798	11,494
Quebec.....	63,808	26,321	69,614	29,805
Ontario.....	156,385	60,090	158,630	63,487
Prairie Provinces.....	107,834	35,000	131,861	42,231
British Columbia.....	40,879	12,899	36,553	16,001
Totals, 1954.....	392,406	148,074	421,456	163,018
1953.....	353,199	164,528	385,064	160,477

Special Crops

Fruit.—Fruit is grown on a commercial scale in Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. The main producing areas are in Ontario and British Columbia, these provinces accounting for 43 p.c. and 31 p.c., respectively, of the value of all fruit produced in 1954. In most of the producing areas, particularly the Annapolis Valley of Nova Scotia, the Niagara Peninsula of Ontario and the Okanagan Valley of British Columbia, fruit-growing is a specialized crop and the prosperity of the area is dependent to a large extent upon the fruit output.

Values of Fruits Produced, 1951-54, with Averages 1946-50

Fruit	Average 1946-50	1951	1952	1953	1954
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	16,139	13,893	17,391	17,578	17,963
Pears.....	1,895	2,238	2,371	2,653	2,716
Plums and prunes.....	1,245	865	1,033	1,252	1,539
Peaches.....	3,987	4,004	5,152	5,543	5,252
Apricots.....	344	116	342	425	319
Cherries.....	2,374	2,263	2,113	2,658	3,232
Strawberries.....	5,721	5,662	6,077	6,405	6,904
Raspberries.....	3,185	3,133	2,565	3,661	3,236
Grapes.....	2,969	2,813	3,052	3,496	3,896
Loganberries.....	200	147	158	197	207
Blueberries.....	—	—	3,384	3,339	3,409
Totals.....	38,062	35,134	43,638	47,207	48,673

The apple is the most important of the commercial fruits grown in Canada. In 1954, a normal production year, 14,600,000 bu. with a farm value of \$17,963,000 were produced; 44.8 p.c. of them were British Columbia apples, 21.5 p.c. were grown in Ontario, 17.2 p.c. in Quebec, 14.8 p.c. in Nova Scotia and 1.7 p.c. in New Brunswick. The average price received by the growers in these areas for unpacked fruit differed considerably. It ranged from 91 cents per bu. in British Columbia to \$1.75 per bu. in New Brunswick. The 1955 apple crop was exceptionally high and of good quality in all producing areas. It is estimated at 19,500,000 bu., 34 p.c. higher than in 1954 and the largest crop on record. Most of the increase occurred in Eastern Canada, over two-thirds of it being in Nova Scotia and Quebec. As a result, apples from these two provinces have been more widely distributed than in other years. There has been a change toward more orderly marketing of apples in recent years. Cold-storage facilities have increased and the marketing season has been extended over almost the whole year. Of the total supply at the end of the 1954-55 season, including some imports, about 34 p.c. was processed, 14 p.c. exported and the balance marketed domestically in fresh state.

Strawberries and raspberries are also grown in commercial quantities in the five fruit-producing provinces 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 and loganberries was higher in 1955 than in 1954 but 1955 strawberry, raspberry and grape crops were lower. November 1955 estimates of production, with final figures for 1954 in parentheses, were: pears 1,458,000 bu. (1,261,000); plums and prunes 780,000 bu. (716,000); peaches 2,935,000 bu. (2,425,000); apricots 218,000 bu. (118,000); cherries 544,000 bu. (500,000); strawberries 22,659,000 qt. (27,971,000); raspberries 10,957,000 qt. (12,839,000); loganberries 1,530,000 lb. (1,056,000); and grapes 86,470,000 lb. (92,774,000).

Canning and processing industries have developed in the fruit-growing districts and although the importance of the processing market varies with the different fruits it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops. Some canned fruits are exported.

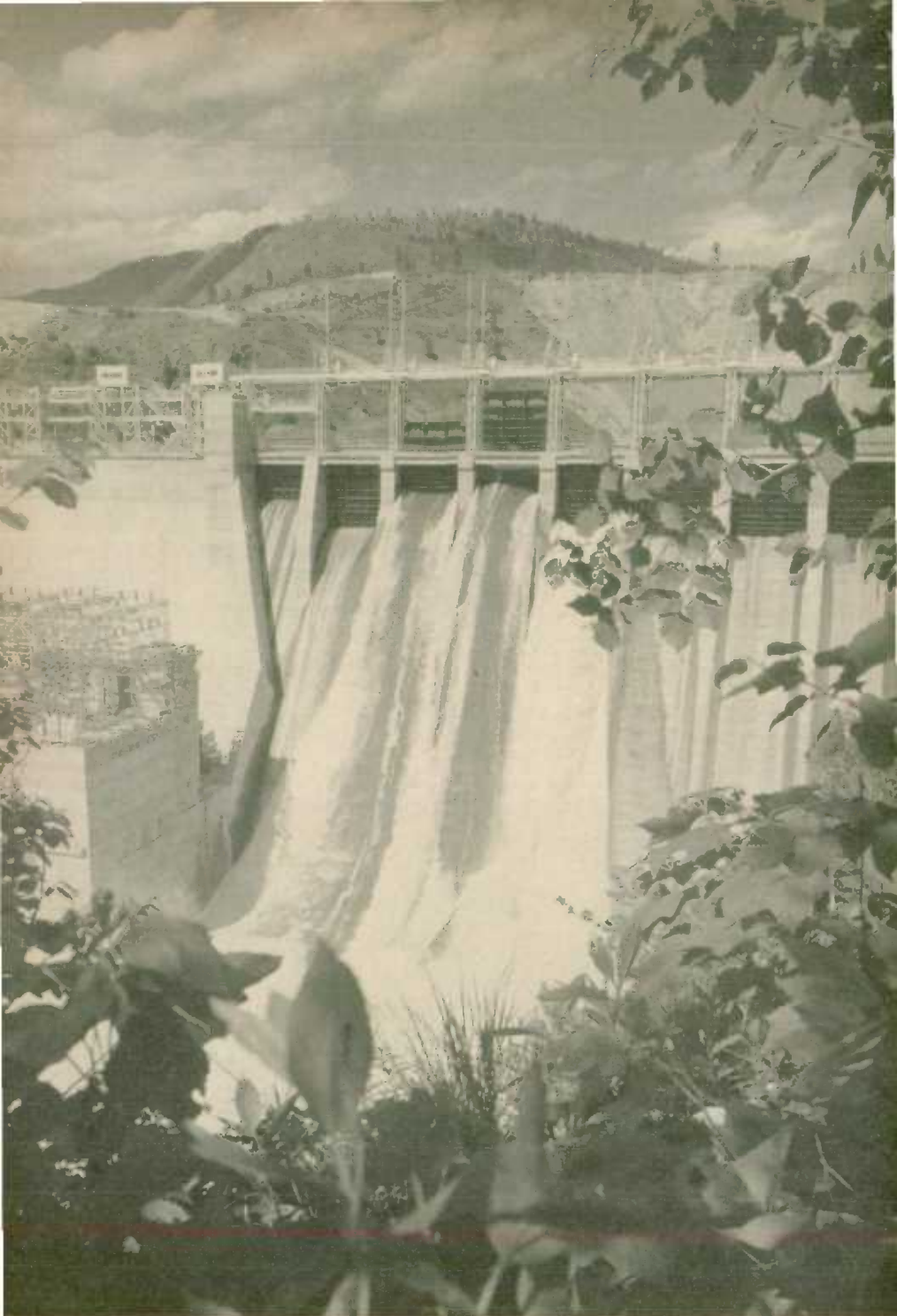
Tobacco.—Most of the tobacco produced in Canada is grown in southern Ontario and a great part of it is flue-cured tobacco. Quebec and British Columbia are the only other producing provinces, Quebec growing all the cigar tobacco crop and Quebec and Ontario both producing some pipe tobacco. The estimated production of all types of tobacco in 1955 amounted to 122,200,000 lb., re-dried weight, a reduction of 44,300,000 lb. from the record 1954 crop. An agreed 30-p.c. reduction of acreage planted in Ontario together with weather and disease damage to the crop reduced the yield per acre of Ontario flue-cured tobacco from 1,436 lb. in 1954 to 1,278 lb. in 1955. Estimated tobacco acreages planted in 1955, with 1954 data in parentheses, were: Ontario, 95,800 acres (120,804); Quebec, 11,300 acres (10,863); British Columbia, 90 acres (72).

Honey.—Honey is produced commercially in all provinces except Newfoundland, Ontario having the largest output. Farm cash income from the sale of honey decreased each year from \$6,445,000 in 1951 to \$3,548,000 in 1954 and while estimates place the 1955 crop at 24,600,000 lb. which is 24 p.c. higher than in 1954, the production for the latest year is still below the 1944-53 average of 33,300,000 lb. Higher average yields accounted for the 1955 production increase. Weather conditions were generally favourable in the Prairie Provinces and yields there were considerably above both the 1954 and the ten-year average. The number of bee colonies in Canada, estimated at 321,500, was down slightly from 1954.

Sugar Beets.—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and sugar-beet processing plants are located in each of these provinces. In 1955, 933,000 tons of sugar-beets were produced from 81,928 acres compared with 1,003,869 tons in 1954 from 90,453 acres. Harvested acreages in 1955, with figures for 1954 in parentheses, were: Quebec, 5,800 (6,473); Ontario, 18,900 (23,504); Manitoba, 20,740 (23,510); and Alberta, 36,488 (36,966).

Nineteen fifty-five was an apple year —orchards from Nova Scotia to British Columbia produced record crops and the supply greatly exceeded demand for all but the highest quality.





Behind all industrial production is electric power. The two great basic industries of British Columbia—forest products and metallurgy—are large power users and their expansion during the past ten years has required a three-fold increase in turbine installation in that Province.

Ontario has large power resources and ranks second in power production among the provinces. The Hydro-Electric Power Commission of Ontario is the greatest power-producing and distributing organization in Canada; it operates 60 hydraulic generating stations with a total capacity of approximately 4,500,000 h.p., the largest development being on the Niagara River at Queenston where the 1955 capacity of the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 is 1,820,000 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 power on the Saskatchewan, Nelson and Churchill Rivers. The larger of the present developments are located on the Winnipeg River and serve Winnipeg, adjacent municipalities, and the transmission network of the Manitoba Power Commission. The Commission is at present serving about 400 municipalities and is carrying out a vigorous program of rural electrification. In Saskatchewan, water-power developments are confined to mining uses in the northern areas, where water-power resources are abundant. The transmission network of the Saskatchewan Power Corporation of the Provincial Government, serving the more settled areas, is supplied exclusively by fuel-power plants. In Alberta, the larger hydro-electric developments, from which Calgary Power Limited serves a large part of the southern portion of the Province, are located on the Bow River and tributaries. For the most part, the Province's water-power resources are located in the northern areas and are rather remote from present centres of population.

British Columbia, traversed by three distinct mountain ranges and with, on the whole, a high rate of precipitation, has many mountainous rivers which



Potential power. The rugged topography of northern Ontario and Quebec with its innumerable lakes for natural storage and its fast-flowing rivers with their waterfalls offers many opportunities for the development of power.

Water Power

THE potential power available from the falls and rapids on the numerous rivers, large and small, which are well distributed throughout Canada, constitutes one of the country's great natural resources. Canada's wide domain, favourable topography, ample and well-distributed precipitation, and innumerable lakes and rivers, all combine to provide a wealth of water-power capable of furnishing a dependable flow of low-cost hydro-electric energy to the majority of centres of population and for the development of the industries of forest and mine in more remote areas.

Low-cost hydro-electric energy is fundamental to the industrial activities of Canada and is the basis upon which its essential industries have been built. The pulp and paper industry ranks highest in the use of hydraulic and hydro-electric power, its over-all consumption representing about 20 p.c. of the Canadian output of this class of power. Mining and its attendant metallurgical industries are also large users of hydro-electricity, particularly in the final processes in the production of metals such as aluminum, of which Canada is a very large producer. The electro-chemical industries and light manufacturing, such as food-processing and textile production, are also important power consumers. Furthermore, the wide distribution of electric energy, principally derived from water power, has contributed to the high standard of living in Canada by providing economical domestic service to cities, towns, villages and farms.

The table below lists by provinces, and under two conditions of flow, the total power potential of all presently tabulated water-power sites in Canada; also the total installed capacity of all existing water-power developments as of Jan. 1, 1956.

Available and Developed Water Power, by Province, Jan. 1, 1956

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	325,150
Prince Edward Island	500	3,000	1,882
Nov. Scotia	25,500	156,000	176,908
New Brunswick	123,000	334,000	164,130
Quebec	10,896,000	20,445,000	8,031,422
Ontario	5,407,000	7,261,000	5,371,136
Manitoba	3,333,000	5,562,000	796,900
Saskatchewan	550,000	1,120,000	109,835
Alberta	508,000	1,258,000	285,110
British Columbia	7,023,000	10,998,000	2,439,508
Yukon and Northwest Territories	382,500	814,000	33,240
Canada	29,207,000	50,705,000	17,735,221

Engineering genius and the skill of men of many nations is transforming Manitou Falls, an isolated cascade on the English River, into another source of power for the mines, the mills and the homes of northwestern Ontario. Outflow of power from this plan, scheduled for initial service early in 1956, will be radio-controlled from Ear Falls generating station, 17 miles upstream.



Total resources under the condition of "Ordinary Six-Month Flow" are listed at nearly 51,000,000 h.p. However, as it is usual practice to install excess capacity at developed sites, it may be said that presently recorded water-power resources of Canada will permit an economic turbine installation of nearly 66,000,000 h.p. Also, the present total turbine installation of 17,735,221 h.p. represents the development of only about 27 p.c. of recorded resources.

Canada's installed hydro-electric capacity of nearly 18,000,000 h.p. is higher than that of any other country with the exception of the United States which is roughly double that amount. On a per capita basis, Norway comes first with 1.3 h.p. and Canada second with 1.1 h.p. It is interesting to note, however, that the per capita installations of British Columbia and Quebec are, respectively, 1.9 h.p. and 1.8 h.p.

Extensive use of Canada's water-power resources is being made at present and many of the more attractive sites within economic transmission distance of present centres of population have already been developed, but the remaining reserves of not-too-distant power are sufficient in most instances to meet the prospective needs of the more closely settled areas for some years at the very least; also, improvements in the technique of long-distance transmission, including the use of higher voltage, are bringing additional sites within the orbit of existing systems. In more remote districts water power will facilitate the utilization of mineral and other resources and promote the establishment of new communities; from the viewpoint of moving Canada's

frontiers northward, the availability of considerable amounts of potential power in the more northern and at present rather inaccessible regions of the country is definitely advantageous.

Provincial Distribution of Water-Power Resources

On the Island of Newfoundland, and in Nova Scotia and New Brunswick, while the rivers are short, topography and run-off conditions are favourable to power development and numerous sites at which moderate sized developments may be made are located within economic transmission distance of the principal cities and towns. These sites constitute a valuable source of power, a considerable proportion of which has been developed. In Labrador, the Hamilton River system has a high power potential which is at present under investigation.

Quebec is richest among the provinces in water-power resources, containing more than 40 p.c. of the total recorded for Canada; it also ranks highest in developed power, its present installation of 8,031,422 h.p. being more than 45 p.c. of the total for all provinces. Two of the larger hydro-electric plants in the world are located in this Province—the Quebec Hydro-Electric Commission's Beauharnois development on the St. Lawrence River has a present capacity of 1,408,000 h.p. and the Shipshaw plant of the Aluminum Company of Canada on the Saguenay River is rated at 1,200,000 h.p. The Shawinigan Water and Power Company has a capacity of 1,695,000 h.p. in seven plants on the St. Maurice River.

offer opportunity for power development. The majority of developments are located in the southern part of the province, the British Columbia Electric Company Limited, the British Columbia Power Commission and the Consolidated Mining and Smelting Company being important power producers. The new 600,000-h.p. Kemano plant of the Aluminum Company of Canada is the largest in the Province.

In the Yukon and Northwest Territories, although there are appreciable amounts of potential power, the sites are so remotely located as to limit their development to local mining uses; also, owing to light precipitation and the long winter season, favourable sites are limited to those with large storage capacity.

Hydro-Electric Construction during 1955

The development of the water-power resources of Canada proceeded at a high rate during 1955, with slightly more than 1,000,000 h.p. of new capacity being brought into operation.



Ontario.—The largest single increase in capacity during the year was that of 525,000 h.p. in the final five units of the Sir Adam Beck-Niagara Generating Station No. 2 on the Niagara River of The Hydro-Electric Power Commission of Ontario, bringing total capacity of combined Stations Nos. 1 and 2 to 1,820,000 h.p., the largest single installation in Canada. Directly associated with these stations, a pumped storage plant containing six reversible units each rated as a turbine at 45,500 h.p. is being constructed for operation in 1956-57.

At the international rapids site on the St. Lawrence River, good progress was made on the powerhouse foundations following successful de-watering in July; other phases of the project, including re-location of highways, railways and villages, also progressed. The contract for supply of 16 turbines, each of 75,000 h.p., was awarded and initial operation is scheduled for 1958. In the northwestern region, the Commission is constructing a plant of 74,000 h.p. at Manitou Falls on the English River, operation of which is scheduled for 1956.

The Ontario and Minnesota Power Company increased the capacity of its Rainy River plant by 650 h.p. by replacement of turbines.

Quebec.—The Shawinigan Water and Power Company completed the installation of one additional unit in each of its Rapid Blanc, La Trenché and La Tuque plants on the St. Maurice River, the units being, respectively, of 44,500 h.p., 65,000 h.p. and 49,000 h.p., for a total increase in capacity of

158,500 h.p. A new unit of 47,000 h.p. was installed by the Gatineau Power Company in its Panguan Falls plant on the Gatineau River, and one of 34,500 h.p. by the Northern Quebec Power Company in its Quinze Rapids plant on the upper Ottawa River.

The Quebec Hydro-Electric Commission completed the installation of the third unit of 46,000 h.p. in its Rapid II plant on the Ottawa River, bringing capacity to 48,000 h.p. Construction proceeded very actively on the Lac Casse, Bersimis River, project of 1,200,000 h.p. and initial operation is scheduled for late in 1956. Excavation of the 7-mile, 31-foot-diameter tunnel and of the underground powerhouse has been largely completed and good progress has been made on other phases of the development; full operation is anticipated in 1957-58. Investigations and plans are being made by the Commission for a second plant of about 600,000 h.p. at a site about 18 miles downstream.

British Columbia and Yukon Territory.—The Aluminum Company of Canada proceeded with the expansion of its Kemano powerhouse and it was anticipated that the fourth unit of 150,000 h.p. would come into operation late in 1955. Ultimate capacity is about 2,000,000 h.p., the remaining 1,400,000 h.p. to be installed as required.

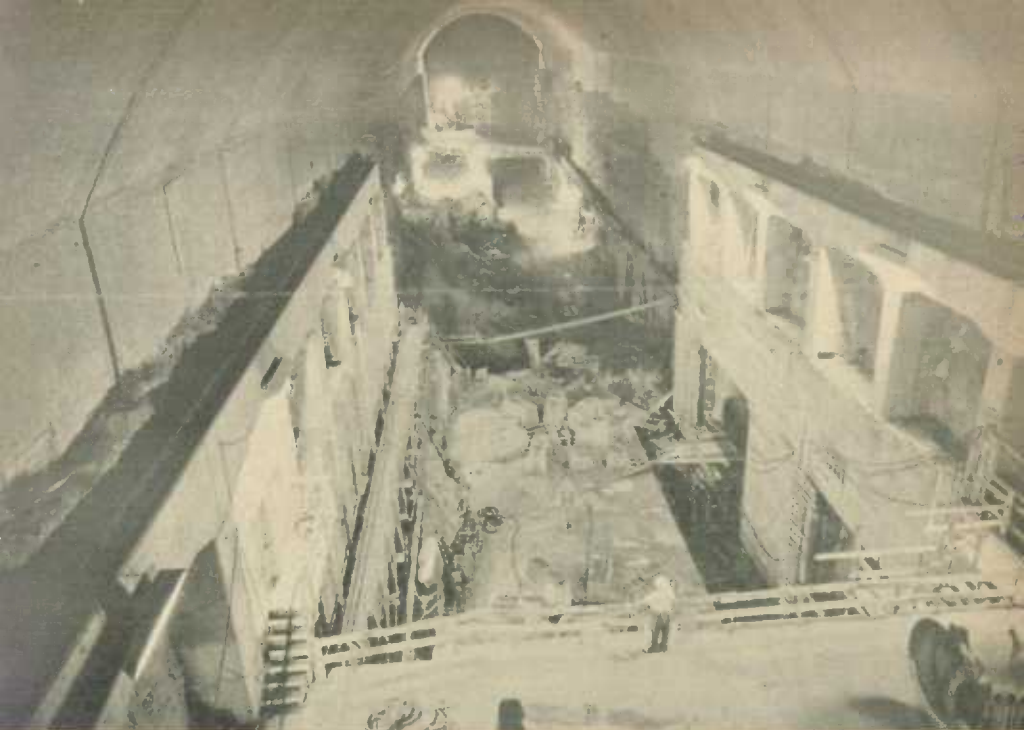
The British Columbia Power Commission completed the redevelopment of the Puntledge River site consisting of a single unit of 35,000 h.p.; also completed was the Spillimacheen River development of 5,500 h.p. Preliminary construction was undertaken on the development at Ladore Falls, Campbell River, of 70,000 h.p. in two units for 1956 operation, and of a later additional unit.

The British Columbia Electric Company proceeded with construction on its development of 58,500 h.p. on Seton Creek near Lillooet for operation in 1956; this plant will use water from the tailrace of the Bridge River powerhouse. Preliminary work was begun on the Cheakamus River development of 190,000 h.p. for 1957 operation. The Northern British Columbia Power Company completed the rebuilding of its Shawatlan plant at Woodworth Lake comprising a new unit of 2,140 h.p.

Northwest Power Industries Limited continued its surveys and investigations in northern British Columbia and southern Yukon Territory towards a major hydro-electric development involving initial storage and later diversion of the waters of the Yukon River through the Coast Range; the initial development would be of about 900,000 h.p., to be raised later to 3,000,000 h.p. and perhaps ultimately to 4,300,000 h.p. The Yukon Hydro Company completed the building of a new plant of 800 h.p. on McIntyre Creek near Whitehorse.

Prairie Provinces.—Calgary Power Limited built two new plants on the Kananaskis River, 6,900 h.p. at Upper Kananaskis Lake and 18,500 h.p. at Pocaterra Creek. Northland Utilities installed a new unit of 1,000 h.p. in its Astoria River plant in Jasper National Park.

The Manitoba Hydro-Electric Board completed its McArthur Falls development on the Winnipeg River by bringing into operation the remaining four units each of 10,000 h.p.; plant capacity is now 80,000 h.p. The Winnipeg River in Manitoba is fully developed and the next hydro-electric project will probably be located at Grand Rapids on the Saskatchewan River.



Interior of the mountain-enclosed Bersimis powerhouse under construction in northern Quebec. Hollowed out of solid rock, it is 565 feet long, 65 feet wide and 80 feet high. Its eight turbines, three of which will be completed in 1956, will generate 1,200,000 h.p.

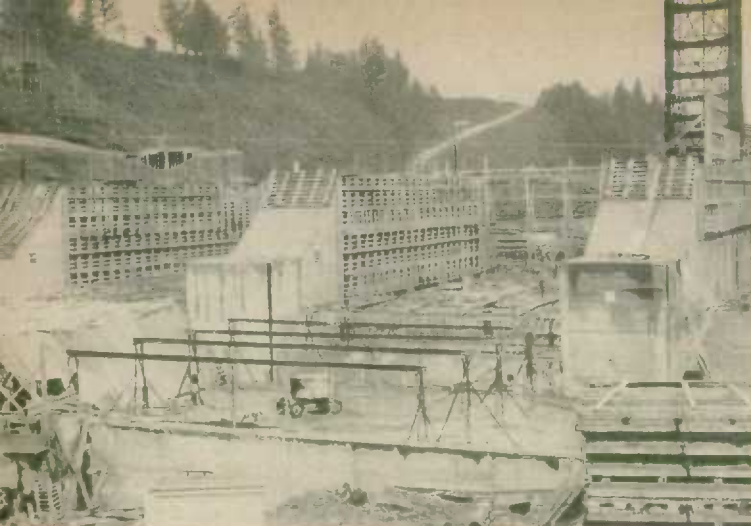
Atlantic Provinces.—The New Brunswick Electric Power Commission has undertaken the development of the Beechwood site on the St. John River, to comprise initially two units each of 45,000 h.p. for operation in 1957, and with provision for a third unit.

The Nova Scotia Power Commission brought into operation its new plant of 6,000 h.p. in two units on the Mersey River at Lower Great Brook.

In Newfoundland, the Union Electric Light and Power Company completed its development of 2,000 h.p. on the Trinity River. In Labrador, investigations 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.



New Brunswick's hydro-power venture at Beechwood, 100 miles north of Fredericton, may be the first step in a vast long-range provincial-international plan to develop the resources of the St. John River basin. Two 45,000-h.p. units of the 135,000-h.p. Beechwood project will be in production in 1957.

In 1953, 94 p.c. of the total output of central electric stations was from hydraulic generation. The 340 hydraulic stations also produced 3 p.c. in thermal plants operated by them and the remaining 3 p.c. was generated by thermal stations using coal, fuel oil or diesel oil, or manufactured gas for fuel. The total generation of central electric stations (as shown in the annual reports) since 1929 is as follows:—

	1929	1939	1949	1953
	('000 kwh.)			
Generated by—				
Water power.....	17,603,804	27,829,017	42,779,199	58,926,462
Thermal engines.....	358,711	509,013	1,639,374	3,934,465
TOTALS.....	17,962,515	28,338,030	44,418,573	62,860,927

According to monthly data, production in 1954 and 1955 increased to 69,136,584,000 kwh. and 76,296,630,000 kwh., respectively.

Central electric stations provide much of the power for large industries, but some of them generate their own requirements. In 1953, manufacturing industries purchased from central electric stations 34,026,135,000 kwh., but generated for their own use 6,901,443,000 kwh. Of this amount, 4,273,000,000 kwh. were generated by pulp and paper industries and 790,116,000 kwh. by smelters and refineries. The primary mining industry purchased 2,566,641,000 kwh. from central electric stations but generated for its own use 215,337,000 kwh.

In 1953 there were 3,283,486 domestic, including rural, customers in Canada compared with 1,623,672 in 1939. Provincial increases during that period ranged from 78 p.c. in Ontario to 154 p.c. in Alberta. At the same time the amount of electricity consumed domestically advanced from 2,310,891,000 kwh. to 9,877,727,000 kwh., or from 1,423 kwh. to 3,008 kwh. per customer. In 1953, Ontario accounted for 52.3 p.c. of the total domestic power consumed, though this Province had less than one-third of the total population of the country.

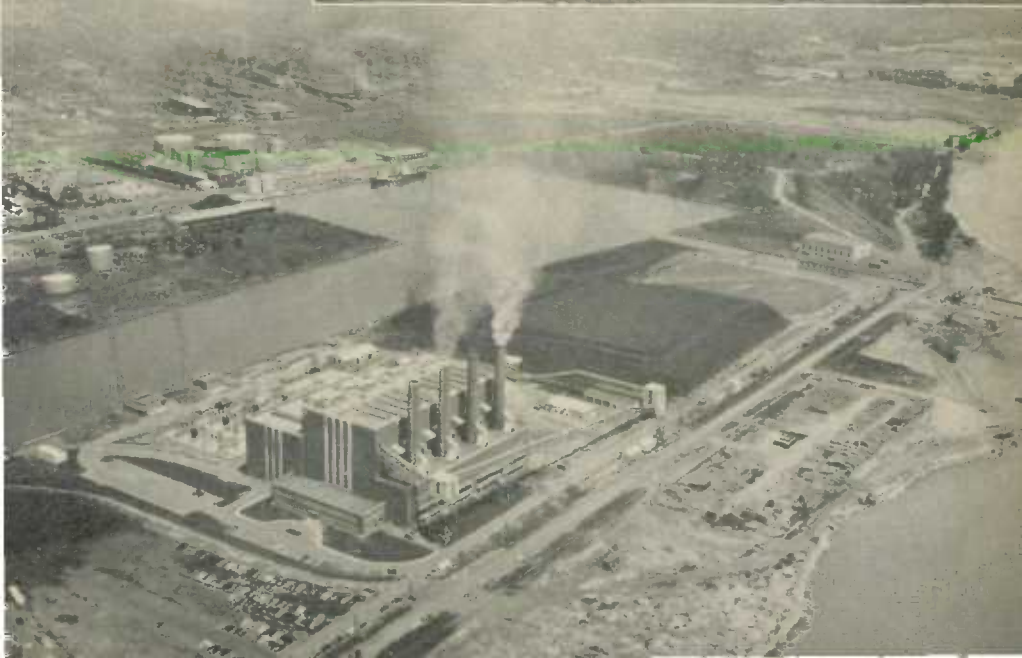
The cost of electricity to the domestic consumer is relatively moderate. The average bill, which stood at \$26.97 in 1939, has increased year by year to \$51.25 in 1953. Provincial bills in the latter year ranged from \$66.05 for Saskatchewan to \$38.43 for Quebec. The net revenue of central electric stations in 1953 was \$469,047,351. About 60 p.c. of Canada's farms have power-line service, extensive rural electrification programs having brought power to over 55,000 farms in the Prairie Provinces in the past five years.

In certain regions of the country, hydro power is not available for the generation of electricity so that other sources of energy—coal, gasoline, oil and natural gas—are used. This is particularly true in Prince Edward Island and Saskatchewan, as well as in some areas of Nova Scotia, New Brunswick, Alberta and even Ontario.

Saskatchewan's newest generating plant was opened at Swift Current in September 1955. This modern gas diesel station will serve towns and villages, an extensive farm network and several oil fields in the southwestern part of the Province.



The Richard L. Heorn steam station at Toronto. The present 400,000 kw. capacity of this plant will be increased by the addition of a 200,000-kw. unit in the near future.





A geologist chips samples from the sheer face of a mountainside above Lake Kananaskis, southwest of Calgary, Alta. He travelled part way up the mountain on horseback and the rest of the way on foot.

Minerals

CANADA has been developing its great and varied mineral resources at an increasing rate during the past decade. The list of metals and minerals now produced comprises more than sixty items and the tempo of their exploitation is indicated by the fact that the annual value of mineral output has risen from \$499,000,000 in 1945 to \$1,488,000,000 in 1954 and to an estimated \$1,778,000,000 in 1955. The figures for 1954 and 1955 include the value of pitchblende products produced in northern Saskatchewan and in the Northwest Territories, which was previously excluded for security reasons. While a considerable portion of this great increase in value is accounted for by price changes, the actual volume of output more than doubled during the period. The index of physical volume of output (1935-39 = 100) rose from 100.9 in 1945 to 145.4 in 1950 and 209.7 in 1954.

The major developments have taken place in uranium, iron ore, nickel, copper, asbestos, crude petroleum and natural gas. Uranium held the mineral spotlight throughout 1955 when events pointed up Canada's position as a leading producer of the metal. Production from the New Quebec-Labrador iron-ore deposits reached 8,500,000 tons in 1955 and will be increased to an estimated 13,440,000 tons in 1956. The deposits were brought into production following an expenditure of \$250,000,000 and four years of almost unceasing effort. In northern Manitoba, a large new nickel-copper industry has taken shape. In Gaspé peninsula, a new copper producer with an anticipated output of 125 tons of copper anodes daily has started operations. Also in Quebec, over \$70,000,000 is being spent on a further expansion of the asbestos production facilities in the Eastern Townships. And in Western Canada, the granting of approval by the United States Federal Power Commission for the importation of Canadian natural gas into the western United States paved the way for the construction of a 650-mile gas pipeline from the Peace River gas fields to the International Boundary, and opened up long-awaited market outlets to the gas industry and new industrial vistas to the Province of British Columbia.

Thus Canada's mineral frontiers are being pushed steadily forward. New mining developments in isolated areas require transportation and the building of railways opens up these new territories to settlement and other industry. A 360-mile railway has recently been completed from Sept-Îles on the north shore of the St. Lawrence River into the iron-ore deposits on the Quebec-Labrador boundary, a 145-mile railway from Sherridon to Lynn Lake in northern Manitoba, and two short branch lines into the Manitouwadge area of northwestern Ontario. A railway is under construction in western Quebec from the Val d'Or-Senneterre area into Chibougamau and from Chibougamau south to St. Felicien.

The Canadian mineral industry will be on display to the Commonwealth nations during the forthcoming Sixth Commonwealth Mining and Metallurgical Congress to be held from Sept. 8 to Oct. 9, 1957, to which Canada will be host country.

Metals.—Canadian metal mining recorded its most prosperous year in 1955. The unusually heavy demand for nickel, copper and zinc led to new highs in volume of output. At the same time, greatly increased base metal prices gave rise to new records in the production values of these metals. Canada's output of iron ore reached an estimated 17,377,000 tons, well over twice that of 1954, and the entry of two new uranium properties into production substantially increased Canada's output of that metal.

