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The Annual Handbook
of present conditions
and recent progress

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preface

Canada 1973 is the 42nd annual edition of the handbook *Canada*. It presents a view of life in this country and a summary of recent economic, social, and cultural developments. Textual and statistical material has been provided by various divisions of Statistics Canada, by other government departments, and by special contributors. Articles on Canada's geography, environment, Arctic, history, government, religion, and economics are features of this edition. The illustrations have been selected from a wide range of governmental, commercial, press, and private sources. The artwork was executed by the art section of Statistics Canada under the direction of Denis Laframboise.

Canada 1973 was planned and produced by Constance McFarland, Editor, and the Year Book Division staff, under the direction of Pierre Joncas, Director of the Division.



Sylvia Ostry
Chief Statistician of Canada

November 1972

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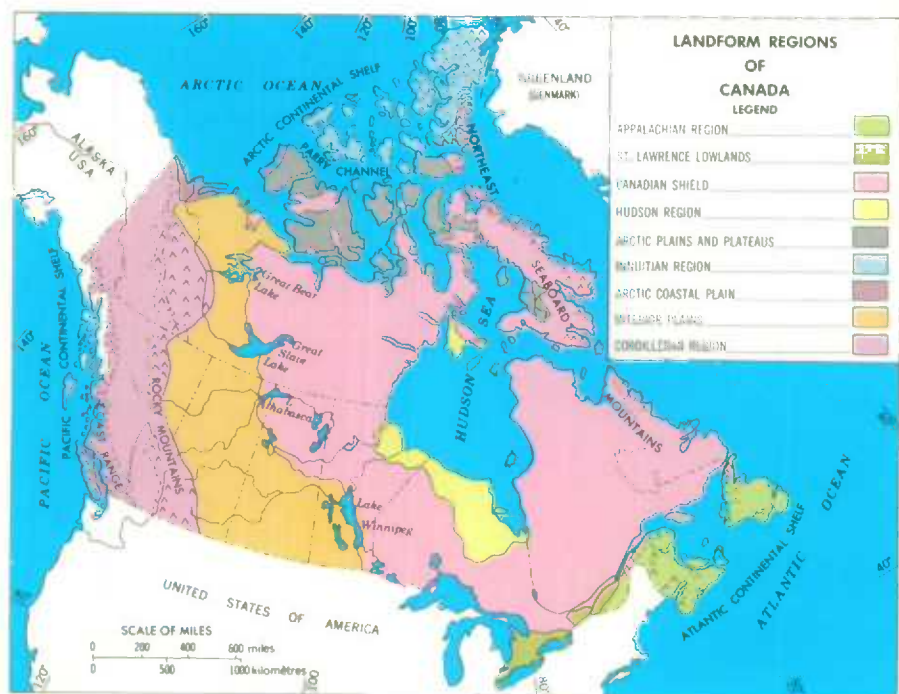
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Geography

Canada's approximately 3,852,000 square miles of territory are compactly distributed within an area extending 3,223 miles from east to west, and 2,875 miles from north to south. Within this immense extent there are mountain ranges and plains of continental proportions, and pronounced contrasts in climate and vegetation.

The over-all pattern of landforms is simple. The interior of the country is a vast plain-like surface bounded on the east and the west by great systems of mountains, but with no highland rims to the north or south. The plain extends about 1,900 miles from the Rocky Mountains to the Appalachians, but narrows to 1,000 miles along the Arctic Coastal Plain. In the north the plain ends in the islands of the Arctic Ocean, and in the south it continues into the United States and carries beyond the Missouri River and the Great Lakes to the Gulf of Mexico. This plain in Canada is composed of ancient down-worn rocks called the Shield, fringed on the north, west, and south by gently overlapping Palæozoic sedimentary beds, succeeded by much younger Mesozoic sedimentaries on the west extending to the Rockies. Parts of this area rise into local hills and plateaus, and parts of the plain



are below sea level and form Hudson Bay and the channels between the Arctic islands. On the eastern coast of Canada is a highland rim in the form of a great promontory jutting into the Atlantic Ocean, with its apex in the Island of Newfoundland. The southwest-northeast trending arm of this promontory is the Appalachian Mountain System, flanked by the Atlantic Ocean on one side and the St. Lawrence Lowlands on the other. The southeast-northwest trending part of the promontory, the Northeast Seaboard Mountains, begins on the Labrador coast, and increases in height to the north in Baffin, Axel Heiberg, and Ellesmere Islands. This eastern highland rim, extending from the Eastern Townships and Nova Scotia to Ellesmere Island, is broken by three great inlets and straits: the Gulf of St. Lawrence, Hudson Strait, and Lancaster Sound. On the western side of Canada lies the other highland border zone, the Cordilleran Region. This is a much higher, wider, and more continuous system of mountain ranges and plateaus than the eastern rim, and has no great inlets to the interior.

About 97 per cent of Canada was covered by glacier ice within the last million years, so the surface features of both plains and mountains have been modified by glaciation. 17,000 years ago ice still extended over most of the country so that the uncovering of Canada from these ice sheets is a very recent geographic event. Approximately 1 per cent of Canada is still covered by glacier ice, in the Arctic islands, particularly on the mountains in Ellesmere, Axel Heiberg, Devon, and

Baffin Islands, and in the Cordilleran Region. Many of the mountains in the Cordilleran owe their angular features to the work of alpine glaciation. The Appalachians also were glaciated but were not high enough to acquire the serrated edges and horns which result from classic alpine glaciation of lofty ranges. The great interior plains have the more attenuated glacial features which result from the advance and melting-down of great continental ice sheets. Surface materials and even bedrock were scoured by the advancing ice and carried away to be laid down elsewhere in unsorted deposits called glacial till. Glacial meltwater also carried material away from the margins of the ice and when the material was deposited by these streams it was sorted into sands and gravels. Lakes existed at the edges of the glacier ice during the melting-down of the ice sheets and great quantities of material, generally of a fine texture, were deposited in them. Once the ice retreated many of the lakes were drained leaving extensive clay plains. Rivers carrying away meltwater eroded great channels in softer sedimentary rocks, which are now occupied by small "underfit" streams. Thus glaciation has left a wide variety of features on the plains which affect the uses man can make of an area.

Though Canada is bordered by three oceans, the Atlantic, the Arctic, and the Pacific, the great size of the land and the barrier ranges of mountains along the Pacific coast, blocking off milder maritime air in the zone of the westerlies, give most of the country a continental climate. Extending from $41^{\circ} 41' N$ to $83^{\circ} 07' N$ much of Canada lies in high latitudes so that with the exception of a few coastal

St. John's

Bay de Verde lies at the tip of the Avalon Peninsula, Nfld.



areas on the Pacific, all parts of the country have pronounced cold weather in winter. Forests and grasses flourish in the south, but trees become sparse towards the north where the winters get longer and temperatures more severe. The transition line from tree to tundra extends from the Labrador coast along Ungava Bay and across northeastern Quebec, dips south along the coast of Hudson Bay, then trends northwestward from Churchill to the shores of the Arctic Ocean near the mouth of the Mackenzie River. North of this lies tundra: mosses, sedges, lichens, and dwarf shrubs in low areas sheltered from the winds.

Ample space, great distances, variations in resources, the history of geographical development, fostered the emergence of distinct regions within the country. Population is concentrated in the southern part of Canada, but even there the continuously settled farm regions and urbanized areas are separated from one another by empty lands not suited for agriculture. The colder northern lands are sparsely inhabited, and looked upon as a great frontier for primary resource development. Vast size, variations in terrain, and severe climates thus have created special problems for Canada, and establishing and maintaining a communications system to link the various parts of the country together has been a major task in Canadian development.

The Appalachian Region

The Appalachian Mountain System terminates in the Atlantic Ocean in a dispersed cluster of peninsulas, islands, gulfs, embayments, and straits. The Strait of Belle Isle, Cabot Strait, and the Gulf of St. Lawrence are as much a part of the region as the peninsulas of Gaspé and Nova Scotia, the Island of Newfoundland, and the hills of the Eastern Townships. The Appalachian System, trending from southwest to northeast, is about 360 miles wide.

The Gulf of St. Lawrence is connected to the sea by Cabot Strait, approximately 65 miles wide and over 1,000 feet deep, and the Strait of Belle Isle, about 12 miles wide and less than 500 feet deep. Much of the Gulf is not even 500 feet below sea level, though there are extensive channels over 1,000 feet in depth. Extending for about 125 miles off the coast of Nova Scotia, and up to 300 miles off the coast of Newfoundland, is the Atlantic Continental Shelf at a depth of about 500 feet. The Shelf has local names such as the Grand, Saint Pierre, and Sable Island Banks. These of course are great commercial fishing areas.

Ice sheets covered the region, and there was some valley glaciation in the highlands. Glaciers scoured off much of the surface material from the extensive upland areas exposing bedrock, but there are also extensive deposits of till, such as in the drumlin area near Lunenburg in Nova Scotia. Unfortunately, however, many till deposits are shallow and full of stones and rocks. Appalachian Canada has a landscape of modest mountains, with scenic local heights, forested vales, and small rivers. Some landscapes become impressive as in Cape Breton Island and Newfoundland where high plateau surfaces drop sharply in scarps and cliffs to lowlands and even direct to the sea. After the glaciation this region was covered with a mixed forest of boreal trees and some broad-leaves in the south, and boreal forests are dominant in Newfoundland.

To the Indians this forested land with its many rivers was a good area for hunting and fishing. When Europeans first came to settle they found primary resources

with which they were familiar: fish, forests, land for cultivation in a climate comparable to that of Europe, and minerals such as coal. All this was just a transoceanic journey away from Europe, but there were rival areas open for settlement in the New World, some with more attractive climates, so that development proceeded slowly.

Exploiting the fisheries presented no problems. The great off-shore banks were fished by Europeans from at least the beginning of the 16th century, and have remained a substantial primary resource to this day. The climate was favourable for agriculture but the soil resources were confined to limited areas of good land in the lowlands, except on Prince Edward Island where they were more extensive. There were no formidable technological problems to be overcome in farming, but the resources were somewhat grudging. The earliest European farmers, the Acadians, chose not to clear the forests in the valleys of Nova Scotia and New Brunswick, but drained the tidal flats of the shores of the Bay of Fundy to establish their farms. Later, trees were cleared in the lowlands and valleys, and pockets of cultivatable land were produced. That was a main task of the 18th and 19th centuries, yet even today less than 1 per cent of Newfoundland, 3.6 per cent of Nova Scotia and New Brunswick, and 40 per cent of Prince Edward Island is improved agricultural land. Forests became a great resource of the region, especially in New Brunswick, in the early 19th century in the age of timber exports to Europe and the building of wooden ships. Today forests are still very important, particularly as raw materials for pulp and paper. Minerals began to prove a significant resource in the late 19th century. Coal was mined in Cape Breton Island, mainland Nova

Hunter

Sandy beaches stretch along Prince Edward Island's shoreline at Cape Tryon on New London Bay.



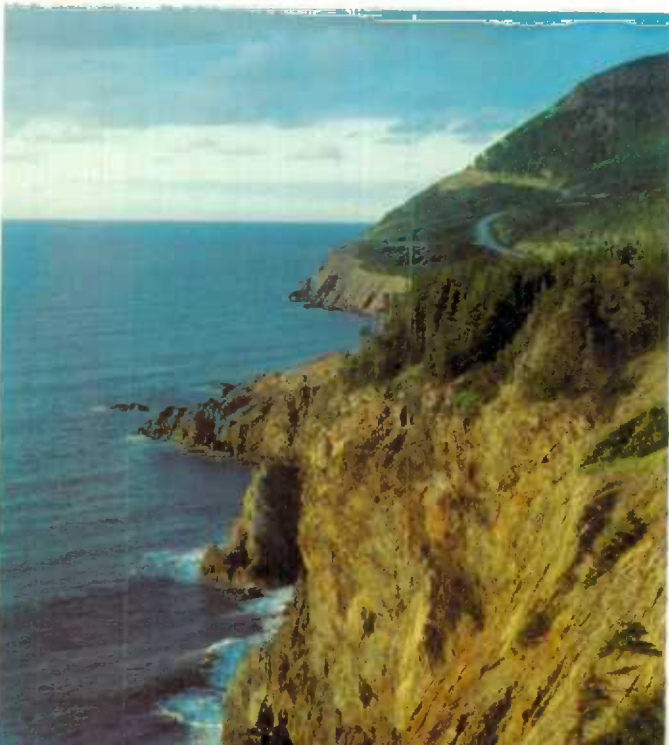


Fundy National Park, located between Moncton and Saint John, N.B., provides a view of the world's highest tide which rises to a height of 53 feet.

Malak (missing)

Scotia, and elsewhere, and iron ore in Newfoundland. Base metals are now mined in New Brunswick and Newfoundland. The development of these various natural resources was not inherently difficult, but progress was handicapped by the existence of vast quantities of similar resources in other parts of the New World. Consequently the Atlantic region developed slowly as European settlers moved into other regions where the natural resources, except for fish, were available on a larger scale.

The Atlantic region has easy water access to Quebec, but land communications were effectively cut off for many years by the mountain ranges of the Gaspé. But in the 1870's the Notre Dame range was crossed by the Intercolonial Railroad, following the Matapedia Valley, which rises only to 751 feet above sea level, and good all-year connections were established with the rest of Canada.



Malak (missing)

Rugged coastline borders the Atlantic at Cape Breton Highlands National Park, N.S.

St. Lawrence Lowlands

Between the Appalachians and the Shield lie the St. Lawrence Lowlands, connecting the vast plains in the heart of the continent to the Atlantic Ocean. The Lowlands are formed of nearly horizontal Palaeozoic rocks, over 300 million years old. The Palaeozoic plain is not continuous. It is broken below Lake Ontario by a 30-mile wide down-worn belt of Precambrian rocks, called the Frontenac Axis, creating the Thousand Islands in the St. Lawrence River.

East of the Frontenac Axis the Lowlands are about 75 miles wide at Montreal but they narrow towards Quebec. The Laurentide Scarp, marking the edge of the Shield, is the boundary to the north, and "Logan's Line," a fault zone, is the boundary on the south with the Appalachians, but the plain itself is dominated by the St. Lawrence River. Most of the land is flat, less than 500 feet above sea level.

West of the Frontenac Axis, in Ontario, the plain is over 150 miles wide. Here the Palaeozoic strata gently overlap the Shield, with only a low escarpment marking the junction at a few places. Lakes Ontario, Erie, and Huron form the boundary to the south and west. The major relief feature is the Niagara Escarpment which crosses the Ontario Peninsula from the Niagara River to the Bruce Peninsula and Manitoulin Island. It rises in steep slopes which are locally 200 to 300 feet high. The plain above the Escarpment is over 1,500 feet high in the Bruce Peninsula, but it slopes down to less than 600 feet at Lake Erie. East of the Escarpment the land rises gradually from Lake Ontario, at about 240 feet above sea level, towards the north.

The surface of the St. Lawrence Lowlands has been greatly modified by glaciation, and though the relief is not great the plains have an extremely varied terrain. Along the St. Lawrence there are deep clay deposits formed during the invasion of a post-glacial sea. In the Ontario Peninsula glacial depositional features are predominant. Till plains are extensive, and there are end moraines, drumlins, clay plains, and sand plains, producing great variations in parent materials for the formation of soils. After the ice left, fine dense forests grew in the lowlands. Deciduous trees such as maple, oak, elm, beech, and ash were dominant, with increasing stands of pines and spruces toward the north. Though there were poor areas of land, partly because of lack of drainage, sandy-textured soil, and hilly moraines, this was by and large a well-endowed area for agriculture and potentially good farm land. Temperatures are mild in winter, there is a long growing season, and the precipitation is over 30 inches annually.

When Europeans came to this region in the early 17th century, they found that some Indians were growing crops. Europeans started farming in Quebec in the early 17th century. No significant adaptations had to be made in agricultural practices, because the soils and climatic conditions did not differ greatly from the homeland. The great challenge was clearing the magnificent hardwood and softwood forests to prepare a seed bed for crops. The task was started in the 17th and 18th centuries in Quebec, and finally completed in the mid-19th century in Ontario. A very rich farming area emerged. But clearing the land resulted in gully-ing and stream erosion in some areas, and in the early 20th century movements toward soil conservation were begun to protect the land. Most of the agricultural lands of Quebec and Ontario lie in the St. Lawrence Lowlands, and it is the farms



Radial farms were established by early settlers in the immediate area of Quebec City.

Hunter (to missing)

in this area that make Ontario the leading farming province in Canada by value of production. Other primary resources such as timber and petroleum, which were developed in the 19th century, are exploited today, but agriculture was the great primary resource and remains so.

The story of the development of this region is not linked to the primary resources of the region alone. Of great importance is the great river, the St. Lawrence, and the Great Lakes, which make communications with other parts of the continent and with markets overseas relatively easy. Gradually this region began to dominate the commerce of the country, and it also became the industrial centre of Canada, based on local agriculture, the timber, minerals, and hydro-electric power of the nearby Shield, the advantages of being close to the industrial belt of the United States, and tariff protection. Today this region has about one half the population of Canada, and the two leading metropolitan centres.

The Lowlands have a famous scenic wonder, Niagara Falls, and the landscape is a pleasant combination of undulating hills, clumps of tall trees, and substantial farmsteads. The region is magnificently situated for recreation, right next to the Shield, and the residents take full advantage of that area's attractions.

The Shield and Associated Plains and Mountains

Most of northern Canada is composed of the Shield, which is formed of rocks of Precambrian age ranging from over 4,000 million to about 570 million years old, and associated sedimentary formations of Palaeozoic age, 570 to 225 million years old,

and some younger rocks. The Shield is by far the largest and oldest structural feature in Canada, and has an enormously complex geological history. Most of the surface has an elevation of about 1,500 feet above sea level, but it is a rugged country with numerous rock exposures, and hills rising to a few hundred feet above the general surface. In eastern Quebec the Shield rises to 5,500 feet in the Torngat Mountains, and on Baffin Island, a huge island 183,810 miles in area, it is yet another 3,000 feet higher. A great portion of the Shield is below sea level, producing the great inland sea, Hudson Bay, 250,000 square miles in area, connected to the Atlantic Ocean by Hudson Strait. Both the Strait and the Bay have a short navigation season because of winter ice conditions, so that this entrance to the interior of the continent cannot be compared to the St. Lawrence gateway in its usefulness to man.

The Shield and the northern Palaeozoic and Mesozoic plains and mountains are distinctive within Canada, because, compared to the southern regions, this is the land where, on account of climatic and soils limitations, agriculture not only is not developed but is not even possible. There are exceptions such as the Great Clay Belt and the Lake St. John area. Yet there are other primary resources which invite challenges and are open to exploitation if the effort is made. About half of the Shield is covered with boreal forests, which are a potential, and in many places a realized, resource. However, north of the treeline and west of Hudson Bay, the tundra landscape is known as the Barren Ground, and the Arctic islands are largely bare plains and plateaus locked in by ice much of the year. The complex geological history of the Shield resulted in considerable mineralization. Many ore bodies have been found and as prospecting continues there will likely be many more. In the Palaeozoic plains of the far north there are possibilities for petroleum discoveries.

The image of this region is that of a frontier to the great majority of Canadians, who live on the sedimentary plains at the southern and western fringes of the Shield, and often speculate on what can be done with this land. Attitudes have varied. In the 17th century the animals inhabiting the Shield were a great resource for Europeans. Exploitation of furs was pushed north and west from the St. Lawrence, and simultaneously southeast, south and westward from Hudson Bay, until the interior plains and the Cordilleran Region were reached. Then in the late 18th and early 19th centuries another resource was developed, when the onslaught on the forests began from the St. Lawrence and the Ottawa Rivers.

Farther north Europeans were active in the 16th and 17th centuries seeking the Northwest Passage in the straits of the archipelago, but with little success. The search was taken up again in the 19th century and though much of the region was mapped, no passage fit for commercial use was found. But in the 19th century as well, Canadians and others began to think of a transcontinental railway from the St. Lawrence River to the Pacific Ocean, but the rugged Shield and the Cordilleran mountains were formidable barriers. A wonderful route for the canoes of the fur-traders, the lakes and rivers of the Shield, together with muskeg and rough terrain, blocked easy land transportation. Building roads across the Shield had to wait until the mid-20th century, but a railroad was finally completed across that difficult country in the 1880's, and two more in the first two decades of the 20th century. Thus, the St. Lawrence Lowlands and the interior plains were linked despite



Typical Canadian shield terrain, in Ontario, south of Hudson Bay.

Hunter (to missing)

the almost 1,000-mile-long barrier of the Shield. But the Shield remained a negative area to farmers, even though relatively small districts in the Clay belts were settled.

Mining was another matter. In the mid-19th century attempts were made to exploit the minerals of the Shield, and these endeavours gained strength with railway building and improved accessibility. Accompanying the mining activity was the development of pulp and paper mills, and hydro-electric power installations, so that in this century the Shield has been looked at with new eyes again, as a great storehouse of resources and wealth. Small settlements have been established, based on minerals and pulp and paper industries. Recreation too has become a significant resource. Already in the 19th century the rivers, lakes and forested lands of the Shield nearest to the St. Lawrence Lowlands were used for recreational purposes.

In this century the Shield has become one of the great vacationing areas of the continent, and tourists are pressing farther and farther northward. The magnificent scenery of the Far North remains, and in the future it is very possible that closer contact between the southern settled lands and this region will come about as increasing numbers of tourists visit the mountains of Baffin, Ellesmere, and Axel Heiberg Islands.