Initial uranium production from the famed Blind River area of northern Ontario, where huge tonnages of low-grade uranium ore have been disclosed, was started late in 1955 from the property of Pronto Uranium Mines Limited. Additional production on a very large scale from the same area will come in the near future from the Quirke Lake and Nordic Lake properties of Algoma Uranium Mines Limited, which are to come into production in 1956 at a daily rate of 3,000 tons each, and from Consolidated Denison Mines Limited which is expected to start operations in April 1957 at a daily rate of 5,700 tons. Output from the Beaverlodge area of northern Saskatchewan was augmented in 1955 with the commencement of production at Gunnar Mines Limited in the latter half of the year. Several companies are actively developing properties in the area. New production is also expected in the near future from Bicroft Uranium Mines Limited in the new Bancroft area of southeastern Ontario. Canada's output of pitchblende products in 1954 was valued at \$26,468,000 and included radium salts, uranium oxides and salts, silver and cobalt.

Developments in iron ore are transforming Canada, a non-producer in 1938, into a major world source of that metal. Output from the New Quebec-Labrador properties of Iron Ore Company of Canada mushroomed from 2,240,000 short tons in 1954 to 9,520,000 tons in 1955, and output in 1956 is expected to reach 13,440,000 tons. Moreover, indications are that the completion of the St. Lawrence Seaway will pave the way for an eventual output of 22,400,000 tons or more annually. In northwestern Ontario, Steep Rock Iron Mines Limited and Caland Ore Company Limited are moving toward an annual goal of some 11,200,000 tons from the area by 1960. A major producer, Dominion Wabana Ore Limited in Newfoundland, has expanded its production facilities to 3,920,000 tons a year. Production also comes from Algoma Ore Properties Limited in the Michipicoten area of northwestern Ontario, from Marmoraton Mining Company Limited in southeastern Ontario, and from western British Columbia. By-product high-grade iron ore, a newcomer to the Canadian field, is being produced in Ontario by Noranda Mines Limited at its sulphur-iron plant at Port Robinson near Welland and at the new \$19,000,000 ammonia leaching plant of The International Nickel Company of Canada Limited at Copper Cliff.

Zinc headed the non-ferrous base metals in production advances made in 1955 owing mainly to the heavy demand for the metal by the automotive industry. A comparison of production figures for 1954 and 1955 shows that zinc increased 13 p.c., nickel 8 p.c., and copper 7 p.c. Lead declined 11 p.c.

Nickel output advanced to an all-time high of 349,000,000 lb., an increase of over 100,000,000 lb. compared with 1950. Much of the increase in output came from the Sudbury area where Canada's leading producer, International Nickel Company, completed a \$150,000,000 expansion program permitting the utilization of formerly uneconomical low-grade ores and the change-over

One of the oldest modes of transportation is still in frequent use in the most modern of quests



Diamond drilling in search of base metals.



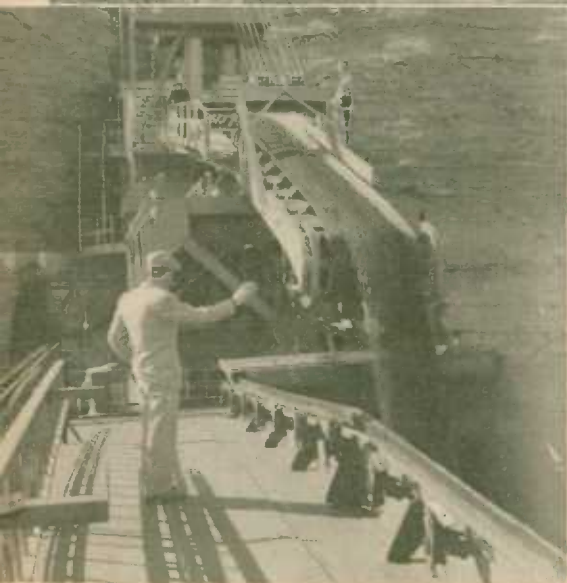
THE SEARCH GOES ON

One of the brightest features of the mining outlook is the success that has been attending the search for new minerals. Significant, too, is the fact that much of this wealth has been found in areas that have already been prospected extensively and that most of the vast Canadian north has as yet received very limited attention.

Towing highly sensitive instruments from aircraft, air prospectors are able to locate mineral deposits hidden beneath the earth's surface.



Preliminary ground surveys precede the setting up of drills in a promising area of southern Quebec.



Marmora open-pit iron mine came into production in May 1955. It is the third largest producing area in Ontario.

Production of pelletized concentrate is shipped 64 miles by train to Picton on the shores of Lake Ontario and by boat to Lackawanna, N.Y.

Ship loader on the bluffs at Picton can load a 10,000-ton vessel in six hours.

from open pit and underground mining to almost all underground mining. Falconbridge Nickel Mines Limited raised its output to an annual rate of 43,000,000 lb. in 1955, 4,000,000 lb. more than in 1954, as part of its \$55,000,000 program to increase annual production to 55,000,000 lb. by 1960. Canada's new producer, the Lynn Lake mine of Sherritt Gordon Mines Limited in northern Manitoba, is well on the way to producing almost half as much again as its rated annual capacity of 18,000,000 lb.

Paralleling the expansion in nickel output, copper production in 1955 exceeded 649,000,000 lb., an increase of 133,000,000 lb. over 1952. New production is coming from Gaspé Copper Mines Limited, which late in 1955, was raising its milling rate to a scheduled 6,500 tons daily following the receipt of power from the north shore of the St. Lawrence. New production is also

coming from Quebec's Chibougamau area, where Campbell Chibougamau Mines Limited became the area's second producer in mid-1955.

Canada's greatest lead and zinc producer and the leading world source of the metals, The Consolidated Mining and Smelting Company of Canada Limited, completed an extensive expansion of its productive facilities at Kimberley and Trail in southeastern British Columbia. In New Brunswick, a province which has had no metal mining of any consequence to date, developments indicate the establishment, in the not too distant future, of an important industry centred about the lead-zinc deposits which Brunswick Mining and Smelting Corporation Limited has under development near Bathurst. Additional deposits were brought to light in the Province recently near Newcastle by The American Metal Company Limited.

Elsewhere in Canada, new sources of base-metal wealth under development include the recently discovered copper-zinc property of Geco Mines Limited in the Manitouwadge area of northwestern Ontario, the copper property of Granduc Mines Limited in northwestern British Columbia, and the lead-zinc deposits of Consolidated Mining and Smelting on the south shore of Great Slave Lake in the Northwest Territories. Gold production has shown a steady improvement in 1955 owing partly to the decline in the premium on the Canadian dollar. Output is expected to reach 4,556,000 oz. t. in 1955.

Industrial Minerals.—Canada's output of industrial minerals continued to record new highs in volume and value of output in 1955. Asbestos, most of which comes from the Eastern Townships of Quebec, in 1954 accounted for over 25 p.c. of the total value of the industrial minerals produced that year. Production in 1955 was augmented by output from the four new mills that started operations in the Eastern Townships in 1954. Several development and expansion projects were under way in the district in 1955, one of the most important being that of Lake Asbestos of Quebec Limited, which is spending \$20,000,000 to bring the asbestos deposits beneath Black Lake into production.

Despite the great growth in Canada's cement-producing capacity, production still falls short of demand. The annual capacity now exceeds 25,000,000 bbl. and when all plants under construction or now planned are in operation the capacity will be in the neighbourhood of 34,000,000 bbl.

An ore-train crawls into daylight at the Geco copper-zinc mine. This mine will be the first to come into production in the fabulous Manitouwadge area of northwestern Ontario where over 14,000,000 tons of ore have been indicated in three deposits.





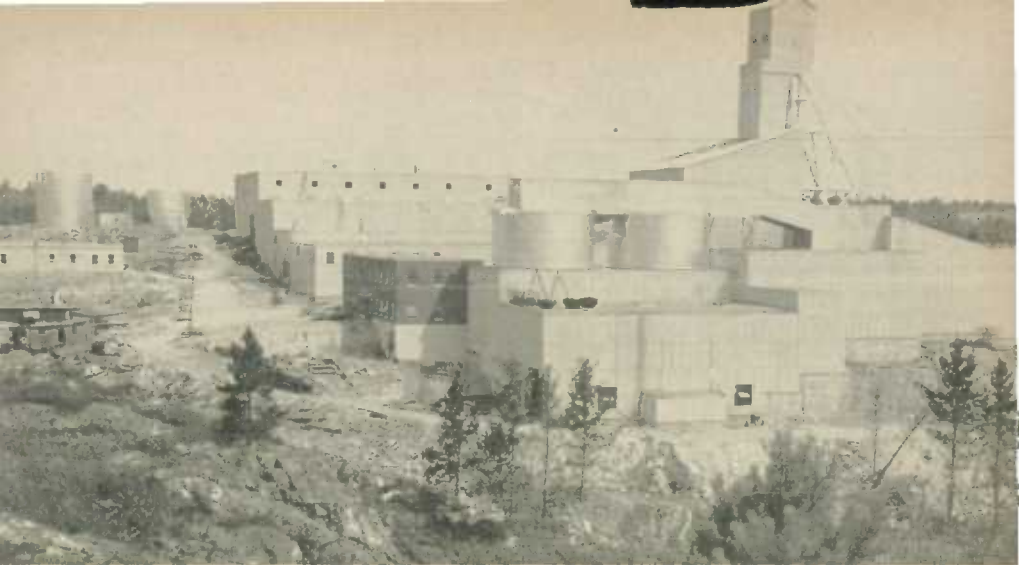
Uranium has recently held the new-mineral spotlight as a result of developments in the Beaverlodge area of northern Saskatchewan and the revelation that large deposits exist in the Blind River area of northern Ontario.

New records are being established in the output of gypsum, which in 1955 reached an estimated 5,000,000 tons. New production came during the year from the large gypsum deposit near Milford, N.S., of National Gypsum (Canada) Limited.

Other important developments in industrial minerals included the start of production of pure mined rock salt on a large scale at Ojibway near Windsor, Ont., and the letting of a contract by Noranda Mines Limited for the construction, at Cutter in the Blind River area of northern Ontario, of the largest sulphuric acid plant in Canada. This plant will supply sulphuric acid to the uranium mills in that area and sulphur to the pulp industry of northern Ontario. It is expected to be in operation in mid-1956 and its daily output is estimated at 500 tons of sulphuric acid, 70 tons of elemental sulphur and 350 tons of pure iron sinter.

Fuels.—The coal industry continued to lose marketing ground to crude petroleum and natural gas. Output in 1955 was estimated at 14,600,000 tons, slightly lower than the 1954 total of 14,900,000 tons.

The results of widespread exploratory and development activity in the four western provinces, where 280 companies spent over \$400,000,000 in 1955, continued to confirm Canada's wealth of crude petroleum and natural gas resources. Reserves of crude petroleum were placed at over 2,500,000,000 bbl., 33 times those of 1946. Total Canadian production in 1955 was estimated to be 129,000,000 bbl. compared with 96,000,000 bbl. in 1954. Alberta accounted for 87 p.c. of the output, but Manitoba and Saskatchewan showed marked rates of growth. The highest daily production in Alberta, up to November 1955, was 381,493 bbl. reached during the week ended July 25 compared with a daily high in 1954 of 301,471 bbl. In Saskatchewan the



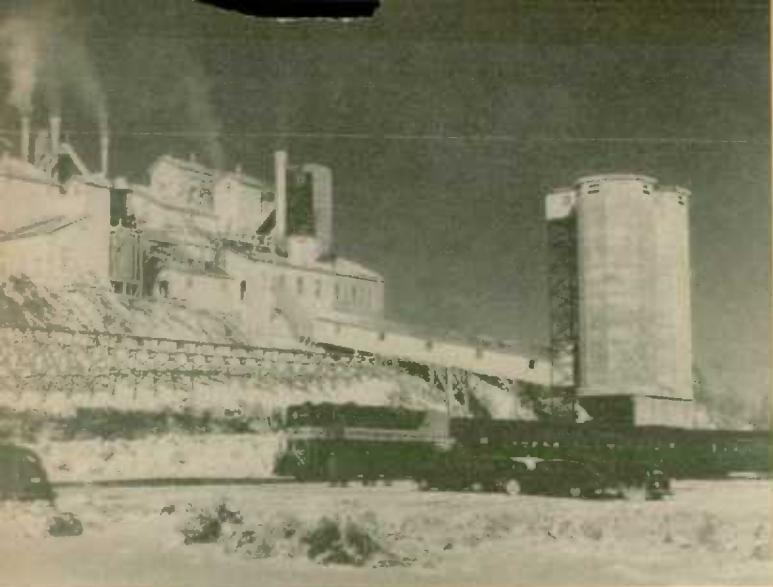
Gunnar Mines Limited (left) in the Saskatchewan area and Pronto Uranium Mines Limited (right) in the Ontario area were both officially opened in October 1955 and are the first privately owned uranium producers to get into large-scale production in Canada.

daily output in August 1955 averaged 40,000 bbl. and in Manitoba in October, 15,000 bbl. In both provinces, production was double that of the same month in 1954. Potential production in Western Canada considerably exceeds current production.

Natural gas reserves were placed at 18 to 20 trillion cu. feet. The first real impetus to the development of Western Canada's natural gas resources came with the granting of approval late in 1955 by the United States Federal Power Commission to a United States pipeline company to import 300,000,000 cu. feet of Canadian natural gas daily. Westcoast Transmission Company, which is supplying the gas from the Peace River areas of British Columbia and Alberta, has started the construction of a 650-mile, \$150,000,000 pipeline through British Columbia to the International Boundary. It hopes to complete the line by early 1957. Meanwhile, financing arrangements are being worked out for the proposed 2,250-mile natural-gas pipeline of Trans-Canada Pipe Lines Limited from Alberta eastward across northern Ontario to Toronto and Montreal.

Mineral Production in 1955

Canada's mineral production in 1955 surpassed all previous records. Its estimated valuation of \$1,778,400,000 was 19.5 p.c. above the 1954 total of \$1,488,000,000. Ontario, Quebec and Alberta, the leading producing provinces, increased their output by \$81,000,000, \$73,000,000 and \$45,000,000, respectively. Petroleum retained first position with a valuation of \$303,500,000, copper moved up to second place with \$239,000,000 followed by nickel with \$216,000,000 and gold with \$157,000,000. The only shadows were cast by the coal-mining industry whose production continued to decline.



Near Peterborough, Ont., there lies a unique deposit of nepheline, a metal-free rock which, when crushed to a fine powder, is used in the manufacture of ceramics and china. In 1955 a spur railway line was completed to handle the mill's production.

The greatest advance in 1955 was made by the metals—over \$1,000,000,000's worth of metallic minerals were produced as compared with \$800,000,000's worth in 1954 and the proportion of the total output of the mining industry accounted for by metals increased from 53.7 p.c. to 56.3 p.c. A 21,000-ton increase in quantity as well as an increase in price placed copper in the lead. Nickel, in second place, recorded a 13,000-ton increase in quantity and a \$36,000,000 increase in value. The quantity of gold produced moved up over 4 p.c. and the value by almost 6 p.c.—the Canadian dollar was nearer parity with the United States dollar and therefore the price of gold was slightly higher. Zinc production increased by 50,000 tons and the value by \$26,000,000. The tonnage of lead decreased by 11.3 p.c. but a firmer price held the total valuation decrease to less than 5 p.c. Silver, which also occurs in lead ores, was lower by about 3,200,000 oz. t. The prophecies concerning iron ore are on the way to being fulfilled—in the past decade quantity increased twelvefold to reach 17,400,000 tons in 1955 valued at \$113,400,000.

The value of crude petroleum output increased by nearly 25 p.c. in 1955. The increase in quantity was 32,800,000 bbl. of which Alberta accounted for 25,000,000 bbl. Saskatchewan and Manitoba each doubled their production to exceed 11,000,000 and 4,000,000 bbl., respectively. The utilization of natural gas also increased, but coal production declined from 14,900,000 tons to 14,600,000 tons.

Asbestos accounts for two-thirds of the value of non-metallics produced. Shipments in 1955 exceeded 1,000,000 tons and approached \$100,000,000 in value. Salt and gypsum also increased in quantity and value of production and the quantity of sulphur in pyrite and smelter gas increased by 96,000 tons to 928,000 tons.

The value of structural material produced followed its upward trend as activity continued in the construction industry. All items increased except stone, which was produced in greater quantities in most provinces but in Nova Scotia declined from an abnormally high level in 1954 when the Canso Causeway was built.

Quantities and Values of Minerals Produced, 1954 and 1955

Mineral		1954		1955	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	1,302,333	349,249	1,970,000	536,575
Bismuth.....	"	258,675	572,183	207,670	422,333
Cadmium.....	"	1,086,780	1,847,526	1,971,012	3,350,720
Cobalt.....	"	2,252,695	5,912,997	2,999,650	7,723,500
Columbium.....	"	90	2,294	42	1,032
Copper.....	"	605,464,042	175,712,693	649,207,453	239,394,952
Gold.....	oz. t.	4,366,440	148,764,611	4,556,400	157,305,152
Indium.....	"	477	1,278	106,000	238,500
Iron ore.....	ton	7,361,598	49,666,507	17,377,252	113,385,503
Iron ingots.....	"	90,562	2,910,663	116,100	4,762,000
Lead.....	lb.	436,990,488	58,250,831	387,948,053	55,786,929
Magnesium and calcium.....	"	—	4,101,642	—	4,657,225
Molybdenite.....	lb.	752,417	457,912	1,289,441	806,184
Nickel.....	"	322,557,961	180,173,392	349,161,430	216,433,694
Palladium, iridium, etc.....	oz. t.	189,350	7,956,087	211,820	8,118,000
Platinum.....	"	154,356	12,950,469	240,000	14,715,000
Pitchblende, etc.....	"	—	26,467,574	—	23,000,000
Selenium.....	lb.	323,529	1,617,645	431,000	3,009,000
Silver.....	oz. t.	31,117,949	25,907,870	27,901,427	24,625,797
Tantalum.....	lb.	77	2,696	390	9,760
Tellurium.....	"	8,171	14,300	6,000	11,000
Tin.....	"	333,788	263,359	397,000	317,600
Titanium ore.....	ton	1,541	9,462	1,736	12,152
Tungsten.....	lb.	2,170,633	5,795,781	2,282,970	6,465,638
Zinc.....	"	752,982,353	90,207,285	853,931,313	116,425,122
TOTALS, METALLICS.....		—	799,916,306	—	1,001,513,368
Arsenious oxide.....	lb.	1,180,350	48,333	650,000	29,250
Asbestos.....	ton	924,116	86,409,212	1,055,266	98,690,514
Barite.....	"	221,472	2,003,796	202,600	2,142,378
Diatomite.....	"	4	192	—	—
Feldspar.....	"	16,096	301,049	18,844	370,968
Fluorspar.....	"	118,969	2,987,026	131,728	3,063,876
Graphite.....	"	2,463	254,534	—	—
Grindstones.....	"	—	—	10	1,500
Gypsum.....	"	3,950,422	7,094,671	4,798,200	8,455,173
Iron oxides.....	"	5,798	183,507	7,467	144,369
Lithia.....	"	17,052	6,300	108,056	58,272
Magnesian-dolomite and brucite.....	"	—	4,394,280	—	3,859,280
Mica.....	lb.	1,706,770	85,139	1,186,235	75,004
Mineral waters.....	gal.	284,078	148,057	282,000	148,750
Nepheline syenite.....	ton	123,669	1,770,528	137,000	1,969,000
Peat moss.....	"	99,272	3,018,622	126,100	3,822,907
Quartz.....	"	1,716,151	1,574,893	1,858,879	2,006,744
Salt.....	ton	969,887	8,340,163	1,274,011	10,286,210
Silica brick.....	M	3,578	465,157	5,502	656,933
Soapstone and talc.....	ton	28,143	335,353	28,100	334,100
Sodium sulphate.....	"	158,417	2,385,573	170,801	2,759,034
Sulphur.....	"	532,406	4,875,969	628,261	5,560,800
Titanium dioxide.....	"	88,408	3,841,270	114,800	5,091,000
TOTALS, NON-METALLICS.....		—	130,523,624	—	149,026,062
Coal.....	ton	14,913,579	96,600,266	14,578,821	92,227,214
Natural gas.....	M cu. ft.	120,735,214	12,482,109	143,699,000	14,457,075
Peat.....	ton	6	60	—	—
Petroleum, crude.....	bbl.	96,080,345	243,877,030	128,811,000	303,561,100
TOTALS, FUELS.....		—	352,959,465	—	410,245,386
Clay products.....	"	—	32,360,098	—	34,676,067
Cement.....	bbl.	22,437,477	59,035,644	25,860,103	64,363,165
Lime.....	ton	1,214,839	14,742,149	1,303,499	15,190,328
Sand and gravel.....	"	110,961,034	58,987,671	123,655,944	65,754,176
Stone.....	"	32,767,925	39,857,134	26,534,209	37,629,720
TOTALS, STRUCTURAL MATERIALS.....		—	204,982,696	—	217,613,456
Grand Totals.....		—	1,488,382,091	—	1,778,398,272



Provincial Distribution

An analysis of the provincial distribution of mineral production, from east to west, shows that *Newfoundland* is increasing its proportion of the Canadian total—2.9 p.c. in 1954 to 4.0 p.c. in 1955. The increase of 63 p.c. in the value of minerals produced was almost all accounted for by iron ore from the Labrador deposits and from the modernized and expanded Wabana mine—7,900,000 tons were produced compared with 3,800,000 tons in 1954. The Province

also produced considerable quantities of zinc, lead and copper and almost all of Canada's fluorspar, as well as smaller quantities of silver, gold, gypsum, cement and other structural materials.

About 40 p.c. of Canada's coal comes from the collieries of *Nova Scotia* and coal makes up about 74 p.c. of the Province's mineral output. Consumption has been decreasing in favour of oil and gas and the value of production in *Nova Scotia* was down by \$2,000,000 in 1955. The Province produces 90 p.c. of the barite and 83 p.c. of the gypsum mined in Canada and operates important salt mines and recovery wells. The total value of all minerals was \$6,000,000 lower because of the decrease in coal and the return to a normal output of stone after completion of the Canso Causeway.

New Brunswick's mineral output still consists mainly of coal and structural materials—both of which increased in 1955—and some output of natural gas and petroleum. However, the first production from the Province's new base-metal mines was recorded in 1955, the value of copper, lead, silver and tungsten output being \$319,041.

The metals recorded the greatest proportion of the increase in *Quebec's* mineral production from \$278,000,000 in 1954 to \$352,000,000 in 1955. The New Quebec-Labrador mines were responsible for the spectacular increase in iron-ore production to 4,500,000 tons. There were 100,000 tons of copper, over 1,000,000 oz. t. of gold and 5,000 tons of lead in the output of the dozen metals produced in the Province. Asbestos, which exceeded 1,000,000 tons, showed the most important increase among the non-metallics. Sulphur and titanium also increased and the first milling of lithia ores began near LaCorne late in the year. Cement plants in the Province shipped 9,600,000 bbl. as compared with 7,500,000 bbl. in 1954.

In *Ontario* about 80 p.c. of the total mineral valuation is derived from metals and the value of the metals produced in 1955 was \$72,000,000 higher than in 1954, twelve of the thirteen items contributing to the increase. Copper output rose from 140,000 tons to 145,000 and iron ore from 2,400,000 tons to 4,230,000. Ontario produces all of Canada's output of magnesium and calcium, platinum metals and tellurium, 99 p.c. of the cobalt, over 90 p.c. of the nickel, 55 p.c. of the gold and 45 p.c. of the copper. The increase in

non-metallics was moderate, asbestos and salt accounting for most of it. The \$5,000,000 output of petroleum and natural gas in southwestern Ontario showed little change. Ontario leads in the output of structural materials and in 1955 produced 7,700,000 bbl. of cement, 48,000,000 tons of sand and gravel and 12,000,000 tons of stone for the construction industry.

Base metals make up two-thirds of *Manitoba's* mineral output and they are all mined at Flin Flon on the Saskatchewan border and at Lynn Lake. The value of metal production more than doubled in 1955 as a result of increases in copper, nickel and zinc. The oil wells in the southwestern section of the Province also doubled their production from 2,000,000 to 4,000,000 bbl. and new equipment increased cement production to 2,000,000 bbl.

Saskatchewan's share of the base-metal mines at Flin Flon, its uranium mines in the Beaverlodge area, its oil and natural gas wells and coal mines of the central and southern sections are of primary importance in its mineral production. Saskatchewan is also Canada's only producer of sodium sulphate. The output of crude petroleum doubled in 1955 and provided the most spectacular increase for the Province.

Advancing oil output places *Alberta* third among the provinces as a producer of minerals. Crude oil and natural gas together raised the value of mineral production of the Province by \$47,000,000 in 1955, an amount offset to some extent by a decrease in coal. The Province's oil output was in excess of 112,000,000 bbl. and natural gas utilized was 126,750,000 M cu. ft. Structural materials were up by \$1,600,000.

The mineral output of *British Columbia* is also made up largely of metals. In 1955, 209,000 tons of zinc, 153,000 tons of lead, 22,000 tons of copper, 8,500,000 oz. t. of silver, 256,000 oz. t. of gold, 698,000 tons of iron ore and 1,100 tons of tungstic oxide were mined. Non-metallics included important quantities of asbestos, peat moss and sulphur and production of structural materials continued to increase. Commercial production of natural gas in the Peace River awaits the completion of pipeline facilities.

Base metals and coal make up the mineral production of Yukon Territory and in the Northwest Territories production includes gold, silver, natural gas and petroleum. Output was generally lower in both areas in 1955.

Mineral Production, by Province, 1953-55

Province or Territory	1953		1954		1955	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$		\$		\$	
Newfoundland.....	33,780,622	2.5	42,898,033	2.9	70,317,215	4.0
Nova Scotia.....	67,364,408	5.0	73,450,898	4.9	67,356,081	3.8
New Brunswick.....	11,663,618	0.9	12,468,322	0.8	14,279,350	0.8
Quebec.....	251,881,781	18.8	278,818,070	18.7	352,100,900	19.8
Ontario.....	465,877,093	34.9	496,747,571	33.4	577,941,712	32.5
Manitoba.....	25,264,112	1.9	35,106,922	2.4	62,979,841	3.5
Saskatchewan.....	48,081,970	3.6	68,216,009	4.6	83,769,427	4.7
Alberta.....	248,863,295	18.6	279,042,735	18.7	323,740,702	18.2
British Columbia.....	158,487,812	11.9	158,630,867	10.7	188,052,793	10.6
Northwest Territories	10,300,230	0.8	26,414,000	1.8	23,454,064	1.3
Yukon Territory.....	14,738,562	1.1	16,588,664	1.1	14,406,187	0.8
Totals.....	1,336,303,503	100.0	1,488,382,091	100.0	1,778,398,272	100.0



Silver harvest from the sea comes daily to the fish docks of Vancouver's waterfront. Fresh iced salmon is packed in boxes for speedy delivery to market.

Fisheries

It is only natural that a country with a sea-coast as extensive as that of Canada and with a surface drained by such a vast network of rivers and lakes should reap the harvests of those waters and that the fishing industry should find an important place in its economy. Canada is also in the enviable position of having close to its shores some of the world's most prolific fishing grounds. The Grand Banks off the coast of Newfoundland have been extensively fished since before the colonization of this continent and the cod and other ground-fish caught there have long been part of the stable diet of many southern European, South American and West Indian peoples. The Atlantic fisheries yield to Canada's fishermen more than thirty different kinds of fish, shell-fish and marine mammals, of which the most important commercially are codfish and lobster. The great estuarial salmon fisheries of Canada's Pacific Coast are also of unique importance to the country and are supplemented by large catches of herring and halibut.

While the relative importance of the fisheries of Canada as compared with other branches of the economy is declining, the industry is still of great significance to the coastal areas. The landing of some 2,000,000,000 lb. of fish each year provides the livelihood of over 62,000 people concentrated in those areas and the processing, transporting and marketing of it for a great many more. Canadians generally are not great fish eaters. They consume on an average less than 14 lb. a year, so that about two-thirds of the production of the fishing industry is marketed outside the country, mostly in the United States.

The most significant developments in the Canadian fishing industry in recent years have occurred in the sea-fisheries of the Atlantic Coast. The isolated character of the individually operated inshore fisheries and the social problems that have been connected with it have tended to retard development of this type of fishing and there has been a movement toward the use of larger sea-going vessels, equipped with modern navigational and fish-locating devices. These vessels operate on the off-shore banks and cater to the fresh fish trade. As a result the fishermen are beginning to concentrate in the ports where the processing facilities are located, a trend that is helping to solve the problems created by isolation.

Fresh-fish processing capacity is expanding rapidly both in the Atlantic Provinces and in Quebec. New filleting and freezing plants and converted plants are catering to the demands of the market by turning out such products as blocks of frozen fish to be used for the manufacture of "fish sticks" in raw or pre-cooked forms. Increasing emphasis is being placed on quality and sanitation. At the same time, salt-fish continues as an important product, particularly in Newfoundland, but the home-curing method is giving way to mechanized curing, which provides a more standardized product.

The fresh-fish trade has grown up largely because of the improvement in methods of transportation and distribution through the wholesale and retail stages of marketing. Refrigerated storages now provide inland centres with continuous supplies of nearly all species and products and greater care is taken in the trans-shipment of small lots so that fresh fish is now more readily

available in the smaller urban centres. Also the recent practice of packaging and presenting fish products to the public in attractive form has done much to increase its popularity.

Government services, both federal and provincial, are aiding in the development of the Atlantic fisheries through loan schemes, public works projects for harbour improvement and research and demonstration in the field of marine biology and food-processing technology. Marketing is also assisted through inspection, grading and general market intelligence. The provincial governments provide credit facilities for the purchase of boats, give encouragement in industrial development and aid in extension and educational work with fishermen. At the same time, much of the recent progress made in developing the fisheries is attributable to private enterprise—to the private entrepreneurs ranging from fishing skippers operating on a small scale to business and industrial firms representing relatively large aggregates of capital and management.



Newfoundland fishing stage, counterparts of which are scattered along most of the coastline; where the fishermen, working from small dories, bring their daily catch of cod to be cleaned, salted and dried.

The Pacific Coast salmon, herring and halibut fisheries have developed into a well-organized modernly equipped industry without the help of special forms of encouragement. The continued restoration of the Fraser River sockeye salmon run is perhaps the most important event that has occurred in the Pacific area and marks the climax of years of rehabilitation effort. A great part of the salmon catch is marketed in canned form. Halibut is marketed throughout the year from cold storages and the bulk of the herring is processed at reduction plants, emerging as herring meal and oil.

The fresh-water fisheries in terms of volume are small compared with the operations on the coasts but they are still of considerable local importance. Lake trout and whitefish from the Great Lakes, Lake Winnipeg and Great Slave Lake make up most of the commercial output.

The Federal Department of Fisheries administers all the tidal fisheries of Canada (except those of Quebec) and certain of the fresh-water fisheries. Its

Crew of a drifter-trawler docked at Cheticamp, N.S., land their load of herring caught about 40 miles off the Cape Breton coast.



function is to develop the industry to optimum utilization and institute and maintain standards of quality. The Fisheries Research Board, as the scientific branch of the Department, is engaged in the study of Canada's aquatic resources with a view to their conservation and better utilization. The importance of conservation on an international level has been recognized for some time and treaties have been entered into to prevent over-exploitation of fish stocks both at sea and in the inland lakes.

Canada and the United States have joined forces under the *International Pacific Halibut Commission* to preserve the halibut stocks of the North Pacific and the Bering Sea, and under the *International Pacific Salmon Fisheries Commission* to conserve and develop the sockeye salmon of the Fraser River. Canada also became signatory in 1950, along with nine other countries, to the *International Northwest Atlantic Fisheries Convention* concerned with the maintenance of the fisheries resources 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*. The *Great Lakes Fisheries*

The Rt. Hon. Louis S. St. Laurent, Prime Minister of Canada, addressing the annual meeting of the International Commission for the Northwest Atlantic Fisheries held at Ottawa in June 1955. Canada has entered into several international agreements to prevent over-exploitation of fish stocks at sea and in inland waters.



Convention, entered into in 1955, provides for joint action by Canada and the United States in research and in the control of the predator lamprey in these waters. Canada is also party to the *Alaska Fur Seal Agreement* and a member of the *International Whaling Commission*.

Statistics of Fisheries Production

The Canadian fishing industry had a generally satisfactory year in 1954. The total landings of fish and fish products amounted to a little over 2,000,000,000 lb., with a landed value of \$96,700,000,000. The marketed value was close to \$185,000,000. Substantially heavier landings of cod and haddock in the Atlantic area accounted for much of the increase over the previous year. Production on the Pacific Coast was highlighted by a record halibut catch and the heaviest catch of sockeye salmon since 1913. Herring fishing, for the first time since 1951, was not interrupted by disputes between fishermen and processors.

Figures for 1953 (the latest available in detail) are given in the following tables. They do not include Newfoundland, but estimates indicate that 499,200,000 lb. of fish with a market value of \$24,000,000 were landed in that Province in 1953. Total landings for the whole of Canada, therefore, would be approximately 1,845,500,000 lb. and the marketed value \$174,227,000.