The Interior Plains

Overlapping the Shield on the west, from Lake of the Woods all the way to the Arctic Ocean, and extending to the Cordilleran Region, are the Interior Plains. This is the youngest of the great physiographic regions of Canada, and simplest in

structure. It is composed of sedimentary Palæozoic beds, 500 to 225 million years old, with much younger Mesozoic and Cenozoic rocks, ranging from 225 million to 1 million years in age, lapping over them. The Plains are nearly 800 miles wide at the 49th parallel, 600 at the 56th, and narrow to less than 200 miles at the 64th as the Shield trends close to the Franklin Mountains. But then the plains expand again to about 500 miles wide near the Arctic coast. In the southern part of the Plains there is a slope of about 5 feet a mile from a 5,000 feet elevation at the Rockies to about 700 feet above sea level at the Shield.

The continental ice sheets deposited thick till moraines on the plains which compose the surface of much of the region. End moraines form hilly areas, and there are drumlins, and extensive sand and gravel deposits. Wide, deep valleys, now occupied by insignificant streams, were cut by the waters draining away from the margins of the ice. There are extensive flat clay plains, formed from materials deposited in the glacial lakes, such as the Lake Agassiz plain in southern Manitoba. The scenery of the region consists of great vistas of flat or undulating plains, providing a setting in the south for the planted shelter belts on the farmsteads, the occasional valley cut deep below the general surface, with trees along the sides, and the blue hazy lines of distant hills and escarpments.

The southern part of the region is grassland, but north of the North Saskatchewan River forests predominate. Between the grassland and the forest is the aspen-grove transitional vegetation zone. Europeans, familiar with more humid climates, found the southern grasslands a perplexing country to settle and develop because of the low precipitation, ranging from 12 inches to over 20 inches annually. Fur-traders even called it the Barrens, because it was bare of trees. But this term did not imply that the area was deficient in resources. Even in the days of the fur trade the grasslands possessed a great resource, the huffalo, on which the Indians, the Métis, and the traders themselves depended for food.

In the mid-19th century when the plains were first deliberately evaluated for potential agricultural use, these lands were regarded as an extension of the "Great American Desert" with a "Fertile Belt" suited to farming, in the aspen-grove zone along the North Saskatchewan River. But in the 1880's the Canadian Pacific Railway built its tracks across the southern plains which just 20 years earlier had been regarded as too arid for settlement, and the railway attracted settlers to the grasslands. Ranching had already been started but the newly arrived farmers had problems. Technological innovations such as dry farming and irrigation were adopted, new varieties of wheat with shorter growing seasons were introduced, and settlers gradually converted this land into a rich agricultural domain. It has remained a region of constant challenge. Drought years in the 1930's were disastrous to farmers, and further technological and institutional modifications had to be made. Even the face of the land is being transformed through the Prairie Farm Rehabilitation Act by damming rivers and creating many local lakes for water conservation and day-to-day recreational use.

Great mineral wealth has been found in the sedimentary beds, which supplements the income derived from agriculture. Oil, natural gas, and potash are produced in the southern plains, and oil and natural gas occur in the sedimentary formations in the Mackenzie River area to the north as well, and there are enormous reserves of oil in the Athabasca tar sands of northern Alberta.



Malak

Canadian sunsets over Clear Lake in Riding Mountain National Park, Manitoba (and below) over combines sweeping across the vast plains of Saskatchewan.

Izzy Law (missing)



Cordilleran Region

The Cordilleran Region, about 500 miles wide and 1500 long, includes the greatest complex of mountain systems and plateaus in Canada. The rocks range in age from Precambrian to Cenozoic. Two mountain systems dominate: the Rocky Mountain area – the Continental Façade – on the east and the Coast Mountain area on the west. The Rockies are seldom more than 60 miles wide, but together with the Mackenzie, Selwyn, and Richardson Mountains to the north, they form an almost continuous series of ranges from the 49th parallel to the Arctic, with only a few gaps that can be used as passes. The Rockies are formed of sedimentary rocks intensely folded, faulted and uplifted into mountains about 65 million years ago. Coal is mined in the southern Rockies. East of the Rockies are the foothills, 10 to 12 miles wide; to the west of the Rockies is a deep valley paralleling the range, the Rocky Mountain Trench, extending all the way from the American border to the Yukon. The Rockies are perhaps 150 million years younger than the Appalachians, and are loftier and more rugged because there has not been time for them to be eroded into lesser features. Mount Robson is the highest peak, attaining 12,972 feet, but there are many mountains over 10,000 feet in elevation. In contrast to the stratified Rocky Mountains, the Coast Mountains, extending from the 49th parallel to the Yukon, are largely formed of igneous and metamorphic rocks, which contain ore bodies. The ranges have an average width of 100 miles, often rising to 9,000 feet, and Mount Waddington is 13,260 feet in elevation. This system is older than the Rockies, and not as rugged, though there are many spectacular fiords along the coast. West of the coast range is the Outer Mountain area rising out of the Pacific Ocean, and consisting of two main ranges called the St. Elias and Insular Mountains. In the St. Elias range on the Alaska border is Mount Logan, at 19,850 feet elevation the highest peak in Canada. The Insular Mountains form Vancouver, Queen Charlotte, and other lesser islands, with peaks on Vancouver Island rising to over 6,000 feet. In contrast to the Atlantic Continental Shelf, the Pacific Shelf is narrow, with a maximum width of 50 miles and at one place off Vancouver Island it is only about 4 miles wide.

Between the Rocky Mountains and the Coast Mountain area are many lesser ranges and plateaus, with the lower areas dividing the interior into transverse zones. West of the Rockies in south-eastern British Columbia are shorter ranges called the Columbia Mountains, consisting of the Purcell, Selkirk, Monashee, and Cariboo Mountains, where base metals are mined. These ranges have no small height; a considerable number of peaks rise over 10,000 feet. The ranges are separated from one another by great trench-like valleys. Between the Rockies and the Columbia Mountains on the east and the Coast Mountains on the west is the Interior Plateau, made up of many small highlands, plateaus, and basins. The plateaus range from 1,000 to 5,000 feet in elevation and have deep entrenched valleys up to 3,000 feet deep which make the local heights appear like mountains from below. North of 55°N in the interior are the Cassiar Mountains and the very extensive Yukon Plateau, between the Mackenzie, Selwyn, and Richardson Mountains on the east and the St. Elias Mountains on the west, which contain many subdivisions, including local mountains, uplands, and basins.

No great rivers cross the Cordilleran Region providing an easy entrance to the Interior Plains. The Fraser rises in the Rockies and so does the Columbia, and both

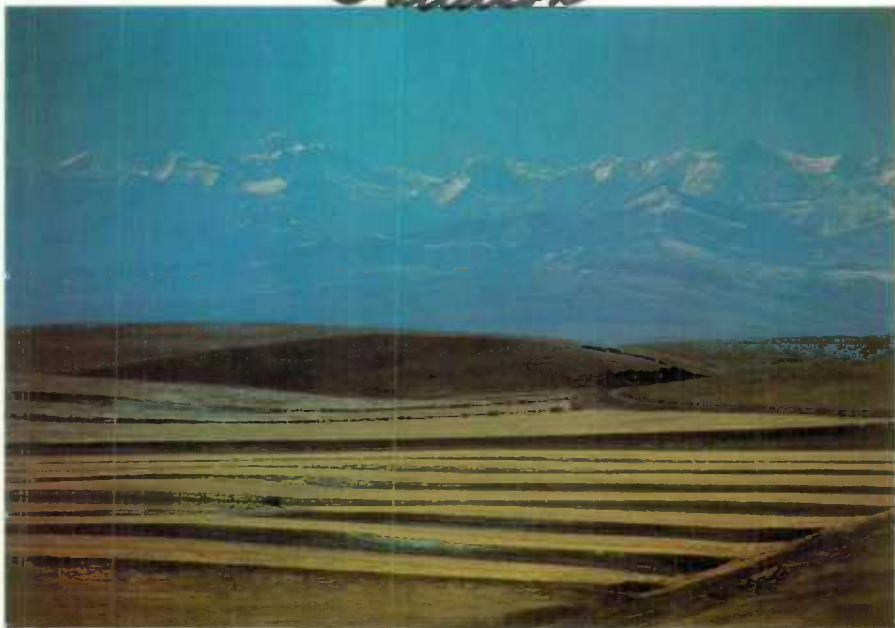
flow into the Pacific along most circuitous routes, but they are not navigable rivers. Only the Yukon can be navigated, and that through Alaska, but it is a very round-about route in high latitudes ending up in the northern plateau country. The Rockies are breached by one river, the Peace, but the early railroad builders sought passes in more southern latitudes and built lines through Yellow Head Pass, 3,720 feet above sea level, Kicking Horse Pass, 5,332 feet, and Crow's Nest, 4,459 feet. To reach Vancouver transcontinental railroads followed the Fraser Canyon through the Interior Plateau and the Coast Range. Highways now penetrate the plateaus and mountains of British Columbia, and the Alaska Highway even cuts through the Yukon Plateau, but it has been a long hard battle to establish adequate communications networks in mountainous country.

In a region of such varied terrain there are diverse resources. The mountains have splendid softwood forests especially in the Insular and Coast ranges where the precipitation is extraordinarily heavy, attaining 100 inches or more annually. By contrast parts of the interior are arid, even reaching desert conditions in marked rain shadow areas. Besides forests the primary resources include minerals, hydro-electric power, and fish in the Pacific Ocean and the rivers, and there is some agriculture in the valleys, for example in the Okanagan and Lower Fraser valleys.

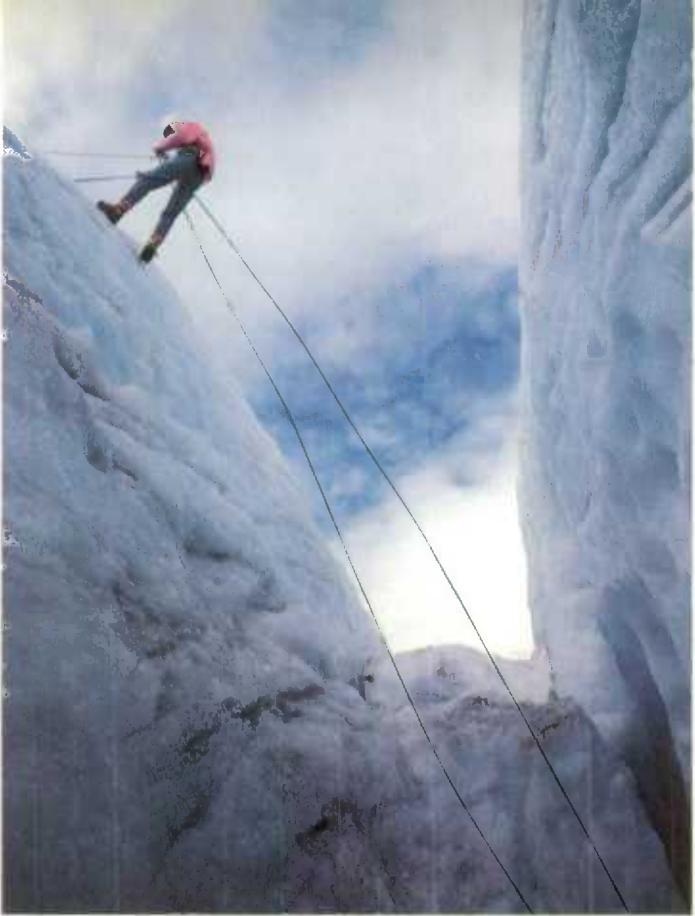
The region was first exploited for furs in the early 19th century from Montreal and Hudson Bay, and there was a gold rush in the 1860's in the Fraser River country. Furs and gold are valuable commodities by weight and can stand the cost of being sent to distant markets, but this is not true of other staples and this

Rugged peaks of the Rocky Mountains tower above the foothills and prairies of southwestern Alberta.

Patterson



John
Q
Amatt
(missing)



Except for some areas in the Yukon Plateau, most of the Cordilleran Region has been glaciated. Glacial melting along the Pacific coast has created spectacular fiords in the deep U-shaped valleys cut by valley glaciers. Alpine glaciers and ice fields are still common in the St. Elias, Coast, and Rocky Mountains.

delayed development. The special qualities of the region are reflected in the history of exploiting commodities such as lumber, pulp and paper, fish, and base metals. The cost of processing such commodities, that is, establishing canneries, mines, refineries, saw and pulp mills; of surmounting internal communications difficulties; and of shipping goods to distant markets meant that exploitation of primary resources required large capital investments in order to produce staple goods in sufficient quantities to justify such expenditures. But the natural resources are enormous and have borne the immense costs of exploiting them for commercial use. Recreation is another very important industry. The Cordillera is a spectacular land of splendid rugged scenery and it has become one of the great vacationing grounds of the continent, in both summer and winter. And on the coast the climate is mild enough that Victoria and Vancouver have become retiring places for many people from other parts of Canada.

JOHN WARKENTIN

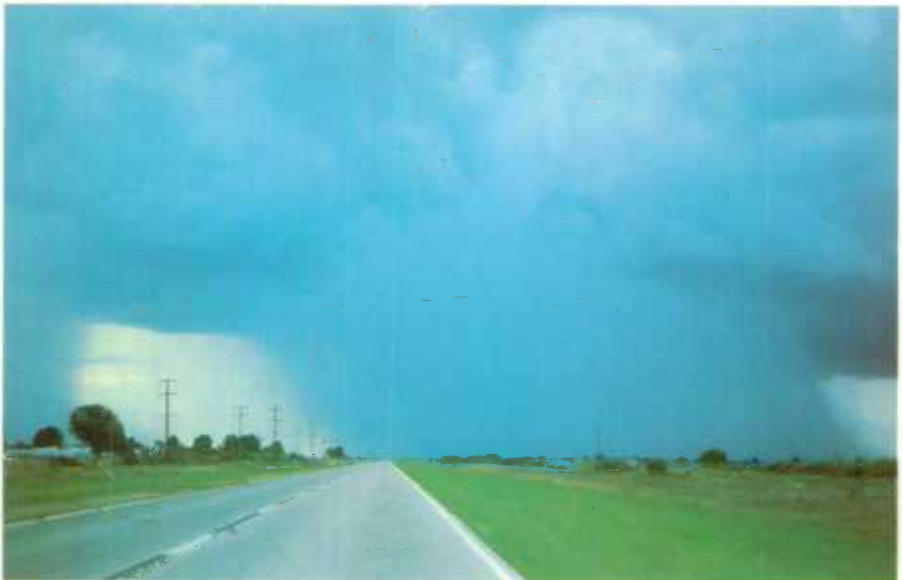
Climate

Whereas weather refers to meteorological conditions at a specific time, climate may be defined as the general or average state of the weather. In a country as large as Canada, there are many climates since conditions vary greatly from place to place. Information about Canadian climates is derived from observations recorded over many years by thousands of weather observers at hundreds of locations across the country. A weather observing station may be equipped only with a rain gauge—a funnel of standard size and shape for catching the rain and measuring it. Other stations have in addition a pair of thermometers mounted in a standard louvered screen which record the highest and lowest temperatures reached each day. The complex meteorological observing installations at airports and agricultural experimental stations are staffed by specially trained technicians to observe and record such things as wind, humidity, radiation, pressure, and cloud, in addition to temperature and precipitation. In all, there are over 2,400 weather observing stations in Canada, of which about 250 are of the more complex type.

Because the weather varies from year to year, it is necessary to maintain weather observing stations over a long span of time in as many locations as possible to

A. Giles

The heavy rain of a summer shower forms the blue-grey area extending from massive vertical cumulonimbus cloud to the ground. Beneath the thunder cloud, turbulence and evaporation from the falling rain are forming ragged clouds. Slits of the sun's brilliant rays outlining the grey mass indicate that the horizontal extent of the storm is only a mile or two from this angle.



ensure that the weather in one or two abnormal years does not unduly affect the record. In temperate latitudes such as Canada's, it has been found that a period of thirty years is sufficient to adequately test the normal range of the climate. However, observations covering a longer period are of interest and help to tell whether or not the climate is changing. Each year the Atmospheric Environment Service receives the records of between two and three million individual observations taken throughout the country. By the application of suitable methods, this enormous mass of data is made to yield a clear picture of Canadian climates.

The source of energy for all atmospheric motions is ultimately the solar radiation absorbed by the atmosphere and, to a much greater extent, by the earth's surface. The latter's energy is then transferred to the air by conduction, convection, and long-wave radiation. In Canada during the winter less energy is received from the sun than is given out, and in summer this is true of the northern islands also. The deficiency is made up by the transfer of heat from more southerly latitudes by the exchange of warm air for cold. This is effected by means of counter-clockwise circulation around areas of low pressure which in turn move in a wave-like (and generally west-to-east) path.

As a result of the movement of these lows, locations in Canada are subject to air from a different source every few days. This leads to the continual variation in weather conditions with which all Canadians are familiar. Thus, average values do not tell the whole story and, in fact, the variation is part of the climate, a fact that should be kept in mind when looking at the averages. In Calgary the mean January temperature is 14.2°F but, in the nearly 90 years that records have been kept, values as high as 61°F and as low as -48°F have been experienced.

The British Columbia Coast

Because of the general west to east movement of air over the coast, and because of the series of north-south mountain barriers across the province, the British Columbia coast is seldom visited by cold air from the northern interior. As a result, temperatures show the relatively small seasonal variation characteristic of large bodies of water, and there are mild winters and cool summers. In summer, an eastward extension of the semi-permanent high-pressure area over the Pacific Ocean brings mostly fine weather to this portion of Canada. In winter, deep low-pressure areas sweep over the coast from the Gulf of Alaska, so that the bulk of the precipitation falls in that season. On-shore winds driven up the windward slopes of the mountains cause heavy rains along the coast. Some places on Vancouver Island have the heaviest rainfalls in Canada with annual totals of more than 200 inches a year. On the northern section of the coast a large portion of the winter precipitation falls as snow and seasonal totals of 200 to 300 inches are common. The total snowfall at Kildala Pass averaged 765 inches a year over a five-year period.

The British Columbia Interior

By the time they reach the interior of British Columbia the rain-bearing winds from the Pacific Ocean have lost a good deal of their moisture by forced ascent over the mountains, so that the interior valleys of British Columbia are relatively

dry. As one moves eastward across the province precipitation increases on the west side of mountain ranges and decreases on the east side. Because it is frequently possible for cold Arctic air to traverse the mountains from the north and east, temperatures are much colder in the interior in winter than they are on the coast and, because the sheltering effect of the mountains excludes the moderating influence of the ocean, temperatures are high in summer, with the daily maximum averaging 80° F or more at many stations. In winter, daily minimum temperatures range from 20° F in the south to well below zero in the northern part of the province.

The Prairie Provinces

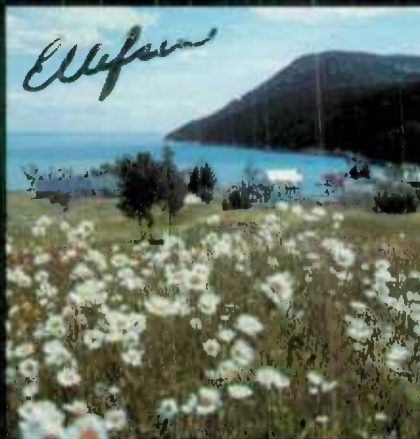
There are no mountain barriers to protect the Prairie Provinces from cold air moving south from the Arctic, or from warm air moving north from the central plains of the United States. Consequently, this section of Canada shows the widest variation of annual temperature between summer and winter and, in addition, the day-to-day variability can be greater than in any other part of the country. In winter, temperatures are frequently below zero, the absolute humidity is low and winter precipitation is generally fairly light.

Blizzards are a feature of winters on the Prairies. They are characterized by intense cold, strong winds, and snow, with visibility reduced sometimes almost to zero by drifting and blowing snow. In a blizzard the amount of snow falling may be less than one inch but, driven by strong winds, it has a greater effect in dislocating human activities than most other meteorological phenomena. Another feature of the climate of that part of Alberta nearest the foothills is the winter chinook, when warm, dry winds blowing down from the mountains produce a dramatic rise in temperature—a typical rise being from -20° F to +35° F. With a chinook the winds are usually strong and gusty, from 25 to 50 miles an hour, with gusts which may reach or exceed 100 miles an hour. Because the air is dry the snow cover is removed very rapidly and sometimes there is soil drifting. The chinook affects an area extending about 100 miles eastward from the foothills of the mountains, but its intensity falls off rapidly farther to the east.

In summer the prairie air is much more moist than in winter, and although the weather systems crossing the area are relatively weak, they frequently set off thunderstorms characterized by heavy rainfall and hail. South-eastern Alberta and south-western Saskatchewan experience the driest conditions on the Prairies, and precipitation generally increases from west to east as the rest of Saskatchewan and Manitoba come more and more within the influence of flows of warm, moist air from the central United States. On the other hand, precipitation is relatively heavy in parts of the foothills and in the northern part of Alberta as air is lifted up the foothill slopes in westward-moving circulations.

Ontario

Most of southern Ontario and that portion of northern Ontario to the east of Lake Superior have climates that are significantly modified by the presence of the Great Lakes. In addition, the usual general circulation over northern Ontario is more from a northerly direction than that over the Prairie Provinces, giving northern



Ontario later springs than the Prairies have. In the winter, Arctic air is prevalent in this area, making the winters cold and dry. In the summer a succession of cyclonic storms bring abundant precipitation to the region, although summers are hot for the latitude: many stations have reached 100° F on at least one occasion.

Southern Ontario is protected from the prevailing westerly winds by the Great Lakes so that the summers are cooler and winters milder than those in eastern Ontario or in the United States west of the Great Lakes. In July, for example, mean temperatures range from 64° F to 70° F in Ontario, while in Minnesota at the same latitude the corresponding value is about 72° F. The corresponding mean temperatures in January are 18° F to 24° F in Ontario, and 11° F in Minnesota. The effect of the lakes is most marked at places along the shore, particularly in summer when sunny days bring cool lake breezes which tend to lower the maximum temperatures. Summer in southern Ontario, however, is occasionally marked by the invasion of warm, humid air from south of the lakes. Precipitation is evenly distributed throughout the year as the contribution from the more intense and frequent storms of winter is matched by precipitation from the less well-developed storms and thunderstorms in the warmer, moister air of summer. Annual precipitation ranges from 30 to 40 inches.

Quebec

Quebec exhibits a wide range of climates because of its vast expanse. In the northern and central parts of the province winters are cold and summers, although relatively short, are warm. In the southern part of this area, particularly along the north shore of the Gulf of St. Lawrence, snowfall is relatively heavy, the annual average exceeding 100 inches. In the lowlands of the St. Lawrence River valley the climate is much like that of southern Ontario, although the temperature reaches

Loganski

The antenna for a unique wind-finding radar is contained in the balloon-shaped device above the weather ship CCGS Vancouver. Radar tracks the balloon during its ascent and feeds this information into a computer which translates the information and indicates both the speed and direction of the wind during every minute of the balloon's ascent.



greater extremes because the Great Lakes have little, if any, moderating effect on this part of the country. This makes the climate more continental in character, with about the same summer temperatures as Ontario, but somewhat colder winters.

Snowfall is heavier and more persistent because of the colder winter temperatures, which in January average 15° F in Montreal, 10° F in Ottawa, and 24° F in Toronto.

The Atlantic Provinces

The climates of the Atlantic coast of Canada are more continental than those of the Pacific coast because of the circulations from the west which frequently bring flows of continental air over the region. A common storm track is parallel to the Atlantic coast, and these storms, when well developed, may bring strong winds and heavy precipitation to the coastal areas. In winter precipitation frequently takes the form of rain along the Nova Scotia coast, and of snowfall in New Brunswick, with freezing precipitation sometimes occurring in the intermediate zones. Summers are generally cool, although temperatures in the 90's are not unknown, particularly in New Brunswick, the most continental of the Maritime Provinces.

The Island of Newfoundland and the Labrador coast are occasionally invaded by moist maritime air bringing heavy snowfall or rainfall. In climate, Newfoundland is the most maritime of the Atlantic Provinces, and this is most evident in spring and summer, which are quite cool by Canadian standards. Storms moving up the Atlantic coast of the mainland frequently pass over eastern Newfoundland, bringing strong northeasterly winds, rain, or snow. Labrador experiences the same general type of east-coast weather as the rest of the region but, being considerably farther north, temperatures are lower and the greater proportion of the precipitation falls as snow. Arctic air masses moving southeastward over Labrador are unmodified and consequently winter temperatures are very cold.

The Yukon and Northwest Territories

The basic temperature control in Canada's north is its high latitude, since a great deal of the area lies above the Arctic Circle. As a result, much of the region experiences the polar night. Even in summer when the days are long, the low angle of the sun at noon prevents the solar radiation from providing the same heating as it does farther south. During the winter, the surface is snow- or ice-covered and this, combined with the deficiency of solar radiation, leads to very low temperatures. As a result, massive high pressure areas are formed which prevent the influx of warmer air from the south. Temperatures during the long winter remain below zero in much of the North, and mean temperatures are as low as -35° F in February in the northern part of the Arctic archipelago. While the average temperatures are lowest on the northern islands, the extreme values are usually reported from the Yukon Territory, where the lowest temperature reported anywhere in North America, -81° F, occurred at Snag.

The Canadian Landscape

Canada is bounded by three oceans. Looking north, its vast Arctic archipelago fritters off towards the pole, white in the winter, blue in the summer of midnight sun. To the east, the Atlantic washes into the fiord-lands of Baffin and Labrador, and deep into the St. Lawrence River, and swirls around the dissected coastlines of the Atlantic Provinces. To the west, the Pacific draws a straighter line against rocks and beaches and islands.

The literature and art of Canada have revealed some of the features of its many landscapes. They have also shown how Canadians react to their environment and how they have managed their resources. Much has been made of the pioneer spirit of Canadians and of their struggle against hostile elements. To live with the long, cold winters, to travel on ice and through snow, to fell dark forests, and to plough sometimes ungrateful soil—all of this is Canadian history.

The inventions and the traditions of the peoples of Canada run from the sled and the igloo of the Eskimo to the wigwam and the canoe of the Indian on to the stone farm houses of the French settlers, the Georgian mansions of the Loyalists, and the industrial plants of more recent times. Construction materials originally taken right out of the local landscape blended with it, whereas imported fabrics testify to diverse origins. The managers some time ago replaced the pioneers, and a great economy is now based upon industrial exploitation. The latter is directed from urban centres where the majority of Canadians dwell today.

The humanized landscape of this vast area retains the stamp of its natural cast, and Canadians are increasingly aware of a wealth in rocks, plants, and animals that is not necessarily exploitable for direct economic profit but that must be preserved as a frame for happy living. All civilized societies have willingly paid a price for non-marketable amenities that they valued.

Canadian Ecosystems

The ecologist, who does not yet exercise the influence of the economist, is at last being heard and his definitions will serve increasingly to identify the qualities of human environment that are worth preserving, and that should become better integrated in the modern pattern of living. His outlook is based upon the ecosystem, the fundamental unit of environment which consists of living populations (microbes, plants, animals, men) that exploit the resources available to them. The latter are: heat, energy, and light from the sun, moisture and water in the air and soil, and a complex assemblage of gases, liquids, and solids in the atmosphere and in the soil. Plants and animals are products of the cycling of nutrients from air and soil, but they also serve as food for each other and their tissues are eventually returned to the environment and re-cycled.

Thus, a pond, a forest, and a city contain measurable qualities and quantities of resources. The agents that are responsible for their cycling each have their place in more or less complex food-chains and energy conversions. Whereas the pond and the forest may be fairly self-sufficient, renewing every year their provisions of food and energy, a city is more complex and depends very largely upon the import, for instance, of plant and animal substances. On the other hand, it conveys powerful

information that strongly influences the investments made in forests, farms, industries, suburbs, and in the wild lands themselves.

A landscape is therefore a *mosaic of ecosystems*. A valley, a mountain, a river, or a city harbour a variety of living organisms that *share its resources*. Those resources are more or less *renewable* and the organisms are *agents* variously capable of transforming them into more or less stable products. In this light, the potential yield of Canadian landscapes is very uneven although it ranges through a gamut of types.

At the highest level, climate exerts major control and permits a rough segregation into zones: arctic, subarctic, montane, boreal, central, western temperate, eastern temperate. Within each zone, minor climatic variations, topographic accidents, landform distribution, and soil-formation allow different ecosystems to emerge. These are occupied by plants and animals that were subjected in the past to various adversities (not the least being glaciation) that have caused them to migrate.

Man has tampered with relief and drainage and has stripped or replaced natural vegetation across a wide range of ecosystems.

Arctic Tundra

Permanently frozen ground allows only a small biomass to develop. Most plant-communities, except under the most barren conditions, are very unstable. Animal populations likewise fluctuate greatly: small rodents (lemmings) are virtually absent some years and then rise to swarming invasions, and are eaten by larger mammals and by predacious birds.

The abrupt fiord-lands of Baffin Island, with their cliffs and scree, their vast gravelly outwash plains, their low domed hills, their coastal strands and marshes, and their permanent ice-caps fringed with yearly-melting snowpatches possibly have the widest repertory of arctic ecosystems: the sedge and grass marshes are teeming with bird-life in the summer as are some of the island cliffs whose dwellers feed on sea-creatures. The rocky shores and ice-shelves have a varied sea-mammal population, abundantly fed by marine invertebrates and fishes.

The more barren dry and flat lands support a patchy tundra of dwarf willows, bilberries, rosebays, and crowberries interspersed with flowering saxifrages, buttercups, sandworts, louseworts, and tufts of woodrush and sedge. Herds of caribou graze and browse upon these plants and upon the ever-present caribou lichen (*Cladonia*). The muskox, sparsely distributed across the land, but quite gregarious, is a less mobile animal and therefore a more intense grazer.

The plains of the lower Mackenzie River, on the other hand, show a vast expanse of wet meadow, interrupted by moss-choked bogs and reticulated with streams that are bordered with willow screens. The spruces taper in size all the way to the estuary.

The greater part of this territory is nearly primeval, and it is extremely vulnerable to man's impact, as irreversible destruction of some permanently frozen soils and oil pollution in the waters show. In a sense it is no more vulnerable than many other areas but its susceptibility to irreversible soil modification is greater than in temperate areas.

Wild Life



Murres



Bison



Polar bears



Noted

Deer



*Info Can
missing*



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Subarctic Parkland

Whereas the tundra is treeless, the vast zone that extends across all of northern Canada above the boreal forest shows spruces, larches, firs, pines, and birches in clumps or isolated or in open, regular formations, with a variable undergrowth of tall shrubs (alders, juneberries, cornels, honeysuckle, willow) and low shrubs (mostly of the heather family: lambkill, Labrador tea, blueberries); and a carpet of mosses and lichens (mostly cladonias) with tufts of grasses and other herbs.

The patterning of the Subarctic undergoes many variations from the north where the trees are stunted, and where patches of tundra occupy the high and dry sites, to the south where the trees are both taller and closer and the undergrowth more lush and where the water-course edges and protected topography allow full development of coniferous forest.

Much of this zone overlaps the Canadian Shield, and is constellated with lakes often in the process of being invaded by bog mats. Closed basins are numerous and muskeg overwhelms much of this landscape: extensive floating (but eventually grounded) blankets of leatherleaf and other low shrubs anchored in a matrix of Sphagnum moss cover the ground, whereon advancing rows of spruce and larch come in from the edges.

No merchantable lumber can be extracted from this zone, but several valuable mineral deposits have given rise to modern towns with an active food and commodity link southwards.

Boreal Forest

From Newfoundland to British Columbia and the Yukon, the spruce and fir forest, so aptly called the *Canadian Forest*, is virtually uninterrupted. In the east the species are few: white and black spruce, balsam fir, larch, jack pine, and also red and white pine (more abundant southward, however). In the west, there are many more species of spruce, pine, fir, larch, hemlock, and also Douglas fir, and many others. However, at the lower altitudes, the Canadian Forest is structurally quite uniform, with its tall, spire-like trees, evergreen needle-leaved, its few and very scattered small trees (such as mountain ash, juneberry, cornel), and its carpet of feather-mosses with tufts of flowering herbs (wood-sorrel, bunchberry, twisted-stalk, goldthread, wintergreen).

This forest, on the undulating Canadian Shield, in the flat lands north of the Prairies, and on the lower reaches of both sides of the Rockies, is broken by streams that harbour a rich floodplain forest of willows and balsam poplars, by cliffs with hanging tufts of fern and bluebells, by flat marshes with tall rushes and cattails, and by closed basins with extensive bogs.

The bird-life is extremely abundant, as wave upon wave of migrants stop at each latitude, whether to feed and rest on their way to Subarctic or Arctic breeding grounds, or indeed to breed within the forest boundaries, among the trees, in the marsh or the bog, or on the cliff ledges. This is also the home of the moose, which feeds upon waterlily rhizomes in the summer and upon the buds and bark of shrubs in the winter, of the omnivorous black bear, of many kinds of squirrels and smaller rodents. The lakes and streams are rich in fish-life, especially pikes and salmonids. The insect swarms, especially of mosquitoes and other flies, hang like



A great colony of 1,500,000 common murrelets on Funk Island off Newfoundland.

Bruce Murray

a haze over the humid ecosystems.

Mining towns, agricultural market towns, and lumber industries are the nerve-centres of the Canadian Forest which is also a vast sporting-ground with many extensive national and provincial parks.

Alpine Reaches

In the Rocky Mountains and on the coastal ranges, a complex succession of vegetation zones marks the colder climate of increasing altitudes. Above the storey suitable for boreal forest, a subalpine parkland develops which is in many ways similar to the Subarctic parkland. And above this, the lowering size of the trees ends in a very dense scrub where spruces or pines are flag-shaped by winds and are frost-bitten.

Beyond this timberline, an alpine tundra prevails, which is similar to the Arctic tundra. In some locations it is very nearly identical with it inasmuch as many plants (the moss-campion, many saxifrages, sandworts, sedges, bilberries, and so on) belong to the same species. This also applies to alpine and subalpine situations in north-eastern Quebec and Labrador.

The alpine climate, however, differs significantly from that of the Arctic: the warmth of the summer days, the usual absence of permafrost, the deeper soils, all tend to favour a lush vegetation. The presence of many plants unknown in the Arctic frequently give the alpine landscape a brighter, more colourful cast.

The Rocky Mountains also have a rich fauna of butterflies, of small rodents, and of unusual ungulates such as mountain sheep and mountain goat.

The human enterprise at the alpine level is virtually confined to hiking and similar non-exploitive activities.

The Prairies

A large arcuate wedge of drought juts northward from the American boundary into Manitoba, Saskatchewan, and Alberta: this is the Canadian Grassland. Within its confines it has many variants of tall-grass, mid-grass, and short-grass, the latter in the drier and higher areas. The primeval prairie and steppe plant-communities were also indicative of soil quality, from the rich chernozem with its deep black layer, to the near-desert soils of the erodable steppe. Most of the original Canadian grassland cover was "mixed prairie" with varying amounts of needlegrass, gramagrass, wheatgrass, dropseed, and fescue. Associated broadleaved herbs were pasque-flower, goldenrod, yarrow, bedstraw, phlox, pasture sagebrush, and a few shrubs such as bearberry, shrubby cinquefoil, and wolfberry.

The latter play an increasingly conspicuous role in the great arc that hems in the grassland to the north and is known as the aspen parkland. This consists of medallions of vegetatively propagating aspen groves, ringed by a shrubby buffer in a vast matrix of grassland. The river bluffs and dunes show a varying tapestry of creeping juniper, choke-cherry, and dune-grasses. The warmer and drier areas have small salt-lakes with typical salt-tolerant plants (glasswort, saltbush).

Most of the primeval grassland has been ploughed, however, and this zone has become the granary of Canada and its abundant wheat crops have fed many other parts of the world. It turns out to be rich in oil and potash, so that the agricultural landscape is locally patched with industrial development patterns.

After more than a hundred years of exploitation, it may well be that the rich productivity of prairie soils is not so readily renewable as it was once assumed to be.



*Vancouver
Sun*

Biology students attend classes on the slopes of Burnaby Mountain, B.C. where they are conducting a survey of plant life.

The Pacific Coastal Forest

The warm-temperate and very humid conditions that pervade the southern British Columbia coast encourage the continuance of a kind of temperate rainforest dominated by giant hemlocks and cedars, with an understorey of evergreen madrone, of large-leaved maples, of dogwood and alders, and of tall, luxuriant ferns. Mosses and lichens frequently cover the trunks and limbs of the trees.

Fire, lumbering, and local soil conditions favour eventually dense stands of Douglas fir or lodgepole pine. Bogs are also well developed and have a more luxuriant cast than elsewhere.

No area produces more magnificent timber. Its rapid growth makes for efficient cyclic utilization. The climate of some of the valleys is most favourable to fruit growing. The rivers and streams support an extremely abundant fish-life, especially salmon, which forms the basis of an important industry.

The Eastern Temperate Forest

There are three main areas. In the Maritime (or Acadian) zone, the northern hardwoods (beech, maple, yellow birch) are abundantly interspersed with hemlock and even with spruce and fir, and dunes and saltmarshes are extensive. On the northern edge of Lakes Erie and Ontario and down the St. Lawrence to the Montreal Plain, the beech-maple forest dominates with admixtures of white oak, hickory, walnut, basswood, black cherry. The rest of this area is typical northern hardwoods, generally excluding both oaks and spruces.

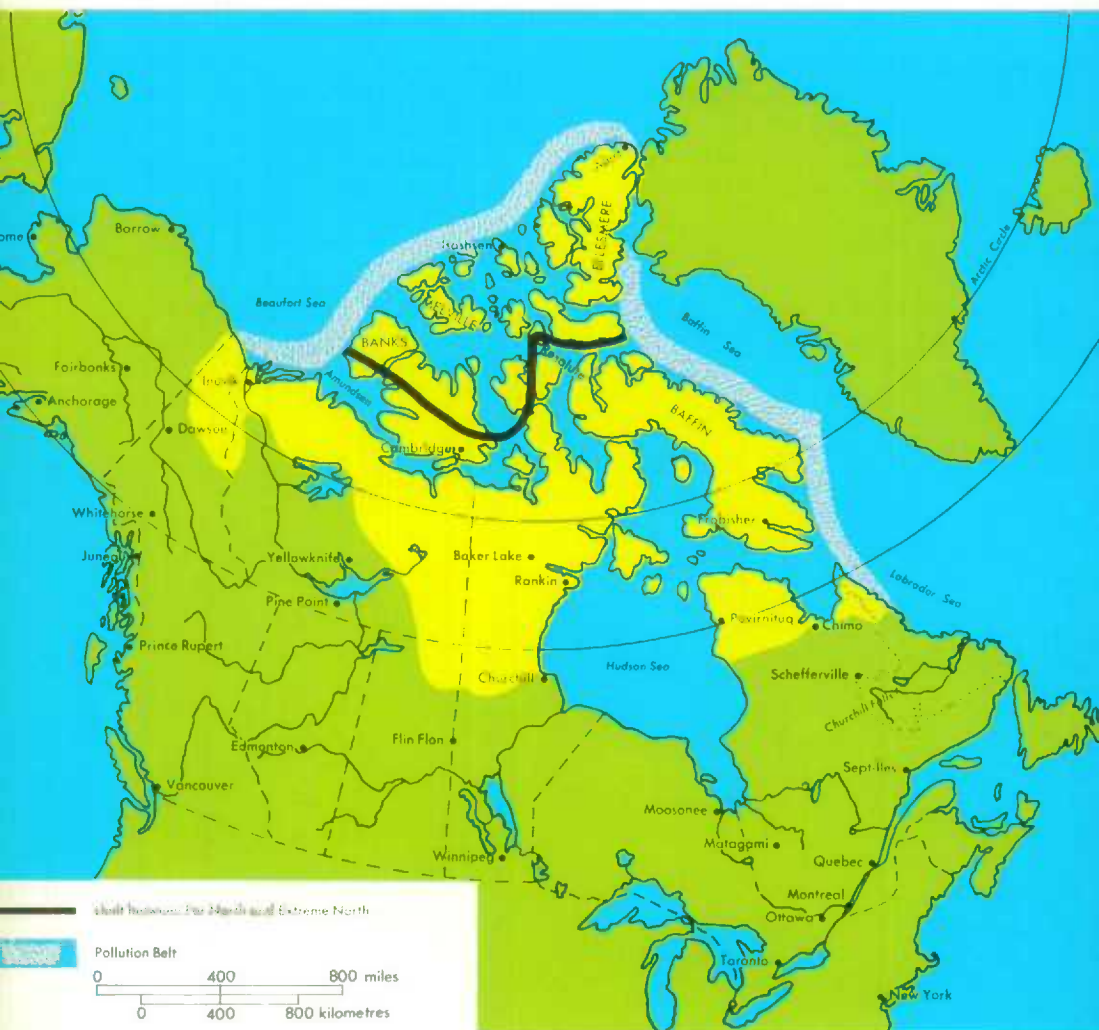
The seasonal changes in this ecosystem are striking, with an abundant development of low flowering herbs (trillium, Solomon's-seal, spring-beauty, dog-tooth violet) in the spring light and a rather thin scattering of taller summer herbs (sweet cicely, aster, goldenrod) in the full shade of summer.

Extensive floodplain forests in the expansive alluvia of the great rivers, lakes, and streams are composed mostly of elm, soft maple, and ash, and likewise show a luxuriant spring wave of large-leaved plants (skunk-cabbage) and a summer aspect of densely growing herbs (touch-me-not, Canada nettle) rooted in the now well-aerated soil. Marshes with dominant cattails and bulrushes; fens with thickly tangling willows, alders, and red-osier dogwoods are also common. The disturbance caused by the glaciers and by the subsequent re-patterning of watercourses has made for alternating dry gravelly and sandy benches. There are also ridges where the small wire-birch and the tall white pine dominate, and more or less closed shallow basins where peat has accumulated. A southern variety of muskeg also prevails, with scattered larches and black spruces, a dense mat of leatherleaf, and a number of pitcher-plants and bright-coloured orchids.

This is the older part of Canada, with its traditional agriculture (mixed or dairy-farming, specialized crops, horticulture, orchards) and ever-growing industry and urbanization that have caused the retreat and sequestering of wildlife, the disappearance of trout and salmon, the pollution of water, air, and land. Parks and reserves are rather few, it is true, but new concepts of parkway projects, of greenbelts, of urban design promise an improved reclamation of the natural elements of the landscape.