Quantities Landed and Values of All Products Marketed, of the Chief Commercial Fishes, by Province, 1952 and 1953

(Exclusive of Newfoundland)

Province or Territory	Kind of Fish	1952		1953	
		Quantity Landed	Value of Products	Quantity Landed	Value of Products
		'000 lb.	\$'000	'000 lb.	\$'000
Prince Edward Island	Lobsters	8,375	2,265	6,998	2,452
	Cod	3,452	189	3,059	153
	Smelts	622	163	889	164
Nova Scotia	Cod	149,155	12,666	116,259	10,035
	Lobsters	23,063	9,063	23,646	9,822
	Haddock	51,200	4,932	52,791	5,036
New Brunswick	Lobsters	10,379	6,538	8,630	6,470
	Sardines	52,887	4,466	32,734	3,195
	Herring	86,474	2,545	52,314	1,617
Quebec	Cod	61,156	2,866	49,289	2,271
	Lobsters	2,314	766	2,646	974
	Herring	47,112	628	46,360	651
Ontario	Whitefish	9,426	2,956	10,214	3,042
	Blue Pickerel	7,447	1,181	10,399	1,171
	Pickerel	4,670	1,259	4,650	1,047
Manitoba	Pickerel	10,381	2,603	9,585	2,357
	Whitefish	5,758	1,582	4,539	1,239
	Saugers	4,295	752	2,413	436
Saskatchewan	Whitefish	5,639	852	3,889	690
	Trout	1,234	209	1,208	245
	Pickerel	1,175	202	980	178
Alberta	Whitefish	3,159	644	3,021	627
	Tullibee	5,428	191	6,320	311
	Pickerel	155	30	315	56
British Columbia	Salmon	146,965	40,495	186,914	47,936
	Herring	189,497	4,235	298,241	6,518
	Halibut	23,489	5,672	24,882	5,721
Northwest Territories	Whitefish	3,831	1,247	3,866	897
	Trout	2,888	926	2,427	565
Totals	Salmon (Pac.)	146,965	40,495	186,914	47,936
	Lobsters	44,131	18,634	41,920	19,718
	Cod (Atlantic)	238,640	17,590	189,296	13,897

Landings and Values of All Fishery Products, by Province, 1951-53

(Exclusive of Newfoundland)

Province or Territory	Quantities Landed			Value of Products		
	1951	1952	1953	1951	1952	1953
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Prince Edward Island	27,224	32,471	31,854	3,213	3,759	4,049
Nova Scotia	381,904	392,396	367,583	40,296	42,435	40,012
New Brunswick	227,038	254,599	197,206	21,155	20,504	17,523
Quebec	102,119	127,563	113,162	5,511	6,113	5,804
Ontario	30,969	38,044	44,836	7,925	8,344	7,916
Manitoba	35,457	31,338	23,359	7,524	5,960	4,784
Saskatchewan	11,512	10,612	8,481	1,749	1,440	1,281
Alberta	8,399	9,657	10,839	862	943	1,086
British Columbia	620,846	404,500	542,279	85,397	58,098	66,260
Northwest Territories	7,477	7,042	6,719	2,262	2,225	1,512
Totals	1,452,945	1,308,222	1,346,318	175,894	149,821	150,227

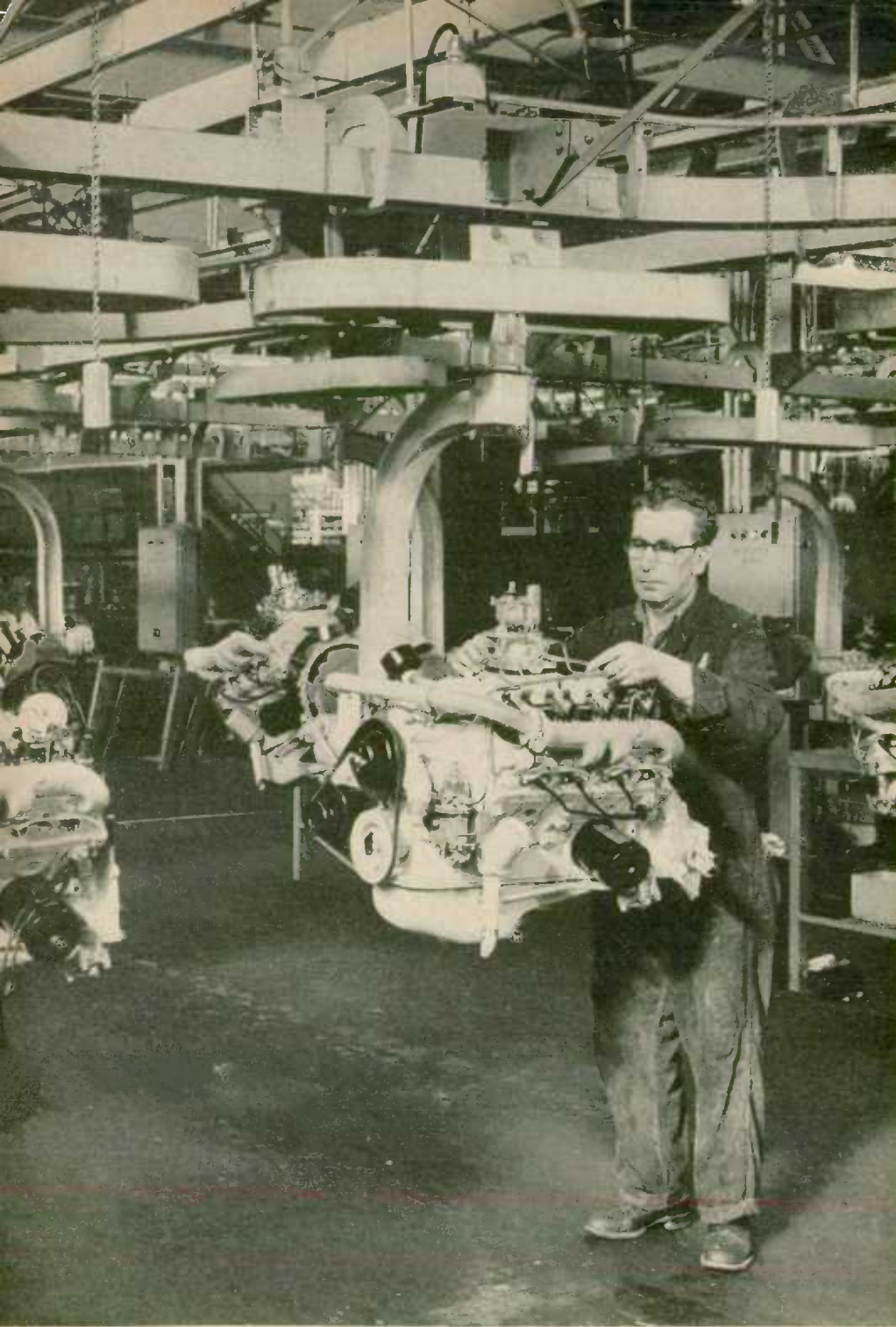
Principal Statistics of the Fish-Processing Industry, 1948-53

Year	Establish- ments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Selling Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1948	600	16,497	17,041	1,782	74,588	115,821
1949	599	16,087	16,970	1,731	69,090	111,919
1950	591	14,861	18,722	1,773	79,959	128,424
1951 ¹	639	18,706	24,744	2,724	101,621	163,010
1952 ¹	635	17,551	24,426	2,533	86,458	134,725
1953 ¹	598	13,731	23,092	2,410	85,908	137,310

¹ Includes Newfoundland.

Fresh fish is a greater portion of Canada's fishery products reaches the public in fresh-frozen form. Attractive packaging has done much to increase sales on the domestic market.





Assembly line in an automobile engine plant. The arrangement whereby the operator can work all around an engine without stooping makes for efficiency and speed of production.

Manufactures

FIFTEEN years of war and post-war expansion has placed Canada firmly among the half dozen leading industrial nations of the world. A stable government, a consciousness of national unity, a confidence in its tremendous industrial potential creating business stability and a climate for vast capital investment, new discoveries of immense iron-ore and other mineral resources, the development of varied sources of energy required to turn the wheels of industry and the application of the latest technological processes in the exploitation of a wealth of primary resources as well as in the increasing production of secondary and tertiary commodities have all been contributing factors. The greatest expansionary influence, however, stems from the increasing world dependence on Canada as a source of industrial materials. This growing dependence has accounted for the high level of activity in natural resource industries and for a major portion of the expansion in capital facilities. At the same time, the prosperity of these industries has broadened the range of goods that can be economically produced in Canada and rising incomes of a growing population with its enhanced buying power are increasing the demand for the products of consumer industries.

The manufacturing industries of Canada now account for about 29 p.c. of the value of all the goods and services produced in the country. In 1954, 1,268,000 persons working in manufacturing plants earned \$3,881,000,000 and were responsible for a gross value of factory shipments amounting to \$17,498,000,000. These figures were all down slightly from the peak reached in 1953, but an advance to a new high is indicated for 1955.

Before World War II, the rate of growth in Canadian manufacturing had been moderate. A few industries such as pulp and paper, transportation equipment and farm implements became prominent during the 1920's but economic activity was at a low ebb in the following decade. Thus the base for much of the recent expansion in manufacturing was established during the war years. Canada had the tangible resources and the power and, given the impetus and the capital, proved itself capable of fulfilling all requirements. Expansion was particularly striking in the fields of tool-making, electrical apparatus, chemicals and aluminum. During the years 1938 to 1946, the index of manufacturing production rose from 100.6 to 189.9, an increase of 89 p.c. This rate of growth decreased to 32 p.c. in the seven post-war years, but in this period diversification was the keynote of development. The intensive search for new minerals brought about many important discoveries and rapid development followed in such fields as crude oil, natural gas, iron ore, non-ferrous metals and other less important minerals. This development and the resulting need for equipment for exploration and processing gave great impetus to industries producing capital goods. Further, the availability of a greater quantity and variety of indigenous raw materials led to the creation of more processing capacity and to the establishment of advanced raw-material and power-using industries. In particular, the discoveries of oil and gas made feasible the establishment of large chemical industries producing a great variety of goods. The defence built-up related to NATO and the war in

Korea also provided a stimulus for certain industries, particularly aircraft and electronic equipment of all kinds including those required for Canada's northern radar screen.

Many industries have increased the range of commodities manufactured so as to take advantage of the market for subsidiary or complementary products and better to meet fluctuating demand for the various products produced. Others have rounded out their operations to combine sales with processing. Greater emphasis has been placed on the use of domestic materials and the better utilization of materials formerly wasted. Industry, particularly in the metallurgical, chemical and electronic fields, has made rapid technological advances and, as a result, many new materials, substances and commodities are being marketed.

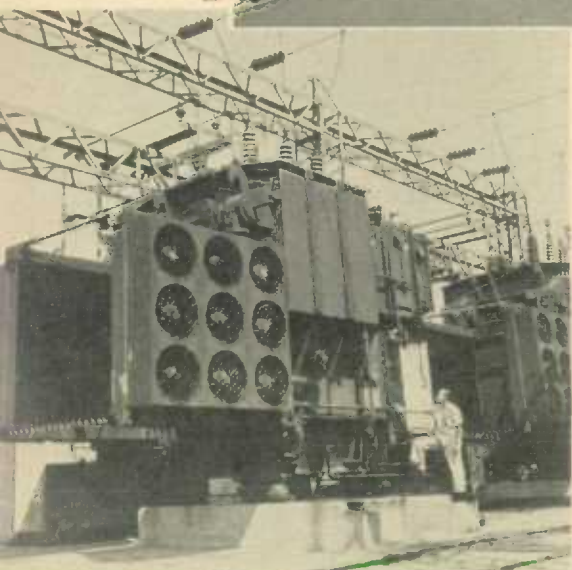
Thus Canada, with only two-thirds of one per cent of the world's population, has emerged as a highly industrial and urban society producing high-quality consumer and capital goods to meet the demands of its own people and to distribute to world markets.

The table on p. 210 shows the long-term growth in Canadian manufacturing. These figures are reasonably comparable but, since they cover such a long period, allowances should be made for certain changes in information collected and in treatment of the data. In particular, in 1952 the policy was changed regarding the collection of statistics on the production of manufactured goods with the result that "gross value of production" was replaced by "value of factory shipments". The former refers to the value at the factory, at average selling value, of all goods produced, whether sold or not sold, whether shipped or not shipped. The latter reports on all sales during the year, regardless of when the products were made. Moreover, the gross figures in each series are higher than the actual contribution of industry to the economy since each firm reporting gives the value of goods leaving the factory, an amount which includes 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 of production or, from 1952, the gross value of factory shipments, a net figure is obtained that gives a truer picture of the contribution to the nation's economy by the factories concerned, but still includes items contributed by such firms as insurance companies, advertising agencies and some transportation expenses.

In the interpretation of manufacturing values over a number of years, variations in level of prices must be kept in mind. The record of *volume* of manufacturing production, as distinguished from *value*, is not affected by price changes and is therefore more reliable as an indication of growth of goods and services available to the consumer. In volume terms, the index of manufacturing production (1935-39 = 100) was 263.0 in 1953 as compared with 189.9 in 1946. The durable goods index stood at 323.9 and the non-durable goods at 224.1 in 1953 as against 205.1 and 180.2, respectively, in the first post-war year.

One of the largest ferro-alloys plants in the Commonwealth stretches almost a mile along the Welland Canal in southern Ontario.

The addition of alloys to steel in hundreds of varying compositions gives it special properties of purity, strength and hardness to fit it for the multitudinous jobs it must perform.



The addition of silicon provides special electrical properties for the giant transformer or the tiny motor in an electric razor.



The addition of chromium produces stainless steel used where cleanliness is requisite.



Alloy steels containing magnesium bear the brunt of wear, strain and shock.



Summary Statistics of Manufactures, 1870-1954

Year	Estab- lish- ments	Employees	Earnings	Cost of Materials	Net Value of Products	Gross Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1870 ¹	41,259	187,942	40,851	124,908	90,710	221,618
1880 ¹	49,722	254,935	59,429	179,919	129,757	309,676
1890 ¹	75,964	369,595	100,415	250,759	219,089	469,848
1900 ²	14,650	339,173	113,249	266,528	214,526	481,053
1910 ²	19,218	515,230	241,008	601,509	564,467	1,165,976
1917 ²	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1920 ²	22,532	598,893	717,494	2,085,272	1,621,273	3,706,545
1929 ²	22,216	666,531	777,291	2,029,671	1,755,387 ³	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
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	5,334,280	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	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 ⁴	16,982,687 ⁵
1953	38,107	1,327,451	3,957,018	9,380,559	7,993,069 ⁶	17,785,417 ⁷
1954 ⁸	—	1,268,449	3,881,378	9,205,701	7,849,379 ⁹	17,497,769 ⁹

¹ From 1870 to 1890, the figures include all establishments irrespective of the number of employees, including house building and custom and repair work. ² Includes all establishments employing 5 hands or over. ³ Includes all establishments irrespective of the number of employees, but excludes construction and custom and repair work. ⁴ From 1929 on, net value of production represents gross value less the cost of materials, fuel and electricity. Before this, only cost of materials is deducted. ⁵ From 1949 on, the figures include Newfoundland. ⁶ Value added in manufacture (see text p. 208). ⁷ Gross value of factory shipments (see text p. 208).

Though hundreds of new commodities were added to Canada's list of manufactured products in the post-war years, much the same group of industries held the lead in 1953 as in 1946. Growth was general in all manufacturing industries but more pronounced in some than in others so that the order of importance was changed somewhat. Aircraft, motor-vehicle parts and miscellaneous food products moved up to be within the fifteen top industries and electrical apparatus and supplies, flour and feed mills and women's factory clothing moved out of that category.

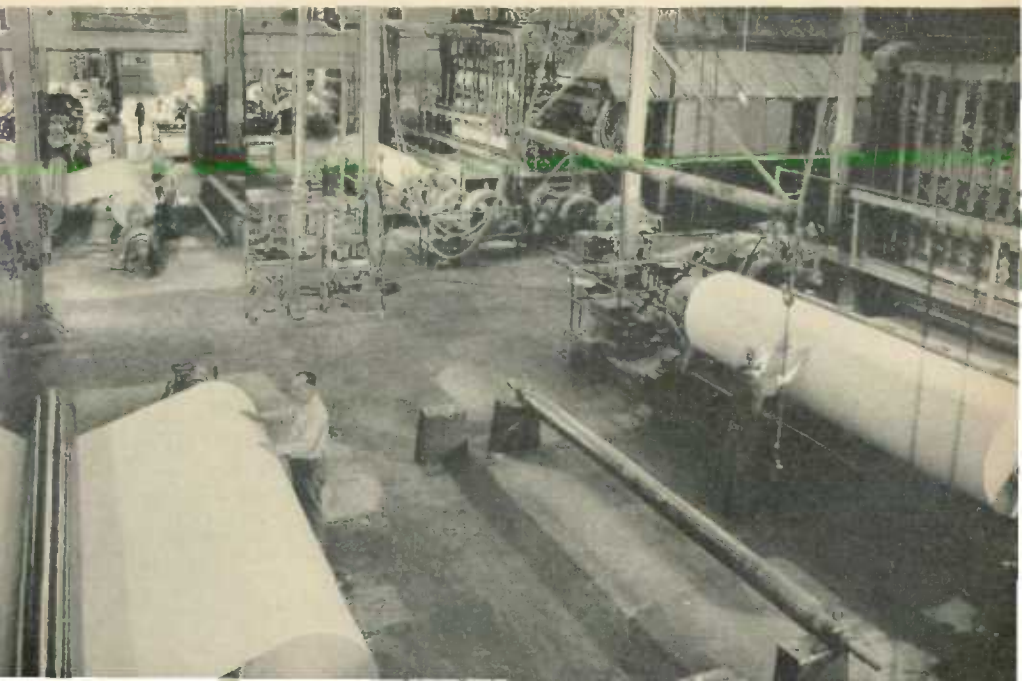
Pulp and paper, Canada's leading industry for many years, increased its output by 124 p.c. from 1946 to 1953. In the latter year it shipped goods to the value of \$1,180,000,000 which was nearly 7 p.c. of the total value of shipments of all factories. This industry is the largest consumer of electric energy and the largest industrial buyer of goods and services, including transportation, in the land. It has an output of newsprint five times that of any other country and provides over one-half the world's newsprint needs. It is also the world's greatest pulp exporter and the second producer of pulp. Thus, with four-fifths of its output moving abroad, this industry ranks as one of the major industrial enterprises of the world. Sawmilling, another forest-based industry, has also doubled its annual value of shipments during the 1946-53 period to \$581,000,000. The expansion in both these industries required heavy capital outlays which, from 1948 to 1953, amounted to \$606,000,000 and \$113,000,000, respectively (figures from 1946 are not available).

The second largest industry, non-ferrous metal smelting and refining, increased its shipments by 186 p.c. from 1946 to \$871,000,000 in 1953. Canada is one of the world's leading producers of metals, standing first in the production

of nickel, second in aluminum and zinc and fourth in copper and lead. This industry, based on mineral deposits, is no less dependent upon water-power resources because the smelting and refining of ore requires large amounts of cheap electricity. The availability of such low-cost power was the main factor in the establishment of Canada's large aluminum industry which uses imported ores and concentrates. It takes 20,000 kwh. of electric energy to process one ton of aluminum, enough power to serve the average Canadian home for twelve years, and Canada produced over 500,000 tons in 1953. Capital outlays in the 1948-53 period amounted to \$218,000,000.

The production of motor-vehicles has risen to third place among the industries of Canada, the value of sales having increased by 333 p.c. since 1946. The number of passenger cars produced rose from 91,871 in 1946 to 360,385 in 1953; in the latter year there was one passenger car registered for every 5.9 persons in the country. Capital investment in the 1948-53 period amounted to \$127,000,000. The prosperity of the automobile industry has perhaps a greater influence on more industries and services and, therefore, on a greater portion of the population than has any other industry. Producers of petroleum, steel, plate glass, nickel, lead, rubber, textiles and even iron find in the automobile industry their largest single customer. There are 12,000 to 20,000 different parts in every automobile and they contain, in one form or another, every raw material and almost every agricultural product that Canada produces and are obtained from sources distributed from one end of the country to the other. Also the merchandising of motor-vehicles and of gasoline and oil ranks second only in importance to the distribution of food and beverages. The automobile parts industry is now in eleventh place in value of manufacturing production and the rubber goods industry, almost entirely dependent on motor-vehicles, is in twelfth place. The transportation

The dry end of a paper machine. The newsprint on these huge rolls is slit and rewound to desired widths for shipment. Newsprint is Canada's most important manufactured product—value of production in 1954 amounted to \$657,487,000.



group of industries also includes the manufacture of railway rolling-stock which was in tenth place in 1953. Investment in equipment has kept the locomotive and car-building companies active while the maintenance and repair shops and parts suppliers, operating on a continuing basis, provide a steady influence in production and employment.

Four manufacturing industries based on agricultural production were included among the first fifteen in 1953—slaughtering and meat packing was in fourth place, butter and cheese in ninth, miscellaneous food preparations in thirteenth and bread and bakery products in fourteenth. The rate of growth in these industries has been somewhat slower than in other industries because production depends largely on domestic demand, the growing population and greater per capita consumption absorbing the increased output. There was, within these industries, a wide shift in importance of commodity, but as a whole the slaughtering and meat-packing industry increased its sales by 74 p.c. in the 1946-53 period, the butter and cheese industry by 69 p.c. and miscellaneous food products 105 p.c.

The expansion in the value of shipments of petroleum products, the fifth largest industry, was one of 211 p.c. to \$695,000,000. Canada's growing industrialization and mobilization is reflected in the rising rate at which petroleum products are used. There has been a tremendous increase in the consumption of gasoline by motor-vehicles and the changeover from the use of coal to oil by manufacturing industries, the railways and domestic consumers has contributed greatly to demand. With the development of Canada's western oil fields and the construction of pipelines for transporting crude petroleum eastward and westward, domestic wells have been able to meet a much greater proportion of the nation's crude oil requirements. Canadian crude made up 10 p.c. of the input of Canadian refineries in 1946 and 46 p.c. in 1953. Almost all of the output of Canadian refineries is consumed in Canada. Capital expenditures in 1950-53 amounted to \$199,000,000.

The primary iron and steel industry was called upon to increase its effort to meet the needs of the general expansion. Shipments trebled in value from \$153,000,000 in 1946 to \$459,000,000 in 1953, making it the seventh largest industry. The construction of new blast furnaces enabled the output of pig iron to be stepped up from 1,406,000 tons in 1946 to 3,012,000 tons in 1953 and production of steel ingots and castings rose from 2,327,000 tons to 4,116,000 tons. Capital expansion amounted to \$211,000,000 from 1948 to 1953.

One of the most remarkable expansions during the period was made by the aircraft and parts industry, which increased its shipments from \$36,000,000 in 1946 to \$399,000,000 in 1953, bringing it up to eighth place in value of output. This growth was greatly accelerated by the defence production program that began with the outbreak of war in Korea in 1950. An all-Canadian long-range fighter was developed and put into production as well as several U.S. types of defence aircraft. On the civilian side, a number of types of passenger aircraft designed to meet Canadian flying conditions, especially in the northern areas, were placed on the assembly line and have met with a good response from purchasers abroad and at home. This development has been accompanied by the establishment of new types of production, such as aircraft instruments, needle bearings, and special alloys to withstand the heat of jet engines.

Increasing population and higher incomes are reflected in the consumption of meat and other animal products. Each week in 1955 the domestic market absorbed the product of 33,300 cattle, 100,000 hogs, 16,000 calves and 15,600 sheep and lambs.



Men's factory clothing was the only textile industry to appear among the fifteen leading industries in 1953—the value of its output went up 79 p.c. since 1946. The textile industry generally has suffered from economic pressures during recent years but increased retail sales have assisted the factory clothing industry to higher levels.

Principal Statistics of the Fifteen Leading Industries, 1953

Industry	Estab- lish- ments	Employees	Earnings	Cost of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Pulp and paper.....	127	58,194	235,742	499,351	599,935	1,179,665
Non-ferrous metal smelting and refining	18	25,115	94,546	508,117	310,207	870,918
Motor-vehicles.....	20	32,973	131,316	557,709	273,598	835,555
Slaughtering and meat- packing.....	152	22,887	74,432	672,764	152,023	829,468
Petroleum products....	55	11,858	48,875	507,214	159,603	694,989
Sawmills.....	8,194	60,933	142,131	304,585	269,066	580,694
Primary iron and steel..	62	34,956	129,710	212,374	216,958	458,904
Aircraft and parts.....	43	38,048	142,376	135,757	260,548	398,744
Butter and cheese.....	1,527	20,697	52,508	293,916	95,787	396,956
Railway rolling-stock...	36	35,447	118,026	179,892	153,678	338,321
Motor-vehicle parts....	179	23,335	81,187	162,324	141,252	307,677
Rubber goods.....	72	22,600	70,995	114,337	172,674	290,735
Miscellaneous food prepa- rations.....	322	9,757	26,028	200,379	80,865	284,366
Bread and other bakery products.....	2,571	33,540	80,903	129,225	139,988	277,998
Men's factory clothing..	601	35,119	74,710	147,284	125,834	273,946
Totals, Fifteen Leading Indus- tries.....	13,979	465,459	1,503,185	4,625,228	3,152,016	8,018,936
Percentages of Fifteen Leading Industries to All Industries, 1953...	36.68	35.06	37.99	49.31	39.43	45.09

There are other factors, also, that indicate the growth in manufacturing. The greater consumption of fuel and the changing emphasis on the different types is shown in the following table.

**Fuel and Electricity Consumed in Manufacturing Industries,
1926, 1937, 1946 and 1953**

Type		1926	1937	1946	1953 ¹
Coal, Bituminous and sub-bituminous.....	'000 tons	5,777	5,736	8,074	10,069
Anthracite.....	"	284	174	179	195
Lignite.....	"	146	265	395	467
Coke.....	"	475	658	691	674
Gasoline.....	'000 Imp. gal.	2,387	3,665	27,537	64,521
Kerosene.....	"	2	334	1,245	6,099
Fuel oil.....	"	110,379	167,825	376,007	834,642
Liquefied petroleum gases.....	"	—	—	—	9,841
Natural gas.....	M cu. ft.	40,589	5,802	8,745	21,516
Manufactured gas.....	"	—	59,952	95,491	73,441
Wood.....	'000 cords	722	504	348	299
Electricity ²	'000,000 kwh.	2	19,421	27,965	40,928

¹ Includes Newfoundland and cheese industry in Quebec.

² Not collected.

³ Exclusive of the butter

The proportion of earned dollars in the national income derived from manufacturing in 1926 was 22 p.c., in 1939 it was 27 p.c., in 1946, 28 p.c. and in 1953, 30 p.c.

National Income, by Industry, 1926, 1939, 1946 and 1953

(Millions of dollars)

Industry	1926	1939	1946	1953
Manufacturing.....	914	1,164	2,782	5,722
Agriculture.....	788	512	1,276	1,891
Forestry.....	67	71	220	326
Fishing and trapping.....	29	12	78	60
Mining, quarrying and oil wells.....	138	299	302	721
Construction.....	201	148	430	1,178
Transportation, storage and communication, public utilities.....	536	508	1,105	2,025
Trade.....	507	590	1,411	2,705
Finance, insurance and real estate.....	390	426	630	1,382
Service.....	503	432	772	1,459
Government.....	370	460	1,057	1,820
Net interest and dividends to non-residents.....	208	249	242	246
Net National Income at Factor Cost¹	4,185	4,373	9,821	19,043

¹ Earnings of the factors of production—wages and salaries and supplementary labour income, profits, interest, net rent and net income of agricultural and other unincorporated business.

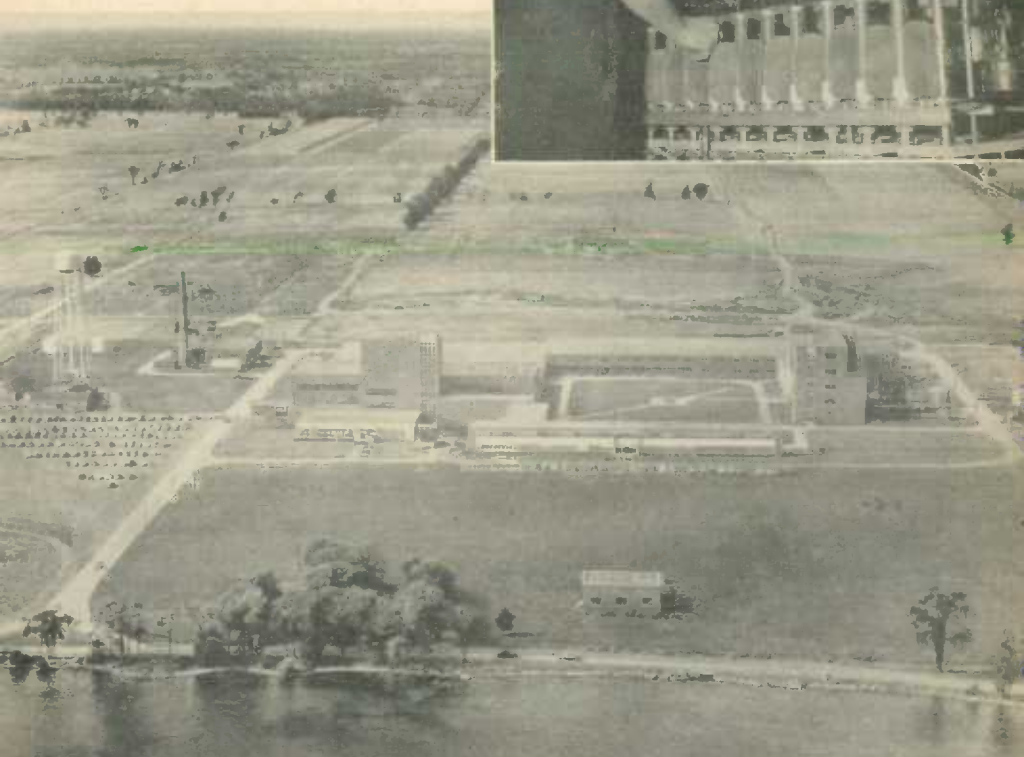
Current Trends in Manufacturing

The gross value of production of the manufacturing industries continued its upward trend in 1953, reaching \$17,785,416,854, a 4.7-p.c. increase over 1952. The 1953 advance in value was accounted for by an increase of 6.8 p.c. in the physical volume of production offset by price declines. The production of durable goods increased more rapidly than that of non-durables.

Accompanying the rise in output was an increase of 3.0 p.c. in the number of persons employed and of 8.7 p.c. in the amount of salaries and wages paid. Salary and wage payments at \$3,957,018,348 were the highest on record. Average earnings were \$2,981 per head. Of a total of approximately 1,327,451 employees in manufacturing, 303,245 were women and girls. The average work week was 41.7 hours for the wage-earner and 39.0 for the salaried employee.

Provincial Distribution.—*Ontario* is Canada's most industrialized province. Since 1946 its manufacturing production has increased by 136 p.c. to \$8,876,504,990 in 1953, and employment has risen by 27 p.c. to 634,554 in the same comparison. In 1953, Ontario's industries produced about half of the nation's manufactured goods, employed nearly half of the manufacturing working force and paid more than half of the salary and wage bill.

A new "Terylene" plant near Kingston, Ont., produces polyester fibre for Canadian textile mills to convert into clothing of all kinds and into many industrial materials.



Ontario has the greatest diversification of manufacturing production of any province and certain industries are carried on there almost exclusively. In 1953, the Province turned out 90 p.c. or more, by value, of the Canadian production of motor-vehicles and parts, heavy electrical machinery, agricultural implements, machine tools, starch and glucose, bicycles and parts, tobacco products and soaps and washing compounds; between 80 p.c. and 90 p.c. of the rubber goods, breakfast foods, carpets, mats and rugs, automobile accessories of fabric, tanned leather, wine, typewriter supplies, artificial abrasives, cordage, rope and twine, and electric batteries; and between 70 p.c. and 80 p.c. of the primary iron and steel products, radio and television sets and parts, iron castings, scientific and professional equipment, wool yarn, white metal alloys, sporting goods, boiler and plate work, refrigerators, vacuum cleaners and appliances, toys and games, household and office machinery, jewellery and silverware, and hardware tools and cutlery.

Quebec, producing about 30 p.c. of Canada's total value of manufactured goods in 1953, is the second largest industrial province. In common with the other provinces, Quebec experienced great industrial expansion following World War II. From 1946 to 1953, the value of output rose by 116 p.c. to \$5,386,784,863 and the number of persons employed in manufacturing increased by 24 p.c. to 441,555.

Quebec's leading industry is pulp and paper, which had an output of more than \$511,000,000 in 1953—about 43 p.c. of the national total for that industry. Non-ferrous metal smelting and refining is next in importance, reporting value of shipments amounting to \$360,000,000 in 1953. Quebec predominates in the production of many industries. In 1953 the Province produced 94 p.c. of the Canadian value of shipments of tobacco, cigars, and cigarettes, 83 p.c. of the cotton thread, and over 70 p.c. of the oiled and water-proofed clothing, children's clothing, oilcloth linoleum and coated fabrics, and of the dyeing and finishing of textiles; between 60 p.c. and 70 p.c. of the value of production of women's factory clothing, synthetic textiles and silk, cotton yarn and cloth, corsets, narrow fabrics, miscellaneous clothing, fur dressing and dyeing, and process cheese; between 50 p.c. and 60 p.c. of the leather footwear, synthetic textiles and silk, men's factory clothing, asbestos products, miscellaneous textiles, and fur goods.

British Columbia, with factory shipments totalling \$1,367,000,000 in 1953, ranked third among the provinces in manufacturing production. The post-war expansion is indicated by an increase of 112 p.c. in the value of production from 1946 to 1953, and by an increase of 24 p.c. in the number of persons employed in manufacturing—75,484 to 93,844.