The Canadian Arctic

This area is made up of the "Far North" and the "Extreme North," according to the definitions given in *Canada 1970* (Ottawa, 1969). These simple but significant terms designate the most rugged parts of the country. It is therefore not at all surprising that the total civilian population amounts to scarcely 20,000.



Location

This vast area of the Canadian North is bounded by the Labrador Sea and Baffin Bay, the Arctic Ocean, Alaska, the Great Lakes of the Mackenzie basin and the northern parts of four provinces. Within these boundaries are found not only the largest islands in Canada (Baffin, Ellesmere) but also the greatest expanse of water in any country. This territory, which makes up nearly 40 per cent of the total area of Canada, has only slightly more land than water. The channels of the Arctic archipelago and the Hudson Bay region are creating sovereignty or jurisdictional problems not only with respect to navigation but also fishing, hunting and underwater mining operations. The penetration of the sea is one of the outstanding characteristics of the Canadian Arctic.

By definition the southern limit of the Arctic corresponds to the 500 polar unit isogram. This line does not follow the political boundary of the Northwest Territories, but diverges from it, particularly in the Mackenzie valley which, because of its summer climate, would be better classified as Subarctic. It is therefore in central and eastern Canada that polar conditions extend furthest south.

The distance between the main Canadian population belt and the Arctic is one of the greatest disadvantages of this region. Alert is located more than 2,500 miles (4,000 km.) from Toronto. Fortunately, air transportation has greatly reduced the time inconvenience. A jet, flying its regular schedule, covers the distance from Montreal to Resolute in six hours. However, expense remains a drawback. It costs approximately \$2,000 to ship to Baffin by air a house prefabricated in the St. Lawrence Valley. With the exception of centres which can be supplied by ship, the cost of transporting a gallon of fuel oil to the Arctic can be twice that of the fuel itself.

Vastness, remoteness from the populated regions of Canada, substantial quantities of water and the broken-up land masses—these are the main physical characteristics of the Canadian Arctic.

Climatic Features

In its different forms ice reflects the Arctic climate. Ice masses are permanent, or melt; are visible, or not visible. In Canada, ice on land—that is glaciers—is far less widespread than in neighbouring Greenland and is found only in mountainous areas, especially in the highest part of Ellesmere and Baffin Islands. It does not constitute a great hindrance. The other two kinds of ice are found in opposite locations—at the same time that ice is in the ground, the channels are blocked with floating ice.

There are different types of ice inside the ground, from pingos (hills with ice cores) to the ice cement which binds mineral particles together (permafrost). In Melville Island the ground is frozen to a depth of almost 1,600 feet. (In Central Siberia the permafrost is three times as deep.) During the summer the upper zone of the permafrost thaws from a few inches to a few feet deep. As a result of this seasonal change, the foundations of houses and roads become less solid. Special building techniques have had to be developed, such as those used for the radar bases and in Inuvik. Permafrost also prevents the inhabitants from placing their

Hamelin



The Davis Highlands, Baffin Island. Here the Atlantic Seaboard Mountains, composed of Canadian Shield rocks, show levelled summits, scara, and cirques. Beneath this March snow, there are glaciers in the bottom of the depression.

water pipes underground. They have therefore invented the "utilidor system," which consists of boxes mounted on piling. Inside the boxes are pipes carrying clean and used water. The boxes are well insulated and are heated when necessary. The alternate freezing and thawing at ground level creates curious surface formations such as perfect circles of stones and innumerable pools. These figurations show how extremely sensitive to seasonal change is the shallow layer of ground which is naturally in harmony with its equally delicate covering of vegetation. Any disturbance of this fragile surface will set in motion uncontrollable melting or freezing mechanisms. On account of this danger, it seemed desirable to limit vehicle movement to winter when the frozen ground is protected by a bit of snow.

A considerable volume of floating ice is found between the land masses. Outside the strips along the coast where the surface water freezes on the spot, ice-packs are formed by the inward movement of separate pieces of ice. These independent blocks and floes may be welded together by new ice. This creates an attractive mosaic of colours and shapes. Impressive ice thrusts accumulate on the low lying coasts. The thaw comes late, yet it will extend everywhere except for some Far North channels exposed to the polar cap. Thus it was north of Banks Island that the *Manhattan* was blocked in 1969. To facilitate navigation two types of ice indexes have been developed. One informs the ship's Master of the quantity

of ice and the other indicates floe dimensions. In the Canadian Arctic the three main waterways at the end of summer are Hudson Strait toward Churchill, and the passages from Baffin to Resolute and Amundsen Gulf to the northwest estuary of the Mackenzie.

The Arctic is notable for the coldness of its air. The lowest recorded temperature is 81°F below zero (-62.8°C) taken at Snag in the Yukon. But cold is relative. A world low may be the -126.9°F (-88.3°C) recorded by the Russians at Vostok in the Antarctic. As far as man is concerned, his mental outlook, the wind, air humidity, the production of body heat, and the protection afforded by clothing and heating are factors modifying the actual experience of cold. Cold is not felt by individuals in the same way. A southerner temporarily in the North suffers more from the cold than does a permanent inhabitant, whether Amerindian or white.

The impact of the cold is felt everywhere. Masses of cold dry anticyclonic air resist the penetration of more humid cells. Thus the cold makes the Arctic a desert where lichen is slow to grow. The rate of heat loss from a house in the Arctic is three times that of Montreal, hence the necessity of adopting the best insulating techniques for housing. Because of the cold, running water is a source of many problems. It is difficult to obtain and store, and fire is a serious danger. Engineers engaged in developing sites and roads must know how to get rid of the water which could collect in later seasons as a result of the freezing — melting — freezing cycle. When in contact with any source of humidity the cold can coat windows, ship's riggings, mine pitheads, airplane wings and face coverings with ice. Mechanical appliances have not been produced for the Arctic climate and those available do not always withstand the contraction due to freezing. Breakage is frequent. Cold also hinders the lubrication of parts.

As elsewhere in Canada, seasonal climatic changes are pronounced. The sunless period (north of the Arctic Circle), the half-seasons and the storms make up the most difficult times of the year.

The delta of the Mackenzie River has many channels — both main and secondary — tributaries, and ponds. The delta is more water than land, but it is rich in fauna.



Territorial Organization

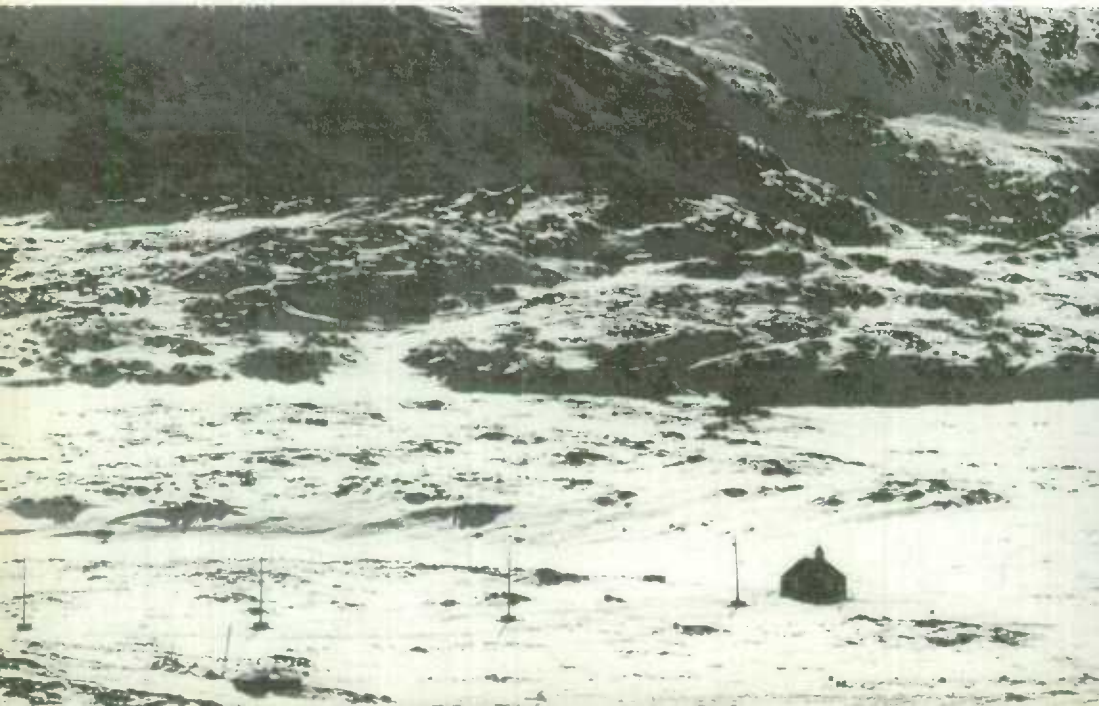
In spite of its recent establishment in the area, political authority is in the process of being restructured. In the first place, the land was made Canadian during the last century—around 1870 for the Hudson Bay region and 1880 for the greater part of the archipelago. Islands were discovered by W. Stefansson in 1916; others were bought from Norway around 1930. At the end of the Second World War, aerial photography made it possible to draw a detailed outline of the coasts. The period of discovery is now over.

There are several political structures in the Arctic. For example, the part north of the 60th parallel of latitude (not including the Yukon and the Quebec-Labrador peninsula) is the domain of the federal government and the Northwest Territories government. In 1967 an important transfer of administrative and legislative responsibility was made to the territorial government. The Legislative Council of the Northwest Territories now consists of 14 members, 10 of whom are elected. Altogether, a federal department (aided by other departments), a Member of Parliament, the government of the Northwest Territories and certain local administrations are jointly responsible for the political functioning of this part of the Canadian North.

This administrative structure does not mean that the region functions politically in the same way as a developed country. On the contrary, the territory is still only slightly organized. The inhabitants are few and scattered in almost 50 centres; 60 per cent of the settlements have less than 300 people. The most populated centres, Inuvik in the west and Frobisher Bay in the east, do not have more than 3,000 people. (Neither Yellowknife nor Whitehorse is located in the Arctic proper.)

John Reeves

The rugged majesty of Arctic mountains dwarfs a small church near the community of Cape Dorset. The Cape has become world famous as an artists' colony.



Huge, repulsive or unattractive moles separate the settlements: 400 miles (640 km.) between Baker Lake and Snowdrift on Great Slave Lake. In these circumstances, the political presence can hardly be attributed to population or work-operations. Rather it is tied in with liaison functions: air routes, social services and telecommunications (conventional, radar or satellite). To a large extent the Canadian character of the North depends on these media.

Economic Life

There has been economic activity in the North. In the past Eskimos were self-sufficient, living on sea, land, air and river faunae. At the beginning of the century the Canadian government issued whale-hunting permits. Today the Hudson Bay Company maintains a few dozen trading posts. Reindeer are raised for commercial purposes in the Mackenzie delta. Nickel has been extracted from Keewatin, and the setting-up of nickel mining operations on the Quebec side of Hudson Strait is being contemplated. Public and private capital have facilitated the discovery of oil, and discussions are under way on the construction of a pipeline along the Mackenzie River which would transport the fuel from Alaska to the principal market in the United States. Sculpture, handicraft, engraving and fishing co-operatives have sprung up in several places such as Cape Dorset and Povungnituk (Puvirnituk). Rankin has set up a cannery. The midnight sun, Eskimos, contact with nature, and polar bear hunting are tourist attractions. Certain parts of this area are well provided with facilities. For a few weeks each summer the ports of Tuktoyaktuk and Resolute are very busy.

All levels of economic development are found in the Arctic. Under-development exists where the natural resources are only partially exploited. On the other hand, whenever hunting for pleasure threatens the wildlife reserves, it is a case of over-development. Paradoxically enough, in this almost empty country examples of poor development are found, one of which is the pointless degrading of the environment and native cultures. Fortunately, a harmonious or optimal development has been realized in some places. But, generally speaking, the Arctic remains undeveloped since its resources are not yet known. Moreover, the economic and social problems of regional planning have only on rare occasions been given appropriate solutions. In the Far North in particular, the economy remains inactive. Thus the Arctic accounts for very little in the national production; its economic balance shows a large deficit. A sizable amount of revenue must come from the salaries and allowances paid by the governments. Given these conditions, the region is in a poor position to fight unemployment, which is very high.

The Arctic is a world apart. There could be no more serious mistake than to apply here, without any adaptation, the ideas generally accepted or put into practice in the populated areas of Canada. For the inhabitants of southern Canada, adaptation to the North remains an almost totally new objective.

History

Canada is an independent nation in North America composed of two predominant linguistic and cultural groups: French and English. To these two major groups, and to the small native population of Indians and Eskimos, have been added over the last hundred years many thousands of immigrants representing the major European cultures. For the most part these immigrant groups have associated themselves with the English-speaking community, though maintaining many aspects of their mother cultures. The country has thus never been a homogeneous melting pot, but has rather had the aspect of a cultural mosaic in which the major pattern is traced in the colours of the French and English cultures.

Much of the country's history can be viewed as a continuing search for accommodation and co-operation between the two major cultural communities, and the integration of newcomers into the basic pattern. At the same time, as this internal accommodation has been working itself out, the country has passed through a dual process of self-definition in relation to the outside world. The first of these processes has been the evolution of the country from the status of a colony within the British Empire to the stature of independent nationhood within the Commonwealth. The second more subtle and often more difficult process has been in

defining and defending its independence in relation to the power and prestige of its enormous neighbour, the United States. These two themes of internal bicultural accommodation and external self-definition underlie and affect nearly every other development in the Canadian past: patterns of settlement, institutional growth, economic development, foreign policy, cultural evolution.

The exploration and settlement of North America by Europeans began seriously at the beginning of the seventeenth century. There had, of course, been earlier voyages dating back as far as the Norsemen, but concentrated efforts had to await the emergence of the powerful nation states of Europe. From the earliest beginnings the French and English established competitive settlements and trading centres. The English moved in from the north through Hudson Bay in the 1670's but the French had already penetrated the continent through the vast St. Lawrence River more than half a century earlier. To the south were the Dutch on the Hudson, soon to be pushed out by the British, and the Puritan settlements in New England. As these colonies grew, so did competition for the hinterlands. The French pressed north and westward to challenge the English on Hudson Bay. And traders from the two communities, with the aid of their Indian allies, struggled for control of the rich Ohio valley. It was this competition, and the rivalry of France and Britain in Europe, which ultimately brought war and the downfall of the French Empire in North America. But before that event took place New France had sunk deep roots along the banks of the St. Lawrence and in Acadia.

The first half-century of New France's existence, down to 1663, had been characterized by near-failure on all fronts: settlement, missionary activity, and trade. Yet it was this struggling period that provided later generations with a sense of an

*B. Brasho Lady Lou's Travel Bureau
(missing)*



One of New Brunswick's unusual photo attractions, the Martello Tower, Saint John Harbour at Lancaster.

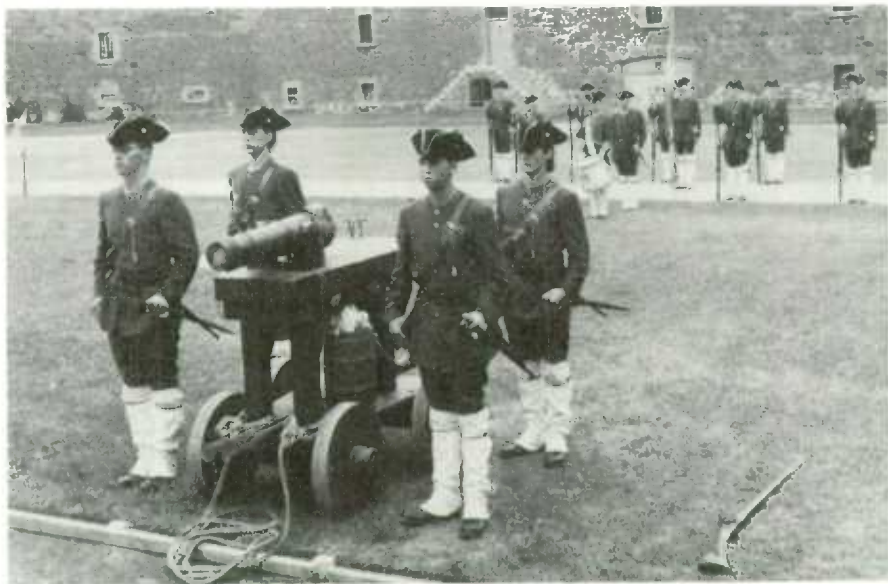
heroic past when the tiny colony struggled for survival against the elements, the Iroquois, and the English. From these years came the heroes and martyrs, both religious and secular: Brébeuf and his brethren who died in their effort to bring Christianity to the Indians; Dollard and his young companions who died defending the colony and its trade at the Long Sault in 1660.

Yet by 1663 the colonists numbered fewer than 2,500 and the future was bleak. It was only saved by the decision of Louis XIV to assume direct control of his North American possessions. The establishment of royal government was accompanied by an infusion of new settlers, trained civil servants with plans for economic development, and troops to defend the colony. Though the colony's economy became somewhat more diversified it remained dependent upon France on the one hand and the fur trade on the other. By the 1740's French-English rivalry in Europe, North America, and elsewhere in the world brought the beginnings of the war that was to spell the end of New France. The final phase of that war began in 1754 and was concluded by the Treaty of Paris in 1763 when France's major North American possessions were ceded to the British.

The British Conquest of Canada, a major event in the country's history, temporarily united North America under the British flag. Within two decades that unity was permanently destroyed by the success of the American War of Independence. Yet in the intervening period the French-speaking inhabitants of Canada, numbering about 70,000 at the time of the Conquest, had continued to exhibit their capacity to survive. Faced with growing unrest in the thirteen colonies, the British authorities in Canada gave up an early attempt to assimilate their new subjects and granted recognition, in the Quebec Act of 1774, to the major institutions of the

Quebec Film Bureau

Members of the "Compagnie Franche de la Marine," in period dress, carry out military ceremonies on Île Sainte-Hélène.





NATIONAL GALLERY OF CANADA

In 1846 Paul Kane began travelling west along the fur trade routes, recording the vanishing scenes of the Indians' way of life in sketches, water colours, and oils. White Mud Portage, Winnipeg River is among his works.

French-speaking community: its civil laws, its seigneurial system, its Roman Catholic religious organization. The efforts of the revolting colonies to add Canada and Nova Scotia to their cause failed. But during and after the war thousands of Loyalists fled northward, settling in Nova Scotia, what was later to become New Brunswick, and to Canada both in the Eastern Townships and the western region of the colony north of Lake Ontario. It was in this fashion that the first substantial group of English-speaking settlers established themselves in the predominantly French-speaking British colony. Here was the beginning of the pattern of Canada's future development.

The coming of the Loyalists required new constitutional arrangements. The Constitutional Act of 1791 divided the old Province of Quebec into two colonies, Upper and Lower Canada, and granted each its first representative assembly, an institution which had existed in Nova Scotia since 1758. It was within the context of this constitution that the colony began to grow economically and demographically. It was also within this context that a struggle took place for internal self-government or responsible government. That was achieved in 1849 but only after abortive rebellions in the two Canadas in 1837 and the reunification of the two colonies in 1841.

By the middle of the nineteenth century the British colonies in North America — Canada, Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland — were ready to move haltingly toward a new stage in their constitutional development. Each colony separately faced an increasing burden of public expenditure in the age of canal and railway building. Each, too, was faced with limited

markets, since the coming of free trade in Britain had ended their preferential treatment within the Empire. In the Canadas there was the additional problem of growing political deadlock and threatening cultural conflict in a union based upon equality of representation for each of the two sections. And, finally, in the 1860's, there was the threat of an increasingly hostile United States just emerging from its bloody civil war. These events, plus the encouragement of Britain anxious to reduce its commitments in North America, resulted in a decision in 1865 to move toward a federation of all British North America.

That federation was partially achieved on July 1, 1867, when the Canadas, Nova Scotia, and New Brunswick joined together in Confederation under the British North America Act. This constitution was the work of an energetic group of British North American politicians including John A. Macdonald, George Brown, George-Étienne Cartier, Alexander Galt of Canada, Charles Tupper of Nova Scotia and Leonard Tilley of New Brunswick. Their combined political skills and legal talents were severely tested in the foundation of "the new nationality." The constitution was a highly centralized federal scheme which made the central government clearly dominant, but left to the provinces those matters which they considered to be of purely local concern. The French and English languages were established as official in the federal Parliament, its records, and its courts, and the Province of Quebec was also recognized as an officially bilingual province. The new nation was a parliamentary monarchy operating according to the well-understood principles of cabinet government. The Parliament of Canada at Ottawa was composed of the Crown's representative, the Governor-General, and a bicameral legislature, the House of Commons and the Senate.

At the outset the plan was incomplete for it was intended that the territory of the new nation should stretch from coast to coast. The first step was the acquisition of the lands owned by the Hudson Bay Company in the west. This was quickly achieved but the first new province, Manitoba, was only established after a rebellion in Red River led by a young Métis, Louis Riel, was defeated. The province was established in 1870. A year later the Pacific coast province of British Columbia entered the union on the promise that a transcontinental railway would be built. Two years later Prince Edward Island was added. In 1874 the extensive lands between Manitoba and British Columbia were organized as the Northwest Territories. This area, in 1885, was the scene of a second uprising of Métis and Indians again led by Louis Riel. The completion of the Canadian Pacific Railway in that same year made it possible for the Canadian authorities to defeat the rebels, and this time Riel was captured, tried, and hanged for treason. Twenty years later, in 1905, the provinces of Saskatchewan and Alberta were added to the union. The last of the ten provinces to join Canada was Newfoundland in 1949.

Once the basic structure was established, the federal Conservative Government, led by Sir John A. Macdonald, proceeded to develop policies to fill out the skeleton. The railway, binding together the various far-flung sections was the first developmental policy. But along with it were immigration programs to populate the open spaces with agricultural settlers and a policy of tariff protection, announced in 1879, to develop a Canadian industrial system. It was the Macdonald Government's determination to build a national economy on an east-west axis independent of the United States.

Though the Liberal Opposition had been critical of many of these policies, when they came to power under Wilfrid Laurier in 1896 they continued them with few modifications. The major difference was that under Laurier the policies experienced greater success because prosperous world economic conditions provided investment funds for Canadian development, markets for the country's growing grain and mineral production, and thousands of new immigrants from Great Britain, the United States, and Europe. By the outbreak of World War I Canada was well on its way to fulfilling the destiny which the Fathers of Confederation had predicted.

The Laurier years, for all of their prosperity, witnessed the beginnings of serious cultural, sectional, and class conflicts. Relations between English- and French-speaking Canadians had been worsened by the hanging of Louis Riel, with whom the French Canadian identified. Then came attacks upon the French language and Catholic separate schools in Manitoba and the Northwest in the 1890's. Laurier successfully smoothed over this latter crisis, but cultural relations were also strained by Canadian involvement in the Boer War and the long pre-war debate over the country's place in Imperial affairs. French Canadians, on the whole, were reluctant to be involved in Imperial affairs, while many English Canadians identified Canadian interests with those of the Empire — especially since the Empire provided a protective umbrella against the United States. This development reached its culmination in 1917 when the country, which had entered the war united, was split culturally over the issue of conscription for overseas service.

Sectional discontents were present especially in the Prairie West. This region,

Barbara Johnstone

In the 1700's fur traders traversed this portage around Spruce Rapids, above the outlet of the Surgeon River.





Plougher life at Upper Canada Village, Ont.

W. L. King / Louis St. Laurent Travel Bureau

almost exclusively agricultural, felt that the national economic policies were designed primarily for the industrial areas of central Canada. The defeat of a proposed reciprocity arrangement with the United States in the election of 1911 left the West in a mood of discontent which manifested itself only after the war in the form of the farmers' Progressive Party. Class tensions were apparent in the growth of labour organization under the leadership of the Trades and Labour Council of Canada. The end of the war also saw labour conflict flare in a general strike in Winnipeg in the spring of 1919.

Canada emerged from the war, in which she had played a substantial part, with a new sense of national pride. That pride was transformed, in the postwar years, into a quest for a status of equality within the new British Commonwealth. Sir Robert Borden, the wartime Prime Minister, set this development in motion and it was continued by the Liberal and Conservative Governments under W. L. M. King and R. B. Bennett. The Statute of Westminster in 1931 provided the legal definition of Canadian autonomy.

The Great Depression brought serious dislocation of the Canadian economy, heavy unemployment, and new movements of social protest. In Quebec this discontent expressed itself in a new party called the *Union nationale* while elsewhere in Canada, especially in the West, the Social Credit and Co-Operative Commonwealth Federation parties made a marked impact. The federal government's major problem in these years was its weakened constitutional position, the provinces having been given or having won control over such matters as social welfare and natural resource development. A federal Royal Commission in 1940 recommended that the constitutional arrangements should be revised to give the federal government authority over major economic, social, and tax policies. The recommendations were never implemented but the exigencies of the war once more placed the federal government in a predominant position.

The war and postwar years were a period of great prosperity and economic growth for Canadians. Again Canada played an important part in the war and its unity was only briefly threatened, again over the conscription issue. W. L. M. King's retirement in 1949 and his replacement by Louis St. Laurent marked an easy transition to postwar prosperity. Much of this new growth was financed by



A frontier village at Three Valley Gap, west of Revelstoke, B.C.

*Hunter
(to missing)*

American direct investment so that prosperity was bought at the price of increasing American control of the Canadian economy. Since this came at a time when Canada was moving into closer European (NATO) and North American (NORAD) military alliances with the United States, some Canadians began to worry about the country's future. It was this concern, added to a growing dissatisfaction in several of the provinces over Ottawa's centralist policies, that brought the Conservative John Diefenbaker to power in 1957.

The Diefenbaker years were marked by a growing debate over Canada-U.S. relations and, more particularly, the revival of nationalism in Quebec under the guise of a "quiet revolution." This latter event included a whole series of measures meant to modernize Quebec society now transformed by accelerated industrialism. With increasing frequency and intensity many prominent French Canadians expressed dissatisfaction with their status within Confederation and began asking that Quebec be given more autonomy as a province and that French be given greater recognition throughout Canada. In 1963 Lester Pearson's minority Liberal Government established a Royal Commission on Bilingualism and Biculturalism to examine this question. Four years later, after the centennial celebrations, Mr. Pearson proposed a series of federal-provincial discussions to examine and reform the constitution in general. This task is being continued under the direction of his successor, Pierre Elliott Trudeau, whose Liberal party was given a majority in the general election of 1968.

Thus, after more than three and a half centuries of existence, Canada, with her 21,700,000 people, has evolved and prospered. Her place as a so-called middle power in the world is well established.

G. RAMSAY COOK

The Native Peoples

Indians

Before the end of the last glacial period, successive migrations of nomads crossed from the steppes of Siberia to Alaska, via the isthmus which then existed. Over succeeding centuries, the migrant bands wandered, established territorial rights, expanded, and diversified their life-styles according to their environment. Eventually, the territorial claims of bands and tribes became relatively stable.

Geography, not language, was the foundation of the cultures. The six more-or-less distinct cultural groups were the nomads of the eastern woodlands, the agriculturalists of the eastern woodlands, the plains culture tribes, the nomads of the northwest, the mountain and plateau dwellers, and the tribes of the West Coast.

The Algonkian linguistic groups of the eastern woodlands were nomadic because of their dependency on game, fish, and wild fruits. Their mobility necessitated the development of highly advanced modes of transportation, hence canoes, snowshoes, toboggans, and portable dwellings (wigwams) were an integral part of their material culture. These and other material things were made from birch bark, animal hides and other natural resources which abounded in their environment. The more hostile environment encountered by the northern nomads did not allow them the larger bands and more cohesive social structure of their southern counterparts, the Iroquoian.

The agriculturalists of the eastern woodlands were of the Iroquoian linguistic group. Their agrarian way of life allowed them to form permanent settlements and develop a more complex social order. This included the development of religious societies and a more advanced political structure. The permanence of their homes stimulated the development of pottery and decorative art. Their longhouses of bark, as well as providing housing for extended, non-nuclear families, were the centre of all social and religious functions.

The Algonkian, Athabaskan, and Sioux linguistic groups made up the Plains culture tribes. These tribes roamed the vast expanses of the Canadian Prairies following the buffalo herds. The buffalo provided food, clothing, and shelter for these highly mobile tribes, thus their culture – material, religious, and social – was built around the hunt. The feather head-dress and magnificent regalia used in their celebrations, both religious and social, made them one of the most colourful cultural groups on the continent.

The Athabaskan linguistic group peopled the Mackenzie River system and woodlands north of the Churchill River. These nomads of the northwest based their economy on caribou, moose, hare, fish, and berries. Like the Algonkians, they used canoes and snowshoes extensively for travel. The migratory patterns of the caribou and moose demanded the use of easily movable tents in summer, and in winter the Athabaskans were housed in more permanent dwellings of bark and logs. Because of the mobility and scattered location of these wandering groups, there existed no need for inter-tribal political connections.

The mountain and plateau dwellers consisted of four linguistic groups: Athabaskan, Salishan, Kootenayan, and Tlingit. The interior plateau of British Columbia and the Yukon provided for a fishing, hunting and gathering economy.



*Malak
(missing)*

Totem pole in Thunder Bird Park, Victoria, B.C.

Wicker cage traps and dip nets were used to catch migratory salmon, and spruce root baskets were used to gather roots and berries. Dwellings included skin and rush tents, semi-subterranean houses, and rectangular log and bark huts. Little formality existed in social, political, and economic relationships, but there was a tendency to adopt the social organization of the Pacific Coast culture.

The tribes of the West Coast were numerous: Tsimshian, Haida, Salishan, Kwakiutl, Bella Coola, and Nootka. Their environment provided them abundantly with food and raw materials. With the basic necessities so readily available, the West Coast tribes had leisure time to develop their high totemic art, basketry, weaving, and painting. West Coast art is one of unsurpassed beauty. The material culture of the West Coast Indians centred around the gigantic cedar tree, which grew to majestic heights in the rain forests of the West Coast. Cedar fibres were used for clothing, mats, and room partitions, and the roots were used in the art of basketry. The mighty cedar was also used in massive buildings, in elaborately carved dug-out canoes, totem poles, and everyday utensils. The tribes of the West Coast are unique in Canada in that they had a stratified society, consisting of nobles, commoners, and slaves. The potlatch ceremonies were not only an indication of noble status, but also ensured that the welfare of the noble's family would be seen to in the event of death or disability. One of the major features of the potlatch was that it was conducive to inter-tribal trading and exchange of knowledge.

Religion among all tribes included a reverence for nature which supplied them so abundantly with food and other life-necessities. At adolescence, each youth fasted alone in the wilderness and received his dream vision of the spirit which would be his guardian through life: bird, beast, fish, thunder, the being in the rock or waterfall; one of a host of semi-deities, or a manifestation of the power of the major deities—Manitou, Thunderbird, Sun or some man-beast-bird of great magical prowess. Most bands had a medicine man who ministered to both spiritual and temporal needs. In him lived centuries of medical knowledge, which included neurological surgery and the treatment of psychosomatic ailments.

All these cultures were undermined by European settlers who neither understood the first citizens, nor found the time to understand them. The Europeans' main interests were to acquire land, wealth, and freedom. The new weapons and technology, new economic values, alcohol, and European diseases that they brought with them—which raged unchecked across the continent—wrecked the tribal system. By the 1880's, with the buffalo gone from the Prairies and the population reduced by half, the Indians had reached their nadir.

At the present time, most Indians are organized into 561 bands, and live on 2,200 reservations, covering six million acres of this vast country. The Indian Affairs Branch of the Department of Indian and Northern Affairs is responsible for effective education, economic development, community development, resource management, social welfare, and engineering, in partnership with elected Indian leaders across the country.

Malak (missing)

Brilliant ornamented dress worn by Plains Cree Indians at formal festivities. Snow-covered peaks of Mount Rundle, Alta., complete the picturesque scene.



Eskimos

There are about 83,000 Eskimos in the whole world, but fewer than 17,500 of them live in Canada, in an area that covers approximately one million square miles in the Northwest Territories, Quebec, and Labrador. This land has been variously described as bleak, vast, and beautiful. It is a land of tundra and muskeg, permafrost and scrub willow, a land of water and ice, a land with which the Inuit (Eskimos) alone came to terms. They coped with the environment and developed a unique culture which satisfied all their needs. The traditional Eskimo culture was closely related to the animals they hunted. These animals whether they came from the sea or the land provided the Eskimo with his food, his clothing, his shelter, his tools, his weapons, and they were at the core of his religious beliefs.

Change is not new to the Eskimo. The Eskimo culture although bound by its own traditions, a conservative ethos, and an extreme environment, was flexible. It shifted remarkably with great changes in the seasons and adjusted to the many variations of environment across the Arctic world. The rate of change of the past two decades, however, has seen the old Eskimo way of life, like the ways of most primitive peoples throughout the world today, go forever. This is sad. The disappearance of an unique culture is always cause for regret, and although the most conservative Eskimo would probably not want to return to the days before Europeans arrived in this country, nevertheless the old culture has yet to be replaced by a new.

For this reason the Canadian Government has formulated programs which stress above all else the development of the Eskimo people. In the words of the Minister

Brummel

An Eskimo takes a tea break during a motor-toboggan hunting trip along the coast of Ellesmere Island.





Eskimos, moving during summer to new lodgings, travelled in large skin-covered umiaks which also carried supplies. The men travelled ahead of the umiaks in light kayaks, similar to the kayak illustrated above.

Paul Braich (missing)

of Indian and Northern Affairs, "During the decade of the 70's, concern for development must be matched by an equal concern for both the land and the people. And we must involve to the fullest extent northern residents in the developments that are taking place and will take place on a steadily increasing scale in the years ahead." The government has financed the establishment of a national Eskimo organization known as Inuit Tapirisat and of regional Eskimo organizations such as the Committee of Original People's Entitlement at Inuvik, N.W.T., and the *Nouveau Québec Inuit Association* which represents the Eskimos of Arctic Quebec. At the settlement level the local government consists of either settlement councils, chaired by settlement managers who are employees of the government, or hamlet councils made up of members elected from the community and headed by a chairman. In addition, two Eskimos have been elected to the Northwest Territories Council. Organizations are being developed which will give the Eskimos an effective voice in matters affecting their future.

In the field of education Eskimos are becoming increasingly involved. They are employed as classroom assistants in a program which is designed to lead them to eventual certification as full-fledged teachers. Older Eskimos are teaching many of the traditional skills in the classroom setting, including the Eskimo language, Eskimo syllabics, the construction of igloos, proper hunting and trapping techniques and, for the girls, the making of traditional clothing. All Eskimo communities now have local schools providing classes from Grade 1 to Grade 6. Some com-



Tug-of-war at the spring festival in Igloodik, a small arctic community, located on an island in Foxe Basin, N.W.T.

Brummer

munities where the size of the class warrants it have grades up to Grade 8. Children going beyond Grade 8 attend residential schools in Inuvik, Yellowknife, Fort Simpson, Fort Smith, or Churchill, Man. Here students either go to Grade 12 or take pre-vocational or vocational courses. Many Eskimo students attend vocational courses in southern Canada at such major centres as Halifax, Ottawa, Winnipeg, and Vancouver. Today they have an Eskimo doctor, Eskimo nurses, teachers' aides, nursing aides, airline stewardesses, pilots, mechanics, and technicians of all sorts.

Two vital elements of the government's policy to assist Eskimos to retain those elements of their culture that they cherish are the arts and crafts programs and the co-operative movement. As matters now stand, these are closely related: most Eskimo co-operatives are involved in the business of marketing arts and crafts. In 1971 thirty-two Eskimo co-operatives handled more than \$5 million worth of business. Activities vary from selling works of art, through handling municipal service type contracts, running retail stores, and managing an increasing tourist trade.

Other fields of cultural endeavour have not been neglected. Government assistance is available in the form of grants and other types of support to aspiring Eskimo writers or artists. In addition to world renowned sculptors and print makers, writers such as Markoosie (*Harpoon of the Hunter*) and Pitseolak (*Pictures Out of My Life*) have gained an international readership through books published in 1971. A major Eskimo art exhibit was launched in Vancouver in 1972 destined to travel to Paris, Copenhagen, Leningrad, Moscow, London, Philadelphia, and to return to Ottawa in 1973.

Bilingualism

Throughout Canada's history the existence of two major linguistic groups has been one of the dynamic forces that have shaped the country and contributed much to its unique character. To safeguard this valuable national heritage, the federal government has taken a number of steps to ensure the equal participation of both English-speaking and French-speaking Canadians in Canada's future.

In 1963, it appointed a Royal Commission on Bilingualism and Biculturalism whose purpose was to enquire into a wide range of questions relating to language and culture in Canada. Following the publication of the first volume of the Commission's Report, the Government introduced an Official Languages Bill in the House of Commons in October 1968. After careful study and discussion the final version of the Bill was unanimously adopted in July 1969 and came into force in September of the same year.

Section 2 of the Official Languages Act stipulates that "the English and French languages are the official languages of Canada" and that they "possess and enjoy equality of status and equal rights and privileges as to their use in all the institutions of the Parliament and Government of Canada."

In addition, the Act contains three main sections. First, a number of clauses ensure that all public documents issued by any federal authority are produced in English and French. Second, the Act specifies that "bilingual districts" will be created. In these districts, and in certain other situations, federal government services will be available to the public in both official languages. Finally, the Act outlines the responsibilities of a Commissioner of Official Languages whose job it is to ensure compliance with the spirit and the intent of the Act.

The Commissioner of Official Languages

In consideration of Section 2, "it is the duty of the Commissioner to take all actions and measures within his authority with a view to ensuring recognition of the status of each of the official languages and compliance with the spirit and intent of this . . . Act in the administration of the affairs of the institutions of the Parliament and Government of Canada and, for that purpose, to conduct and carry out investigations either on his own initiative or pursuant to any complaint made to him and to report and make recommendations with respect thereto as provided in this . . . Act" (Section 25).

It follows from this section that the Commissioner exercises two basic functions, those of language ombudsman and linguistic auditor general. A Complaints Service and a Special Studies Service have been established within the Commissioner's Office to help him carry out the duties attached to each of these two functions.

Whichever of the two services is involved, the work is done in private and the results, by law, are communicated to the complainant and the institutions concerned. It should be noted that the Commissioner's powers can only be brought to bear in matters of federal jurisdiction. The Commissioner is an officer of Parliament, appointed by that body to a seven-year term; he is eligible to be reappointed for further terms not exceeding seven years. The Commissioner is independent of

the Government and is required to submit an annual report to Parliament on the conduct of his office during the preceding year and may make recommendations for changes in the Official Languages Act as he deems necessary or desirable.

Bilingualism Development Program

In order to develop and implement its Official Languages Program, the Government created the Bilingualism Development Program within the Department of the Secretary of State, and as of the beginning of 1972 has created a Bilingualism Division of the Treasury Board. The responsibility for different aspects of the Bilingualism Development Program has been divided as follows:

The Language Administration Branch is responsible for carrying out tasks that are directly concerned with the implementation of a number of measures related to recommendations of the Royal Commission on Bilingualism and Biculturalism, particularly in Books II, III, and VI of its Report. In close co-operation with provincial governments, the branch formulates programs designed to promote the development of bilingualism in such areas as education. It is also involved in helping municipal governments, industry, associations, and other private sectors in activities where the official languages are used, either through technical assistance or grants programs.

The Social Action Branch is responsible for the development of a grants program designed to attain two main objectives: greater understanding between the two major linguistic groups and better appreciation on the part of all Canadians of the bilingual character of Canadian society; and the linguistic and cultural development of official-language communities in areas where they are established as minorities.

The Research and Planning Branch co-ordinates and undertakes the various analyses and studies required for the Bilingualism Development Program, with particular reference to program objectives and ways of achieving them, resource requirements, measures of effectiveness, and results.

The Bilingualism Division of the Treasury Board Secretariat is responsible for defining the management objectives relating to bilingualism and for ensuring the implementation of those objectives by departments and agencies. The Treasury Board Secretariat is the central agency responsible for organization and personnel management in the Public Service as a whole. The Division is also responsible for the development and communication of the operational policies and procedures through which institutional bilingualism can be made to function effectively. The newly-created Division has assumed those responsibilities which previously were handled largely by the Secretary of State's Department for the development of bilingualism in the Public Service. Government policies on development of bilingualism in the Public Service reflect approval given by the Government to the majority of recommendations made in Book IIIA of the Report of the Royal Commission on Bilingualism and Biculturalism.

Through this series of programs, the government hopes to ensure equality of opportunity for both French-speaking and English-speaking Canadians in the life of the nation. It also hopes to preserve and strengthen a Canadian society encompassing two languages and many cultural traditions.

Cultural Pluralism

Since October 1971, the federal government has had an official cultural policy which recognizes, in both philosophical and tangible terms, the rights of cultural groups in Canada of other than British or French origin. In the federal government, there had been an awareness of the need for such a policy at the time when the Royal Commission on Bilingualism and Biculturalism was formed. One of the commission's tasks was to examine the question of cultural and ethnic pluralism in Canada and the status of the country's various cultures and languages. Its findings resulted in an observation by the Commission that "there cannot be one cultural policy for Canadians of British and French origin, another for the original peoples and yet a third for all others."

When the Prime Minister introduced the new policy of "multiculturalism within a bilingual framework" in the House of Commons, it was supported by the leaders of the Opposition parties and accepted as the most suitable means of assuring the cultural freedom of Canadians. All recommendations made by the Commission on Bilingualism and Biculturalism in Volume IV of their Report directed to federal departments and agencies have been accepted by the government. It is now established policy that, although there are two official languages in which Canadians can communicate with their federal government, there is no official culture.

The new policy is designed to break down discriminatory attitudes and cultural rivalries. It accepts the fact that the "other" cultural communities are essential elements in the community of cultures which make Canada what it is. They will be encouraged to share their cultural expression and values with other Canadians, thereby contributing to a richer life for all.

Federal funds are made available to enable the National Museum of Man, the National Film Board, the National Library, and the Public Archives to display the variety and richness of all the cultures and the contributions they have made to our history.

Basically, the government provides support in four ways. First, it seeks to assist all Canadian cultural groups that have demonstrated a desire and effort to contribute to Canada and that have a clear need for assistance—the small and weak groups no less than the strong and highly organized. Second, assistance is given to members of all cultural groups to overcome cultural barriers to full participation in Canadian society. Third, the government promotes creative encounters and interchange among all Canadian cultural groups in the interest of national unity. Fourth, the government continues to assist immigrants to acquire at least one of Canada's official languages in order to participate fully in Canadian society.

Some of the recommendations in Volume IV of the Royal Commission's Report concern matters under provincial jurisdiction and call for co-ordinated federal and provincial action.