The major industry is sawmilling which reported a gross value of shipments of \$323,000,000 in 1953 followed by pulp and paper with \$139,000,000 and fish-processing with \$66,000,000. The sawmilling industry in British Columbia accounted for 56 p.c. of the Canadian total value of shipments for the industry, and the fish-processing industry for 48 p.c. Non-ferrous metal smelting and refining ranks high among the leading industries of the Province and recent expansion programs together with the new development at Kitimat for the production of aluminum will add to its importance; production figures are confidential and cannot be published. Other industries of importance are: veneers and plywoods, slaughtering and meat-packing, sash, door and planing mills, petroleum products, food preparations, fertilizers and shipbuilding.

Manufacturing activities in the *Atlantic Provinces* are based mainly on the forests and the sea. Considering the four provinces as a unit, pulp and paper, fish processing, sawmills, and primary iron and steel predominated, accounting for 43 p.c. of the total production of the region in 1953. From 1946, the gross value of shipments of the three Maritime Provinces—Prince Edward Island, Nova Scotia and New Brunswick—increased by 77 p.c., from \$361,000,000 to \$639,000,000; the individual increases were 107 p.c., 79 p.c. and 73 p.c., respectively. In the same comparison, employment in manufacturing for the three provinces together increased from 54,211 to 58,320 or by 8 p.c.; individually the increases were 3 p.c., 8 p.c., and 7 p.c., respectively. For Newfoundland, which became part of Canada in 1949, the increase in value of production since that year was about 58 p.c., and in number of employees, about 53 p.c.

In Newfoundland, manufacturing production is dominated by the pulp and paper and fish-processing industries which, in 1953, accounted for 68 p.c. of the total production of the Province. In Prince Edward Island, agricultural and fishery resources make butter and cheese, fish processing and prepared stock and poultry feeds the leading industries. In Nova Scotia, primary iron and steel is the leading industry, having reported shipments valued at \$41,000,000 in 1953. This industry benefits from its location close to the coal mines of Cape Breton and its easy access by sea to the iron ore of Newfoundland. Fish processing ran second, value of shipments being \$38,000,000. Shipbuilding came next with shipments of \$24,000,000, and sawmills and pulp and paper together accounted for shipments of about \$38,000,000. The forests of New Brunswick provide the raw materials for the Province's leading industries; pulp and paper reported shipments of \$83,000,000 in 1953 and sawmills reported shipments of \$25,000,000. Fish processing ranked third in value of shipments with a total of \$15,000,000.

Developments in the post-war years have resulted in an increase in the gross value of shipments of the *Prairie Provinces* of 81 p.c., from \$777,000,000 to \$1,407,000,000 in 1953. Alberta showed the greatest advance, having an increase of 116 p.c. compared with Manitoba with 66 p.c., and Saskatchewan with 58 p.c. Employment in manufacturing in the three Provinces together increased by 21 p.c. from 1946 to 1953—72,973 to 88,426.

In Manitoba, slaughtering and meat-packing is the leading industry, having shipments valued at \$110,000,000 in 1953. Railway rolling-stock was second with \$41,000,000, followed by butter and cheese factories, flour mills, petroleum products, men's factory clothing and miscellaneous food preparations, each of which shipped goods valued at over \$20,000,000. Manitoba's industries are well diversified, a large number of small and medium-sized firms having located in the Winnipeg area in the post-war period. In Saskatchewan, manufacturing has continued along more or less traditional lines. Petroleum products led in 1953 with shipments valued at \$63,000,000. Flour mills were second with \$43,000,000, slaughtering and meat-packing third with \$32,000,000, and butter and cheese factories fourth with \$28,000,000. In Alberta, slaughtering and meat-packing led the industries in 1953 with shipments of \$112,000,000. Petroleum products came second with \$90,000,000, flour mills third with \$40,000,000, followed by butter and cheese with \$34,000,000. Sawmills and sash, door and planing mills each had shipments of over \$20,000,000. Other industries are advancing rapidly in the Province,



The establishment of television service in Canada in 1952 greatly precipitated demand for receiving sets. Producers' domestic sales mounted from 40,000 sets in 1951 to 624,000 in 1954.

particularly the manufacture of such products as drill bits and tanks, heat exchangers and other bulky equipment for the rapidly growing oil and gas industries. Chemicals have also made striking gains.

Statistics of Manufactures, by Province, 1953

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Estab- lish- ments	Em- ployees	Earnings	Cost of Fuel and Elec- tricity	Cost of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland....	939	10,575	26,605	3,768	44,972	57,785	106,525
Prince Edward Island.....	216	1,809	3,096	356	16,964	5,879	23,199
Nova Scotia....	1,591	32,040	76,391	11,552	180,544	127,917	320,012
New Brunswick...	1,094	24,471	59,753	11,335	163,798	120,617	295,750
Quebec.....	12,133	441,555	1,225,573	145,764	2,816,473	2,424,647	5,380,785
Ontario.....	13,114	634,551	2,017,982	186,244	4,560,135	4,130,126	8,876,505
Manitoba.....	1,540	43,740	121,126	9,672	345,303	229,797	584,872
Saskatchewan....	1,062	11,604	32,396	6,368	180,304	79,941	266,613
Alberta.....	2,072	33,082	92,605	9,933	346,221	199,660	555,815
British Columbia..	4,317	93,844	300,921	26,642	724,496	615,686	1,366,824
Yukon and North- west Territories	30	177	570	155	1,350	1,013	2,517
Canada.....	38,107	1,327,451	3,957,018	411,789	9,380,559	7,993,069	17,785,417

Preliminary Statistics of Manufactures, by Province, 1954

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Em- ployees	Earnings	Cost of Fuel and Elec- tricity	Cost of Materials Used	Value Added by Manu- facture	Value of Factory Shipments
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	10,677	30,245	4,037	47,358	57,196	108,591
Prince Edward Island.....	1,799	2,993	1,388	16,980	5,904	23,272
Nova Scotia.....	30,342	71,554	10,036	162,716	132,319	305,071
New Brunswick.....	22,782	56,234	12,015	158,076	119,454	289,545
Quebec.....	424,205	1,204,263	149,355	2,785,890	2,426,314	5,361,568
Ontario.....	597,850	1,951,974	187,929	4,424,150	3,913,978	8,526,057
Manitoba.....	41,204	116,169	10,280	316,677	230,965	557,922
Saskatchewan.....	11,750	33,712	6,927	169,847	104,823	281,597
Alberta.....	32,686	95,990	10,264	343,528	216,678	570,470
British Columbia.....	94,958	317,639	31,404	778,980	659,785	1,470,169
Yukon and Northwest Territories.....	196	605	54	1,490	1,963	3,507
Canada.....	1,268,449	3,881,378	422,689	9,205,701	7,869,379	17,497,769

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.

Urban Centres with Value of Factory Shipments of over \$100,000,000 in 1953

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

Urban Centre	Estab- lish- ments	Employees	Earnings	Cost at Plant of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Montreal.....	4,398	193,129	544,284	18,428	1,067,911	2,042,663
Toronto.....	3,780	154,251	478,086	18,968	980,873	1,875,747
Hamilton.....	566	60,451	201,516	22,408	385,516	824,407
Windsor.....	348	37,514	140,481	7,560	402,210	682,273
Vancouver.....	1,316	33,822	108,897	5,448	255,007	448,592
Montreal East.....	52	5,978	22,242	14,609	315,805	425,407
Winnipeg.....	860	28,230	76,008	3,267	156,861	300,187
Sarnia.....	51	8,220	30,791	13,937	124,295	213,783
London.....	297	16,858	49,681	2,444	89,927	199,099
Kitchener.....	204	15,621	45,096	1,997	95,039	193,983
Edmonton.....	334	11,437	34,279	2,378	122,361	188,602
St. Laurent.....	54	16,697	59,119	1,470	76,323	185,073
Quebec.....	437	16,846	40,543	5,078	92,517	177,239
New Toronto.....	52	7,274	26,173	2,017	83,341	156,520
Calgary.....	313	9,099	27,821	1,679	96,963	152,311
Leaside.....	50	11,136	36,906	1,576	66,627	144,685
St. Catharines.....	112	12,545	41,343	2,195	65,772	142,193
St. Boniface.....	91	4,511	13,963	1,128	103,965	134,378
Brantford.....	162	11,396	37,456	1,784	59,241	132,654
Sault Ste. Marie.....	60	9,006	33,375	7,225	65,836	127,561
Peterborough.....	103	10,062	32,622	1,440	61,640	119,421
Shawinigan Falls.....	49	5,870	19,512	9,448	48,669	114,596
Welland.....	63	8,118	30,235	5,172	51,495	113,855
New Westminster.....	125	6,382	20,430	1,283	58,527	111,471
Niagara Falls.....	85	7,021	23,603	7,042	43,487	111,167
Three Rivers.....	97	7,364	22,157	6,614	47,395	110,820
Lachine.....	71	9,335	32,902	1,188	39,105	106,710
Ottawa.....	288	10,466	29,663	1,917	45,681	105,002
Chatham.....	82	4,107	13,562	946	68,937	102,488



Power drillers cut path for a new highway from Vancouver to Squamish. Below is a railway roadbed which will parallel the highway for most of its tortuous route along the steep eastern bank of Howe Sound. Lower still and not seen is the right-of-way for an Upper Level road to Horseshoe Bay.

Capital Expenditures

THE relative size of the capital expenditure programs of business, governments and individuals forms one of the most important determinants of the level of economic activity within the nation. Capital expenditures not only provide employment for a large number of workers in both the construction industry and in those industries supplying construction materials and machinery, but also open up new employment opportunities for a growing labour force, contributing to higher income levels and therefore to a chain reaction in activity. In addition, they reflect the extent to which business and government are providing for the future.

Capital expenditures are defined as those outlays made to replace, modernize and expand the nation's stock of physical assets—houses, factories, mines, railways, telephone systems, power installations, stores, schools, hospitals and the machinery and equipment necessary to produce goods and services. Government-owned assets such as roads, canals, harbour installations, office buildings and defence structures are included. Excluded are expenditures made for the purchase of defence equipment, the acquisition of land and existing buildings and for the accumulation of inventories.

Capital expenditures have played a very significant role in Canada's post-war growth. From 1946 to 1955 the combined total of new private and public investment in durable assets amounted to over \$42,000,000,000. In each successive year during the period, except 1950 and 1954, a larger share of the national output was taken up by the investment program. In 1946 the share was 14.2 p.c., in 1955, 23.5 p.c., and for the whole period it was over 21 p.c.

Private and Public Capital Expenditures, 1946-56

NOTE.—1946-54 figures are actual expenditures, 1955 figures are preliminary and 1956 figures are forecasts as of January 1956.

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	23.0
1954	3,680	1,940	5,620	23.3
1955	4,273	1,957	6,230	23.5
1956	5,162	2,367	7,529	—

¹ Newfoundland included from 1949.

The preliminary figures for 1955 and the forecast intentions for 1956 (as of January 1956) show a continued upward trend, after the pause in 1954 when capital expenditure declined slightly. A good part of the 1955 increase

was attributable to high expenditures for home-building which comprised almost one-quarter of total capital investment. Mineral and forest products were also very active and institutions and governments increased their capital outlays. Most of the increase in 1955 went for new construction, although expenditures on machinery and equipment were also higher.

The forecast capital expenditures for 1956 reveal that increases are intended throughout all sectors of the economy with the exception of the construction industry and forestry. The most significant expansions are forecast for the utility and manufacturing sectors.

Private and Public Capital Expenditures, by Sector, 1954-56

NOTE.—1954 figures are actual expenditures, 1955 figures are preliminary and 1956 figures are forecasts as of January 1956.

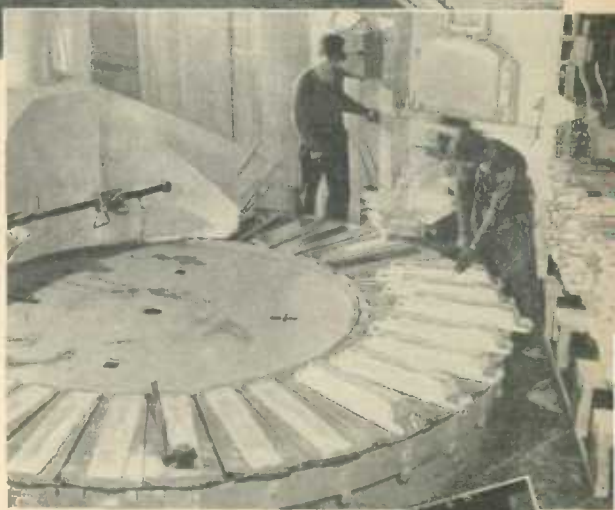
Sector and Year		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Agriculture and fishing	1954	78	310	388
	1955	80	344	424
	1956	83	344	427
Forestry	1954	26	20	46
	1955	35	27	62
	1956	36	24	60
Mining, quarrying and oil wells	1954	184	94	278
	1955	220	81	301
	1956	300	124	424
Manufacturing	1954	288	534	822
	1955	345	594	939
	1956	462	842	1,304
Utilities	1954	610	514	1,124
	1955	600	441	1,041
	1956	1,002	580	1,582
Construction industry	1954	0	88	97
	1955	11	96	107
	1956	10	76	86
Housing	1954	1,178	—	1,178
	1955	1,496	—	1,496
	1956	1,574	—	1,574
Trade—wholesale and retail	1954	204	164	368
	1955	193	157	350
	1956	214	156	370
Finance, insurance and real estate	1954	90	17	107
	1955	84	18	102
	1956	92	18	110
Commercial services	1954	25	82	107
	1955	33	93	126
	1956	46	90	136
Institutional services	1954	296	41	337
	1955	370	39	409
	1956	402	45	447
Government departments	1954	692	76	768
	1955	806	67	873
	1956	941	68	1,009
Totals	1954	3,680	1,940	5,620
	1955	4,273	1,957	6,230
	1956	5,162	2,367	7,529

Construction Activity

Construction activity in Canada was greater in 1955 than ever before. In that year, an estimated 525,000 full-time workers were employed to carry out the construction program and their remuneration amounted to \$1,760,000,000. The materials used cost about \$2,300,000,000.



Demand for aluminum both from its traditional markets and from new areas continues upward and Canada's productive capacity is growing to meet it. In 1955 an estimated 560,000 tons were produced in five smelters: the plant at Arvida, Que. (above), is the largest in the world. Expansion programs now under way at Kitimat, B.C., and Isle Maligne, Que., will add 262,000 tons annually to capacity by 1959. Ingots are shipped from the smelter to other plants for further processing and manufacture into finished commodities.



All branches of the industry were active during the year and increased in value over 1954. Residential construction, valued at an estimated \$1,512,000,000, recorded the greatest increase. In the engineering categories, the advance in the construction of gas and oil facilities was most prominent, followed by road building and marine construction.

The summary statistics in the following tables are based on reports received from organizations paying for work done by contractors as well as work done by their own labour forces. Although derived from the same source as capital expenditure figures, these data, for the year 1955, are based on earlier information. The portion of the increase resulting from higher prices is indicated by the calculation of value on the 1949 dollar base.

Value of Construction Work Performed, Current and Constant (1949) Dollars, 1947-55

(Millions of dollars)

NOTE.—1947-53 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Year	New		Repair		Total	
	Current	Constant	Current	Constant	Current	Constant
1947.....	1,424	1,681	592	696	2,016	2,377
1948.....	1,877	1,947	694	720	2,571	2,667
1949.....	2,124	2,124	732	732	2,856	2,856
1950.....	2,366	2,247	766	727	3,132	2,974
1951.....	2,734	2,308	927	783	3,661	3,091
1952.....	3,282	2,625	916	732	4,198	3,357
1953.....	3,666	2,847	974	753	4,640	3,602
1954.....	3,696	2,871	994	769	4,690	3,640
1955.....	4,063	—	996	—	5,059	—

† Newfoundland included from 1949.

Value of New and Repair Construction Work Performed, 1953-55

NOTE.—1953 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Type of Construction	1953		1954		1955	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$'000,000		\$'000,000		\$'000,000	
Building	2,812	60.6	2,892	61.7	3,111	61.5
Residential.....	1,297	28.0	1,391	29.7	1,512	29.9
Industrial.....	402	8.7	352	7.5	378	7.5
Commercial.....	502	10.8	541	11.5	544	10.8
Institutional.....	343	7.4	368	7.8	432	8.5
Other.....	268	5.8	240	5.1	246	4.9
Engineering	1,828	39.4	1,798	38.3	1,948	38.5
Road, highway and aero-						
drome construction.....	467	10.1	470	10.0	510	10.1
Waterworks and sewage						
systems.....	135	2.9	142	3.0	154	3.0
Dams and irrigation.....	66	1.4	42	0.9	42	0.8
Electric power construction.....	338	7.3	358	7.6	372	7.4
Railway, telephone and						
telegraph construction.....	317	6.8	286	6.1	294	5.8
Gas and oil facilities.....	253	5.5	263	5.6	323	6.4
Marine construction.....	76	1.6	81	1.7	114	2.3
Other engineering.....	176	3.8	156	3.3	138	2.7
Totals, Construction	4,640	100.0	4,690	100.0	5,059	100.0

Summary Statistics of Construction Activity, 1953-55

NOTE.—1953 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Province or Contractor and Year	Average Employees	Salaries and Wages Paid	Cost of Materials Used	Value of Work Performed
	No.	\$'000	\$'000	\$'000
Newfoundland.....	1953 8,973	27,623	30,298	68,118
	1954 8,181	24,363	26,829	60,706
	1955 9,908	30,280	32,517	74,798
Prince Edward Island.....	1953 2,007	4,211	7,398	14,222
	1954 1,808	3,939	7,917	14,535
	1955 2,010	4,452	8,768	16,221
Nova Scotia.....	1953 19,898	50,985	68,550	141,184
	1954 18,462	48,657	66,639	137,178
	1955 18,525	50,121	70,036	144,206
New Brunswick.....	1953 15,338	37,110	52,775	105,227
	1954 16,634	38,967	55,476	110,822
	1955 19,749	48,447	72,660	144,406
Quebec.....	1953 133,598	398,134	537,622	1,124,040
	1954 131,431	400,230	539,748	1,131,852
	1955 134,287	415,913	566,324	1,183,706
Ontario.....	1953 171,638	558,757	744,621	1,597,331
	1954 181,695	610,115	800,308	1,740,030
	1955 193,600	664,706	889,990	1,909,917
Manitoba.....	1953 28,894	79,369	122,620	245,760
	1954 26,634	75,844	118,102	235,864
	1955 26,106	75,556	115,748	233,292
Saskatchewan.....	1953 25,187	76,390	114,996	235,195
	1954 28,299	88,769	133,147	273,662
	1955 25,655	80,830	119,339	245,517
Alberta.....	1953 50,184	177,422	264,628	556,008
	1954 46,953	170,175	252,653	534,119
	1955 50,238	186,001	277,548	586,257
British Columbia.....	1953 53,780	216,610	242,105	552,560
	1954 44,232	177,732	200,217	450,931
	1955 49,586	203,565	230,815	520,618
Totals.....	1953 509,497	1,626,611	2,185,613	4,639,645
	1954 503,729	1,638,491	2,210,036	4,689,699
	1955 529,664	1,759,871	2,383,735	5,058,938
Contractors.....	1953 317,326	1,085,667	1,588,109	3,358,410
	1954 318,224	1,097,811	1,619,828	3,416,452
	1955 348,945	1,221,501	1,796,053	3,791,545
Utilities.....	1953 79,870	233,692	263,128	540,341
	1954 75,713	233,837	261,681	543,680
	1955 70,804	225,423	256,695	528,372
Governments.....	1953 56,640	148,278	131,529	318,278
	1954 58,596	155,733	137,460	330,176
	1955 60,256	163,131	143,601	345,390
Others.....	1953 55,661	158,974	202,847	422,616
	1954 51,196	151,110	191,067	399,391
	1955 49,659	149,816	187,386	393,631

Housing

Most of the post-war population increase in Canada has been located in urban centres and has been accompanied by a concentration of house-building activity in these centres. Of the total increase in the dwelling stock of 800,000 units since the end of the War, 69 p.c. have been in urban centres of over 5,000 population and 51 p.c. in thirteen metropolitan areas.

This pattern continued in 1955 when the numbers of dwellings started and completed, at 138,000 and 128,000, respectively, exceeded the activity of any previous year. Of the 138,000 dwellings started, 57 p.c. were in

metropolitan areas and 77 p.c. in urban areas. Many of the dwellings started in areas defined as rural were situated close to the larger urban centres.

New Dwelling Units Started, Completed and Under Construction, by Province, 1954 and 1955

Province	1954			1955		
	Starts	Com- pletions	Under Construc- tion Dec. 31	Starts	Com- pletions	Under Construc- tion Dec. 31
	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,345	1,160	2,906	1,613	1,284	3,057
Prince Edward Island.....	198	188	87	214	199	93
Nova Scotia.....	2,311	2,496	1,503	2,946	2,611	1,595
New Brunswick.....	2,228	1,415	1,369	2,986	2,562	1,758
Quebec.....	29,958	26,182	16,629	39,852	34,866	21,812
Ontario.....	46,382	41,085	27,941	53,456	51,351	30,055
Manitoba.....	5,260	5,107	2,796	6,705	5,873	3,564
Saskatchewan.....	4,714	4,889	2,545	4,448	4,278	2,258
Alberta.....	11,529	10,285	6,442	10,542	10,494	6,581
British Columbia.....	9,603	9,158	6,423	15,614	14,034	9,143
Canada.....	113,527	101,965	68,641	138,276	127,552	79,716

New Dwelling Units Completed, by Type and Metropolitan Area, 1951-55

Type and Area	1951	1952	1953	1954	1955
Type	No.	No.	No.	No.	No.
New Construction	81,310	73,087	96,839	101,965	127,552
One-family detached.....	69,366	55,967	68,916	71,760	90,292
Two-family detached.....	7,568	5,314	7,714	6,098	8,278
Row or terrace.....	585	99	372	1,065	1,547
Apartments.....	12,791	11,707	19,837	23,042	27,435
Conversions	3,500	3,215	3,824	4,373	4,340
Totals¹	84,810	76,302	100,663	106,338	131,892
Metropolitan Area					
St. John's, Nfld.....	326	402	585	451	435
Halifax, N.S.....	620	636	1,241	1,360	1,275
Saint John, N.B.....	98	211	273	273	295
Quebec, Que.....	1,045	1,056	1,580	2,380	2,769
Montreal, Que.....	16,316	11,500	17,833	16,191	19,923
Ottawa, Ont.....	2,641	2,296	2,862	3,262	3,849
Toronto, Ont.....	13,026	9,576	9,460	16,252	22,016
Hamilton, Ont.....	1,757	1,877	2,961	2,593	2,932
London, Ont.....	1,261	1,358	1,355	1,297	1,356
Windsor, Ont.....	940	818	940	1,722	982
Winnipeg, Man.....	2,127	2,088	3,089	3,602	4,181
Vancouver, B.C.....	4,340	4,249	5,913	6,796	8,209
Victoria, B.C.....	844	715	944	1,065	1,421
Totals, Metropolitan Areas²	45,341	36,782	49,036	57,244	69,343

¹ Exclusive of the Yukon and Northwest Territories.

² New construction only.

There was a considerable increase in starts of single-family dwellings in 1955 as compared with 1954 and a large part of the increase was financed under the new National Housing Act; 1955 was the first full year of the operation of the Act with its provisions for easier terms to home-owner borrowers in respect of lower down-payment requirements and a longer period of loan-payment. The Act also provided for the participation of the chartered banks in mortgage lending and those institutions played an important role in the

supply of a record volume of funds for mortgage loans in 1955. The effect of these provisions was to raise the proportion of dwellings started under the National Housing Act from 38 p.c. in 1954 to 50 p.c. in 1955.

Most of the dwellings started in 1955 were privately initiated, only 2,100 units being built directly by the Federal Government. Of the privately initiated dwellings started, 49 p.c. were financed with some form of government assistance such as mortgage loans or insurance of such loans; in 1954 the proportion was 42 p.c.

Net Loans Approved under the National Housing Acts, by Province, 1954 and 1955

Province or Territory	1954			1955		
	Loans	Dwellings	Amount	Loans	Dwellings	Amount
	No.	No.	\$'000	No.	No.	\$'000
Newfoundland.....	127	166	1,665	343	344	3,560
Prince Edward Island.....	16	16	154	31	33	311
Nova Scotia.....	480	746	6,075	656	778	6,869
New Brunswick.....	375	391	3,372	496	667	5,390
Quebec.....	6,975	9,057	81,128	8,089	10,876	97,899
Ontario.....	20,423	26,170	241,412	20,538	33,498	326,657
Manitoba.....	1,913	2,540	21,813	3,006	3,403	29,722
Saskatchewan.....	884	1,040	9,152	1,674	1,982	17,010
Alberta.....	4,500	5,649	49,321	6,499	7,057	64,766
British Columbia.....	3,882	4,344	39,418	5,813	6,694	63,091
Northwest Territories.....	—	—	—	1	1	9
Yukon Territory.....	—	—	—	3	3	28
Canada.....	39,575	50,119	453,510	56,149	65,336	615,312

Shannon Park in suburban Halifax houses 521 families of men serving in the Royal Canadian Navy. From 1949 to 1955, the Department of National Defence, through the Central Mortgage and Housing Corporation, constructed or had under construction at many points across Canada, 15,487 housing units for members of the three Armed Services.

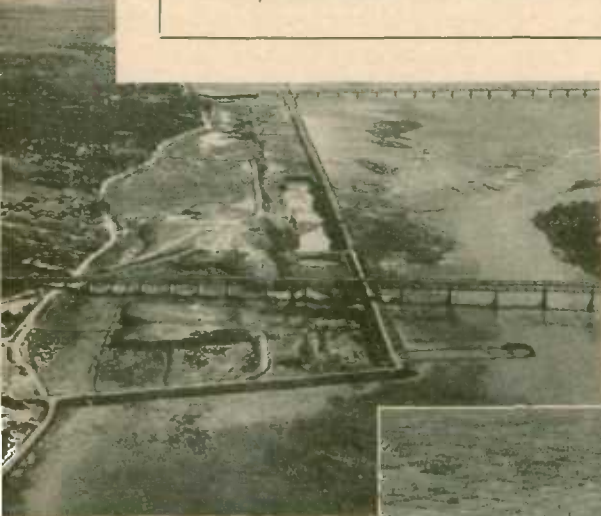




THE BILLION-DOLLAR ST. LAWRENCE SEAWAY AND POWER PROJECT TAKES FORM

The world's major construction job, on which Canada and the United States are working together, is changing the face of the first transportation route into the heart of the North American Continent. The St. Lawrence waterway has seen many improvements before as necessity demanded, but the present gigantic undertaking will remove all the bottlenecks of the now out-moded facilities between Montreal and Prescott which, with the deepening of channels between Lakes Ontario and Erie, will permit ships of 25-foot draught to move easily from the sea to the Head of the Lakes. By the opening of the navigation season of 1959, Canada's St. Lawrence Seaway Authority and United States' Saint Lawrence Seaway Corporation will have brought a long-awaited dream to realization.

At the same time, a tremendous pace has been set by The Hydro-Electric Power Commission of Ontario and the Power Authority of the State of New York in the work of harnessing the power potential of the 45-mile-long International Rapids Section of the St. Lawrence River. This vast undertaking—involving not only the building of two powerhouses capable of developing 2,200,000 h.p. of electricity and two great control dams, but also extensive channel enlargements and the relocation of roads, railways and towns—is scheduled for initial operation in the summer of 1958 and completion by 1960.



The Seaway project calls for the construction of a ten-mile canal with two locks and considerable channel enlargement extending from deep water in Montreal Harbour to Lake St. Louis, as well as the elevation of the Jacques-Cartier and Victoria Bridges. A cofferdam in the Lachine Section holds back the waters of the river while construction work is in progress.

At Iroquois in the International Section a new canal is being cut across the point and cofferdams protect the upstream part of the work. On the far right is Point Rockway, N.Y., where the New York Power Authority is building the Iroquois control dam. A lock will pass ships by this dam.

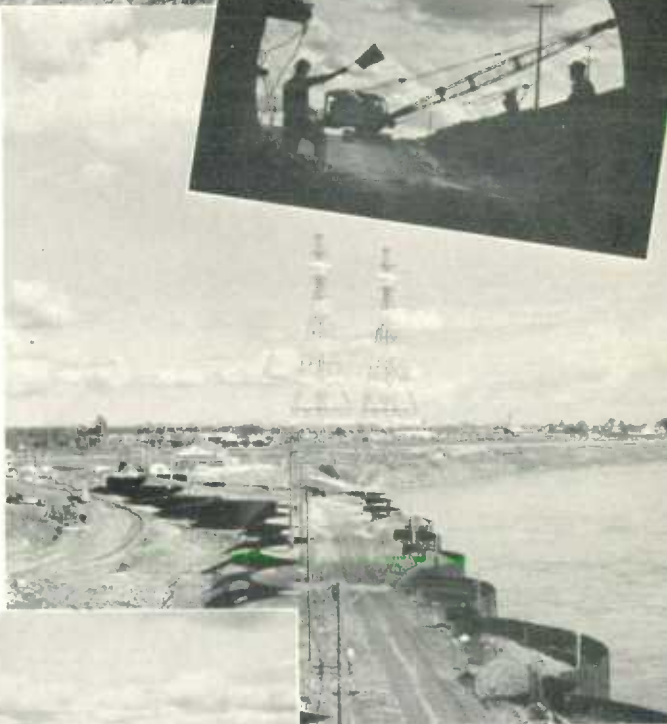




Two steel tunnels have been constructed by Ontario Hydro under the Cornwall canal so that ships may continue their journeys above while men and materials pass below to the powerhouse site on Barnhart Island.



On the dewatered side of this steel cell cofferdam, the excavations for the Ontario Hydro powerhouse are in progress.



The town of Iroquois is the first community to feel the impressive impact of the seaway and power project as homes are moved a mile and a half to the north. Old houses look trim and substantial in their new setting.



George Hunter

Montreal Harbour.



TRADE and TRANSPORT

Domestic Trade

Foreign Trade

*Transportation and
Communications*

Banking and Insurance



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, theatres and sports, 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 therefore 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 resulted in an increase in retail sales from \$2,740,105,200 to \$11,959,153,000 in 1954. 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.

One of the most apparent changes in the retail trade picture during the past twenty years is the increase in the share of business done by chain stores, an increase that has been gathering momentum in recent years. In measuring the changeover, motor-vehicle sales have been excluded from the calculations because of the tremendous increase in this type of non-chain retailing to a position second only to the sales of grocery and meat stores. In other lines of retailing, chain stores accounted for 18.8 p.c. of the total sales in 1930, 18.7 p.c. in 1935, 20.4 p.c. in 1941, 18.6 p.c. in 1947, 18.9 p.c. in 1950, 19.4 p.c. in 1951, 20.7 p.c. in 1953 and 21.4 p.c. in 1954. This type of distribution is peculiar to certain trades only. Chain store operation represents almost the entire trade of variety stores and is very predominant in the food field where its share of total sales increased from 26.1 p.c. in 1930 to 29.6 p.c. in 1951 and then suddenly advanced to 32.2 p.c., 34.1 p.c. and 38.4 p.c. through 1952 to 1954. This growth is more noticeable in the larger cities and the surge ahead can be attributed largely to the shopping-centre development in suburban areas of those cities. Shoe store chains accounted for 21.1 p.c. of the total shoe store sales in 1930, 34.6 p.c. in 1951 and 37.6 in 1954.

There have been great changes in the direction of consumer spending in the post-war period. Durable goods, which react more quickly to increased industrial activity than non-durables, were in great demand, a fact substantiated by the continuing expansion in the sales of motor-vehicle dealers from a pre-war total of \$293,803,000 in 1939 to \$1,884,174,000 in 1951 and an estimated \$2,283,991,000 in 1953. Price increases account for part of this advance but the numbers of new vehicles sold for the three years were 114,747, 385,648 and 462,526, respectively. A slight recession in the motor-vehicle business in 1954 has been more than offset by greater-than-ever sales volume during the first nine months of 1955. The demand for household goods and

the advent of television are reflected in the sales of appliance dealers which rose from \$119,652,000 in 1947 to an estimated \$279,389,000 in 1954. A large volume of this type of business is also handled by department stores.

A recent trend in the durable goods business 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. This plan of selling has also filtered into the motor-vehicle business in the larger cities. During this period of competition for the consumers' dollar, the non-durable trades have not much more than held their own. Department stores, whose major business is apparel and dry goods, and clothing stores are continually faced with the need for better advertising, sales-promotion plans and more attractive displays to meet the competition.

Credit buying of durable goods has expanded the consumer debt to great volume in recent years. Retail dealers had an estimated \$411,300,000 owing on their books at the end of 1948. At the same date, sales finance companies' accounts outstanding, largely on motor-vehicle purchases, amounted to \$70,451,000 on consumer commodities. By the end of 1954, these totals were, respectively, \$823,700,000 and \$482,645,000. The figures do not include debt incurred for the purchase of goods through personal loan companies, banks, co-operative credit organizations, etc.