Responsibility for implementing the new policy has been assigned to the Citizenship Branch of the Department of the Secretary of State, the agency now responsible for matters affecting the social integration of immigrants and the cultural activities of all ethnic groups. The first grants under the policy were announced in April 1972.

Religion

In the summer of 1534 Jacques Cartier landed on the Gaspé coast and erected on a bold headland a wooden cross 30 feet high. He was staking a claim, not only for his nation, but for his faith. Since that time the history of Canada has been in inter-development — sometimes in conflict — of church and state.

A colourful and courageous episode of Canada's founding years was written by the Jesuit missionaries, of whom the martyr, Jean de Brébeuf, is one of the authentic national heroes of Canadians of all faiths. Under the leadership of Madame d'Youville, the Grey Nuns also (among other eminent nursing orders), at a time when even the most primitive medical help was wanting, wrote a story, now too little remembered, of extraordinary devotion and fortitude in outpost service as nursing sisters. With limitless dedication, the Grey Nuns, who, in effect, introduced district nursing into Canada, carried on their vocation of mercy amid dangers and privations now incredible.

In the early stages of English settlement, pioneer Protestant missionaries and clergymen also played a vital part in the building of Canada. The church was often the sustaining centre of community life. James Evans, a Methodist missionary, invented Cree syllabics, and made it possible for Indians to read their own language and write it on birch bark. In the 19th century Egerton Ryerson, another Methodist minister, laid the foundation for a system of public education in Ontario. At the opening of the Prairies, John McDougall, yet another Methodist missionary, was the indispensable intermediary, trusted by the Indians, in formulating the treaty which averted war with the western tribes. Beyond the Great Lakes, the pioneering saddle-bag clergymen share with the Royal Canadian Mounted Police the credit for the fact that Canada never had a "Wild West."

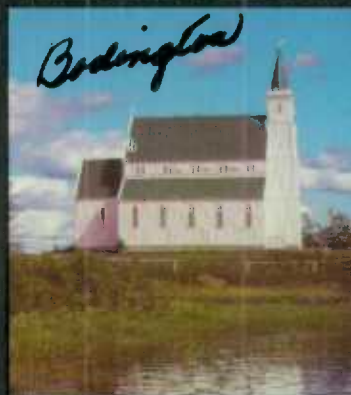
Canadian religious history has been marked by two distinctive features. The Roman Catholic story has been notable for the massive power and influence which the clergy established and maintained in French Canada. Protestant churches, at least those called elsewhere the Free Churches, showed from the first a tendency, which, in sparse, new pioneering communities was almost a necessity, to forget the traditional divisions of old lands and to create churches autonomous in Canada.

1. St. John's Anglican, Lunenburg, N.S.
2. The Anglican Church at Fort Stanley, Sask.
3. The Roman Catholic Church at Inuvik, N.W.T.
4. The Methodist Church at Hay Bay, Ont.
5. St. James United Church at Newcastle, N.B.

Malak



Boddinglow



2

Harrington



3

Malak



Malak





Thus Canada was the first country in which all the varied branches of Methodists united to form one Canadian Methodist church. Similarly all Congregationalists merged into one union. And even all Presbyterians, despite ancestral divisions, joined in a single Presbyterian church for all Canada. These three denominational unions, less a dissenting Presbyterian minority, then combined to form, in 1925, the United Church of Canada. This union was the first of its kind in Protestant history.

At the present time proposals are being studied for a further union between the United Church and the Anglican. Whether or not the proposals will result immediately in formal union, the two churches will certainly work together in unprecedented forms of co-operation.

These three churches, numerically in order, Roman Catholic, United Church, and Anglican, together include nearly 80 per cent of the population of Canada, according to the 1961 census. Other familiar denominations have substantial numbers of adherents. Presbyterians come first with upwards of 800,000, and Lutherans follow with upwards of 600,000. Baptists in Canada have not become as strong proportionately as they are in the United States. They are confined mainly to the eastern half of the country, and are there divided into several conventions. Baptists have a constituency somewhere upward of half a million.

Like all free countries, Canada has many small denominations, some with a long history and a permanent place in the Canadian scene, and some recent in origin and local in setting. Quakers in Canada have been characteristically few in numbers, but, like the Mennonites, high in public esteem. Unitarians have been confined chiefly to central cities, but they have a membership with an impressive proportion of influential citizens.

In all parts of Canada, groups known in general designation as Evangelicals have grown rapidly in recent years. Some of these consist only of individual churches. Of such organizations the Peoples Church in Toronto is the largest and the most vigorous. This single congregation, under the leadership of a remarkable evangelist, Oswald Smith, and later his son Paul, has grown to be almost a denomination in itself. The largest organized group of the Evangelicals is the Pentecostals who were listed in the 1961 census at fewer than 150,000.

1. Notre Dame de Fatima at Jonquière, Que.
2. St. Aloysius at Richibucto, N.B.
3. Machzikei Hadas synagogue, Ottawa, Ont.
4. The Russian Greek-Orthodox Church near Lloydminster, Sask.

Especially in the western provinces, Canadians coming from branches of the Eastern Orthodox (Greek Catholic) churches have made their heritage visible in church buildings with spires in the distinctive onion-dome pattern of their homelands. They number approximately 200,000.

Recently the Coptic church of Egypt has established in Toronto – where it currently has about 1,000 members – headquarters from which it supervises Coptic congregations in Canada and the United States.

Among unusual religious communities in Canada are the Hutterites, a farming society, organized in communal groups, and having a strong family life. Though modern in farm techniques, they cling socially to ancient ways, but also to ancient virtues.

In recent years the distinguishing feature of Canadian religious life has been the new degree of cordiality and co-operation not only between the various Protestant churches but also between Protestants and Roman Catholics. Significantly, some of the first instances of the new spirit came from Quebec, where Roman Catholic clergymen invited their Protestant brethren to share with them in their cathedrals in joint services of worship. Roman Catholic and Protestant clergymen also co-operated in building the Christian Pavilion at Expo 67.

Aside from the Christians, the oldest, largest, and most influential religious community in Canada is that of Jews. Since the early history of Canada they have, though small in total percentage of population, made enormous contributions to Canadian life and culture. The separation of Christians and Jews has been broken, and more warm and understanding relationships have been cultivated by the establishment, in the early 1940's, of the organization called first the Canadian Conference, and later the Canadian Council of Christians and Jews. The Council has done much to establish contacts and to originate programs for the development of mutual understanding and appreciation. It has been the chief instrument in establishing Brotherhood Week as an institution in Canada.

Jews are not the only representatives in Canada of the world's great religions, other than Christianity. The metropolitan centres now have sizable and increasing groups of Muslims, Buddhists, Hindus, Sikhs (chiefly in British Columbia), and others.

Canada has not been without instances of bigotry and religious animosity, but on the whole Canadian history has been commendably free of violence springing from religious dispute. The nature of Canadian life – small communities struggling to establish themselves in a vast land – has provided its own need for co-operation in common ventures and its own sanctions for tolerance.

And tolerance has slowly moderated traditional distrust. In only a few areas do the significant divisions in Canadian life follow religious lines. What in the beginning was merely truce has come to be something like genuine peace. And peace may bring to the Canada of the future a depth and breadth of mutual appreciation from which no one will be excluded. Canadians are not there yet; but they may be as near as any people in the world.

The Arts

Theatre

In 1972-73 each province, with the exception of Newfoundland, could boast of a regional professional theatre. In addition 14 new Canada Council theatre grants benefited such diverse groups as Vancouver's New Play Centre; Theatre New Brunswick, in Fredericton, and the Théâtre du Trident in Quebec. To further assist national talent the Canadian Theatre Centre commissioned an *Index of Canadian Plays/Index des pièces canadiennes*, a comprehensive reference index listing all plays by Canadians professionally produced since 1945.

Offering an alternative to the repertoire of established regional and metropolitan theatres, the "separate" theatres in Canada generally presented a higher percentage of works by Canadian playwrights.

The pioneer in producing Canadian plays exclusively, Toronto's Factory Theatre Lab, scheduled an eight-production season of major new works. In addition they provided a playwrights' workshop program, funded by the Canada Council, which showcased 36 original plays.

Benefiting from the collective creativity of Paul Thompson, John Palmer, and

Martin Kueley

In 1971-72 the Playhouse Holiday Theatre of Vancouver toured schools in British Columbia playing *Beware the Quickly Who*, by Eric Nicol.





*Theatre
Calgary*

Amy Doolittle and Neil Vipond starred in Theatre Calgary's production of the *House on Chestnut Street* by James Nichol.

Louis del Grande, the Théâtre Passe Muraille presented nine new plays in the 1971-72 season. It started with *Free Ride*, an examination of the hitch-hiking phenomenon of the 70's, and presented a new rock musical *Charles Manson AKA Jesus Christ* with 85 per cent of capacity audiences.

Another experimental effort in Toronto, the Studio Lab Theatre, ran into difficulties when its theatre was appropriated by developers and it was forced to concentrate on its touring Children's Theatre. This Children's Theatre group attended the Ninth International Festival for Children's Theatre at the Venice Biennale and then toured Italy for three weeks.

With a successful run in New York of the play *Justine* (also called *Love Me, Love My Children*), Toronto's Global Village Theatre became a profitable experimental theatre. The Tarragon Theatre was launched to give exposure to Canadian playwrights and its 1972 season opened with David Freeman's *Creeps*. In 1972, Toronto Workshop Productions offered productions ranging from Brecht to company creations under artistic director George Luscombe.

In Montreal, the stage at Théâtre d'Aujourd'hui functions exclusively for the presentation of works by Quebec playwrights such as Pierre Bégin, Marc Gélinas, and Jean-Claude Germain. Frequently included in the acting company were Les P'tits Enfants Laliberté, formerly the Théâtre du Même-Nom.

At the Théâtre de Quat'Sous, new Quebec works included *Les balançoires*, by Jean O'Neil and a new adaptation by Michel Tremblay of four of Tennessee Williams' plays.

Canada's major regional theatres also showed signs of a greater interest in Canadian plays. On the West Coast at the Playhouse Company in Vancouver, artistic director Paxton Whitehead assembled a program of productions including Vancouver playwright Beverly Simon's *Crabdance* and Feydeau's *The Chemmy Cir-*

cle (as adapted by Whitehead and Suzanne Grossman). During the year the Playhouse was able to co-ordinate its scattered operations under one roof.

The Bastion Theatre in Victoria began its season in December 1971, with a program that included *Plaza Suite* and *Five Finger Exercise*. Theatre Calgary presented *Romeo and Juliet* and *The Rainmaker* among other productions. In Edmonton, Gratien Gélinas' *Yesterday the Children Were Dancing* shared 1971-72 billing at the Citadel Theatre with *Blithe Spirit* and *Of Mice and Men*. The Citadel continued to operate Studio 6, its experiment for those wishing to pursue an active career in theatre. For seven months of the year, the Theatre's offshoots, Citadel-on-Wheels and Citadel-on-Wings, toured the province and the Northwest Territories. As part of its 1971-72 season the Globe Repertory Theatre staged a specially commissioned play, *Queen Street Scrolls* by Regina playwright Len Peterson. The Company toured schools in Saskatchewan with *Shakespeare's Women*, a collage compiled by one of its artistic directors, James Brewer. In his final season as artistic director of Winnipeg's Manitoba Theatre Centre, Keith Turnbull staged his own adaptation of *Alice through the Looking Glass* and a revival of James Reaney's *The Sun and the Moon*.

In 1971-72 the St. Lawrence Centre in Toronto included productions of two Canadian plays, John Palmer's *Memories for My Brother: Part Two* and *Captives of the Faceless Drummer*, by George Ryga. It also staged major productions of Brecht, Orton, and Chekhov.

Guy Dubois

The Théâtre du Rideau Vert, in Montreal, staged *Canard à l'Orange*, a translation of W. D. Holmes' London hit, *The Secretary Bird*.





Mary, a dramatic musical based on the life of Mary Queen of Scots played in repertory at the Charlottetown Festival during the summer of 1972.

Charlottetown Summer Festival

Highlights in the twentieth anniversary season of Montreal's Théâtre du Nouveau Monde included productions of *Le Mariage de Figaro*, *Jules César*, and two Canadian plays by Claude Gauvreau and Alain Pontaut. Co-founder and artistic director Jean-Louis Roux was named a Companion of the Order of Canada. Novelist and playwright Roch Carrier became the Company's secretary general. During the season the junior company, Les Jeunes Comédiens, toured New England and coast to coast in Canada.

The Théâtre du Rideau Vert staged a new Canadian play, *Les Morts* by Claire Martin. In Quebec City, Le Théâtre du Trident produced a French-Canadian version of *Pygmalion* and an original play, *Alcide Premier*, by André Ricard. There are several touring companies in the Province of Quebec. La nouvelle Compagnie Théâtrale is devoted to the production of whatever is on the school curriculum. Relying heavily on group creations, Le Théâtre Populaire du Québec was founded for the express purpose of bringing theatre to smaller, isolated communities in Quebec.

In the Maritimes, the Neptune Theatre in Halifax continued to uphold its tradition as a first-rate professional company in the staging of Goldoni's *The Servant of Two Masters* and Nichols' *Joe Egg*. It also mounted a full-scale production for children, *The Dandy Lion*, by Pat Patterson and Dodi Robb.

The National Arts Centre in Ottawa is a showcase for Canadian theatres from coast to coast. In 1971-72 productions were staged by the Neptune Theatre, the Manitoba Theatre Centre, the Vancouver Playhouse Theatre, Le Théâtre du Rideau Vert, Le Théâtre du Nouveau Monde, and by the Shaw and Stratford Festival companies.

Festivals

The Stratford Festival continues to be one of the most respected on the continent. Pat Galloway won critical acclaim in *King Lear* and as Kate in *She Stoops to Conquer* opposite Tony Van Bridge, and, following a tradition established by Sarah Bernhardt, as the Medici nobleman in de Musset's romantic tragedy *Lorenzaccio*. Following the previous season's successful production of *Volpone*, English director David William returned to direct *King Lear*. William Hutt who portrayed a tragic and pathetic Lear also directed the season's Shakespearian comedy *As You Like It*. For those who wished a change from the main theatre there were productions at the Avon Theatre, experimental theatre at the "Third Stage," music for almost every taste, plus an international film festival.

The Shaw Festival continued its popular tours, visiting Ottawa, Montreal, and New York State with *Misalliance*. It became the first Canadian Company to appear at the John F. Kennedy Centre for the Performing Arts in Washington. In the 1971-72 season the Kaufman-Ferber comedy *The Royal Family* (about the antics and eccentricities of a famed theatrical family) played in repertory with George Bernard Shaw's *Getting Married*.

As triumphant on London's West End stage as it was at Osaka and on Broadway, *Anne of Green Gables* was back for what has become a perennial appearance at the Charlottetown Festival on Prince Edward Island. A musical melodrama based on

Slavtchik Shaw Festival

Betty Leighton, Malcolm Armstrong, Wenna Shaw, and Tom Kneebone in a scene from *Misalliance* at the Shaw Festival in Niagara-on-the-Lake, Ont.



the Victorian classic. *Jane Eyre* attracted enthusiastic audiences as did *Mary*, a popular account of the life of Mary, Queen of Scots.

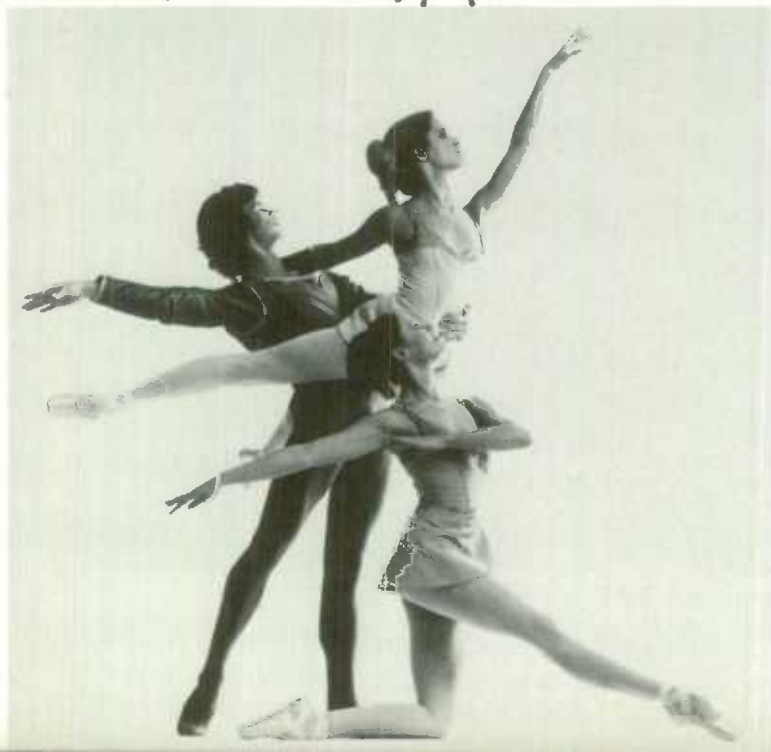
In its second annual celebration of the "feast of summer," the Secretary of State's Festival Canada attracted a good deal of attention. The National Arts Centre mounted its own productions of *Così Fan Tutti* and the *Marriage of Figaro*. There were concerts by the National Arts Centre Orchestra, the Montreal Symphony Orchestra, the Orford Quartet, and programs of electronic music by La Société de Musique Contemporaine du Québec. England's Young Vic Company made its North American debut at the Centre. In addition there were two film festivals organized by the Canadian Film Institute, and many other attractions.

Ballet

Celebrating its twentieth anniversary season in 1971-72, the National Ballet Company of Canada added a number of dancers to the troupe, and completed its first tour of Europe. The National Ballet School is attempting to cope with the problem of original choreography and three dancers, Timothy Spain, Chris Bannerman, and Karen Bowes, were awarded Canada Council grants to create new works.

Les Grands Ballets Canadiens with the success of the "rock" opera *Tommy* was able to double its productions in 1972. Although emphasis is still on classical works, this success encouraged the company to include more modern dance in its repertoire. *Homage to Stravinsky* was a new ballet commissioned by the Company and choreographed by Brian MacDonald in his first association with Les Grands Ballets.

Anthony Chickmay / National Ballet



The Royal Winnipeg Ballet continued to explore the possibilities of mixed media in the world of dance with an adaptation of George Ryga's play *The Ecstasy of Rita Joe*. An original Canadian ballet by Norbert Vesak, it was accompanied by original folk music and a filmed background featuring Chief Dan George as Rita Joe's father. Four new dancers were added to the company in 1972, three of them graduates of the Royal Winnipeg's school. Tours were made of Australia and of Cuba.

In the field of contemporary dance, the Toronto Dance Theatre employed its 11 dancers 46 weeks of the year. This company has developed an individual style, an extensive repertoire of original works, and its own school. In its 1972 season it toured Canada, the United States, and England.

Le Groupe de la Place Royale, despite the departure of its founder and artistic director Jeanne Renaud, continued in 1972 to stage impressive programs and win critical acclaim.

In a first approach to eastern audiences, Winnipeg's Contemporary Dancers toured Nova Scotia and New Brunswick in 1972.

Music

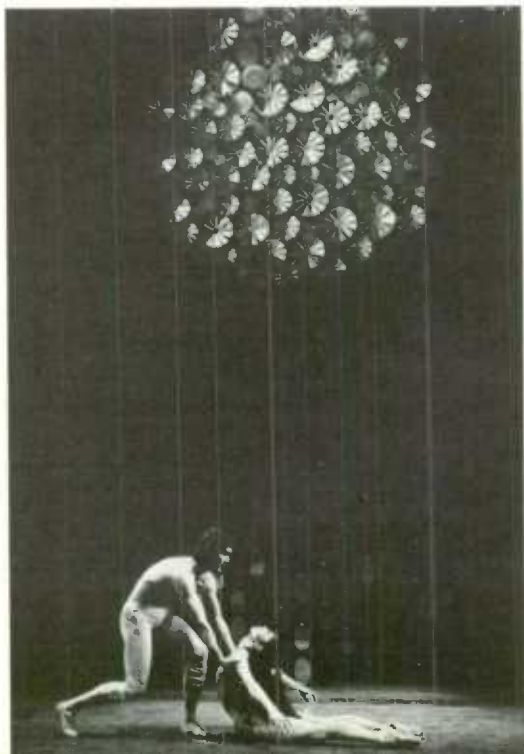
The Canadian Opera Company will celebrate its twenty-fifth year in 1973 and has commissioned an opera, *Heloise and Abelard*, from composer Charles Wilson for inclusion in the anniversary season. Their program for 1972 included Wagner's *Siegfried*, Verdi's *Aïda*, Puccini's *La Bohème* and *Tosca*.

1972 was the first year of L'Opéra du Québec. The program included Puccini's *Il Trittico*, Donizetti's *La Fille du Régiment* and Verdi's *La Traviata*.

Ronaka Labelle

The National Ballet's production of *Evocation*, staged by Daniel Seillier (left).

Cérémonie, produced by Les Grands Ballets Canadiens, of Montreal (right).



66 *National Arts Centre*

Harold Robinson
Make & Mail CANADA 1973



Mario Bernardi of the National Arts Centre Orchestra (left) and Karel Ancerl of the Toronto Symphony Orchestra.

For several years the Canadian Broadcasting Corporation has produced operas for the television viewer. In 1972 the French network staged Gounod's *Roméo et Juliette* with Louise LeBrun and Pierre Duval. The English network produced Puccini's *La Rondine* with Teresa Stratas.