A very recent innovation in the distribution of goods in Canada, although not large at present, is that of food provisioners, which involves 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. Other trends

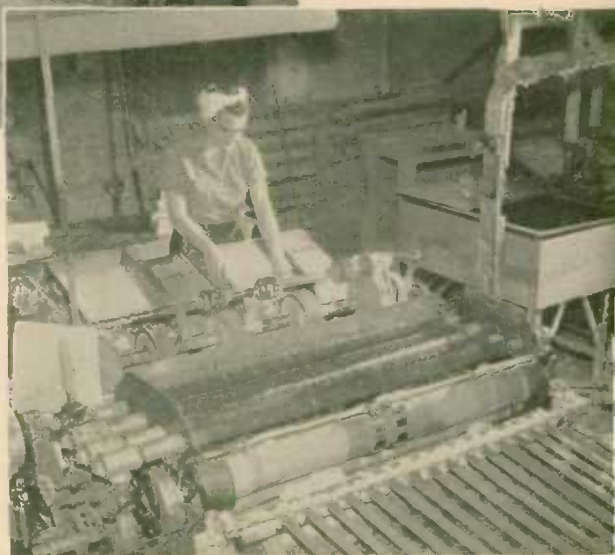


Nineteen fifty-five was the biggest year in Canadian retail history. A jump in personal income, higher wages, less unemployment and population increase combined to produce general consumer confidence which was expressed in ready spending.



▲
Pressman checks the counter on a cutting and creasing press.

High-gloss wet waxing operation used to coat frozen-food cartons



Packaging has given a major assist to the recent revolution in food marketing. The all-purpose cardboard carton, produced in millions to the run, is economical and may be fed into a production line for folding and filling without difficulty.

in distribution are the increasing amount of night-openings; a slight change toward more Friday shopping which can be attributed to Saturday closing of industry and, especially in summer months, mass exodus from the cities for the weekends; the direct effect on sales of easier credit terms, the revolving charge or permanent budget account plans; some slight trend toward self-serve in other than food stores and the increase in voluntary buying groups (food stores) as a means of meeting the mass buying advantages of the chain stores.

Current Inter-censal 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.—The dollar volume of business carried on by retail stores increased 6 p.c. in 1955 over the previous year to reach an estimated total of \$12,680,000,000.

Retail Store Sales, by Types of Business and by Province, 1953-55

Type of Business and Province	Sales			Percentage Change 1954-55
	1953	1954 ¹	1955 ¹	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and combination stores.....	2,132.6	2,253.6	2,385.8	+ 5.9
Other food and beverage stores.....	1	922.2	926.5	+ 0.5
General stores.....	521.4	515.1	528.2	+ 2.5
Department stores.....	1,024.7	1,060.0	1,140.5	+ 7.6
Variety stores.....	224.3	230.6	244.1	+ 5.9
Motor-vehicle dealers.....	2,284.0	2,058.0	2,344.7	+13.9
Garages and filling stations.....	556.3	559.1	585.6	+ 4.7
Men's clothing stores.....	214.1	204.1	208.5	+ 2.1
Family clothing stores.....	208.8	203.1	206.7	+ 1.8
Women's clothing stores.....	219.1	212.1	212.1	—
Shoe stores.....	121.0	118.7	119.0	+ 0.3
Hardware stores.....	248.5	235.5	239.4	+ 1.7
Lumber and building material dealers.....	417.2	396.3	431.5	+ 8.9
Furniture, radio and appliances stores.....	479.5	470.3	495.0	+ 5.3
Restaurants.....	474.2	455.6	453.8	+ 0.4
Fuel dealers.....	224.6	245.2	246.2	+ 0.4
Drug stores.....	282.2	282.5	287.2	+ 1.7
All other stores.....	2,492.4	1,537.2	1,625.2	+ 5.7
Totals.....	12,125.8	11,959.2	12,680.0	+ 6.0
Province				
Atlantic Provinces.....	1,016.1	1,025.6	1,092.8	+ 6.6
Quebec.....	2,756.1	2,761.1	2,891.6	+ 4.7
Ontario.....	4,615.9	4,593.6	4,931.3	+ 7.4
Manitoba.....	677.2	660.8	686.8	+ 3.9
Saskatchewan.....	844.9	755.2	736.8	- 2.4
Alberta.....	987.4	932.5	985.2	+ 5.7
British Columbia (incl. Yukon and N.W.T.).....	1,228.2	1,230.4	1,355.5	+10.2

¹ Included in "all other stores"

Canadians are discriminating shoppers, generally impressed with good design and durability in household appliances. A National Industrial Design Committee promotes the use of Canadian talent in designing all types of consumer goods and a permanent centre has been set up at Ottawa for displaying designs of merit.



The greatest gains occurred in the durable trades—motor-vehicle dealers' sales went up 14 p.c.; lumber and building materials, 9 p.c.; and furniture and household appliance stores, 5 p.c. Sales in Saskatchewan in 1955 followed the decline of 1954 to show a loss of 2.4 p.c. All other provinces recorded increases.

Retail chain store sales increased from \$2,048,228,000 in 1953 to a total of \$2,146,626,000 in 1954. Salaries amounting to \$181,536,000 were paid to the employees of the 8,136 stores. Firms considered as retail chains are those operating four or more retail outlets under the same ownership and carrying on the same or related kinds of business.

Chain Store Statistics, 1941 and 1946-54

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
1941.....	7,622	639,210	57,777	68,619	20,976	38,376
1946.....	6,559	1,014,847	77,474	85,345	37,436	19,643
1947.....	6,716	1,177,323	91,266	105,041	43,546	31,393
1948.....	6,821	1,335,735	107,450	119,132	46,330	40,378
1949.....	6,839	1,420,081	115,903	123,696	46,755	50,001
1950.....	7,155	1,559,693	129,334	159,083	60,501	65,001
1951.....	7,585	1,726,354	144,792	178,799	59,504	53,169
1952.....	7,660	1,929,750	154,980	176,699	56,821	79,517
1953.....	7,835	2,048,228	171,167	179,704	52,096	91,538
1954.....	8,136	2,146,626	181,536	186,126	59,674	102,748

† Newfoundland included from 1951.

Since the end of the War there has been a very large increase in the sale of passenger cars. From 159,205 vehicles in 1947, sales increased to 376,072 in 1955. There has also been a steady advance from year to year in the proportion of car sales financed, increasing from 17.2 p.c. in 1947 to nearly 40 p.c. in 1955.

New Passenger-Car Sales and Financing, 1953-55

Province	1953			1954			1955		
	Sold		Financed	Sold		Financed	Sold		Financed
	No.	No.		No.	No.		No.	No.	
Atlantic Provinces.....	26,595	12,000	45.1	23,879	10,597	44.3	28,156	11,804	41.9
Quebec.....	70,889	32,615	46.0	65,625	29,734	45.3	79,971	34,484	43.1
Ontario.....	157,058	58,029	36.9	141,188	54,846	38.8	172,601	68,647	39.8
Manitoba.....	19,278	7,419	38.5	15,113	5,210	34.5	16,140	5,008	31.0
Saskatchewan.....	23,909	8,616	36.0	16,143	5,839	36.2	14,136	4,928	34.9
Alberta.....	29,463	15,855	53.8	22,120	10,744	48.6	27,642	12,849	46.5
British Columbia.....	32,829	12,918	39.3	26,478	9,129	34.5	37,426	12,301	32.9
Totals.....	360,021	147,452	41.0	310,546	126,099	40.6	376,072	150,021	39.9

In recent years there has been a large increase in all retail instalment-sales financing. Some of this increase has resulted from the upward trend in prices, but the greater part is accounted for by more sales of the classes of goods shown in the following table.

Sales finance companies did not buy as much trade paper in 1954 as in 1953 or 1952. In 1953 the figure stood at \$943,000,000, compared with

The famous Chateau
Laurier Hotel, an Ot-
tawa landmark since
1912.



\$793,000,000 in 1954. Balances outstanding were down to \$647,000,000, compared with \$697,000,000 in 1953. In 1952, trade paper purchased amounted to \$819,000,000 and balances were \$540,000,000.

*Sales Financing by Class of Goods and Province,
1941, 1951 and 1954*

Item	Paper Purchased			Balances Outstanding (Year end)		
	1941	1951	1954	1941	1951	1954
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Class of Goods						
Consumer Goods	77	299	619	49	186	483
New passenger cars.....	23	114	231	2	80	193
Used passenger cars.....	44	141	269	2	80	195
Radio and television.....	2	5	43	2	3	35
Household appliances.....	5	15	44	2	9	36
Furniture.....	1	4	11	2	3	9
Other.....	3	20	21	2	11	15
Commercial and Industrial	23	168	174	16	127	164
New commercial vehicles.....	11	82	61	2	64	63
Used commercial vehicles.....	7	46	50	2	31	41
Other.....	5	40	63	2	32	60
Totals, Retail Financing	100	467	793	65	313	647
Province						
Atlantic Provinces.....	7	34	67	4	23	54
Quebec.....	16	102	181	10	71	145
Ontario.....	48	177	327	30	114	258
Manitoba.....	5	24	31	3	16	27
Saskatchewan.....	6	29	36	5	20	33
Alberta.....	9	55	85	6	39	76
British Columbia.....	9	46	66	7	30	54

¹ Included in "other".

² Not available.

Services.—The service segment of the Census of Distribution covers those establishments whose main activity is the rendering of service, including theatres, bowling alleys, dry-cleaning plants, hotels, service garages, taxis operating from stands, and advertising agencies. Only certain activities are covered here.

Power laundries and dry-cleaning and dyeing plants are among the most important of the personal services. It is evident from the following figures that the increase in the number of power laundries in operation has not kept pace with the increase in dry-cleaning and dyeing plants since 1951. Costs of operation in both services are heavily weighted with salaries and wages, which for laundries amount to over 50 p.c. of the total value of work done and, for cleaning and dyeing plants, slightly below that ratio.

Power Laundries, Dry-Cleaning and Dyeing Plants, 1941, 1951 and 1954

Year	Plants	Employees	Salaries and Wages	Cost of Materials	Value of Work Performed
Power Laundries					
	No.	No.	\$	\$	\$
1941.....	237	11,844	10,120,662	2,348,740	19,816,895
1951 ¹	317	14,079	22,248,517	?	44,053,442
1954.....	299	13,754	26,635,646	4,665,671	50,513,242
Dry-Cleaning and Dyeing Plants					
	No.	No.	\$	\$	\$
1941.....	363	6,554	6,125,635	1,433,790	12,678,275
1951 ¹	981	13,933	24,850,119	?	52,798,415
1954.....	1,107	15,485	31,512,711	7,535,432	67,222,831

¹ Newfoundland included from 1951.

² Not available.

In the amusement group, theatres are of main importance. Recently the effect of the widespread distribution of television sets throughout the country is being felt by motion-picture operators. There were 83 fewer theatres and halls exhibiting motion pictures in 1954 than in 1953. The greatest change occurred in the number of halls serviced by itinerant operators—there were 147 fewer of these in 1954 than in 1953 and community enterprises decreased by 24. Although there were 32 more regular theatres in operation in 1954, their receipts were down by 3.8 p.c. and their paid admissions by 9.4 p.c. Drive-in theatres alone increased in number, receipts and paid admissions as compared with 1953.

Motion-Picture Theatre Statistics, 1954

Item	Regular Theatres	Drive-in Theatres	Community Enterprises	Halls Serviced by Itinerant Operators	Total
Theatres and halls.....	No. 1,938	230	645	658	3,471
Receipts (excluding taxes).....	\$ 97,012,140	6,316,947	1,800,794	385,682	105,515,563
Amusement taxes.....	\$ 12,098,922	721,630	128,515	26,189	12,975,256
Paid admissions.....	No. 218,508,653	12,380,246	5,269,925	1,106,070	237,264,894

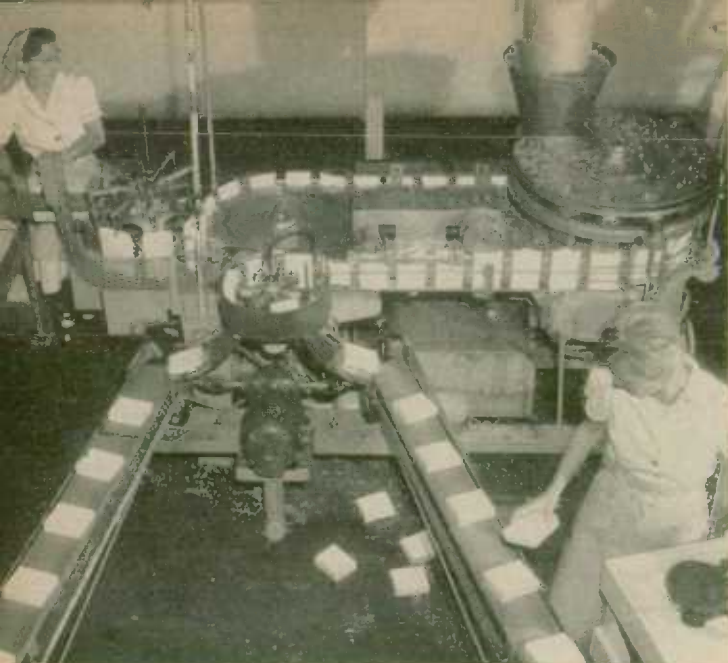
The suburban shopping centre, with its variety of stores and its convenience with regard to location and parking, is taking a greater and greater share of the casual retail business away from congested downtown areas.



Advertising agencies head the list of business services. The total gross revenue of advertising agencies, which is revenue from commissionable billings, market research and other fees, was \$10,091,772 in 1947 compared with \$24,579,169 in 1954. Annual commissionable billings, which represent approximately 99 p.c. of agency business, more than doubled in the intervening years. This increase and the distribution of advertising expenditure through agencies is shown in the table on p. 240.

Credit accounts outstanding have shown a gradual and consistent rise over the past several years, more than paralleling the general trend of sales. In 1955, retail stores transacted about 11 p.c. more business on credit plans than in 1954, while their total trade, cash and credit, increased 6 p.c.





Sales of frozen foods—vegetables, meats and fruits—are expected to skyrocket from their present rate of \$15,000,000 to \$100,000,000 within the next five years. This Lethbridge plant supplies 80 p.c. of the quick-frozen vegetables consumed in the Prairie Provinces and yet exports 75 p.c. of its production to eastern markets.

Advertising Agency Billings, by Media, 1947, 1951 and 1954

Item	1947	1951	1954
Commissionable billings.....\$	64,422,777	107,461,752	154,467,028
Percentage Distribution—			
Printed media.....	61.8	59.3	56.4
Other visual.....	4.4	5.2	4.5
Mechanical.....	16.3	18.0	17.3
Radio.....	15.8	17.3	15.4
Television.....			5.5
Other.....	1.7	0.2	0.9

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 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.

On July 31, 1954, there were in Canada 2,591 marketing, purchasing or service co-operative associations with a membership of 1,400,000. They reported a total business of \$1,016,224,990 for the year ended on that date. The value of farm products marketed was \$733,012,042 which was \$141,700,000 less than for the previous year, a decrease almost completely accounted for by lower grain sales. It is estimated that co-operative associations marketed approximately 30 p.c. of all agricultural products entering commercial trade channels in that year. Sales of merchandise by co-operatives amounted to \$234,583,125, a decrease of \$11,000,000 compared with the previous year. About three-quarters of that amount was represented by farm supplies, food products and dry goods making up the remainder.

In addition to the local co-operatives, 11 co-operative wholesale societies operated in Canada in 1953-54 and reported a total business of \$149,793,818. Sales of farm products by these wholesales amounted to \$51,907,365 and livestock handled on a commission basis to \$25,732,528. Sales of farm supplies and merchandise were \$96,850,083.

In 1954, 86 fishermen's co-operatives, with a membership of 11,700, reported sales of fish amounting to \$14,915,246 and sales of fishermen's supplies at \$2,771,827. Co-operatives providing such services as medical insurance, housing, transportation, electrification, custom grinding and seed cleaning numbered 419 and reported a membership of 187,800. Their revenue from all services rendered was \$12,177,207.

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 1,560,000 at the end of 1954 when 3,961 unions with assets of \$533,940,816 were in operation. Loans to members in that year totalled

An agricultural co-operative at Mont-Joli, Que.



\$218,479,826 and the savings of all credit union members for the same year amounted to \$160,859,262 for shares and to \$349,804,634 for deposits.

• Prices

Wholesale Prices.—As measured by DBS indexes, prices below the retail level have, since the end of the War, exhibited periods of both rapid change and considerable stability. They moved up rapidly following the removal of price controls towards the end of 1945 and between December of that year and December 1947 the general wholesale price index registered an increase of 35.4 p.c. However, during the moderate recession of 1949, the index declined 3.2 p.c. and did not start to move upwards again until shortly before the outbreak of war in Korea. Between April 1950 and the post-war peak reached in July 1951, the index advanced 20.3 p.c. Prices declined slowly over the following three years and in July 1954 the index stood at 217.4 as compared with 243.7 in July 1951. Most of this decline was accounted for by sharp drops in the prices of fibres, textiles and textile products, and animal products. The relative price stability in 1953 and 1954 extended throughout 1955, although the trend changed to a gradual upward movement early in the year. The advance in the index over the twelve months ended December 1955 amounted to 2.8 p.c. The sharpest increase during this period was registered by non-ferrous metals which advanced 17.6 p.c., and the two other groups to show significant increases were wood products, which advanced 5.0 p.c., and iron products 7.2 p.c.

Indexes of both residential and non-residential building material prices showed much the same tendencies during the post-war period as the general wholesale index, although lumber prices moved with considerably greater amplitude.

Annual and Monthly General Wholesale and Special-Purpose Price Indexes, 1949-55

(1935-39 = 100)

Note.—All 1955 indexes and Canadian farm products indexes subsequent to July 1954 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)
1949	198.3	197.1	199.2	228.7	228.0	100.0
1950	211.2	212.8	211.0	236.7	242.7	105.0
1951	240.2	237.9	242.4	268.6	286.2	118.6
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	217.1	204.8	224.2	211.8	277.5	121.8
1955—January	215.7	205.0	222.1	210.3	278.5	121.1
February	217.4	207.6	223.2	211.0	279.1	121.3
March	217.4	206.2	224.1	207.0	279.5	121.7
April	218.5	210.4	223.5	216.1	280.7	122.0
May	217.8	209.5	223.1	216.7	280.8	121.8
June	218.7	210.3	224.1	215.5	283.4	122.1
July	218.4	210.1	223.7	213.1	284.2	122.3
August	219.6	210.7	225.3	204.8	285.5	124.2
September	220.9	212.2	226.4	202.7	286.8	125.7
October	220.1	210.8	225.7	196.8	286.8	125.9
November	220.7	211.3	226.5	196.0	286.7	126.0
December	221.4	212.4	226.6	197.1	287.5	126.0

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.

Retail prices have exhibited a remarkable stability during the past three and a half years. The total consumer price index was 116.0 in June 1952 and 116.9 in December 1955. During that period the monthly indexes varied on only one occasion by as much as 1.6 points. The extent of the price dispersion around the total index may be seen in the following table.

This record of stable prices has been the more remarkable in that it has been accompanied by significant rises in salaries and wages, with a resultant increase in real earnings. Thus the index of actual weekly wages in manufacturing (1949=100) moved from 128.6 in 1952 to 134.5 in 1953, 137.0 in 1954 and 141.9 in November 1955. The corresponding index of real earnings (1949=100), which shows the changing command of salaries and wages over goods and services, moved from 110.4 in 1952 to 116.4 in 1953, 117.9 in 1954 and 121.9 in November 1955.

Consumer Price Index Numbers, 1949-55

(Av. 1949 = 100)

Year and Month	Food	Shelter	Clothing	Household Operation	Other Commodities and Services	Total
1949.....	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	102.6	106.2	99.7	102.4	103.1	102.9
1951.....	117.0	114.4	109.8	113.1	111.5	113.7
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
1955—January.....	112.1	128.4	108.1	117.1	118.2	116.4
February.....	111.5	128.5	108.1	117.1	118.3	116.3
March.....	110.7	128.6	108.0	117.0	118.3	116.0
April.....	111.0	128.7	107.9	116.9	118.2	116.1
May.....	112.3	128.8	107.9	116.4	118.3	116.4
June.....	111.0	129.2	107.8	116.1	117.8	115.9
July.....	111.5	129.6	107.8	115.8	117.7	116.0
August.....	112.4	129.8	107.8	115.8	118.0	116.4
September.....	113.7	130.0	107.8	115.9	117.9	116.8
October.....	113.5	130.2	107.8	116.1	118.1	116.9
November.....	113.0	130.6	107.9	116.5	118.3	116.9
December.....	112.4	131.0	108.5	116.6	118.3	116.9



Fifteen thousand tons of chrome ore from the Philippine Islands being unloaded at Montreal — the largest single shipment of cargo ever to enter that port. Two hundred and forty railway hopper cars were used to move the cargo to a Quebec refractories plant to be used in the manufacture of basic bricks for the production of steel, copper, aluminum and cement.

Foreign Trade

CANADA'S foreign trade set new records in 1955. The value of total trade exceeded the peak of 1953 by 6 p.c. and the volume of trade showed almost as great a gain. Imports increased more rapidly than exports during the year, and the import balance on merchandise trade more than doubled. But exports as well as imports were extremely large and the import balance amounted to only about 4 p.c. of total trade.

Exports, Imports and Total Trade of Canada, 1950-55

(Millions of Dollars)

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Produce	Foreign Produce	Total			
1950	3,118.4	38.7	3,157.1	3,174.3	6,331.3	- 17.2
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

International Background.—Since the initial difficulties of the immediate post-war years were overcome, the world economy has shown considerable long-range improvement notwithstanding a number of cyclical adjustments. General economic development has been widespread and there have been advances in intergovernmental co-operation directed towards a freer and more stable international trade. This trend has manifested itself in the successful functioning of various international organizations in which Canada has participated actively. As a concomitant of these developments and as a result of the considerable improvement in the balance of payments position of most countries, controls over foreign trade and payments have been greatly relaxed throughout much of the world, especially since 1952. Discrimination against dollar imports has been reduced in most of the principal trading countries, although this reduction has to date been largely confined to industrial materials and certain capital goods.

By the time of the outbreak of hostilities in Korea, the period of post-war reconstruction in most of Europe and of reconversion from a wartime to a peacetime economy in North America was over. The Korean boom gave a tremendous fillip to world economic activity; it also had, however, a strong inflationary influence on many internationally traded commodities, especially rubber, tin, wool and some other raw materials. A period of readjustments followed, affecting first the raw-material-producing countries of Southeast Asia, Australasia and Latin America, then the United Kingdom and Western Europe, and finally the United States and Canada. But in 1955 another North American boom was in full swing, expansion in Western Europe (only slightly checked in 1952-53) was continuing at a record pace, the United Kingdom's economy was in its most buoyant post-war state and, except for a few problem

areas, the rest of the free world was also making significant progress. Nevertheless the unresolved problems of agricultural surpluses in such commodities as rice, sugar, cotton and wheat—the latter of particular interest to Canada—were still present, slightly clouding the otherwise bright picture.

The recovery of world trade from the effects of the post-Korean adjustments started in 1953 and continued into 1955. On the basis of preliminary data, it appears that in 1955 world trade was some 6 p.c. greater in value than during the previous peak in 1951, and some 15 p.c. larger in volume terms. The average level of world prices declined steadily from 1951 to 1953 and stabilized thereafter at about 10 p.c. below the 1951 peak.

Canada's share of world trade in the post-war period has fluctuated between 5 p.c. and 6 p.c. In most post-war years only the United States and the United Kingdom conducted a greater foreign trade than Canada. However in 1954 the Federal Republic of Germany, whose trade has made tremendous strides since 1949, regained its pre-war position as the world's third leading trading nation and maintained this rank in 1955. Canada's trade on a per capita basis far exceeds that of most other leading trading countries.

Leading Countries in World Trade, 1953 and 1954

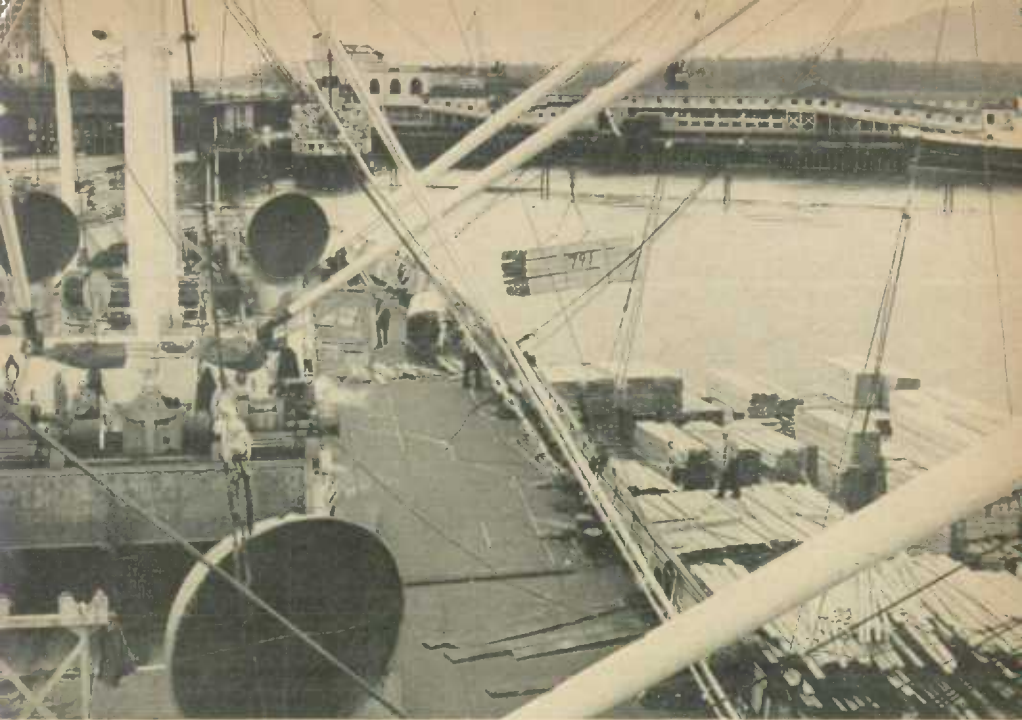
NOTE.—Countries ranked by total trade and total trade per capita in 1954. Sources of data: Trade—International Monetary Fund; Population—United Nations Statistical Office.

Country	Exports, l.o.b.		Imports, c.i.f.		Total Trade	
	1953	1954	1953	1954	1953	1954
VALUE OF TRADE (Millions of United States Dollars)						
United States.....	15,782 ¹	15,099 ¹	11,834	11,103	27,616 ¹	26,202 ¹
United Kingdom.....	7,525	7,771	9,361	9,462	16,886	17,233
Germany, Federal Republic of.....	4,390	5,249	3,771	4,571	8,161	9,820
Canada.....	4,596	4,434	4,824	4,549	9,420	8,983
France.....	3,782	4,189	3,942	4,215	7,724	8,404
Netherlands.....	2,152	2,412	2,383	2,857	4,535	5,269
Belgium and Luxembourg.....	2,251	2,300	2,405	2,535	4,656	4,835
Italy.....	1,507	1,636	2,420	2,401	3,927	4,037
Japan.....	1,275	1,629	2,410	2,399	3,685	4,028
Australia.....	1,977	1,659	1,471	1,869	3,448	3,528
World Trade².....	74,796	77,332	76,443	79,335	151,239	156,667
TRADE PER CAPITA (United States Dollars)						
New Zealand.....	322	326	263	328	585	655
Canada.....	311	292	326	299	637	591
Belgium and Luxembourg.....	248	252	264	278	513	530
Switzerland.....	246	249	241	264	487	513
Netherlands.....	205	227	227	269	432	497
Denmark.....	205	215	229	264	434	479
Norway.....	152	172	272	300	423	472
Sweden.....	206	220	220	246	427	466
Venezuela.....	266	297	164	162	430	459
Hong Kong.....	213	188	301	267	515	456

¹ Includes military aid extended to other countries.
and eastern European countries not reporting trade currently.

² Exclusive of China, USSR,

Canadian Developments.—The Canadian economy in the post-war period up to 1950 was characterized by sustained activity stimulated by reconstruction demands, although toward the end of the period the over-all pressure on productive resources slackened. A very sharp increase in output was registered immediately following the outbreak of hostilities in Korea, and the



Loading lumber aboard a freighter in Vancouver Harbour. Unmanufactured or partly manufactured wood—lumber, laths, shingles, railway ties and other products of the lumber industry—forms about 10 p.c. of the total value of Canada's exports.

enhanced level of production continued into mid-1953. After the middle of 1953, however, the economies of both the United States and Canada underwent a period of business readjustments lasting for about a year.

Numerous factors contributed to the mild recession in Canada. These included a very poor wheat harvest, moderately reduced defence expenditures, lower investment outlays for new machinery and equipment, some inventory reduction, a lower level of consumer purchases of durable goods and a falling off in exports. However, these factors combined to produce a greater decline in imports than in exports. The impact of recessionary forces was also moderated by a high level of personal expenditure on consumer non-durable goods and services and a renewed upsurge in residential construction. By early 1955 almost all sectors of the economy displayed increasing strength, and during the year a record gross national product was achieved.

Especially significant for the future has been the steady and uninterrupted progress in exploring and developing Canada's natural resources in recent years. To a large extent this development has been sustained by the heavy inflow of United States capital since 1950, which has financed the import balance occurring on merchandise trade in most of these years. Even during the 1953-54 recession productive capacity in such fields as newsprint paper, wood pulp, iron ore and other base metals, crude petroleum and chemicals continued to expand; the rise in exports in 1955 reflects these developments.

Recent Trade Trends.—The decline in Canadian exports after 1952 reflected chiefly reduced overseas markets for grains and a sharp contraction in overseas purchases of Canadian automotive products from abnormal peaks. Except for a short period in 1952-53 most other important exports continued to expand, and by the middle of 1954 this growth had reversed the downtrend caused by grains and motor-vehicles. The higher level of exports in 1955 was again owing almost entirely to these other commodities, since grain exports remained close to their low 1954 total, and motor-vehicle exports, though increased, were still far below their earlier peak.

Forest and mineral products made the greatest contribution to the increase of exports in 1955. Exports of newsprint paper and wood pulp continued to expand and those of planks and boards rose by \$60,600,000 (the greatest value gain for any commodity) in response to a sharp increase in home construction in the United States. Exports of most important base metals increased substantially, with the largest gain in iron ore as a result of new capacity and a full year of shipments from new mines in Labrador. Exports of crude petroleum also advanced sharply. Both iron ore and petroleum exports find their chief market in the United States, though overseas exports of the former commodity are also assuming considerable importance.

The sharp drop in imports in 1954 affected most of the leading commodities normally purchased abroad, especially textiles, agricultural implements, and industrial machinery and equipment. Recovery started in the middle of 1954 and by mid-1955 earlier records were being exceeded by a wide margin. The rapid rate of the increase in imports in 1955 has kept pace with the general upswing in the Canadian economy. Especially large increases were registered by automobile parts and fibres and textiles, imports of which had shown above-average declines in 1954. There were also higher purchases of farm and non-farm machinery, aircraft, automobiles, rolling-mill products and electrical apparatus. Almost all of Canada's leading imports shared in



the expansion with the partial exception of coffee, which was depressed by lower prices and market uncertainties in the first half of the year, of anthracite coal, which continued to be reduced by the growing use of oil for home heating, and of pipes, tubes and fittings, which dropped sharply in response to a lull in oil and gas pipeline construction in Canada.

Price movements exercised only a moderate influence on Canadian trade in 1955. Both export and import prices showed some net increase, and the terms of trade ratio rose, slightly moderating the growth of Canada's import balance.

Summary Trade Statistics, by Quarters, 1954 and 1955

Period	Value of Trade (\$'000,000)			Price Indexes (1948 = 100)		Volume Indexes (1948 = 100)	
	Total Exports	Im- ports	Trade Balance	Domestic Exports	Im- ports	Domestic Exports	Im- ports
1954							
Jan.-Mar.	866.3	925.9	-59.6	115.2	109.2	95.5	128.3
Apr.-June	1,005.0	1,124.2	-119.2	116.3	110.4	110.6	153.9
July-Sept.	993.1	1,001.2	-8.1	115.0	110.3	110.4	136.4
Oct.-Dec.	1,082.5	1,041.9	+40.6	114.5	109.1	121.0	144.2
1955							
Jan.-Mar.	966.6	990.7	-24.1	115.5	109.7 ^p	107.1	135.8 ^p
Apr.-June	1,096.6	1,218.7	-122.1	117.7	110.1 ^p	119.4	166.2 ^p
July-Sept.	1,133.8	1,216.7	-82.9	118.0	109.8 ^p	122.8	165.9 ^p
Oct.-Dec.	1,154.3	1,286.3	-132.0	119.1	112.9 ^p	124.1	172.2 ^p

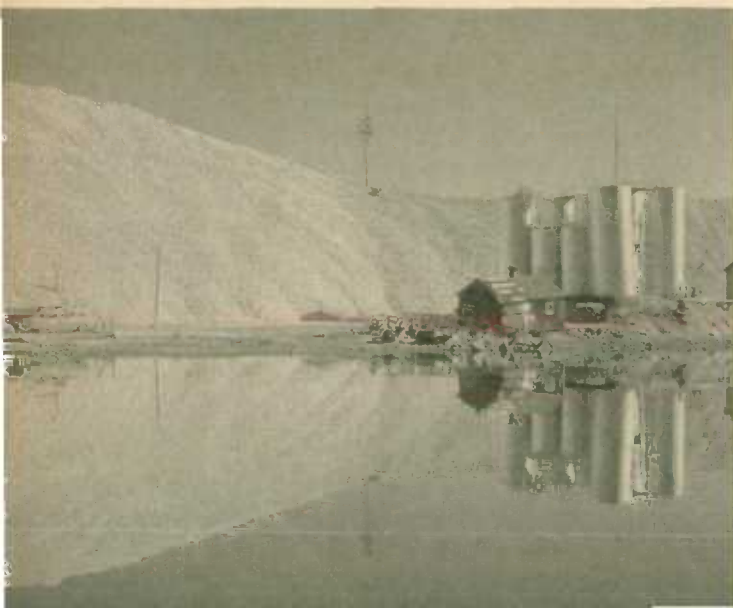
Commodities from many nations are unloaded from ocean-going vessels on Toronto's waterfront. The new Marine Terminal No. 11 is continually filled with carefully guarded consignments on their way to the tremendous market of southern Ontario.



Leading Trading Partners.—The United States is by far Canada's leading trading partner. Exports to the United States consist chiefly of industrial materials, such as newsprint paper, lumber and base metals, though fish and farm implements are also of great importance. Imports from that country are chiefly manufactured goods such as machinery, automobile parts and electrical apparatus, though fuels and some agricultural products not available in Canada, such as cotton and citrus fruits, are also significant. Over the past thirty years the importance of the United States as an export market has increased sharply, that country's share in exports having risen from some 40 p.c. of the total to about 60 p.c. The United States' share in imports is greater, though over the same period it has grown only from about 67 p.c. to about 72 p.c. of the total.

The United Kingdom ranks second as both an export market and a source of imports. Principal exports to the United Kingdom include grains, metals and forest products, while imports consist mainly of manufactured goods such as machinery, electrical apparatus and textiles. In contrast with the expansion of trade with the United States, Canadian trade with the United Kingdom has diminished in relative importance over the past thirty years. Exports, though larger in absolute value, have fallen from about 32 p.c. to about 17 p.c. of the total. The contraction of the United Kingdom market for grains, cheese, eggs, cattle, bacon and fish accounted for most of this relative decline. Imports also increased in absolute value over this period, but declined from about 16 p.c. to about 10 p.c. of the total. The drop in the export proportion has been associated with post-war exchange difficulties in the United Kingdom, as well as with other factors, while increasing competition from other suppliers of many manufactured goods coupled with supply difficulties in the United Kingdom has been primarily responsible for this decrease in the proportion of British imports.

Trade with most European countries and with Japan is similar in character to that with the United Kingdom. And, during the past few years, trade with Japan and the Federal Republic of Germany has been becoming of increasing importance to Canada. Manufactured goods are of greater importance in sales to Latin American countries and to many Commonwealth



Gypsum from a Nova Scotia mine awaiting shipment to manufacturing plants along the Atlantic coast of the United States. Canada is second among the nations in the production of gypsum.

countries, while imports from these two areas are largely primary products which cannot be efficiently produced in Canada. But the volume of trade with these areas does not change the broad picture set by the exchange of goods with the United States and the United Kingdom.

Domestic Exports to Leading Countries, 1951-55

NOTE.—Countries ranked by value of exports in 1955.

Country	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,297,675	2,306,955	2,418,915	2,317,153	2,559,343
United Kingdom.....	631,461	745,845	665,232	653,408	769,313
Japan.....	72,976	102,603	118,568	96,474	90,893
Germany, Federal Republic of..	37,028 ¹	94,863	83,858	86,899	90,751
Australia.....	49,079	49,697	39,629	45,768	58,482
Union of South Africa.....	52,736	47,852	50,763	39,883	56,026
Belgium and Luxembourg.....	94,457	104,376	69,510	54,987	53,384
Netherlands.....	26,191	41,508	42,382	39,777	47,689
Norway.....	32,198	39,002	37,278	43,813	47,031
France.....	46,538	48,264	32,281	33,799	42,563
Mexico.....	29,880	39,641	28,986	27,359	37,126
Venezuela.....	26,982	35,683	36,485	30,973	30,756
Italy.....	48,763	52,645	33,170	23,844	27,653
Switzerland.....	25,345	26,918	29,833	26,826	25,640
India.....	35,737	55,123	37,187	17,689	24,669
Colombia.....	12,311	13,756	20,146	21,000	22,691
New Zealand.....	21,757	18,844	7,475	14,807	22,344
Philippines.....	15,598	16,045	13,872	15,863	18,136
Cuba.....	20,424	24,181	16,124	17,455	13,910
Jamaica.....	10,213	10,591	12,490	11,552	12,907

¹ Includes Eastern Germany.

Imports from Leading Countries, 1951-55

NOTE.—Countries ranked by value of imports in 1955.

Country	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,812,927	2,976,962	3,221,214	2,961,380	3,452,178
United Kingdom.....	420,985	359,757	453,391	392,472	400,531
Venezuela.....	136,718	135,758	155,147	167,594	187,277
Germany, Federal Republic of..	30,936 ¹	22,629	35,507	44,485	55,603
Japan.....	12,577	13,162	13,629	19,197	36,718
India.....	40,217	26,822	26,627	28,054	35,147
Brazil.....	40,627	35,103	35,047	31,623	30,747
Netherlands Antilles.....	10,809	11,747	8,154	20,582	30,722
Belgium and Luxembourg.....	39,095	33,216	29,082	25,077	29,051
Mexico.....	18,013	23,937	15,785	14,033	28,814
Malaya and Singapore.....	57,980	25,473	21,896	19,586	28,810
Australia.....	46,228	18,712	23,464	24,657	26,295
France.....	23,974	19,117	22,267	22,046	25,016
Colombia.....	13,063	18,004	23,215	24,820	22,220
Netherlands.....	14,010	16,495	22,298	22,562	20,951
Switzerland.....	16,398	16,396	20,437	19,151	19,365
Italy.....	14,217	11,735	14,271	15,006	18,502
British Guiana.....	25,025	23,660	17,800	20,482	18,307
Lebanon.....	16,381 ²	15,171	19,584	17,413	17,920
Ceylon.....	16,396	12,492	14,461	12,527	15,581

¹ Includes Eastern Germany.

² Includes Syria.



In the Belgian Congo—Canadian flour is made up into bread and rolls in a modern bakery.



In Spain—"Codfish from Newfoundland—none better" reads the sign in a Madrid market.

Changes in the Structure of Trade.—Climatic and geophysical factors are reflected in the composition of Canada's foreign trade. Canada 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 Canadian exports. Canada produces most of the world's nickel and asbestos, is one of the leading producers of gold, copper, zinc, lead and uranium, and is in the process of moving into the top ranks of producers of iron ore and petroleum. On the other hand, the total requirements for bauxite, the raw material which is transformed into aluminum by the application of Canadian hydro-electric power, have to be imported as well as a large proportion of the domestic consumption of petroleum and coal. Canada's vast stands of timber, chiefly of softwood species, provide lumber, pulpwood, wood pulp and newsprint for a world market. 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.

In the 1920's farm and marine products jointly constituted almost 60 p.c. of the value of Canadian exports, wheat alone accounting for close to 30 p.c. In the 1950's, however, their share declined to only 30 p.c. while that of forest products increased from about 23 p.c. to 34 p.c. and of minerals from 9 p.c. to 20 p.c. This decrease in the proportion of agricultural exports is associated with possibly transitional but nevertheless difficult problems of surpluses in most exporting and some importing countries, partly resulting from, as well as encouraging, various price support, disposal and import restriction schemes of a generally protectionist nature.

There have been significant changes in the list of Canada's leading exports since the 1920's. Wheat, then in first place, ranked only third in 1955, and such formerly important exports as cheese, bacon, furs, rubber tires and silver are of less significance. New leaders include aluminum, asbestos, zinc,



In India—The modern Bengal State Dairy Farm is equipped with metal stanchions, water bowls and feed and manure carriers manufactured in Canada.



In Germany—The famous German newspaper "Handelsblatt", printed on Canadian newsprint, rolls off the press.

fresh and frozen fish, fertilizers and non-farm machinery, while such commodities as wood pulp, nickel, copper, barley, wheat flour, farm implements, whisky, pulpwood and lead were among the leading exports in both periods.

The changes in the various components of Canadian imports have been less drastic but nevertheless quite pronounced. The proportion of farm products declined from 25 p.c. of total imports in the 1920's to 15 p.c. and that of textiles from 17 p.c. to 10 p.c. The share of minerals has remained virtually unchanged at about 12 p.c. The share of machinery and other iron and steel products has increased from 25 p.c. to 34 p.c. The proportion of all manufactured goods has increased from 65 p.c. to 73 p.c. of total imports. Canada is today one of the world's largest importers of steel products and other manufactured goods, as well as of fuels.

The list of leading imports also shows fewer changes since the 1920's than is the case with exports. No longer included are such products as anthracite coal, rubber, gasoline and many textile items, while new entries include aircraft, fuel oils, coffee and chemicals. But many of today's chief imports have been leaders for many years, including machinery, crude petroleum, automobile parts, electrical apparatus, steel, bituminous coal, farm implements, cotton and cotton products, passenger automobiles and sugar.



In Brazil—Technician at the National Cancer Service in Rio de Janeiro examines, through a protective screen, radium needles recently arrived from Canada.

Principal Domestic Exports, 1951-55

NOTE.—Commodities ranked by value of exports in 1955.

Commodity	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	536,372	591,790	619,033	635,670	665,877
Planks and boards.....	312,198	295,949	282,103	324,724	5,313
Wheat.....	441,043	621,292	567,907	375,339	338,216
Wood pulp.....	365,133	291,863	248,675	271,418	297,304
Nickel, primary and semi-fabricated.....	136,689	150,982	162,542	182,154	215,169
Aluminum, primary and semi-fabricated.....	120,853	155,106	173,378	182,392	210,971
Copper, primary and semi-fabricated.....	81,691	100,806	117,351	127,334	163,924
Iron ore.....	18,576	22,333	30,843	39,719	99,814
Asbestos, unmanufactured.....	80,333	86,510	83,973	82,566	94,804
Barley.....	58,822	145,684	136,729	89,363	76,461
Wheat flour.....	113,854	116,055	102,160	88,029	74,442
Farm implements and machinery (except tractors) and parts.....	96,873	95,692	67,821	70,819	72,206
Zinc, primary and semi-fabricated.....	83,669	96,283	57,572	58,392	70,558
Whisky.....	54,039	54,254	63,086	59,156	60,862
Fertilizers, chemical.....	35,734	42,293	42,633	42,342	56,296
Fish, fresh and frozen.....	53,363	52,852	51,219	56,650	55,263
Pulpwood.....	68,103	64,820	45,859	45,766	48,655
Lead, primary and semi-fabricated.....	45,290	49,676	37,835	40,530	37,194
Petroleum, crude.....	807	3,452	6,228	6,318	36,253
Machinery (non-farm) and parts.....	40,271	47,378	37,282	36,676	35,789

Principal Imports, 1951-55

NOTE.—Commodities ranked by value of imports in 1955.

Commodity	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.....	328,741	360,969	401,856	380,219	445,875
Automobile parts (except engines).....	195,177	190,337	222,284	180,433	246,505
Petroleum, crude and partly refined.....	233,148	210,036	213,094	212,767	229,779
Electrical apparatus, n.o.p.....	120,101	139,567	198,275	207,539	226,715
Aircraft and parts (except engines).....	41,438	95,212	111,803	100,397	138,091
Rolling mill products (steel).....	173,127	143,133	124,813	97,563	129,679
Tractors and parts.....	125,562	119,253	126,354	82,814	115,375
Engines, internal combustion, and parts.....	80,314	126,332	107,736	84,914	100,917
Automobiles, passenger.....	56,632	49,484	79,454	60,846	83,726
Fuel oils.....	58,389	64,908	65,151	70,921	77,754
Coal, bituminous.....	115,275	99,571	94,680	70,445	74,453
Non-commercial items.....	32,544	47,095	60,923	56,763	72,939
Tourist purchases.....	47,071	66,682	73,840	68,767	71,467
Farm implements and machinery (except tractors) and parts.....	69,529	78,044	82,795	60,351	62,874
Cotton, raw.....	94,315	65,956	55,494	52,441	61,031
Principal chemicals (except acids) n.o.p.....	43,940	49,824	54,505	46,193	57,677
Coffee, green.....	48,438	50,775	57,595	64,214	57,010
Cotton fabrics.....	54,984	53,248	55,906	46,012	53,400
Paperboard, paper and products.....	34,831	29,921	39,208	43,558	52,690
Sugar, unrefined.....	77,100	59,516	47,491	51,519	52,312

The Department of Trade and Commerce is in business to promote the selling of Canadian products throughout the world and one of the most effective methods used is the display of Canadian goods at trade fairs and exhibitions abroad.

Twenty-six Canadian firms were represented at the Royal Netherlands Industries Fair held at Utrecht in March 1955.



Canadian furs and fashions appeared in glamorous display at trade fairs in Brussels, Milan and Paris in the summer of 1955.



Chemical and plastic products made in Canada on exhibit at the British Plastics Exhibition in London, June 1955.

The Canadian Balance of International Payments

In addition to foreign merchandise trade, Canada has a variety of other current exchanges of services and capital movements with other countries. These are covered in statements of the Canadian balance of international payments, which show the direction and extent of movements of capital between Canada and other countries as well as the receipt and expenditure of all types of income abroad.

Canada is in the forefront of countries attracting foreign investment capital and is also, in relative terms, a major investor abroad. The importance of foreign trade in the Canadian economy and of foreign capital in financing some parts of recent Canadian development are among the factors that give the balance of international payments particular significance for the Canadian nation.

After a series of surpluses extending from the early 1930's on account of transactions in goods and services with other countries, Canada in recent years has tended to incur substantial deficits which reflect net inflows of capital into Canada. In each of 1953 and 1954 the deficit exceeded \$400,000,000 and in 1955 it exceeded \$600,000,000. These deficits have been influenced by the growth in the volume of goods and services imported in response to high levels of investment and other economic activity in Canada, and by the economic condition of Canada's trading partners. Despite wide fluctuations in the balance of Canada's current account in the post-war period, the balances have been small in relation to the gross international exchanges of goods and services by Canada, which in the past few years have been at an annual rate in excess of \$11,000,000,000. In 1954, the aggregate value of these transactions showed a decrease for the first time since the end of World War II but rose again in 1955.

Most of Canada's international transactions take the form of commodity trade. But the trade balances, when adjusted for balance of payments purposes, have been relatively small in recent years although they have fluctuated widely. The deficits on current account have been mainly the result of transactions termed "invisibles". The income account is consistently the largest contributor to this deficit and, although net payments of interest and dividends have fallen from the high levels of a few years ago, they continue to amount to well over \$250,000,000 a year, representing the net exchange cost of Canada's net debtor position which, by the end of 1954 had grown to some \$6,600,000,000. In recent years, Canada has experienced deficits on account of international travel (*see p. 261*) and on account of freight and shipping services; these together have recently amounted to more than \$100,000,000. "All other" current transactions also lead to a considerable deficit; this account reflects mainly the myriad business services provided to and by non-residents, as well as government transactions in which defence expenditures have at times loomed large. Against these substantial net debits on account of invisibles, there has been net gold production available for export amounting to about \$150,000,000.

Canada's current account deficits have been the real counterpart of very substantial inflows of foreign capital for direct investment in Canadian enterprises and for additions to foreign holdings of Canadian securities. These inflows, together with repayments on loans extended to other governments

Hay and grain go aboard a freighter preparing to carry part of a large shipment of Canadian Holstein heifers to Peru where they will be used for breeding purposes.



in the early post-war years, have been more than sufficient to finance the current account deficits in most years.

Though on balance only a relatively small part of Canada's great post-war economic development has been financed from abroad, foreign capital has played a most important role in some of the more dramatic developments, and there has been a considerable growth in the nation's net balance of international indebtedness. This in 1954 was some \$6,700,000,000. Gross liabilities to non-residents in 1954 amounted to nearly \$13,600,000,000 but external assets were equal to somewhat more than half of that amount. The largest and most rapidly growing element in Canada's liabilities is the foreign direct investment in industrial enterprises, mainly from the United States, but non-resident holdings of the bonds of Canadian governments and municipalities, and of securities of Canadian-controlled companies, are also of great importance.



The village of Alma and Cape Owl's Head which lie at the entrance to Fundy National Park in New Brunswick.

The value of United States investments in Canada in 1954 amounted to \$9,622,000,000 and was higher than ever before, being not far from double the value at the end of the War and some three times the value in 1926. British investments at \$2,143,000,000 were again rising after sharp reductions during the war years but were still considerably below their relatively stable inter-war value. Investments in Canada owned by residents of other countries have also been increasing but, at \$704,000,000 in 1954, were still comparatively small in relation to United States and British investments.

Foreign investors now own about one-tenth of the funded debt of Canadian governments and municipalities and about one-third of the broad field of Canadian industry and commerce. Their investment represents only a negligible part of other forms of Canadian wealth such as farm, residential and personal property. The proportions have been declining. Before World War II about one-quarter of government debt was in foreign hands; so was the ownership of about 38 p.c. of Canadian industry. Because of the concentration of post-war investment by foreigners in manufacturing and mining enterprises, their share of these particular fields has increased. Nearly 56 p.c. of the capital of mining, smelting, and petroleum exploration and development companies was owned by non-residents at the end of 1953 compared with 40 p.c. in 1939. The share of foreign capital varies widely in different fields of manufacturing. The percentage is comparatively large in some branches such as non-ferrous metals, the automobile industry, and petroleum refining; it is comparatively low in other fields such as textiles and primary iron and steel. In some industries such as newsprint and wood products, non-resident capital plays a very important part but a large share of ownership is Canadian.

Although external assets are sufficiently large to cover more than half Canada's international liabilities, they are in some respects different in

character. More than half are assets of the Government of Canada in the form of war and post-war loans to overseas countries and of official gold and foreign exchange holdings. Private assets abroad include long-term direct and portfolio investments of some \$2,500,000,000 in 1954; since the War these holdings have shown a rate of growth somewhat higher than that of foreign private long-term investment in Canada.

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

The Border that Invites Crossing

The Rainbow Bridge, with its carillon tower, spans the Niagara River linking Ontario and the State of New York just below the famous Niagara Falls.



One of the several points of crossing from the State of Washington to British Columbia.





East or west, all across the country, are to be found exciting fishing spots on myriads of lakes, rivers and streams—weekend fishing spots within easy reach of wherever you happen to be, or vacation fishing spots on unknown and unnamed lakes and streams of the hinterland awaiting the adventurous spirit. In all of them there is beauty and quietness and the rejuvenating freshness of the great outdoors to be revelled in and enjoyed.



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. The deficits have resulted from the more rapid growth in the movements and expenditures of Canadian travellers to the United States since the removal of restrictions on travel in a period when United States travel to Canada has been generally comparatively stable, with the exception of an appreciable rise in 1953. In 1954 expenditures of Canadians amounted to \$313,000,000, exceeding by \$33,000,000 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 account for most of the expenditures. Thus, in 1954, the 4,200,000 visitors from the United States who stayed for more than two days spent some \$221,600,000 or 79 p.c. of \$280,600,000 spent by all United States visitors in Canada. There is a similar concentration of expenditures among the longer-term travellers from Canada to the United States. The 2,700,000 Canadians visiting the United States for more than two days spent about \$240,000,000, or over 76 p.c. of total expenditures by Canadians of \$313,000,000.

Canadian travel to overseas countries has been increasing substantially each year. The \$69,000,000 spent overseas in 1954 was double 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 trans-Atlantic transportation provided by British carriers. In 1954 the expenditures of non-resident visitors in Canada were only about one-third of the amount of Canadian expenditures overseas.

The balance of payments on travel account between Canada and other countries for 1951-54 were, in millions of dollars:—

Item	1951	1952	1953	1954
Account with the United States—				
Credits.....	258	257	282	280
Debits.....	246	294	307	313
Net.....	+ 12	- 37	- 25	- 33
Account with Overseas Countries—				
Credits.....	16	18	20	22
Debits.....	34	47	58	69
Net.....	- 18	- 29	- 38	- 47
Account with All Countries—				
Credits.....	274	275	302	302
Debits.....	280	341	365	382
Net.....	- 6	- 66	- 63	- 80



The fine beaches of Point Pelee National Park are well used. Point Pelee, stretching out into Lake Ontario, is Canada's southernmost mainland point.



Elk Falls on Campbell River, Vancouver Island, B.C.



Trail riding near Pincher Creek, Alta.



Ste. Adèle in the famous Laurentian resort district north of Montreal. Thousands of people vacation, winter and summer, in this delightful area, some in palatial hotels but just as many in small "pensions" and private cottages.



Canadian railways, in the years since the end of the War, have made vital and impressive progress in modernization of facilities and services. Nineteen fifty-five was a banner year when new equipment, put into operation on the two great transcontinental lines, cut 14 to 16 hours from the Montreal to Vancouver run.

Transportation and Communications

NO other branches of the nation's economy exemplify so well the range and variety, the extent and significance of Canada's remarkable post-war development as do those of transportation and communications. New branch railways and airways into frontier mining regions, trans-oceanic and trans-polar air services to world population centres, multi-lane and express highways humming with inter-city truck and passenger vehicles, pipelines bearing new energy resources to industrial and domestic consumers, a deep-water St. Lawrence seaway under construction into the heart of the continent, vast extended networks of telephone, radio and television communication facilities—all these, embodying as they do the latest technological advances, contribute greatly to Canada's industrial expansion and economic climate and, in bridging great distances and topographical barriers and in integrating diverse communities, serve to enhance the national unity and sense of well-being.

• Transportation

The range of requirements for transportation services is so wide that no single medium can meet the demands of industry and the travelling public. The railways have served and will continue to serve as the principal facility of movement because only they have the capacity to supply cheap all-weather transportation in large volume over continental distances. But they are being faced to an increasing extent with specialized competition from air, water, and other land transport enterprises.

The air lines are specialized in speed of movement which gives them a definite advantage in the transport of passenger and mail traffic. The air lines, too, are taking over the opening up of new areas for development, a job formerly carried on, where this was economically and physically feasible, by railway and waterway facilities. Moreover, speed, lower capital outlays in instituting service and ability to reach otherwise inaccessible areas have been instrumental in establishing the air lines in this field. Today there are many isolated mining properties that have been prospected, proven, developed and maintained by air transport.

Water carriers are specialized in low-cost bulk movement of goods in which speed of service is not a critical factor. Most of the movement in this field is over the Great Lakes-St. Lawrence waterways. About 50 p.c. of the lake tonnage is engaged in carrying grain and the balance carries ore, coal, pulpwood, crude petroleum, limestone and general cargo. The oil pipeline, a relatively new development in Canada, is a means of transportation that has a definite advantage over other methods for the movement of petroleum and petroleum products.

Road transport has, of course, since the earliest days, played an unparalleled part in local passenger and freight movement. This service has gradually extended until now it provides great arteries for both short- and long-distance commercial and passenger traffic. The relatively low cost of operation of commercial road vehicles makes them particularly suitable for short-haul traffic moving in comparatively small volume.



Comfort is the keynote in chair-car accommodation on Canadian railway inter-city day runs.

Railways

The two great transcontinental railway systems operating in Canada, the Canadian National Railways and the Canadian Pacific Railway Company, are endeavouring by increased service and new and modernized equipment to meet the challenge of competition, complexity and expansion that has become the pattern of transport service. New streamlined, stainless steel transcontinental passenger trains, combining speed and efficiency with the optimum of comfort and service, have cut hours off the rail trip from Halifax to Vancouver. Rapid dieselization has continued and freight car inventories as well as capacity are constantly increasing. Self-propelled rail diesel cars expedite service on short runs and trucks carried on flat cars complete the service from source to destination. New lines are built to keep trackage abreast of the country's development. Entirely new districts have recently been opened up by the construction of the 43-mile Terrace-Kitimat line in British Columbia, the 144-mile Sherridon-Lynn Lake line in Manitoba and the 360-mile Quebec, North Shore and Labrador Railway. A 16-mile line connecting the mining community of Nipigon with Havelock in eastern Ontario provides easy access to an area producing non-metallic rock. Two branch lines, one from Struthers to Greco and one from Hillsport to Manitouwadge, tap this new mining district of northwestern Ontario, and a line is under construction to open up another Quebec mining area from Beattyville to Chibougamau and St. Felicien.

The CNR, 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 and ocean-going steamships, a nation-wide telegraph service providing efficient communication between all principal points of Canada with connections to all parts of the world, express facilities in Canada and abroad, a chain of hotels, a scheduled trans-Canada and North American air service and a trans-Atlantic air service.

The CPR, a joint-stock corporation, has, in addition to its far-flung railway operations, a fleet of inland, coastal and ocean-going vessels, a north-south air-line system which is one of the world's greatest air freight carriers, a

The railway, following almost on the heels of the prospector into frontier areas, affords efficient transportation to carry in the tools of development and bring out the products of Canadian enterprise.



▲
Bulldozers clear a right-of-way through the forest.

►
A path is blasted through rock. Construction crews "dress" the slope before steel is laid.



▼
Advancing three-quarters of a mile a day, this self-contained tracklaying outfit carries its own rail, ties and track fastenings.



trans-Pacific air-line 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.

These two transportation systems co-operate, under government supervision, in avoiding unnecessary duplication of railway service. The Board of Transport Commissioners controls freight and passenger rates as well as other matters relating to construction, operation and safety.

The combined length of line operated by these two companies, together with that owned by a number of smaller companies, was 58,760 miles in 1954. Gross operating revenues of all railways amounted to \$1,095,440,918 and operating expenses were \$1,019,534,989, compared with \$1,205,935,414 and \$1,100,393,836 in 1953. The 57,547,300,439 ton-miles of revenue freight carried in 1954 was a decrease of 7,719,715,061 ton-miles as compared with 1953. Passengers carried numbered 28,396,528 compared with 28,736,159 in 1953 and employees averaged 196,307 as compared with 211,951.

Urban Transport Services

Many changes have been made in urban transport systems in recent years. The electric streetcar is being steadily replaced as the principal vehicle of mass transportation in most Canadian cities and towns by motor buses and electric trolley buses. Few of older or central sections of the cities were designed to carry the volume of motor traffic with which they must now contend and, while the streetcar is particularly suited to the efficient movement of large numbers of people, lack of manoeuvrability in traffic-jammed streets has contributed to its gradual demise. Well over half 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 1954, urban transit systems carried 1,254,644,000 passengers compared with 1,309,207,000 in 1953. Inter-urban services carried 84,064,355 passengers, 8,652,773 fewer than in the previous year. There has been a definite downward trend in traffic on transit facilities since 1949. A large proportion



The dinette car, recently added to railway service, has proved a very successful innovation.



Her Majesty Queen Elizabeth II sent the Canadian Pacific Railway's new 24-ton liner "Empress of Britain" sliding down the ways into the River Clyde on June 22, 1955. The liner will go into service between Montreal and Liverpool early in 1956.



of the 2,720,095 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

An ever-lengthening network of roads is binding the Canadian provinces closer together. At the end of 1953 there were 190,997 miles of surfaced road and 326,812 miles of non-surfaced road. Of the surfaced road, 160,265 miles were gravel, 28,890 miles were bituminous and 1,841 were concrete.

Between 1946 and 1953 over a billion dollars was spent on highway construction, more than was spent in the preceding quarter-century. In the

latter year alone, \$397,000,000 was spent on new construction and maintenance of roads, bridges, ferries and other works, \$341,500,000 of which was supplied by the provincial governments and the remainder by the 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. The expenditure on roads for 1954 by the three levels of government probably totalled \$600,000,000, about 60 p.c. for new construction, 36 p.c. for maintenance and 4 p.c. for administration.

Even so, construction has not been able to keep pace with the needs of the Canadian population on wheels. For example, the number of motor-vehicles per mile of surfaced road has been increasing year by year; in 1946 it was 11.6, in 1953 it had risen to 18.0 and by the end of 1954 it was probably around 20. 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, the tenth province, though not co-operating with the Federal Government on a financial basis, is still providing a highway linking the two ends of the Trans-Canada route in Ontario and New Brunswick. The total mileage of the highway, outside of Quebec, is 4,580 miles. By the first of November 1955, 2,853 miles had been paved but only 1,523 were constructed to Trans-Canada Highway standards. There were two important gaps where construction had not started—50 miles between Clarendville and Gambo in Newfoundland and 180 miles between Chapleau and Marathon in northern Ontario. In order to expedite the completion of this route, the Federal Minister of Public Works announced early in 1956 that Parliament would be asked to pass legislation permitting the federal authorities to assume 90 p.c. of the cost of up to 10 p.c. of the highway mileage in provinces where gap-closing operations are required.

Motor-Vehicles

There were more motor-vehicles registered in Canada in 1954 than ever before. Of the 3,644,589 registrations—compared with 3,430,672 in 1953—2,688,465 were for passenger cars and 956,124 for commercial vehicles and motorcycles, including 856,851 trucks, 9,860 buses, 37,665 motorcycles and 51,748 other vehicles. Registrations in the different provinces were as follows: Newfoundland, 34,423; Prince Edward Island, 20,848; Nova Scotia, 133,087; New Brunswick, 99,058; Quebec, 674,114; Ontario, 1,489,980; Manitoba, 210,471; Saskatchewan, 267,373; Alberta, 338,541; British Columbia, 371,711; and the Yukon and Northwest Territories, 4,983.

Provincial revenues from motor-vehicle registrations and licences reached a high of \$93,849,956 in 1954, and provincial gasoline tax revenues amounted to \$235,702,205. Taxable gasoline sold, most of which was consumed by motor-vehicles, amounted to 2,021,002,458 gal. in 1954.

The apparent supply of new passenger vehicles in 1954 amounted to 305,877 cars, 67,195 fewer than in 1953. The 1954 figure includes 267,452 cars made for sale in Canada plus 38,509 imports, less 84 re-exports of imported cars. In that year, 310,546 passenger cars valued at \$797,554,000 were sold,

as well as 72,082 trucks and buses valued at \$191,964,000. Over 40 p.c. of the number and nearly 30 p.c. of the value of these vehicles were financed by finance companies. The average financed value was \$1,897.

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.

Motor-carrier statistics 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 sketchy and, at the same time, amalgamations and retirements are numerous, making a census difficult. In 1952, 4,040 carriers reported and, of these,

The demand for improved and additional highways in a country of difficult terrain and climatic extremes is an ever-increasing problem, physical and financial, facing provincial and municipal authorities.

Entering Hope, B.C.

Cloverleaf north
Toronto, Ont.



1,854 were small operators with revenues under \$8,000 for the year, most of them driver-owner operated. Eight hundred and fifty-three freight carriers had revenues of between \$8,000 and \$19,999; 908 had revenues of \$20,000 or over. There were 425 passenger carriers including urban and inter-urban systems other than those operating streetcars or trolley buses.

Statistics of Motor-Carriers, 1949-52

Item		1949	1950	1951	1952
Investment in land, buildings, and equipment.....	\$	124,984,523	141,213,577	160,225,318	177,112,456
Revenue.....	\$	159,631,109	179,301,971	200,616,604	233,973,179
Equipment—					
Trucks.....	No.	10,937	11,126	11,368	11,649
Tractors, semi-trailer.....	"	3,197	3,640	4,081	4,791
Trailers.....	"	1,825	2,496	3,281	3,822
Buses.....	"	4,623	4,710	4,874	4,683
Passengers carried.....	"	376,187,446	363,341,915	365,946,738	340,099,978
Freight, inter-city and rural ¹	ton	15,087,704	19,009,488	18,248,756	19,095,669

¹ This item is not reported by all carriers.

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 1954, customs officials reported 118,969 vessel arrivals in foreign and coastal service as compared with 123,075 and 113,505 in 1953 and 1952, respectively. The total tonnage of all cargoes loaded and unloaded in foreign trade at all Canadian ports amounted to 63,004,521 tons, of which 21,415,618 tons or 34 p.c. was carried by vessels of Canadian registry.

As in former years, the bulk of foreign trade was with the United States which accounted for 36,270,337 tons, or 57.6 p.c. of the total. Canadian vessels carried 55.7 p.c. of this water-borne commerce. In trade with other countries, however, Canadian shipping fared less well, carrying only 1,202,938 tons of a total of 26,734,184 tons. Most of this freight was carried by vessels of the United Kingdom, United States, Panama, Norway, Sweden and Italy.



The "Princess of Vancouver" entering Vancouver Harbour under Lion's Gate Bridge. This 800-passenger ship was added to the Vancouver-Nanaimo ferry service in the summer of 1955 and performs three of the eleven daily return sailings by CPR vessels across the Straits of Georgia.

In 1954, commodities exported by vessel amounted to 30,730,355 tons, 4.6 p.c. below the 1953 total. The greatest decrease was recorded at Great Lakes and St. Lawrence River ports above Montreal which dropped from 6,320,032 tons in 1953 to 4,959,342 in 1954, or by 21.5 p.c. Major Canadian exports, with 1953 totals in parentheses, included: wheat 5,611,370 tons (7,588,616); iron ore 6,076,307 tons (4,907,331); gypsum 2,785,278 tons (2,798,715); lumber 2,586,740 tons (2,110,304); newsprint 2,116,812 tons (1,997,009); and pulpwood 1,602,660 tons (1,553,414).

Imports received by ship also declined in 1954, dropping to 32,274,166 tons from 38,691,879 in 1953, or by 16.6 p.c. Lighter shipments were reported for bituminous coal which decreased to 12,372,250 tons from 14,813,235. Alberta crude oil shipped from Superior, Wis., to Sarnia decreased to 543,283 tons from 3,365,157 as a result of the completion of the oil pipeline, and iron-ore shipments dropped to 3,147,033 tons from 4,384,596. Decreases were also registered for anthracite coal, limestone, gasoline, United States crude oil and general freight. Increases were recorded for corn, soybeans, sugar, bauxite, sand and gravel, iron and steel, fertilizers and chemical products.