The National Arts Centre maintains its popular and artistic success under conductor and music director Mario Bernardi. In 1972, the Orchestra released its second and third recordings. The year 1972 also marked its debut concert at the Lincoln Center in New York. The orchestra is scheduled to make its European debut concert tour in 1973, opening at the Bath Festival.

The Toronto Symphony celebrated its fiftieth anniversary season. Under music director Karl Ancerl it continued to give special attention to the vocal-orchestral repertoire. In 1972 Maestro Ancerl conducted the Jeunesses Musicales Youth Orchestra in Belgium prior to concerts in Ostend and Florence. A three-week tour of Europe by the Orchestra is planned for the spring of 1974.

The Montreal Symphony Orchestra performed both in Quebec and in other provinces. In September of 1973, the orchestra under resident conductor Franz-Paul Decker, is scheduled to give three concerts at the Athens Festival in Greece. Canadian soloists will be Ida Haendel and William Tritt.

In addition to its regular program, the Vancouver Symphony, to attract young audiences, brought together what some critics termed "a cacophony." Called *The Son of Zonk*, it featured live electronic sound, electronic tapes, rock group, and orchestra with a number of new works written specially for the occasion. The concert was also a farewell to conductor and music director Meredith Davies. He was replaced in the 1972-73 season by Kazuyoshi Akiyama.

Canada's first regional orchestra, the Atlantic Symphony, divided its time

among the four Atlantic Provinces, bringing the pleasure of a professional group to communities which could not otherwise afford them.

The Orchestre Symphonique de Québec pursued its policy of performing works by Canadian composers, including Serge Garant, Clermont Pépin, and Jacques Hétu. The Société de Musique Contemporaine du Québec presented two concerts of Canadian works in France at the Festival de Royan, established to promote contemporary art.

The fifth Guelph Spring Festival in 1972 featured two works commissioned especially for the Festival: Godfrey Ridout's *Dream of the Rood*, sung by a choir, and a work by George Fiala, performed by the McGill Chamber Orchestra. A unique joint recital by soprano Lois Marshall and contralto Maureen Forrester added greatly to the program. Highlighting the new film festival was *I Pagliacci* filmed by the La Scala Opera Company, with Jon Vickers in the leading role.

The Toronto Mendelssohn Choir and the Festival Singers share both conductor Elmer Iseler and a number of performers. In the summer of 1972 the Mendelssohn Choir toured Europe, receiving critical acclaim, as did the Festival Singers during a similar tour in 1971. Since returning from Europe both choirs have presented several broadcast programs in addition to their regular concert series.

Ken Oake/Vancouver Sun

The Vancouver Society for Early Music perform music of the German middle baroque period.



The Visual Arts

In Ottawa, the National Gallery of Canada continues to play a vital role in the encouragement of Canadian art. It had promoted the Group of Seven; later it was crucial to Emily Carr's emergence as an artist of national importance; and in the 1950's it backed the abstract expressionists. More recently the Gallery organized major exhibitions by younger artists such as Joyce Wieland, Iain Baxter, and Michael Snow.

The Montreal Museum of Fine Arts continued to show Canadian life as seen by the artist. This was most evident in the recognition of the talent of Arthur Villeneuve, a barber from Chicoutimi, through a major retrospective organized by the Museum. In 1972 the Museum sponsored a film festival featuring the early films of Pierre Perrault. To demonstrate that large-scale art need no longer be confined to museum space, the Museum in co-operation with Benson and Hedges, commissioned leading artists to execute paintings or "cityscapes" on downtown Montreal buildings. The Art Gallery of Ontario also organized "cityscapes" to brighten downtown Toronto.

National Gallery



At the Venice Biennale, Walter Redinger's *Caucasian Totems* formed part of the sculpture exhibition.

With the initiation of an extension program, the Winnipeg Art Gallery hopes to bring the Gallery to the people, making the finest reproductions accessible to the most isolated communities in Manitoba.

The Vancouver Art Gallery has had considerable success in breaking down the barrier between the artist and the public. It has been awarded a Canada Council Diffusion of the Arts grant for its cultural activities at Capilano Stadium. It also excels in the traditional role of an art gallery. The Gallery organized the definitive retrospective of Emily Carr's art. Partially through the efforts of curator Doris Shadbolt and the Canadian Eskimo Arts Council, a major exhibition of Eskimo art, *Sculpture of the Inuit*, travelled to galleries in Europe, including Leningrad's Hermitage Museum.

Writing

The most important event for the Canadian publishing industry in 1972 was the announcement by the Secretary of State of a six-part support program. This includes more Canada Council grants to publishers and for translation, more book buying by government departments for free distribution at home and abroad, more promotion of book exports, the publication of federal government works by private publishers, and the establishment of a standing committee on publication.

Each year the Molson Prizes are given by the Canada Council for outstanding contributions to the arts, humanities, social sciences, and to national identity. In 1971 Rina Lasnier was awarded a Molson Prize in recognition of her impact on French-Canadian poetry. A collected volume of her poetic works was published in 1971 as well as a book of new poetry, *La Salle des Rêves*.

Montreal poet Gaston Miron received the Canada-Belgium Literary Award for his achievements in the Quebec literary milieu.

Among the important studies about Quebec published in 1971 was *La Fin d'un Règne* by the sociologist Gérald Fortin, which won a 1971 Governor General's Award for non-fiction in French. Ronald Sutherland, a professor of comparative literature at the University of Sherbrooke, published *The Second Image*, a collection of essays on comparative Canadian literature, as well as a novel, *Lark des Neiges*.

Poetry published in English Canada ran the gamut from *The Collected Poems* of Irving Layton to the less common theme of Fred Cogswell's *In Praise of Chastity*. The intricate relationships between men and women were further explored in Margaret Atwood's *Power Politics*. The Governor-General's Award for English poetry in 1971 went to John Glassco for his *Selected Poems*.

New books were brought out in 1971 by Canada's more established literary figures. Earle Birney published *Rag and Bone Shop*; Al Purdy, *Love in a Burning Building*; Mordecai Richler, *St. Urbain's Horseman*; Margaret Laurence, *A Bird in the House*; Robertson Davies, *Fifth Business*. With the publication of *The Last Spike*, which won a Governor-General's Award, Pierre Berton achieved the rare distinction of having two books on the same subject on the best-seller list. In 1970 David Godfrey published his first novel, *The New Ancestors*, founded "New Press," and was presented with a Governor-General's Award.

Scientific Activities

Science and technology have a powerful effect upon the way of life of all Canadians. Most people now realize that they contribute importantly both to prosperity, through industrial development and natural resource utilization, and to the solution of many of the serious problems faced by industrial and exploitive societies. Scientific activities are being actively examined and their objectives and methods of operation are being questioned. The role of science in Canadian industry and in the development of northern Canada has been critically examined in the past few years. In both industry and the North, science is being asked to provide means to increase production and prosperity while avoiding pollution and other threats to the quality of life. Public demands for the solution of these problems, and similar ones affecting other areas of science, have contributed to an active debate on science policy. Science policy has become important both nationally and internationally.

In 1971, Dr. Gerhard Herzberg, of the National Research Council of Canada, was awarded the 1971 Nobel Prize for Chemistry, thus becoming Canada's first Nobel Prize winner in the natural sciences. The award particularly recognized Dr. Herzberg's ideas and discoveries in molecular spectroscopy and his leadership in developing his laboratory as the foremost centre in the world for this type of study. This international recognition of a Canadian research endeavour of many years was warmly applauded by Canadians and particularly Canadian scientists.

Ministry of Science & Technology

(missing)



The TRIUMF meson facility is being constructed at the University of British Columbia for the joint use of the Universities of Alberta, British Columbia, Victoria, and Simon Fraser.

Science Policy

Over-all Canadian policy seeks to make optimum use of science and technology in the pursuit of national objectives – cultural, social, political, and economic – both domestically and abroad. Canada's science policy is strongly influenced by our federal and bicultural nature in that many aspects of science and technology in public affairs are the prerogatives of the provincial governments. Among the most important of these are education, natural resource development, and medical care. Federal responsibility for science policy rests with the Cabinet, advised by all departments and agencies having scientific interests.

If intensive study and debate is a guarantee of success in formulating science policy, then Canada's scientific effort should be the most efficient and productive in the Western World. In the past few years many reports have examined Canadian science and recommended methods of improving it. Internally, the Senate Special Committee on Science Policy has produced a comprehensive study entitled *A Science Policy for Canada* and the Science Council of Canada has produced reports on science in general plus others dealing with various special areas of scientific research and development.

In August 1971, the Prime Minister announced the appointment of a Minister of State for Science and Technology and made him responsible for the formulation and development of policies with respect to: (1) appropriate means by which the Government of Canada may have a beneficial influence on the application and development of science and technology in Canada; (2) the co-ordination of programs and activities regarding science and technology with other policies and programs of the Government of Canada; and (3) the fostering of co-operative arrangements in science and technology with the provinces, public and private organizations, and with other nations. Productive consultations have already been established between the Ministry, private industry, the universities, and other levels of government. A particular concern is the development of long-term industrial strategies for the benefit of Canada as a whole. The Ministry will review the criteria for research and development carried out within government agencies in the light of these strategies, and see whether certain programs can be entrusted to other research institutions.

The Science Council of Canada, which reports to the Minister of State for Science and Technology, conducts studies and makes recommendations on medium- to long-term issues in science policy. It is an independent body, with membership drawn from private industry, the universities, and government, which is free to publish its findings and recommendations whether they be favourable to government policy or critical of it.

There is general agreement, in the reports and recommendations, that Canadian science should direct its efforts towards the pressing problems of society. New policies are expected to emphasize industrial, social, and health aspects of science. The current ferment in science may lead to a structure for Canadian scientific activity that will make it possible to predict and respond to future needs in science and technology. In a complex society using complex technologies, the scientific organization must be sophisticated and alert to develop new approaches and predict and avoid adverse consequences.

Industrial Research and Development

Research and development are important to all industrial groups interested in upgrading their output and remaining viable. Not all companies perform their own research and development in formally organized laboratories but they are at least aware of the existence and availability of new technology.

An efficient communications network is essential for Canada with its 21 million inhabitants scattered over 3.9 million square miles. In 1971 Telesat Canada, a corporation jointly owned by government and private enterprise, was created to keep Canada's communications in the forefront of development. Canada will benefit from the availability of telephone, television, and radio services to remote locations in the extreme northern reaches of the country of Canada. At present there are more than 10 million telephones in service in Canada, and 98 per cent of the population can dial anywhere in North America without requiring the services of an operator, thanks to fully automatic exchanges.

Computer research and development has led to the planning of a nationwide digital communications system all across Canada, the first phase of which has been completed. For information dissemination, CANUNET, the Canadian University Computing Network, plans to link every campus in Canada giving every student and faculty member access to university libraries. For scientific and technical information, the National Science Library maintains the largest collection of material in Canada and operates a Technical Information Service for the benefit of industries.

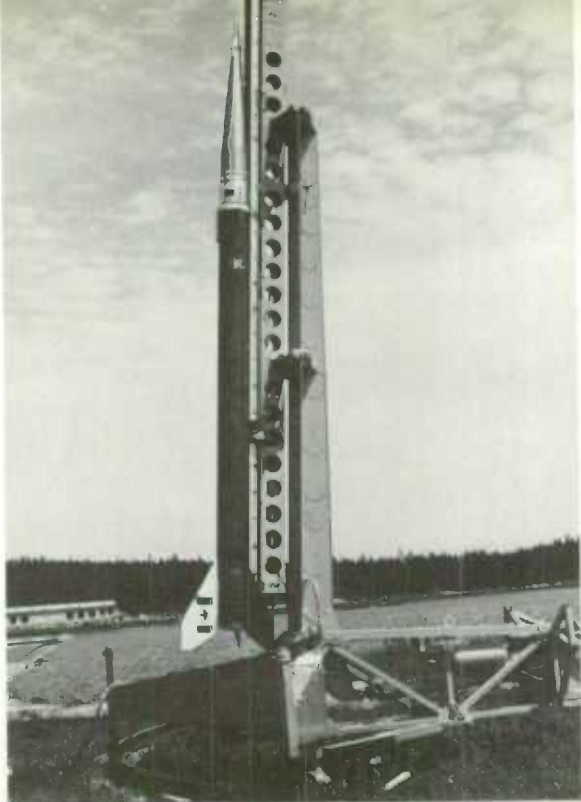
Transportation is another continuing challenge in Canada. The Transportation Development Agency and the National Research Council of Canada are experimenting with Tracked Air Cushion Vehicles for interurban use. The Canadian Government and Bell Aerospace of Canada are involved in Hovercraft trials. The development of Short Take-off and Landing aircraft (STOL) is very promising. Research and development are also being directed to increasing the speed of conventional railway traffic. Transportation is not required for people only. Pipelines for solids such as coal, iron ore, sulphur, and potash are being developed by the Ministry of Transport at the Saskatchewan and Alberta Research Councils, and oil and gas pipelines continue to be improved and multiplied.

Sherritt Gordon Mines, Fort Saskatchewan

In the R and D division of Sherritt Gordon Mines at Fort Saskatchewan, Alta., studies of pressure hydrometallurgy have developed new processes to recover nickel, cobalt, copper, and zinc.



During a total eclipse of the sun, eight Black Brant rockets were launched from East Quoddy, N.S., and Churchill, Man., to measure changes in the ionization of the upper atmosphere when the sun's radiation was cut off by the moon.



Nat Research Council of Can

Basic and applied research, especially the success of the Alouette-Isis series of ionospheric research satellites, has gained for Canada the reputation of being a nation with advanced capabilities in space science technology. Canada's space science programs primarily emphasize the fields of communication satellites and Earth resource sensing satellites. ANIK I, Canada's first domestic communication satellite was launched late in 1972.

Research and development are also important in the field of environmental protection particularly in the development of means to prevent or clean up pollution. The Canadian designed and produced "slicklicker" was developed in response to the need for a means of cleaning up oil spills. Considerably more effort is needed to clean up rural areas and to help make urban centres more livable.

Science and Technology for the North

The North, which has been the object of curiosity and interest for Canadian scientists over the last half-century, has now become the focus of intensive national research and investigation. The discovery of oil in northern Alaska in the spring of 1968 has been largely responsible for this new sense of urgency in Canada. It was immediately apparent that the Mackenzie valley would be considered as the principal alternative route for oil and gas pipelines from northern Alaska to continental markets in the south. And it was also clear that the Alaskan discovery would greatly stimulate the search for economic quantities of oil and gas in the Canadian Arctic. The large-scale development of northern resources is no longer an academic question but a reality of the near future that must be planned for.



A gravimeter is lowered to the floor of Hudson Bay to take spot measurements of the pull of gravity on the bottom.

Science and technology are confronted with at least four major challenges in the North during the next decade: (1) to study the impact of change in the North and to understand and take account of the needs and aspirations of northern people; (2) to study the natural environment on land and in the Arctic seas; (3) to survey the quantities and study the nature of renewable and non-renewable resources; and (4) to devise the kind of technology which will contribute to a high quality of life in the North.

In 1971-72 the cost of on-going research by federal government departments in the North was about \$24 million. Most programs continued in 1972 at much the same level of activity and funding. In addition, a special three-year program of northern environmental research was announced by the federal government late in 1971. This program will cost \$5 million a year and its purpose will be to undertake multidisciplinary studies of the sensitivity of the terrain in the North. Canadian industry has also been engaged in research specifically aimed at solving the technical and environmental problems of operating in the Yukon and Northwest Territories. The Arctic Petroleum Operators Association has financed 34 research projects costing \$1.8 million between 1969 and 1971 and in 1972 a further \$500,000 was spent by the Association to continue this work.

The Department of Indian and Northern Affairs is paying particular attention to the social and economic consequence of change in the North. The Department,

through its own Northern Science Research Group and through contacts with private agencies, has been studying ways and means of encouraging the training and employment of northerners and of using renewable resources which offer scope for alternative ways of life in the North.

University research in the North has greatly increased during the past decade. For several years after its founding in 1944 the Arctic Institute of North America was almost alone in the field of private research in the Canadian North. Its work continues and has now expanded into multidisciplinary social and economic studies. Since 1960, 11 universities in Canada from Newfoundland to British Columbia have established committees or institutes to undertake and encourage a wide variety of investigation in the North. One of these, the Institute for Northern Studies of the University of Saskatchewan, has a permanent field station at Rankin Inlet in the Northwest Territories. The work of these independent university groups is partly financed by the universities themselves, by private donors, and by the University Grants Program of the Department of Indian and Northern Affairs.

The success of this scientific effort in the North will not be measured in terms of sheer numbers or costs but in the effective application of scientific knowledge to the solution of human problems. The protection of the environment, the avoidance of costly errors, and the far-sighted provision of an acceptable way of life must be, in the final analysis, the principal objectives of a science policy for the North.

Nat. Research Council of Can.

Researchers at a study site on Devon Island prepare plant samples for carbohydrate analysis.





In 1972 five new wheat grades were announced in Canada, based on the introduction of Canada No. 1 Western Red Spring wheat, which will be exported with a guarantee of its protein content.

*C. Oak Canada Grains
Trade Bureau*

Research in Agriculture

Research is carried out by three branches of the Canada Department of Agriculture—Research, Economics, and Health of Animals—and by the Grain Research Laboratory of the Canadian Grain Commission.

The Research Branch employs more than 1,000 scientists at some 50 establishments across Canada. Their objective is to uncover new information and techniques that will ultimately benefit farmers and the more than 21 million consumers who spend some \$8.500 million a year for food. The scope of the research carried out by this Branch is broad. Projects embrace all elements of the food chain—soils, plants, animals, and plant and animal products—as well as food processing and storage, and pests and diseases. For example, two federal agricultural scientists at Fredericton, N.B., achieved a scientific breakthrough when they discovered a virus 100 times smaller than normal. Their discovery could be of world-wide importance and could open new avenues of research for scientists seeking cures for many serious diseases that strike men, animals, and plants.

The Health of Animals Branch, through its Animal Pathology Division, carries out research on animal and poultry diseases and provides extensive diagnostic services. This work will be given further impetus by the addition of a new \$11,500,000 laboratory building in the Division's Animal Diseases Research Institute complex near Ottawa. The Research Division of the Department's Economics Branch carries out studies on farm management, resource use, farm income, market structure, and agricultural productivity. The laboratory of the Canadian Grain Commission undertakes research on the quality of cereal grains and oilseed crops.

Forestry Research

Several agencies, both public and private, are engaged in researching various aspects of forestry. These include universities, provincial governments, pulp and paper companies, and the federal government.

The federal government, through the Canadian Forestry Service of the Department of the Environment, is the largest contributor to research in the forest with an annual budget of approximately \$32 million. The Service has laboratories strategically located across the country as well as a number of specialized institutes based mostly in Ottawa. Major current projects include studies on biological control (the use of viruses, parasites, and predators to control insect outbreaks), reforestation in clear-cut areas, forest hydrology, water pollution abatement, land classification for national parks, the likely ecological effects of development in the Canadian North, and the recreational values of a forest. Added to these of course are the Service's traditional research studies dealing with silviculture, fire, insects and disease, wood products, and so forth.

Besides the federal forest research program, the provinces of Quebec, Manitoba, Ontario, and British Columbia maintain forest research organizations concerned mainly with solving problems related to fire protection, silviculture, soils, mensu-

Forest Fire Research Institute

The Forest Fire Research Institute, in the Department of the Environment, provides research and advice on forest fire problems of national concern.





A researcher studies a tiny pine tree through a medical microscope in the Chemical Control Institute of the Department of the Environment.

Canada Forestry Service

ration, and tree improvement; they rely upon the federal program for most studies in entomology, pathology, and forest products.

Within industry, the pulp and paper companies make the largest contribution to research. Most of these companies conduct research into pulping and paper technology and most are also sustaining members of the Pulp and Paper Research Institute of Canada, in Montreal. This Institute has large research programs in pulping and paper technology and lesser commitments to research in logging and silviculture. Lumber and plywood companies depend mainly on the federal forest products laboratories to meet their research needs.

Further research in forestry and allied fields is conducted at Canadian universities. Bachelor degrees and postgraduate degrees are granted by forestry faculties at the University of New Brunswick in Fredericton, Laval University in Quebec City, the University of Toronto, and the University of British Columbia in Vancouver. Bachelor degrees are also granted by the Department of Forest Science in the Faculty of Agriculture at the University of Alberta in Edmonton and by the School of Forestry at Lakehead University in Thunder Bay. In co-operation with the Pulp and Paper Research Institute, McGill University in Montreal trains post-graduate students in fields of interest to the pulp and paper industry.

The Fisheries Research Board of Canada

The Fisheries Research Board of Canada, operating within the framework of the Department of the Environment, is responsible for research designed to encourage the conservation and use of aquatic renewable resources, and to maintain the biological fitness of the aquatic environment.

The Board is concerned with the conservation and rational use of many stocks, including anadromous and freshwater fishes, marine fishes and mammals, invertebrates, and aquatic plants. Development goes hand in hand with research to support industries that depend on fishery resources: the primary fishing industry, the product processing and distributing industry, and the businesses that are built on recreational fishing and aquaculture. The consumer and the country at large profit from the social and economic benefits that flow from the fishery resources.

The Board itself is made up of a full-time chairman and 18 honorary members, appointed by the Minister of the Environment (who is also Minister of Fisheries) for five-year terms. The members are drawn mostly from universities, but the fishing industry and the Department of the Environment are also represented.

Fisheries Research Board of Can.