The gross investment in vessels, docks, wharves, warehouses, land and buildings, and equipment reported by the water transportation industry in 1953 amounted to \$305,477,917. Gross income received from this investment was \$256,880,406. The industry employed 20,109 workers and paid out \$51,084,867 in salaries and wages, an average of \$2,540 which did not include the value of meals and lodging estimated at \$5,954,665.

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.

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. Assets administered by the Board represent, at cost, an outlay of \$245,000,000, and facilities include 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. The extent and variety of facilities at each port are, of course, influenced by the nature and volume of the traffic passing through that port. In general, the objective is to make the national harbours as self-sustaining as possible, first, by business-like management and, second, by charges for the use of facilities and services that are fair by accepted standards. It is the policy of the Board to provide the necessary major facilities for public use but to refrain from performing certain services that can be provided adequately by private interests.

The freight loaded and unloaded at the larger ports from sea-going vessels frequently constitutes a surprisingly small part of the total freight handled. Usually, the volume coming in or going out by coasting vessels is larger. It is not possible to obtain statistics of freight handled in all ports and harbours, but the water-borne cargo handled at the eight principal ports in 1954 was as follows:—

	<u>Tons</u>		<u>Tons</u>
Halifax.....	3,969,097	Montreal.....	16,158,423
Saint John.....	2,205,324	Churchill.....	382,195
Chicoutimi.....	330,927	Vancouver.....	11,489,075
Quebec.....	3,135,199		
Three Rivers.....	3,221,513	TOTAL.....	40,890,853

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 involved a series of engineering projects in keeping with the increasing demands of traffic and the safety of larger and faster ships. Throughout its course, 31 locks overcome a rise in level of 600 feet. At present the canals on the St. Lawrence River have a navigable depth of up to 14 feet but between the lakes the navigable depth is 25 feet, permitting the passage of large lake freighters from the Upper Lakes to Prescott on the St. Lawrence.

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 canals of Canada may be divided into two classes: the main route canals on the St. Lawrence River and the Great Lakes, including the Lachine, Soulanges, Cornwall, Farran Point, Rapide Plat and Galop Canals on the St. Lawrence River, the Welland Ship Canal between Lakes Ontario and Erie, the Sault Ste. Marie Canal between Lakes Huron and Superior; and subsidiary canals or branches including the St. Peters Canal between Bras d'Or Lakes and the Atlantic Ocean, 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.

Although much of Canada's oil is now moved through pipelines, oil tankers are still a familiar sight on the inland waterways.



Evidence of the importance of this transportation system as a highway of commerce is the fact that, during 1954, 30,070,701 tons of freight passed through the canals in 25,292 vessels. In addition, thousands of pleasure craft locked through; one point, Sault Ste. Marie, was passed by 115,014 passengers.

Civil Aviation

The control of civil aviation in Canada is under the jurisdiction of the Federal Government. The Department of Transport deals with the technical side, which includes matters of registration of aircraft, licensing of airmen, establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. Certain statutory functions with respect to the issue of licences to operate commercial air services and the subsequent economic regulation of commercial air services in accordance with the dictates of the public interest are assigned to the Air Transport Board.

Air transport services are grouped into two broad classes—non-scheduled services and scheduled services.

Non-scheduled Services.—Non-scheduled services include specific point-to-point services not on regular time schedules; charter and contract services; and specialty services. Such services provide access to sections of Canada that are inaccessible by other means of transportation and also act as feeders to the scheduled airlines. The use of aircraft for the transport of personnel, equipment and supplies has become vital to the exploration and development of the remote parts of Canada and has made many projects in otherwise inaccessible areas economically sound and physically possible. In the year ended Mar. 31, 1955, non-scheduled operators flew 15,930,686 revenue miles, carried 340,347 passengers, 55,710,892 lb. of goods and 841,464 lb. of mail.

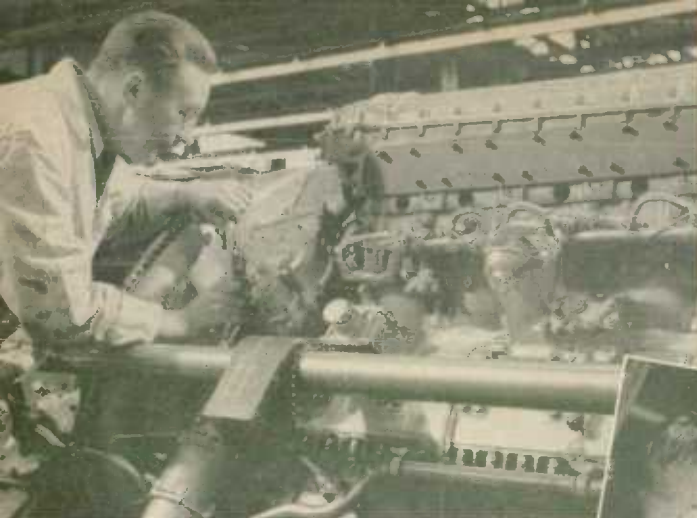
Non-scheduled operations, through a variety of other services, are making important contributions to the discovery, conservation and development of the natural resources and to the expansion of the Canadian economy. Aerial photography, which has been highly developed, is applied to geological surveys, mapping, timber-estimating and operation-planning, as well as to the planning of oil pipelines, roads and many large construction projects. An outstanding contribution by aircraft has been made in the field of exploration and prospecting for minerals. Aircraft have long been employed for the protection of forests by the use of fire-spotting aerial patrols, by aiding in fire-fighting operations and by the dusting of forest areas against destructive insects. In the agricultural sphere, aircraft are used for crop-dusting and spraying to control insect pests, and for seeding and frost control. In connection with the protection of wildlife resources, aircraft are used to patrol wide areas for the detection of poachers and violators of fish and game regulations, and for the stocking of lakes and streams with fingerlings. Among the many other services performed by means of aircraft are: patrolling power lines and pipelines, police activities, missionary work, aerial ambulances and advertising.

At Mar. 31, 1955, there were 198 commercial operators licensed to conduct scheduled, non-scheduled and specialty services, and there were 90 flying schools and flying clubs licensed for training activities.



Passengers board a TCA Super Constellation at Montreal airport.

Scheduled Services.—*Trans-Canada Air Lines.*—TCA, a publicly owned company, was incorporated by Act of Parliament in 1937 to co-ordinate air transport across the broad expanse of Canada and to help provide facilities for Canadian international air service. Today more than 160 flights are scheduled daily over TCA's network of airways. A high frequency of trans-continental and connecting flights operate a passenger, mail and commodity service across the country from St. John's, Nfld., to Victoria, B.C., and an inter-city network, which feeds into the mainline route, makes air transportation facilities available to most important Canadian centres. Trans-border routes to the United States serve Boston, New York, Chicago, Cleveland, Tampa, Detroit (Windsor) and Seattle. TCA also flies across the North Atlantic to London, Paris, Prestwick, Shannon and Dusseldorf. Trans-ocean routes reach south from Canada to Bermuda, the Bahamas, Jamaica, Barbados and Trinidad. On May 2, 1955, TCA introduced scheduled all-freighter service between Montreal and Vancouver, the first such trans-continental service in Canada. Late in 1955, TCA took over CPA's Quebec and northern Ontario routes, and thereby included six more centres in its national air network. Also, service was introduced between Quebec city and the Maritime Provinces. Tourist air service to Florida, Bermuda and the Caribbean was inaugurated and family fare plan rates were extended to the trans-Atlantic flights for winter travel. The management of TCA is vested in a Board of Directors—five of the nine members are elected by the shareholders and four are appointed by the Governor in Council. All TCA stock is held by the CNR, which in turn is wholly owned by the Government of Canada.



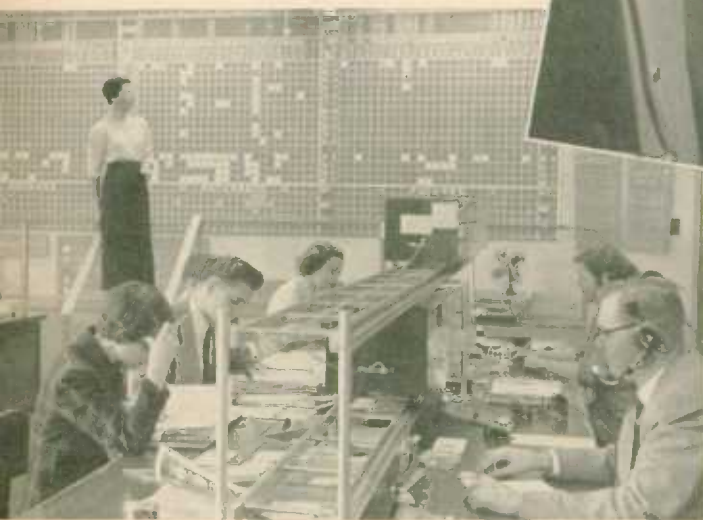
Behind TCA's service is a staff of 8,000 people, each carrying a share of the Air Lines' great responsibility.

▲
Every engine, propeller, instrument and accessory is overhauled at specific intervals by master mechanics and technicians.

A coast-to-coast reservations organization supports the speed of aircraft operations. A 17,500-mile teletype network with two switching control centres links 65 cities and airports across Canada and the United States.
▼



▲
Highly skilled pilots, carefully selected and intensively trained, fly the Company's aircraft.



At the end of 1955, the TCA fleet consisted of 22 North Stars, 26 DC-3's, seven Super Constellations, 14 Viscounts and three Bristol Freighters. Viscount turbo-propeller aircraft were introduced on Apr. 1, 1955, and 25 will be in service by 1957.

Statistics of TCA operations for 1954 are as follows:—

	No.
Total service mileage.....	24,016
Aircraft miles flown.....	32,327,405
Revenue passengers carried.....	1,438,349
Revenue passenger miles flown.....	852,475,532
Air freight ton miles flown.....	8,345,258
Air express ton miles flown.....	1,787,000
Mail ton miles flown.....	6,942,299
TCA staff.....	7,991

Canadian Pacific Air Lines, Limited.—CPA was formed in 1942 by the amalgamation of small commercial operators servicing Canada's northland, and its domestic service, grown to cover 9,354 route miles, is still largely a freight carrying service from the larger cities northward. With an overseas service now covering 27,610 route miles, CPA operates the seventh largest route pattern in the world. Two notable advancements were made during 1955. A new trans-polar route was inaugurated between Amsterdam and Vancouver, at which point connection is made with its existing routes servicing Australia, New Zealand, the Fiji Islands, Hawaii, Japan and China, in effect bringing these countries 1,000 miles closer to Europe and the United Kingdom. Also in early November, CPA introduced the first high-speed, non-stop service between Toronto and Mexico city when it inaugurated weekly flights linking these two points.

Domestic routes are flown by DC-4, DC-3 and Convair 240 aircraft. DC-6B's are used on all overseas routes. CPA has placed orders for a fleet of Britannia turbo-prop liners, three of which will be delivered in 1957. These aircraft will enable CPA to fly 100 passengers non-stop between Vancouver and Amsterdam in 12 hours, and between Vancouver and Tokyo non-stop also in 12 hours.

Statistics of CPA operations for 1954 are as follows:—

	No.
Total service mileage.....	36,964
Revenue miles (passenger).....	198,803,192
Revenue passengers.....	246,965
Airmail (pounds).....	2,983,331
Revenue goods ton miles.....	2,261,920

Independent commercial operators, conducting non-scheduled and specialty services, provide effective access to otherwise isolated areas and act as feeders to scheduled air lines.



Other Scheduled Services.—In addition to Trans-Canada Air Lines and Canadian Pacific Air Lines, Limited, there are four domestic air lines licensed to operate scheduled services in Canada: Central Northern Airways Limited, Winnipeg, Man.; Maritime Central Airways, Limited, Charlottetown, P.E.I.; Queen Charlotte Airlines Limited, Vancouver, B.C.; and Quebecair Incorporated, Mont Joli, Que. These services provide passenger, freight and mail service in their respective districts and also carry on a certain amount of non-scheduled and charter service.

At the end of 1954 there were 15 Commonwealth and foreign air carriers holding a total of 19 valid operating certificates covering international scheduled commercial air services operating into Canada.

Private Flying.—At Mar. 31, 1954, there were 1,315 private aircraft registered in Canada. Many of these are used by ranchers, farmers, oil men and commercial firms as part of their business equipment.

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, now with permanent headquarters at Montreal, and through the activities of that Organization has benefited by the joint knowledge and experience of all Member States in the technical and economic aspects of civil aviation.

In recent years Canada 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

At the end of 1954 there were approximately 4,600 miles of crude-oil pipelines (trunk, gathering and oil-products) in Canada and, in addition, 960 miles of pipeline in the United States (between Gretna, Man., and Sarnia, Ont.) carrying Canadian crude oil. Of major importance is the Interprovincial pipeline extending from Edmonton, Alta., to Sarnia, Ont., a distance of 1,765 miles and having a present capacity of 250,000 bbl. a day. Several short pipelines, both trunk and gathering, are directly connected with the Interprovincial pipeline, either delivering crude from the oilfields to Edmonton or Redwater, or are offshoots of the main line supplying oil to points along the way. The Trans-Mountain pipeline, 718 miles in length from Edmonton to Vancouver with a branch line crossing the international boundary at Sumas into the State of Washington, delivers western crude to British Columbia



Pipelines carry natural gas from well to consumer in Alberta and Saskatchewan, but there is a great surplus that is not being utilized. Plans are under way for the construction of two long pipelines—one from the Peace River district to Vancouver and northwestern United States and one eastward to the great concentration of industry in southern Ontario and Quebec.

refineries and other refineries in the Pacific northwest. Oil from Venezuela, Arabia and other countries reaches Montreal refineries through a pipeline extending from Portland on the coast of Maine, and oil-products pipelines link the Montreal refineries with consuming centres along the St. Lawrence River as far as Toronto and with Ottawa. Other pipelines supply southern Ontario centres with products of Sarnia refineries. In 1954, 172,495,935 bbl. of oil were carried over Canadian pipelines.

The great reserves of natural gas in Alberta and Saskatchewan are utilized to some extent within those provinces and are distributed by a network of pipelines to city, town and industry outlets. A pipeline for the delivery of gas from the Peace River district of northeastern British Columbia to Vancouver and United States markets is under construction. Also, plans are under way for the laying of an all-Canadian pipeline to carry gas from Alberta as far east as Montreal with spur lines to export gas to the United States near Emerson, Man., and to import gas from the United States near Niagara Falls pending the arrival of Alberta gas by a trans-Canada route. Early construction of the main trunk line depends largely upon the Federal Power Commission of the United States giving approval to the sale of Canadian gas in the midwestern States and upon the ability of Trans-Canada Pipelines to arrange for finances and commitments to carry through its entire construction program.



Long-distance operators dial calls by punching keys corresponding to perforations on the telephone dial. Each key sends an instantaneous pulse of two combined frequencies which activate switching equipment in the distant place.

• Communications

Telephones

At the end of 1954 there were 3,860,269 telephones in Canada—25 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 2,788 separate telephone systems, large and small, operating in 1954 co-operated in providing service across the country; 2,236 of these were small co-operative systems in rural districts and 389 were shareholder-owned companies. The largest of the latter were The Bell Telephone Company of Canada operating in Ontario and Quebec and serving 60 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 more than 100 other countries and territories. Within Canada, long-distance service is provided by the separate systems and, on a nation-wide scale, by seven major systems which constitute the Trans-Canada Telephone System.

The use of telephone service in Canada runs at a high level. The estimated number of calls on all systems in 1954 was 6,347,532,000, representing an average of 1,644 calls per telephone or 418 calls per person of the population. Of the total, 138,000,000 were long-distance calls mainly within Canada or between Canadian and United States points.

Investment in Canadian telephone enterprises continued to rise throughout 1954. By the end of the year total capital invested in telephone systems amounted to \$1,301,545,688. Employees numbered 51,929 and during the year they received \$159,329,238 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 70 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 faster and more flexible than step-by-step, is now being introduced in several Ontario and Quebec communities with heavy calling volumes. The same basic type of crossbar switching is employed in the new regional long-distance office opened at Toronto in 1955; a similar installation will soon be placed in service at 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 a large percentage of 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. The first inter-system microwave radio relay chain, between Toronto and Winnipeg, is under construction by The Bell Telephone Company of Canada and the Manitoba Telephone System. Projected extensions eastward and westward, with Bell's existing Ontario-Quebec chain as a nucleus, aim at coast-to-coast microwave facilities for telephone and television purposes by mid-1958.

More reliable trans-Atlantic telephony, over submarine cable, will become a reality in 1956 with the expected completion towards the year end of cables between Nova Scotia and Newfoundland and between Newfoundland and Scotland. This joint project of Canadian Overseas Telecommunication Corporation, the American Telephone and Telegraph Company and the British Post Office approached the half-way mark in 1955 with the successful

The heart of the long distance dialing machine is this electronic card index. Dial impulses, designating the area called, cause a steel card to drop from its position. Light rays passing through perforations in the card activate photo transistors and instantaneously select the most direct route available.



laying of the first of two cables linking Clarenville, Newfoundland, with Oban, Scotland. Many years of intensive research on both sides of the Atlantic have culminated in the design of a repeatered cable that meets the exacting requirements of voice communication and promises to function reliably over a long-service life.

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.

Radio and Television

There were 179 standard broadcast band stations operating in Canada in September 1955, of which 22 were Canadian Broadcasting Corporation stations and 157 were privately owned stations. In addition there were 10 shortwave stations, of which three were CBC and seven were privately owned, together with five CBC and 26 non-CBC frequency-modulation stations.

Canadian Broadcasting Corporation.—The publicly owned Canadian Broadcasting Corporation is operated as a national public service; privately owned stations provide local community service, and many are affiliated with the CBC networks. As constituted under the Canadian Broadcasting Act, the CBC is responsible to Parliament through a Minister of the Crown. From time to time, the work of the CBC is reviewed by a special Committee of the House of Commons. A Royal Commission is at present making a full study of radio and television in Canada, including the relationship of the CBC with privately owned radio and television companies and the relationship between the Corporation and national fiscal policy.

CBC policy is determined by a Board of 11 Governors who act as trustees of the national interest in broadcasting. The Governors, representing the main geographic divisions of Canada and various facets of Canadian life, are appointed by the Governor General in Council for three-year terms. The Chairman is appointed for a ten-year term on a full-time basis. All operations and activities of the Corporation are carried out under the direction of the General Manager, who is the Chief Executive, and the Assistant General Manager. The CBC's income in sound broadcasting is derived from a current annual grant of \$6,250,000 together with revenue from a 15-p.c. excise tax on radio, television and phonograph sets and tubes, and revenue from some commercial programs. Television operations are financed through the same excise tax and through commercial programs.

Radio Broadcasting Facilities and Program Service.—The CBC operates 83 transmitters for its National Service and two for its International Service. Twenty-two are standard band AM stations, eight of which are of 50,000 watts to give good service to rural areas; five are frequency-modulation transmitters; two are shortwave transmitters which reach remote areas; and 54 are low-power "repeater" transmitters operating automatically with the network lines and serving sparsely settled areas. The two transmitters of the International Service operate on 18 frequencies. CBC network services reach more than 98 p.c. of the radio homes in Canada and extend

Variety—"Showtime" singing star. ▶



Discussion—Citizens' Forum panel on prisons and the reform system. ▼



Drama—"The Blood is Strong"—early days in the Maritimes. ▶



Farm—Demonstration of wool production. ▼



Children—"Maggie Muggins." ▲

from St. John's, Nfld., in the east to Vancouver Island in the west. The Trans-Canada and Dominion networks serve English-speaking listeners from coast to coast, and the French network serves French-speaking listeners from Moncton, N.B., to Edmonton, Alta. Ninety-six of the privately owned stations in Canada function as network outlets.

Canada's system of broadcasting is designed to overcome the problems posed by great distances, a scattered population, two official languages, and seven 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 15,000 schools across Canada 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 12,000 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 parties concerned 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 came to Canada officially in September 1952, when the CBC's first television stations, CBFT and CBLT, were opened at Montreal and Toronto, respectively. Both stations began 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. By the end of May 1953, the microwave link between Toronto, Ottawa and Montreal was ready for service. In June the first Canadian TV network became a reality when the new CBOT at Ottawa swelled CBC-TV coverage to include one-third of Canada's population. By November 1955, CBC stations were on the air in Vancouver (CBUT), Winnipeg (CBWT), Toronto (CBLT), Ottawa (CBOT) and French-language (CBOFT), Montreal (CBFT for French-language programs and CBMT the English-language outlet), and Halifax (CBHT).

Private television stations were on the air at St. John's, Nfld.; Sydney, N.S.; Saint John and Moncton, N.B.; Quebec city and Rimouski, Que.; Peterborough, Kingston, Hamilton, Kitchener, London, Windsor, Wingham, Barrie, Sudbury, Sault Ste. Marie, and Port Arthur, Ont.; Brandon, Man.; Saskatoon and Regina, Sask.; and Lethbridge, Edmonton and Calgary, Alta.

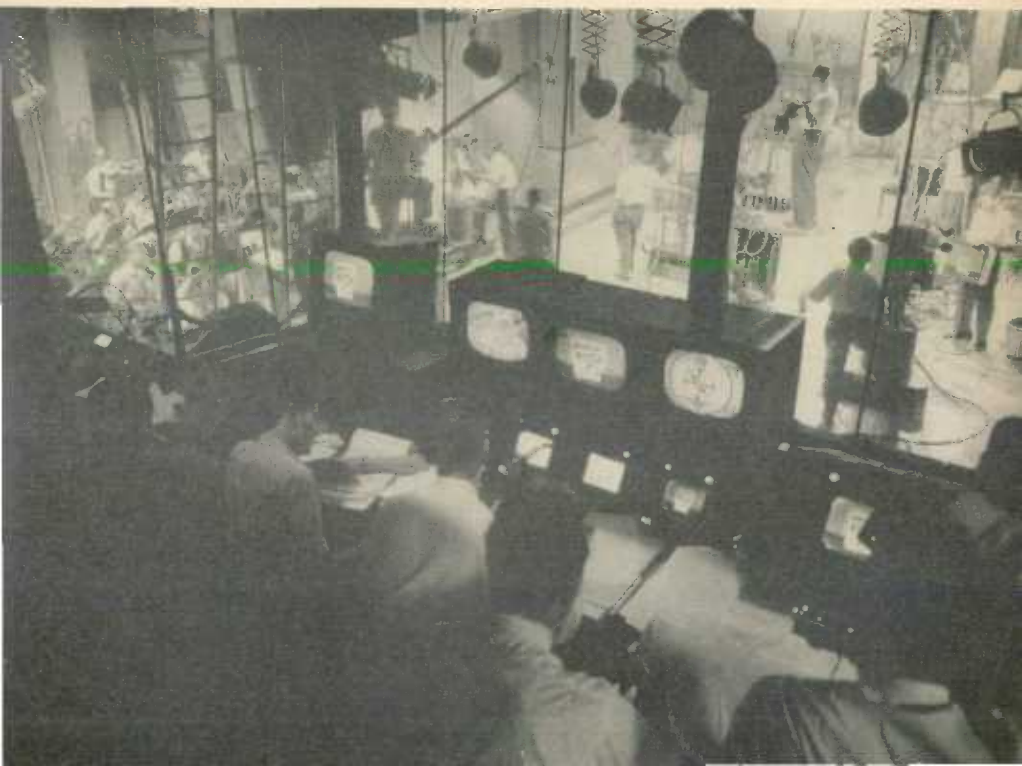
Other private stations were in process of construction at Timmins and North Bay, Ont., Charlottetown, P.E.I., Jonquières and Sherbrooke, Que.

Fourteen stations between Windsor, Ont., and Quebec city were joined by direct microwave relay connection by the end of 1955, and plans were under way for the extension of the relay from coast to coast—expected to be in operation some time in 1958.

All Canadian television stations serve as outlets for the national TV system in addition to producing their own programs. They are required to carry 10½ hours a week of national network programs. Stations beyond the microwave network receive CBC programs on television recordings. In 1955 this CBC recording service was providing television stations with up to 50 hours programming a week.

Since Canadian television first went on the air it has become available to over 75 p.c. of the Canadian population. 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 50 p.c. of the schedule is made up of Canadian programming while, 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. Most Canadian

Studio scene from the Control Room during a CBC television production.





The principal characters and the sound-effects man in the popular W. O. Mitchell radio series "Jake and the Kid".

television productions are "live" from studios at Toronto and Montreal, although studios are in operation at Vancouver and are under construction at 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 also offered from other countries. Two 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 plans for further experiments are being encouraged.

The development of Canadian television is being accompanied by a great expansion in the electronics industry. In 1950 there were 30,000 television sets in use in the country; by 1951 the figure had climbed to 70,000 and by 1952 to 200,000. At the close of 1953 this number had much more than doubled and by the end of 1955 it reached over 1,900,000.

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 15 languages: English, French, German, Dutch, Danish, Swedish, Norwegian, Italian, Spanish, Portuguese, Czech, Slovak, Polish, Russian and Ukrainian. Countries that have poor reception because of 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. The Service has also developed a transcription service, which prepares special programs of Canadian music and the spoken word on disks. These programs are made available to Canadian missions abroad and are sent to radio stations and networks around the world.

Postal Service

In serving the Canadian public, the Canada Post Office employs every means of transportation from mail plane to dog team. Service operates from Newfoundland to Vancouver Island and from the United States border to within a few hundred miles of the North Pole. Canada's air-mail, railway-mail and land-mail services are among the most extensive in the world.

In recent years all first-class domestic mail up to and including eight ounces in weight has been transported by air whenever this means expedites delivery. A network of air routes links up every section of the country within the shortest possible time and connects with the air services to the United States, Central and South America, Europe, Asia and Australasia. There are approximately 30,000 miles of air-mail and air-stage routes in the country. In fact, air transport is the sole means utilized in exchanging the mails with numerous points in the hinterland lying far beyond the end of steel.

The principal means of mail transportation, however, is the railway-mail service which operates over about 40,000 miles of track and annually covers more than 47,000,000 miles. A staff of 1,296 railway-mail clerks sorts and exchanges the mails in the railway cars and in the steamships serving the coastal settlements of Newfoundland. Points in the Eastern Arctic receive the mails by ship and by mail-plane and a regular air service is operated as far as the Arctic Coast in the Northwest Territories. Aircraft courtesy flights also take letters and parcels into remote northern settlements.

Wherever population warrants, post offices are established for the transaction of every kind of postal business. Delivery is accorded by uniformed letter carriers in 135 cities and towns and an extensive organization distributes mail to rural districts. There are 5,322 rural mail routes in operation covering 125,000 miles of road and serving 440,000 rural mail boxes. Daily service is given over most of these routes which are generally circular in pattern and average 24 miles in length.

There are 4,039 side-services transporting mail between post offices, railway stations, wharves and airports, and 2,924 stage and motor-vehicle services operate either to post offices not situated on railway lines or supplement rail and other media of mail transport. In cities and larger towns there are some 770 services conveying the mails to and from sub post offices, postal stations and railway stations, collecting from street letter boxes and delivering parcel post. In all, approximately 13,060 land-mail service couriers travel about 50,000,000 miles annually. The land-mail services are performed under contract; contracts are awarded to the lowest tenderer who is required to provide all the requisite equipment.

It is estimated that 3,500,000,000 items of mail are delivered annually and, in order to cope with this volume, the Canada Post Office utilizes the most up-to-date mechanical handling devices. On Mar. 31, 1955, there were 11,796 post offices and 11,200 money-order offices in operation. For the year ended on that date, postage paid by means of postage stamps totalled \$74,583,720 and the gross postal revenue was \$151,717,272, the highest ever recorded. Combined deposits of \$36,780,666 were reported in the Post Office Savings Banks which are located throughout Canada.



Gold bars placed in the vaults of the Bank of Canada are checked and double-checked.

Banking and Insurance

• Banking

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 central bank, and nine privately owned commercial banks competing among themselves for the domestic and foreign banking business of the Canadian people. These institutions operate under the provisions of the Bank of Canada Act and the Bank Act both of which were amended during 1954.

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. Each chartered bank is required to maintain, on the average during each calendar month, an amount of cash reserves, in the form of Bank of Canada notes and deposits with the Bank of Canada, equal to not less than 8 p.c. of its Canadian dollar deposit liabilities. The Bank may alter the percentage required, upon giving at least one month's notice, between 8 p.c. and 12 p.c. but cannot in any one month increase the percentage by more than one.

An increase in cash reserves above the required minimum 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 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 and composed of a Governor, a Deputy Governor and twelve Directors; the Deputy Minister of Finance is a non-voting member of the Board.

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. Current authorizations of loans, investments and guarantees of the Industrial Development Bank at Sept. 30, 1955, amounted to \$67,275,134 and amounts outstanding on the same date totalled \$45,370,729.



Bank of Canada notes are printed at the rate of 360,000 a day. At the end of 1954, notes to the value of \$1,623,000,000 were in circulation.

Commercial Banking.—There are nine commercial banks in Canada and their main function is to provide a safe repository for savings and to act as the principal source in Canada of short-term credit.

The commercial banks are referred to as "chartered" because they do business under a charter or licence from the Parliament of Canada. They receive this charter through the Bank Act, federal legislation which sets out what the banks can and cannot do and applies all across Canada. The charter extends for only ten years and the chartered banks, in effect, apply for renewal of their charters at the end of that period, when the Bank Act is revised, including public hearings before the Banking and Commerce Committee of the House of Commons. This decennial revision and the ten-year charters are unique to Canada.

The most recent decennial revision, the eighth since the passage of the Bank Act in 1871, was carried out in 1954. In keeping with the original intent of this periodic revision, the Bank Act was once again overhauled and brought into line with changing economic conditions and banking needs. This periodic revision helps to ensure that banking legislation in Canada is never static but is progressive, flexible and adaptable. The chartered banks, whose charters were renewed by Parliament in 1954 included the Bank of Montreal, The Bank of Nova Scotia, The Toronto-Dominion Bank, La Banque Provinciale du Canada, The Canadian Bank of Commerce, The Royal Bank of Canada, Banque Canadienne Nationale, Imperial Bank of Canada, Barclays Bank (Canada) and The Mercantile Bank of Canada. Barclays Bank has since been amalgamated with the Imperial Bank of Canada.

Canada has a branch bank system and has developed this type of banking to a greater extent than any other nation. Each chartered bank has a head office and numerous branches, most of the banks having branches scattered from coast to coast. This system enables the smallest, most remote

community to enjoy the same full range of banking services as the large metropolitan area. The branch bank is a self-contained unit, although it operates under the general supervision of its head office, and is backed by the strength, knowledge and experience of the entire institution of which it is a part. Excess funds from branches where deposits exceed loan potentials are credited to head office, which, in turn, makes them available to branches where lending funds are needed. In this way there can be no dearth of credit through lack of local funds.

At the end of 1955, there were 4,246 bank branches throughout Canada, and 123 in foreign countries, mostly in the United States, Great Britain, the West Indies and South America. In addition, the chartered banks have agents or correspondents throughout the world, facilitating Canada's world-wide trade.

Safety deposit vault in a large branch bank where valuables may be kept.



A bank manager discusses financial arrangements with a farmer wishing to obtain working capital for improvements and expansion.



The chartered banks are combined savings and commercial banks. They are extremely competitive, not only for deposit and lending business but in the opening of new branches in both established areas and in the more remote settlements. Keeping pace with an expanding Canada, more than 1,000 branches were opened in the past ten years. Canada has a heavier concentration of banking facilities in relationship to population than any other country.

The chartered banks are privately owned, latest figures showing 77,153 shareholders, of whom 74.4 p.c. were Canadians owning 73.7 p.c. of the shares. The wide diffusion in bank ownership is shown by the fact that 90 p.c. of all bank shareholders have 500 shares or fewer. A recent survey by one bank showed more than 250 occupations represented among its shareholders.

The various chartered banks have histories of sound and steady growth over the years, the oldest dating from 1817. At Confederation (1867) there were 28 chartered banks. Casualties, absorptions and mergers have reduced that number to nine, strengthening the banking system even further. The last insolvency of a Canadian bank was in 1923.

Although the chartered banks are subject to close regulation by federal authorities, they are 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 the Department of Finance, the Inspector General of Banks. He has the responsibility of inspecting the books of each bank at least once a year and he may do so oftener. 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 leading 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 the factory. Bank loans are



Canadians had more than \$11,000,000,000 on deposit in the chartered banks in Canada on Sept. 30, 1955.

As soon as a working force arrives at a new industrial site, the bank arrives. Temporary mobile quarters provide all the necessary services until a permanent branch is established.



seldom over a year in length. The latest analysis of bank loans on Dec. 31, 1955, shows total loans in Canada (excluding residential mortgage loans under the National Housing Act) of \$4,971,200,000 and of these, \$3,322,800,000 were for agricultural, industrial and commercial purposes. Loans to individuals totalled \$966,100,000.

Statistics of Individual Chartered Banks, Sept. 30, 1955

Bank	Branches in Canada and Abroad ¹	Total Assets	Liabilities to Shareholders	Liabilities to the Public	Loans and Discounts ²	Total Deposit Liabilities ³
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Montreal..	656	2,726,318	137,611	2,124,845	999,916	2,508,325
The Bank of Nova Scotia.....	475	1,143,995	50,524	860,979	617,605	1,056,829
The Toronto- Dominion Bank..	449	1,264,345	46,877	1,086,002	572,931	1,180,887
La Banque Provin- ciale du Canada..	349	246,350	8,335	216,300	108,366	235,398
The Canadian Bank of Commerce....	711	2,281,098	101,799	1,755,696	997,216	2,097,621
The Royal Bank of Canada.....	848	3,237,637	147,504	2,246,343	1,255,020	2,931,861
Banque Canadienne Nationale.....	576	609,482	18,148	531,071	278,289	585,401
Imperial Bank of Canada.....	255	787,757	33,034	626,995	375,130	728,799
Barclays Bank (Canada) ⁴	6	43,116	6,309	23,637	11,314	28,216
The Mercantile Bank of Canada..	3	12,450	1,931	2,215	4,124	4,956
Totals	4,328	12,352,548	552,042	9,474,083	5,219,911	11,358,293

¹ Includes sub-branches and sub-agencies.
under the National Housing Act, 1954.

² Includes mortgages and hypothecs insured
with the Imperial Bank of Canada, Feb. 1, 1956.

³ Excludes inter-bank deposits.

⁴ Amalgamated

• Insurance

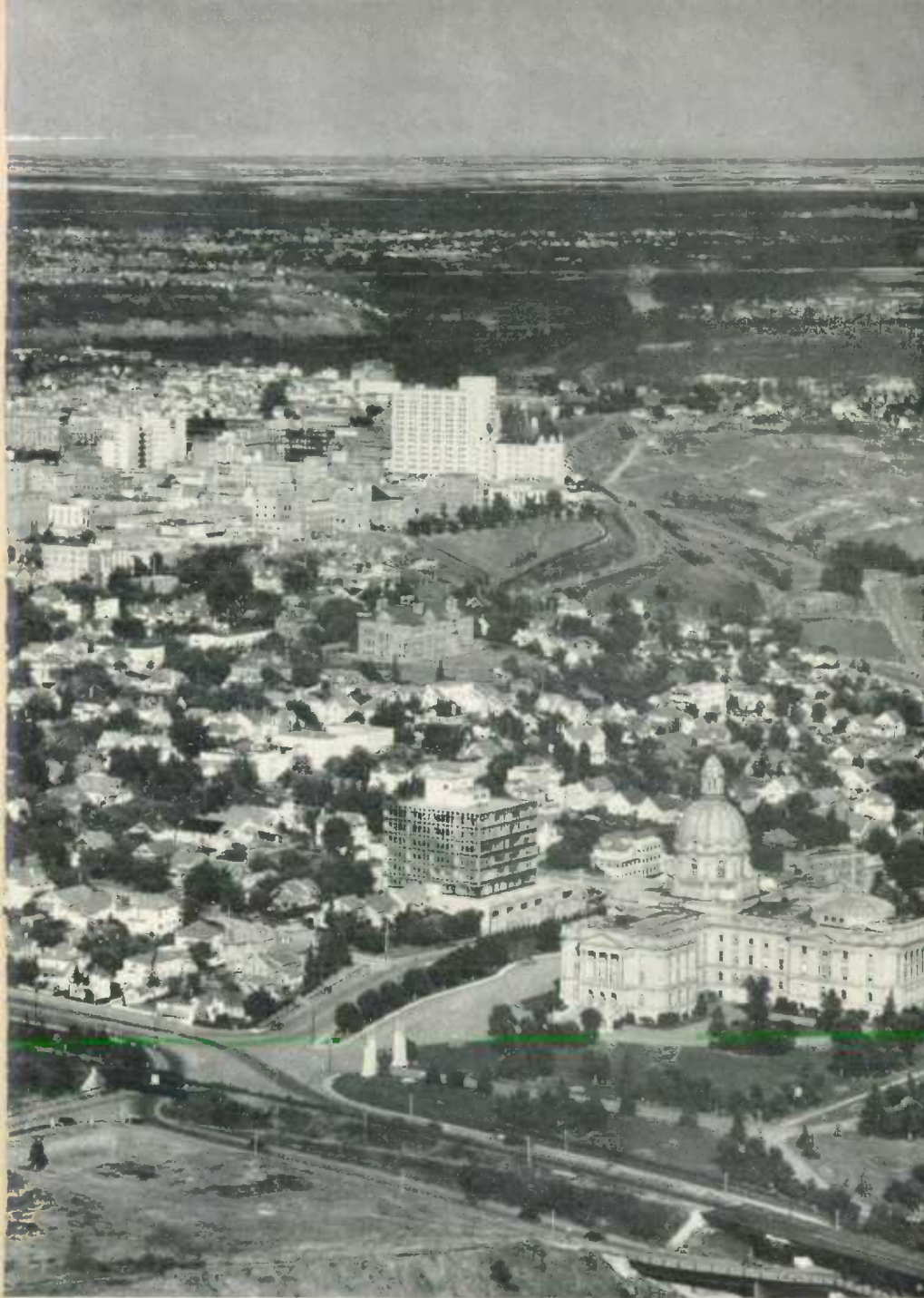
Life Insurance.—Life insurance business in Canada in 1954 continued the increasing rate of expansion in evidence particularly since the end of World War II. During 1954, new insurance business written, including industrial, group and fraternal insurance, amounted to \$2,986,000,000, which brought the total life insurance in force in Canada at the end of the year to \$24,771,000,000. This represents an average of \$1,630 of insurance protection for every man, woman and child in the country. The amount of premiums paid to carry this insurance was \$521,000,000.

Total benefits paid during the year to policyholders, including death claims, matured endowments, disability claims, dividends, surrender values and annuity payments were \$320,000,000. Of this amount, death benefits amounted to nearly \$120,000,000, which means that close to \$200,000,000 was returned in benefits to living policyholders. There has been a continuing and growing interest on the part of Canadians in pension planning and personal retirement programs. Annuity contracts, for example, numbered about 400,000 in 1954 and represent a present and future income to Canadians of more than \$341,000,000 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 600 p.c. since 1945 and now account for four-fifths of the total annuities in force.

Life insurance in Canada is actively transacted by 66 companies and 41 societies registered by the Federal Government, of which 31 companies and 16 societies are Canadian, 6 companies are British, and 29 companies and 25 societies are foreign. There are also 12 companies and about 45 societies operating under provincial licence only.

Fire Insurance.—The growth of the fire insurance business has also been substantial and, though a good part of this growth may be attributed to the increase in the practice of insurance, it is also indicative of the advance in the amount and value of insurable property throughout the country. Fire insurance in force at the end of 1954 amounted to approximately \$50,000,000,000, premiums written amounted to \$169,000,000, and claims paid to \$80,000,000. These figures include the business of 301 companies registered by the Federal Government to transact fire insurance business in Canada (75 Canadian companies, 89 British and 137 foreign) as well as a number of provincially incorporated companies and Lloyds of London.

Casualty Insurance.—Casualty insurance includes: accident (personal accident, employers' liability and public liability); sickness; aircraft; automobile; boiler; credit; earthquake; explosion; falling aircraft; forgery; guarantee; hail; impact by vehicles; inland transportation; livestock; personal property; plate glass; real property; sprinkler leakage; theft; water damage; weather; and windstorm. Premiums written for all classes of casualty amounted to \$378,000,000 in 1954. In that year there were 322 companies registered by the Federal Government to transact casualty business in Canada, of which 80 were Canadian, 84 British and 158 foreign. The majority of these companies also reported fire business. The figures for 50 provincially incorporated companies and Lloyds are also included.



Edmonton, capital city of Alberta, grown up in the centre of a rich, healthy and productive agricultural area, has recently become the focus of Canada's vast multi-million-dollar oil, gas and petro-chemical developments. Its geographical position has given it added importance as the hub of air travel into the frontier areas of the far north and across the top of the world to European centres. Nearly half Alberta's complement of 1,066,000 persons live within 100 miles of the city.



George Hunter

Steel is the universal raw material, the common denominator of industry. Algoma Steel Corporation at Sault Ste. Marie, Ont., is one of the four fully integrated basic steel companies operating in Canada.

The Economy in 1955

THE year 1955* witnessed a sharp recovery from the mild contraction in economic activity which had characterized the period from mid-1953 to mid-1954. Output of goods and services began to rise in the latter part of 1954 and expanded rapidly throughout 1955. For the year as a whole the value of output was approximately 10 p.c. higher than for the full year 1954. Thus, the gross national product advanced to \$26,400,000,000 in 1955 from the \$24,000,000,000 recorded for the previous year. With prices relatively stable, this increase reflected almost entirely an expansion in the volume of production which showed the largest gain of any single post-war year. It may be recalled that in 1954, while the volume of output declined by 3 p.c., some increases in the labour force and productive capacity were taking place. It was these developments that made possible the very sharp increase in the volume of output in 1955. The increase over 1953, which was the previous peak year in terms of volume of production, is estimated at about 6 p.c.

A number of expansionary factors contributed to the growth in 1955. The larger grain crop accounted for about \$300,000,000 of the gain in gross national product. Personal expenditure on consumer goods and services led the advance in final purchases with a gain of \$1,300,000,000, while exports rose by approximately \$700,000,000. Gross domestic investment in durable assets and government expenditures together absorbed an additional \$500,000,000. Finally, the swing in business inventories from liquidation a year previously to net accumulation in 1955 amounted to \$400,000,000. It was under these stimuli that Canadian production rose at an uninterrupted pace through 1955, although a considerable part of both final and inventory demand was for imported commodities which advanced more than \$700,000,000 over the 1954 total. Associated with these developments in domestic and foreign demand was a marked expansion of Canadian personal incomes, a rising level of activity in the United States coupled with prosperity abroad, and a sharp rise in incomes of Canadian businesses.

This strength in end-product demand in 1955 is reflected in the expansion of most of the industrial sectors, where production increases over 1954 were both widely dispersed and substantial in size. In manufacturing, important increases occurred in almost all of the groups that had been affected by the earlier contraction in activity, including iron and steel products, electrical apparatus and supplies, and textiles. However, the rate of expansion in the various sub-groups was uneven and certain industries remained below the level of output they achieved in 1953. Among these groups were clothing and textiles, and agricultural implements.

Activity in the construction industry and in the services group taken as a whole continued its upward trend, with gains of about 7 p.c. in 1955. In the primary industries group, a large increase was indicated for agriculture while forestry, public utilities and mining showed increases ranging from 9 to 15 p.c.

* Figures given for the full year 1955 are based, for the most part, on nine-month data available at the time of writing.



Women in paid employment in Canada are predominantly in clerical and service occupations. These teletype-in-training reach high standards of speed and accuracy before assignment to operating positions on the CNR communications system.

Employment

A substantial increase in employment accompanied the rise in the tempo of economic activity in 1955 and unemployment declined. At the end of the year (November) the number of persons with jobs was about 4 p.c. higher than at the same date of 1954. The number of persons with jobs in the non-agricultural sector of the labour force was up 7 p.c. and, at the same time, the average hours worked per week in manufacturing increased. The number of persons without jobs and seeking work in Canada was almost 25 p.c. below the level of November 1954.

Prices

Prices on the average were relatively stable during the course of 1955. However, prices of non-agricultural primary materials had begun to edge upward while agricultural prices continued to decline. In particular, prices of non-grain export products, especially of non-ferrous metals, were higher and the export price index rose by 3 p.c. As the price of imported goods remained fairly stable, there was an improvement in Canada's terms of trade during the year. Construction material prices also increased somewhat in 1955. The continued decline in agricultural prices reflected the large stocks of grains and ample supplies of other agricultural products in Canada and abroad. The wholesale price index rose slightly during the year but the consumer price index showed little change.

National Income

National income expanded without interruption throughout 1955, reflecting for the most part further gains in wages and salaries and in investment income, including corporation profits. The successive quarter-to-quarter gains in these two important income categories accounted for the greater part of the enlarged flow of income over the course of the year. Thus wages and salaries were approximately 8 p.c. above the level of 1954, while investment income was about 20 p.c. higher. At the same time, account

must be taken of the important increase in net income of farm operators as a result of the higher crop production in 1955. National income as a whole in 1955 was approximately 10 p.c. above the previous year.

The increase in personal income in 1955 was substantial, although it was somewhat less than the rise in national income, largely because the increase in dividend payments was more moderate than the gain in corporation profits. Personal saving was higher in 1955, the increase over the previous year reflecting in part the higher grain crop.

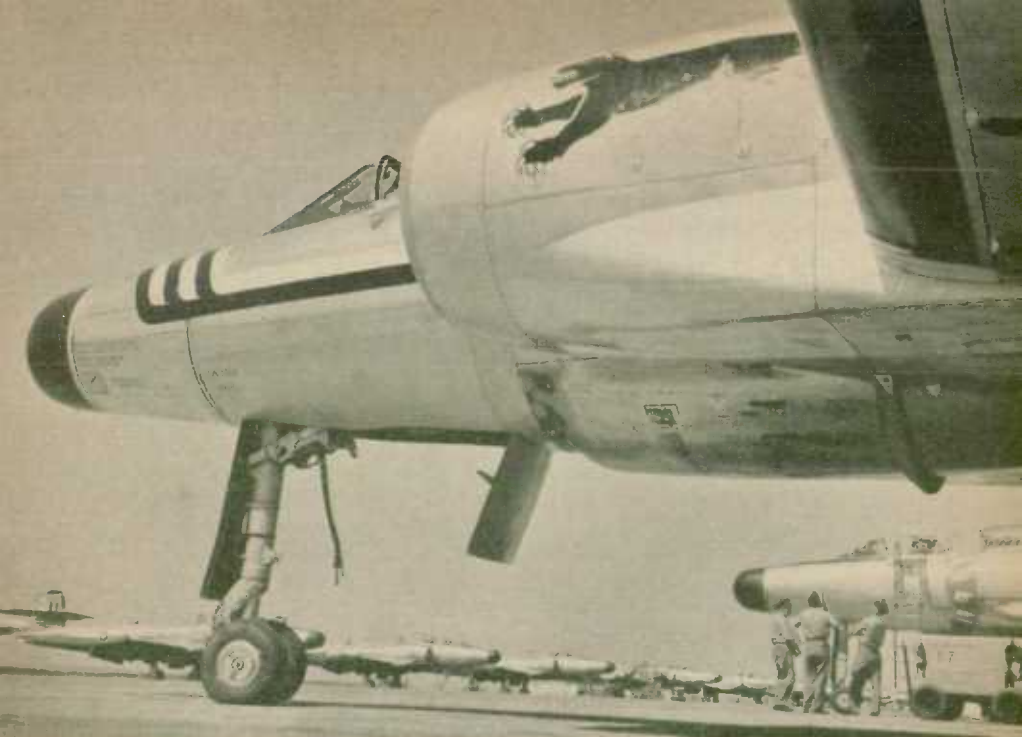
The gain in wages and salaries was a reflection of a 4-p.c. increase in the number of paid workers with jobs, together with a 5-p.c. advance in average weekly earnings in the major non-agricultural industries. Total wages and salaries in primary industries, manufacturing, and the trade group advanced by between 4 and 6 p.c., while finance, services and construction registered gains of between 9 and 12 p.c. Since the consumer price index changed very little in 1955, these increases in labour income represented almost completely a gain in "real" terms, and constituted one of the sharpest advances in real earnings in the post-war period.

The main contributing factor in the rise in investment income in 1955 was the gain of more than 20 p.c. in corporation profits. Almost all industrial groups shared in this rise. Other components of the investment income, such as net rental income received by persons and profits of government business enterprises, were also higher in 1955.

Accrued net income of farm operators from farm production was \$1,400,000,000 in 1955, compared with \$1,100,000,000 in 1954. This increase reflected for the most part a larger grain crop, which in 1955 mainly took the form of additions to stocks of grain held on farms. Hence, although the rise in production was sharp, sales of grain off farms showed little change, with the result that farm cash income was about level with the previous year.

Canada's largest oil refinery at Sarnia, Ont., has a crude oil capacity of 2,730,000 gal. a day. The crude is transported by pipeline from Alberta.





Defence outlays did not constitute an expansionary influence on the economy in 1955 but did provide a sustaining element. The RCAF set a high record of achievement during the year. Apart from its continuing duties of patrolling, transport, training and re-supply, the long-term project of establishing nine CF-100 squadrons for home defence was accomplished; 12 squadrons are on duty in France and Germany.

Gross National Expenditure

Consumer expenditures were the major expansionary factor in the economy in 1955, rising by about \$1,000,000,000 over 1954. Housing outlays were also an important stimulus with an increase of \$300,000,000 over the previous year; this latter gain represents a rise of about 26 p.c. over 1954 and is the largest single percentage increase of any major expenditure component. It may be noted that both consumer outlays and residential construction were very strong supporting elements during the course of the mild contraction from mid-1953 to mid-1954, when they continued to rise at an uninterrupted rate. This strong upward trend was reinforced in 1955. Exports of goods and services, which had declined by about 5 p.c. in 1954, rose very sharply in 1955, reflecting the recovery in the United States and strong overseas demand for Canadian products: the gain in exports over 1954 was of the order of \$600,000,000. Business investment in new plant, equipment and machinery also rose in 1955 over the previous year. These segments of demand had been relatively stable following the declines of late 1953 and early 1954, but in 1955 a marked recovery began, associated in part with the pressure of demand on existing capital facilities, sharply increased profits, and a generally favourable business environment.

The most significant increase in consumer expenditure took place in the durable goods group which rose 14 p.c. over 1954. Some of the most striking advances occurred in the following items: new passenger cars, unit sales of which were up by 21 p.c.; refrigerators, shipments of which increased by 17 p.c.; washing machines, with a 21-p.c. increase in shipments; and television sets, up by 32 p.c. The gain in consumer durable goods was accompanied by an increase in consumer credit outstanding; figures for the third quarter indicate a rise of 15 p.c. over the same period of 1954. This compares with an 8-p.c. increase in personal disposable income.

Non-durable goods purchases were approximately 5 p.c. higher in 1955; gains of about the same magnitude occurred in the sales of food and tobacco and in alcoholic beverages but purchases of clothing showed only a small increase. Consumer outlays for services were about 6 p.c. higher in 1955, continuing the upward trend of recent years. Taking durables, non-durables and services together, total consumer outlays in 1955 were about 6 p.c. above the previous year.

The level of residential building construction in 1955 amounted to close to \$1,500,000,000 compared with \$1,200,000,000 in 1954. Most of the increase represented a real volume gain, although house-building costs rose moderately, especially in the latter half of the year. There were about 128,000 housing

Construction is under way to expand the capacity of the Kitimat Aluminum Smelter from the present 91,500 tons a year to 240,000 tons by 1959. The ultimate annual capacity of the project is 550,000 tons.





Federal Government geologists, using helicopters, mopped 100,000 sq. miles of territory in the Queen Elizabeth Islands and 60,000 sq. miles in the District of Mackenzie in the Northwest Territories during the summer of 1955. The use of aircraft is greatly expediting the Geological Survey's project of reconnaissance mapping of Canada's Far North.

units completed during the year and it is estimated that the carry-over of uncompleted units into 1956 numbered about 80,000.

As has been noted, 1955 marked a renewal of the expansion in business investment for new plant, machinery and equipment. Business non-residential construction outlays were somewhat above the previous year's level of \$1,700,000,000, though some part of this increase was accounted for by price gains. Machinery and equipment outlays at year-end were running at the highest level since the down-turn in late 1953. Associated with this pick-up were gains in business purchases of motor-vehicles and a sharp increase in imports of machinery. On the whole, there was little price movement in machinery items in 1955.

Purchases of goods and services by all levels of government rose moderately in 1955, reflecting higher outlays for salaries and wages at all three levels of government, higher defence expenditures, higher provincial highway construction, and the expansion of municipal facilities associated with the high level of house-building activity. Defence outlays did not constitute a major expansionary influence in 1955, but continued to provide an important sustaining element.

The liquidation of business inventories which had been a characteristic feature of the contraction in activity in 1954 was halted in 1955 and some accumulation of stocks occurred. However, it appears that the build-up of business inventories in 1955 was quite small, because the gain in production during the year was approximately matched by the higher levels of end-product demand. With the rapid expansion in final purchases, and the relative stability in inventory holdings, the ratio of stocks to sales fell off

during 1955. It may be noted that such a low rate of business inventory accumulation during a period of rapid general expansion in activity is in contrast to the general pattern of the post-war years when similar periods of expansion were usually marked by a substantial build-up of stocks. The relatively small build-up of business inventory stocks in 1955 was accompanied by a larger accumulation of grain inventories than in the previous year, associated with the higher volume of crop production.

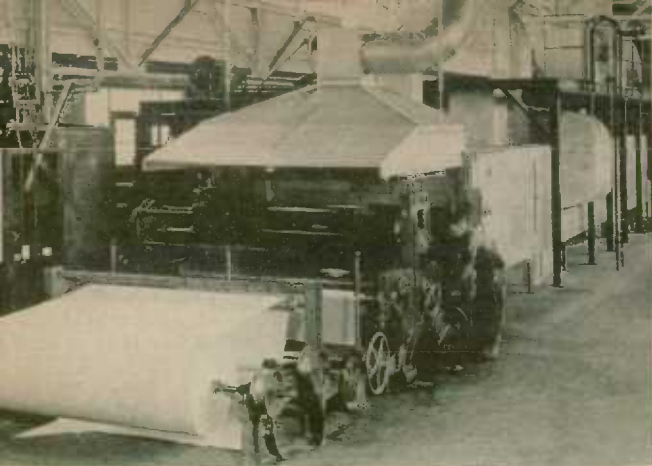
The demand for Canadian exports rose an estimated 12 p.c. in 1955, as a result of prosperous conditions prevailing in the United States and strong overseas demand for Canadian products. The strength in exports was derived mainly from non-grain primary products such as non-ferrous metals and wood and wood products. Exports related to the development of new mining and industrial capacity, such as petroleum, chemicals and iron ore, also showed substantial gains over the previous year. The gain in exports of non-ferrous metal products was partly accounted for by significant price increases in 1955.

Imports also moved sharply upward in 1955 and were much higher than in the previous year, showing particularly large gains in the closing months of the year. The gain in imports was fairly widespread and was associated with the very rapid expansion in end-product demand and in business conditions generally in Canada. In particular may be noted the rising levels of demand for consumer durable goods in 1955, and gains in investment in new machinery.

The deficit on current account was considerably larger in 1955 than in 1954. There was an abnormal deficit on commodity account in the final quarter of the year and another part of the increase was accounted for by the invisible items. The deficit from the latter rose as gains in receipts from tourist and travel expenditures, and interest and dividends from non-residents were more than offset by larger payments on these items. As has been noted earlier, there was an improvement in Canada's terms of trade in 1955, as import prices remained relatively stable while export prices showed a moderate advance.

Production

An analysis of Canadian production by industry indicates that the volume of output of Canada's primary industries was about one-fifth higher in 1955 than in 1954. Much of this increase was the result of the excellent grain crops in 1955. Other primary industries, with the notable exception of fishing, also registered substantial increases in production. The output of the forest industry rose almost 9 p.c. compared with 1954. Contributing largely to this advance was the sharp rise in the demand for lumber accompanying the large increases in house building and in board and plank exports. Production of pulpwood, however, increased only moderately. Mining activity continued to expand sharply and registered a gain of almost 15 p.c. over the high levels of 1954. The output of gold, copper, nickel and zinc was up substantially. Producers' shipments of iron ore in 1955 were almost triple those of 1954. Crude-oil production continued to expand rapidly during the year and was over 30 p.c. higher than in the preceding year. By contrast, however, the output of lead and silver was somewhat lower and the production of coal continued to decline. Reflecting the increased activity in house building, the output of non-metallic minerals and their products rose by 13 p.c.



Petro-chemicals, the fastest growing branch of the chemical industry, has sprung up from virtual non-existence fifteen years ago to a \$300,000,000 string of sixteen plants today. Their output is providing more and more of the basic raw materials for every major industry in the country and their end-products are in familiar use everywhere.



Products range from laminates for table and desk tops to wall and floor coverings, cable insulation, synthetic fibres for clothing, and toys.





Canada's biggest post-war chemical venture is the \$75,000,000 plant at Edmonton. It uses as raw material high alpha pulp from British Columbia and Alberta's petroleum gases and it produces about a dozen industrial chemicals, cellulose acetate, acetate staple fibre and filament yarn.

over 1954. Public utility production also rose substantially during 1955. Central electric stations generated about 12 p.c. more power than in the preceding year while gas consumption rose only moderately. Production in the fishing industry was lower by about 10 p.c. in 1955. Most of this decline occurred in the Pacific area where there were very sharp decreases in the landings of sockeye and chum salmon as well as of herring and halibut. Landings in the Atlantic Provinces were down only slightly.

Manufacturing output rose by 7 p.c. recovering sharply from its lower levels in 1954. Gains were widespread, production of durable and non-durable goods rising 8 and 6 p.c., respectively. Within non-durable manufacturing, the output of the food-producing industries rose by 3 p.c. despite the dampening effect of decreased grain-mill activity. The production of beverages, textiles and tobacco, rubber, petroleum and paper products rose substantially but increased activity in the clothing, printing and publishing and chemical industries was more moderate. The gains among the durable goods industries were quite large although the transportation equipment group of industries registered a small decline. Output of motor-vehicles rose by 29 p.c. despite the disrupting effect of labour disputes. Production in other major industries within the transportation equipment section—shipbuilding, aircraft and railway rolling-stock—was down sharply, thus more than offsetting the gain in motor-vehicle production. Within the electrical apparatus group of industries the production of television sets continued to expand sharply, being up over 60 p.c. from 1954's high level of output. The production of primary iron and steel products, reflecting the increased industrial tempo, was up almost 40 p.c. Output of both non-ferrous metal and non-metallic mineral products was up 13 p.c. compared with 1954.

Construction rose about 6 p.c. over the year; most of this increase was accounted for by the rise of about 25 p.c. in the volume of house-building activity. Non-residential construction showed very little change.

Reflecting the higher levels of consumer expenditure, the trade industry showed an increase of 7 p.c. over 1954 in volume of output. All retail trades shared to some extent in this expansion; department and variety stores along with motor-vehicle dealers, garages and filling stations and appliance and radio dealers registered the largest advances.

Activity in the transportation, storage and communication group of industries rose by almost 12 p.c. despite declines in urban and inter-urban transportation and grain elevator service. The latter decline reflects decreased shipments of grain for export and for commercial mill use in Canada. Steam railway freight traffic was up by about 16 p.c. over the year as a result of advances in commodity production and imports; of particular importance was the increased shipments of mine and forest products. Air transportation, shipping and oil pipeline operation were also up substantially. The increase in air transportation was effected through the steady and rapid growth of Canada's scheduled air lines and also the recent expansion of non-scheduled air lines resulting from increased traffic connected with resource development and continental defence in Canada's northern reaches. Television broadcasting services continued to expand rapidly in keeping with increased demand.

During 1955 the finance, insurance and real estate group of industries showed further advances estimated at about 4 p.c. Activity in government and other services also continued to increase. Increased provincial government services were affected by an epidemic of forest fires, particularly in the eastern provinces, which required heavy expenditure for fire-fighting purposes.



The volume of house-building was about 25 p.c. higher in 1955 than in 1954. Co-operative housing ventures permit families with moderate incomes to build and finance their own homes.

Education, hospital and other health services were also higher in an effort to meet the needs of a growing population and a higher standard of living.

National Income, Gross National Product and Gross National Expenditure, by Quarters, 1954 and 1955

(Millions of Dollars)

NOTE.—To facilitate comparisons between quarters and to indicate at what levels the various sectors of the economy are operating, the data have been adjusted for seasonal variation. That is, the average amount that activity normally rises or falls as a result of changing seasons (e.g., purchases of coal, summer clothing, Christmas gifts) has been eliminated, so that the underlying movements stand out more prominently.

Item	1954					1955		
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year	First Quarter	Second Quarter	Third Quarter
Income								
Wages, salaries and supplementary labour income	11,768	11,936	12,080	12,172	11,989	12,284	12,732	13,104
Military pay and allowances	332	368	380	388	367	372	400	404
Investment income	3,668	3,708	3,656	3,828	3,715	3,940	4,512	4,668
Accrued net income of farm operators from farm production	1,148	1,068	1,008	1,008	1,058	1,344	1,428	1,308
Net income of non-farm, unincorporated business	1,616	1,624	1,652	1,688	1,645	1,672	1,716	1,740
Net National Income at Factor Cost	18,532	18,704	18,776	19,084	18,774	19,612	20,788	21,224
Indirect taxes less subsidies	2,904	2,984	2,884	2,884	2,914	3,052	3,164	3,232
Depreciation allowances, and similar business costs	2,420	2,544	2,536	2,544	2,511	2,564	2,672	2,708
Residual error of estimate	16	-272	-248	-128	-158	-36	-252	-296
Gross National Product at Market Prices	23,872	23,960	23,948	24,384	24,041	25,192	26,372	26,868
Gross national product at market prices excluding accrued net income of farm operators	22,724	22,892	22,940	23,376	22,983	23,848	24,944	25,560
Expenditure								
Personal expenditure on goods and services	15,376	15,600	15,812	15,916	15,676	16,004	16,660	16,984
Government expenditure on goods and services	4,224	4,312	4,472	4,436	4,361	4,472	4,620	4,768
Gross Domestic Investment—								
New residential construction	1,084	1,092	1,200	1,288	1,166	1,288	1,448	1,504
New non-residential construction	1,676	1,640	1,716	1,672	1,676	1,620	1,636	1,808
New machinery and equipment	1,772	1,756	1,708	1,608	1,711	1,604	1,824	1,948
Change in inventories	172	-428	-808	-56	-280	500	308	104
Business inventories only	300	-356	-460	36	-120	364	28	36
Exports of goods and services	5,060	5,156	5,148	5,180	5,136	5,604	5,624	5,940
Less: Imports of goods and services	-5,472	-5,440	-5,548	-5,788	-5,562	-5,936	-6,000	-6,484
Residual error of estimate	-20	272	248	128	157	36	252	296
Gross National Expenditure at Market Prices	23,872	23,960	23,948	24,384	24,041	25,192	26,372	26,868

Source and Disposition of Personal Income, by Quarters, 1954 and 1955

(Millions of Dollars)

NOTE.—See headnote to table on p. 309.

Source and Disposition	1954					1955		
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year	First Quarter	Second Quarter	Third Quarter
Source								
Wages, salaries and supplementary labour income.....	11,768	11,936	12,080	12,172	11,989	12,284	12,732	13,104
Less: Employer and employee contributions to social insurance and government pension funds.....	-376	-396	-404	-404	-395	-396	-412	-420
Military pay and allowances.....	332	368	380	388	367	372	400	404
Net income received by farm operators from farm production ¹	1,172	1,112	908	1,148	1,085	1,260	1,496	1,256
Net income of non-farm unincorporated business.....	1,616	1,624	1,652	1,688	1,645	1,672	1,716	1,740
Interest, dividends and net rental income of persons.....	1,760	1,812	1,840	1,888	1,825	1,988	1,952	1,996
Transfer Payments to Persons—								
From government (excluding interest).....	1,608	1,608	1,564	1,624	1,601	1,776	1,728	1,628
Charitable contributions by corporations.....	28	28	28	28	28	24	40	36
Net bad debt losses of corporations.....	28	28	28	28	28	24	28	28
Personal Income.....	17,936	18,120	18,076	18,560	18,173	19,004	19,680	19,772
Disposition								
Personal Direct Taxes—								
Income taxes.....	1,264	1,228	1,352	1,316	1,290	1,316	1,236	1,320
Succession duties.....	68	68	76	96	77	84	92	92
Miscellaneous.....	64	60	56	56	59	76	72	72
Total Personal Direct Taxes.....	1,396	1,356	1,484	1,468	1,426	1,476	1,400	1,484
Personal Expenditure on Consumer Goods and Services—								
Non-durable goods....	8,720	8,860	8,912	9,028	8,880	8,988	9,324	9,408
Durable goods.....	1,728	1,656	1,728	1,616	1,682	1,696	1,936	2,100
Services.....	4,928	5,084	5,172	5,272	5,114	5,320	5,400	5,476
Total Personal Expenditure on Consumer Goods and Services.....	15,376	15,600	15,812	15,916	15,676	16,004	16,660	16,984
Personal Saving—								
Personal saving excluding farm inventory change.....	1,384	1,376	888	1,216	1,216	1,424	1,464	1,268
Farm inventory change.....	-220	-212	-108	-40	-145	100	156	36
Total Personal Saving.....	1,164	1,164	780	1,176	1,071	1,524	1,620	1,304
Personal Income.....	17,936	18,120	18,076	18,560	18,173	19,004	19,680	19,772
Personal disposable income ²	16,540	16,764	16,592	17,092	16,747	17,528	18,280	18,288

¹ This item differs from item 4 in the table on p. 309 in that it excludes undistributed earnings (and the inventory adjustment) of the Canadian Wheat Board. ² Personal income less total personal direct taxes.



There is a definite trend towards the decentralization of industry in Canada, which is a benefit both to the plant and to the community. More even distribution of labour opportunities results in greater stabilization of income, wider spread markets and generally better living conditions.

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CANADA
DEPARTMENT OF
MINES AND TECHNICAL SURVEYS
SURVEYS AND MAPPING BRANCH

CANADA

SCALE 1:15 840 000 OR ONE INCH TO 250 MILES

MILES 100 50 0 100 200 300 400 MILES
KILOMETRES 100 0 100 200 300 400 500 600 KILOMETRES

Federal Capital...● Provincial Capital...●
Railways, Main.....
Railways, recently built.....
Trans-Canada Air Lines.....
Other Air Lines.....