Although the rainbow trout is native only to the West Coast, it has been introduced into the Great Lakes Basin, where it provides a sport fishery. Scientists at the Freshwater Institute, Winnipeg, Man., conduct studies on fingerlings under various conditions.



Bodington



With the purpose of studying the habits of sockeye salmon, scientists tag spawning salmon near Salmon Arm, B.C.

There are nine research establishments across Canada, a headquarters staff in Ottawa, and research vessels on both the Atlantic and the Pacific coasts. The physical facilities of the Board are constantly being expanded and improved. The new \$9.5 million Freshwater Institute building on the campus of the University of Manitoba at Winnipeg has been completed. It is designed to house all of the federal Fisheries Service staff working on freshwater development in Canada, and the work to be carried on there will include research on fish farming, the improvement of existing fish stocks in our northern waters, and pollution control.

The sheer diversity of the investigations undertaken by the Fisheries Research Board is impressive. For instance, during the past year: a population dynamics specialist has been processing computerized data on ground-fish landings from the northwest Atlantic to assess cod and haddock stocks; a limnologist has been collecting and surveying aquatic fauna in the Mackenzie River system to provide a baseline for measuring the impact of oil pipeline installations; and a chemist in Winnipeg prepared a paper on the mercury crisis in Canada, which became a basic document for the United Nations Conference on Human Environment in Stockholm in June 1972.

Energy, Mines and Resources Research

The Department of Energy, Mines and Resources is the federal government's principal agency for the discovery, investigation, development, and conservation of the nation's mineral and energy resources. It carries out geological, geophysical, geodetic, and topographical surveys; engages in mineral and metallurgical research, both technological and economic; and carries out a number of policy-

making and administrative tasks affecting Canada's resources and the industries associated with them.

The Geological Survey of Canada provides mapping, detection, and interpretation services as well as research and advice in the earth sciences and co-ordinates these for a national and regional inventory of formations of rocks and surface materials, their structures, minerals, landforms, and conditions of stability. Thus the Geological Survey, while not itself engaging in the discovery and development of valuable mineral deposits, provides an essential basis, a plan, and a guide to private mining prospectors and developers. Universities, too, keep up a lively interchange of information with the Geological Survey. In the course of one year, the geologists, from their field activity and laboratory research, produce hundreds of maps, publications, scientific papers in scholarly journals, and add innumerable data to the Survey's open file of information.

The Geological Survey is also keenly aware of the need to assess the potential impact of industrial and urban development on our soils and underlying strata. For example, a major geological field project is taking place along the Mackenzie River valley, which will become the route for a new highway and probably also for oil and gas pipelines from the Arctic to the industrialized regions. The Arctic terrain differs greatly from that familiar to pipeline builders farther south and, to guard against possible unpleasant surprises to all concerned, the Geological Survey has been assessing terrain performance and terrain-sensitivity ratings in the region. These surveys deal with surface and near-surface rock and earth materials, landform features, ground ice and permafrost, muskeg materials, slope-stability hazards, the character of river banks and beds and nearshore lakes and seabeds.

Still on the subject of the Mackenzie valley "corridor," the department's Mines Branch is carrying out investigations of pipe to ensure the structural integrity of oil and gas pipelines constructed in the Canadian North to minimize the risk of pollution and to maintain operational efficiency. The general objective of this research is to assess line pipe of Canadian and foreign manufacture and, in the long term, to develop line pipe of greater strength.

The Mines Branch carries out many other types of research, such as on the treatment of Canadian ores, oils, coals, and other mineral products to facilitate their processing, marketing, and application. It has helped many Canadian mines to develop processing methods for low-grade ores that would not otherwise be of economic value. This has helped to improve economic conditions in various regions in need of development. Mines Branch experts also seek to develop safer and more efficient mining methods. Thus, for example, they have successfully tested a means of supporting slopes in open-pit mines by steel mesh and anchors. Open pits are the most common type of mines in Canada, and if the supports were adopted across the country they could save the industry tens of millions of dollars in reduced waste excavation. Just as important, they would substantially reduce the over-all size of the excavation, and thus reduce the deleterious impact of excavation on the environment.

Another field in which Mines Branch specialists are active is pollution abatement. For example, conventional smelting processes release considerable amounts of harmful sulphur-dioxide gas. The scientists are now on their way toward finding a method for reducing the gas to solid sulphur, which is non-polluting.



Samples of fresh pillow lava are from the Median Rift Valley of the Mid-Atlantic Ridge, a vast mountain range in the Atlantic Ocean.

*E. M. R.
(colour print missing)*

The Earth Physics Branch of the Department carries out research in geomagnetism, gravity, and seismology. Geomagnetic investigations deal with the regional and chronological variations in terrestrial magnetism. Such information is vital for navigation, both on the sea and in the air. It also helps earth scientists to understand the history and composition of the earth's crust. After studying paleomagnetism—ancient magnetization in rocks—on Canada's West Coast, the scientists came to the tentative conclusion that some 200 million years ago Vancouver Island was not part of the North American continent but was thousands of miles away in the central Pacific.

Gravity studies help to round out the picture of the earth's crust. Of particular interest to gravity experts are the long-term vertical movements of the crust in response to the shifting of various burdens, such as the vast ice cover during the ice ages, or ocean tides. Both geomagnetic and gravity data help to channel the search for mineral deposits.

Seismology deals with earth tremors, natural and artificial. By keeping a precise and comprehensive record of earthquakes in Canada, the seismologists of Energy, Mines and Resources are able to compile maps showing earthquake probability in various parts of Canada—a valuable aid to architects and builders of all types of

structures. Also, Canadian seismologists have attained pre-eminence in the world in distinguishing the tremors caused by earthquakes and by atomic explosions, a capability the value of which is obvious.

On the Atlantic coast of Canada, staff members of the Atlantic Geoscience Centre at Dartmouth, N.S., are studying the geophysical properties of the seabed. Such studies are of great importance in the exploration for petroleum, which is now concentrating on the continental shelves off Canada's coastlines. Studies of the transport and the settling of sediment have many applications to shipping, fisheries, harbour construction, exploration, and so on. More fundamental questions are also asked and resolved by marine geophysicists. Some of them fall within the theory of continental drift or sea-floor spreading, according to which the Atlantic Ocean, for example, has been widening during geological time.

Scientific field work in the high Arctic, such as in the Queen Elizabeth Islands, is fraught with great expense, high risks, and unusual difficulties for men and instruments. To make research more efficient and to concentrate expertise, the Department of Energy, Mines and Resources has for many years operated the Polar Continental Shelf Project. This organization provides bases, transportation, and co-ordination for various groups of scientists, not only from the Department but also from universities and even from other nations. One of the most important recent investigations concentrated on the interaction of the fields of motion of the atmosphere, the pack ice, and the liquid ocean. Such an understanding is basic to forecasting ice conditions.

E. M. R.

The Geological Survey of Canada engaged with industry in a submarine geological survey using a submersible for underwater observation.



Health Science Research

Health science research differs from most other areas of research in Canada in that it is carried out, with only a few exceptions, in universities and associated institutions and hospitals. There is as yet only limited health research in industry. A number of government agencies such as the Department of National Health and Welfare and the Defence Research Board undertake, in their own laboratories, some health research related to their particular responsibilities and the Department of Veterans Affairs has modest research programs in its hospitals across the country. At the provincial level, there are some research programs directed towards the solution of local problems of health. There are, however, no large central laboratories devoted to medical research, as in Great Britain or the United States.

It is, then, the university faculty members and their colleagues who constitute the great majority of Canada's health scientists. There are now some 1,800 project directors most of whom are located in the 16 universities across the country that have faculties of medicine, dentistry, and pharmacy. Many of these investigators combine their research activities with the care of patients or the teaching of personnel for the health professions. This joint commitment contributes to the maintenance of a high standard of health care and greatly facilitates the application to Canadian problems of the results of research done both in Canada and elsewhere.

The financing of research is a partnership. The universities themselves, with the assistance of the provincial and federal governments, provide the physical facilities for research and, in large part, the salaries of investigators. Financial support received from Canadian extra-mural sources for the operating costs of their research has been estimated at \$60.9 million for the 1971-72 fiscal year. Of this total, \$11.2 million was provided by voluntary agencies such as the National Cancer Institute of Canada, the Canadian Heart Foundation, the Canadian Arthritis and Rheumatism Society, and a number of other organizations, some concerned with specific diseases and others having less restricted interests. A further \$4.6 million was made available to investigators through provincial foundations or agencies. The Quebec Medical Research Council, for instance, contributes significantly to the establishment in research of newly-appointed faculty members in that province. Ontario provides operating grants to university faculty through a number of programs and provincial agencies. The major extra-mural source of operating funds for research, however, is the federal government which contributed approximately \$45.1 million in the 1971-72 fiscal year. Of this amount, over \$8 million was provided through the Department of National Health and Welfare which has primary responsibility for public health research, and \$35.6 million was channelled through the Medical Research Council which, under the terms of its Act, has responsibility for the support of basic, applied, and clinical research in Canada in the health sciences other than public health.

The year 1971-72 saw the successful development, by a neurologist at the University of Manitoba, of a new test using electronic impulses to diagnose certain types of strokes. Late in the year the Medical Research Council clinical trial of antilymphocyte serum as an inhibitor of kidney transplant rejections in man was started, using serum from a single large batch produced with the co-operation of

Thirty years ago two Canadians, James Hillier and Albert Prebus, developed the electron microscope, now used in research into malignant diseases and the identification of viruses.

Pat Hydes



the Connaught Medical Research Laboratories. This joint research and development program led Sir Peter Medawar, noted British scientist and Nobel Prize winner, to predict that Canada would produce the first clinically usable ALS. In addition to this clinical trial, studies are under way in a number of centres to develop better laboratory methods of recognizing the transplant rejection phenomenon before the event so that preventive treatment can be initiated.

There is increasing interest in medical genetics, a field in which Canada has already made important contributions, notably Dr. Murray Barr's discoveries in the area of chromosomal abnormalities. Research into the detection of genetic defects in utero has been extended in the light of newly developed methodology and the knowledge gained through research in genetics provides the basis for genetic counselling services in some of the larger centres to advise prospective parents.

Chats Image

Drs. Kennedy and Haskill work in the field of immunology in cancer research. Here Dr. Kennedy examines a culture of tumour cells using an inverted microscope and Dr. Haskill prepares cells for chromosome analysis.



National Museums

Science and Technology

The newest of Canada's National Museums is the Museum of Science and Technology, opened in November 1967. It became a member of the National Museums Corporation on April 1, 1968 and shares a Board of Trustees with the National Gallery of Canada, the National Museum of Man, and the National Museum of Natural Sciences.

It is one of the capital's most popular museums: well over half a million visitors passed through its doors in 1971. Visitors are invited to learn and explore the language and events of science by demonstrations of scientific principles and displays which, by means of artifacts and text, correlate these principles with the development of technology. Thus, one of the prime aims of the museum is to acquaint the Canadian public with its history in these areas and thus to promote scientific literacy. The museum presents lively and colourful displays illustrating the "significant" past, whether scientific or technological, with "particular but not exclusive reference to Canada." At present, the emphasis is upon the technologies of ground transportation, aviation, agriculture, shipping, and industry — technologies which have profoundly affected the history of Canada.

The past year has seen the opening of a new Communications Hall to display telegraphy, radio, television, and sound recording and reproduction. A revised marine exhibit has been relocated in the building with more model ships on display. It is planned to further enlarge the collection so that a comprehensive view of the development of shipping can be seen. Particular attention will be paid to the commemoration of ships whose connection with Canadian history is close. This year's planning also includes the construction of a completely revised agriculture section and further installations in the technological park in front of the main building.

In order to supply exhibits with material for display and artifacts for study, collection activities have proceeded apace. The museum was fortunate in acquiring a Fokker D VII to augment its already highly significant collection of some 90 aircraft housed mainly at Rockcliffe and known as the National Aeronautical Collection. An old printing press from Medicine Hat has been given a new home in the museum. Several timekeepers, watches, clocks and chronometers have been added to the collections. Especially notable is an early nineteenth century skeleton clock from Great Britain. An electric street railway car, O.T.C. #854, also came to the museum for preservation.

Education and extension programs are high on the list of activities. The plan of development calls for publishing books and pamphlets dealing with Canadian science and technology, past and present. Lectures and slide and film showings are regular events. A staff of guides is ready to enrich a tour of the exhibits with informed talks. On July 1, Christmas and Easter, special holiday programs are traditional. A touring exhibit of some of the first moon rocks brought back was circulated across Canada by the museum in co-operation with the United States Information Services as the first of an extensive program of loans to other museums.



A World War I Sopwith triplane.

Info can. (missing)

The resource material at the museum includes an 11,000-volume library; its principal holding is a very fine collection on aviation. Equally outstanding is the collection of over 12,000 aircraft photos. Photographs and drawings pertaining to other areas such as railway technology are also housed at the museum. Development is proceeding to make the National Museum of Science and Technology the chief source of authoritative information in all its fields.

Info can. (missing)

A 1910 McLaughlin Buick touring car.



National Gallery

In 1972, the National Gallery of Canada entered its ninety-second year of existence. It was established in 1880 when each member of the Royal Canadian Academy donated one of his works of art as the beginning of a permanent national collection. In 1913, an Act of Parliament created the National Gallery's first Board of Trustees. As the Gallery gradually approaches its centennial in 1980, the basic aim outlined in the 1913 statute remains unchanged: to encourage and cultivate artistic taste and public interest in the fine arts throughout Canada. While the objectives of the National Gallery have not changed, its corporate structure has. In 1968, after being governed for 55 years by its own Board of Trustees, the National Gallery of Canada became part of the Corporation of the National Museums of Canada.

The National Gallery has always had a particular concern for national art. In 1971, a lively and varied extension program formed a major part of the Gallery's activities. The exhibition, *Watercolour Painters from Saskatchewan*, was one example of the interest in Canadian art aroused by an exploration of a single region in detail. Another important aspect of the national program was the tour of a masterpiece from the Gallery's collection, the El Greco, *Saint Francis and Brother Leo Meditating on Death*. Despite the risks involved, the policy of conducting such tours will continue because for many Canadians it is the only opportunity they have to enjoy masterpieces.

National Gallery

Uplands H by Gershon Iskowitz was entered in the Venice Biennale in 1972.



NATIONAL GALLERY OF CANADA

In 1971, the National Gallery of Canada acquired the *Portrait of a Lady* painted by Bartolomeo Veneto between 1520 and 1530.

*National
Gallery*



NATIONAL GALLERY OF CANADA

While much was happening away from the National Gallery itself in 1971, the Ottawa program was also very full. There were nine primary exhibitions focusing on such varied subjects as French Primitive Photography, and the works of the Canadian artist Joyce Wieland. Among the other exhibitions were: *Gertrude Stein & Picasso & Juan Gris*, the work of the late Quebec painter Adrien Hébert, the collection of the Canada Council, and *Progress in Conservation*, a didactic exhibition documenting specific restoration projects as well as demonstrating examination and conservation techniques. The Gallery also continued its role of stimulating interest in Canadian art abroad by working in close co-operation with the Department of External Affairs in exhibiting works of Gar Smith, Jean-Marie Delavalle, Yvon Cozic, Claude Breeze, Brian Fisher, John Hall, and Ron Martin at the VII^e Biennale de Paris and at the Canadian Cultural Centre in Paris.

Several major works of art were added to the National Gallery's collections in 1971, some by purchase, others by gift. Among those acquisitions which attracted a great deal of interest was a *Portrait of a Lady* by Bartolomeo Veneto, a 16th-century northern Italian painting that is perhaps the earliest portrait in the National Gallery's collections. Another important addition was a collection of mediaeval art which included frescoes and 56 pieces of stone sculpture which came from different parts of France and Spain and range from the 11th to the 13th century.

Museum of Man

The National Museum of Man is concerned with the conservation of Canada's cultural heritage through research, collection, preservation, and education. The Museum is at present closed to the public because of renovations which will be partially completed in 1973; however, an intensive program continues.

The Canadian Centre for Folk Culture Studies is undertaking a long-range study of the folk arts, music, and traditions of Canada's ethnic communities. A recently launched program to increase its folk culture collections for display and research has received very generous response from the public. The folklore archives hold 60,000 items on tape and a growing collection of arts and crafts. The Archaeological Survey of Canada has undertaken more than 200 projects in Canadian pre-history in the past 12 years, which have dramatically altered knowledge of Canada's past. The Archaeology Collection embodies over a third of a million objects ranging from 10,600-year-old Nova Scotian lanceheads to 2,500-year-old Eskimo art. The Ethnology Division concentrates on salvaging and preserving data and specimens of the traditional cultures of Indian and Eskimo Canada and maintains over 33,000 specimens, including an excellent collection of West Coast Indian art and several hundred Eskimo carvings. The Canadian War Museum's collection includes material from the French period to Canada's participation in two world wars and Canada's national collection of war art. The History Division undertakes research in Canadian history and has collected and restored over 16,000 items of period furnishings.

The Museum facilitates foreign research in Canada; contributes to exhibits abroad; finances staff research projects and Canadian research in universities and other museums; and has published hundreds of books, reports, and studies. The National Museum of Man began an extension program in 1970 to provide access to the Museum's collection across Canada and to ensure museum service at the community level. In 1971-72 ten travelling exhibitions included "Oonark Drawings," "Early Domestic Lighting in Canada," a war posters exhibition called "Patriots and Propaganda," "Eskimo Archaeology," and a Ukrainian art exhibition. The extension program also includes educational loans of artifacts, specimens and films, educational publications, lectures and plans for future ETV programming.

*National Museum of Man
(missing)*



Among the treasures of the National Museum of Man is this Haida mask, collected in 1879 in the Queen Charlotte Islands.



Life-like dioramas are created to display plants and animals as they occur in nature.

National Museum of Canada Natural Sciences

The exhibits of the National Museum of Natural Sciences in Ottawa are closed to the public until the summer of 1973 because of renovations that include the redesign and reconstruction of the public galleries. Research and administrative facilities have been moved from the Museum building to provide space for new exhibit halls dealing with plants, animals, fossils, and the physical history of the earth.

Zoological and botanical studies have continued to be concerned with surveys of animals and plants. Biological expeditions to many regions of Canada are gradually extending knowledge of the country's natural heritage and adding to the systematic collections of the Museum. In recent years there has been close co-operation with the National Parks Service in an inventory of the life preserved in these important sanctuaries.

Palaeontological studies have been concerned with ice-age fauna and dinosaurs. These include the collection of fossil mammals in the unglaciated regions of Yukon Territory and studies concerning the possible catastrophic extinction of dinosaurs.

In the field of mineralogy, the Museum was involved for some months in preparations for the 24th International Geological Congress, August 21-25, 1972, in Montreal, and in developing a display series for the National Mineral Collection.

As part of the Canadian government's cultural heritage policy, a program has been launched to provide increasing access to the collections of the National Museums, and to make museum service available to communities across the country with the assistance of associated museums. Included in this program are travelling exhibits that will include display facilities mounted on truck chassis so that collections can be shown even in small communities.

Libraries and Archives

Public library service, supported by local and provincial funds, is offered in all ten provinces. Each has a public library agency or commission, and provincial legislation encourages co-operation on a larger-unit basis. Large urban centres have long been served by municipal libraries and regional libraries are not new to Canada, but more and more emphasis is being placed on library service to sparsely populated and remote areas. A *Bibliothèque centrale de prêt* for the Saguenay-Lac Saint-Jean area was added in 1971 to Quebec's growing public library service network. The federal government supports regional services in the northern territories. The Northwest Territories Public Library Services, begun in 1965, serves a population of 33,000 scattered over an area of more than 1,300,000 square miles; the Yukon Library Services Branch, dating from 1961, serves 16,000 people living in an area of more than 200,000 square miles. The Whitehorse Branch of the Yukon system has an art gallery and music-listening facilities. The library at Eskimo Point in the Northwest Territories shows films and tapes of interest to the indigenous people, and there are plans to use adult education audio-visual aids throughout the system.

The emphasis in school libraries has shifted from the conventional concept of a collection of books to that of a multi-media "resource centre" for the school. College and university libraries have gone through a period of very rapid growth, but their expansion is now slowing down. A survey of the library resources which support graduate studies in the universities has been conducted by the National Library, and the first parts of the report appeared in 1972. It is expected that the survey will give impetus to the rationalization of acquisition policies of academic libraries and encourage the greater sharing of resources.

Special libraries in Canada number more than 1,000. These include company and government libraries as well as the libraries of associations and institutions such as museums, hospitals, and so on. Each province has a legislative library, and in Quebec there is also the *Bibliothèque nationale du Québec*. The greatest concentration of government libraries is in Ottawa. The largest collections are those of the National Library, the National Science Library, the Library of Parliament, and the Department of Agriculture Library. A Canadian Government Library Committee was set up by the National Librarian in 1971, and a detailed survey of federal library services and collections began in 1972.

The National Science Library specializes in science and technology. Among its services to the scientific research community is a computer-based Selective Dissemination of Information (SDI) service to researchers. A companion service for researchers in the social sciences and humanities was inaugurated by the National Library in 1972.

The National Library of Canada specializes in the fields of Canadiana, the humanities, and the social sciences. It administers the legal deposit regulations of the National Library Act (1969) and publishes the national bibliography, *Canadiana*. It maintains national union catalogues listing the book and periodical holdings of some 300 Canadian libraries. Through these catalogues, the National Library provides libraries and researchers with locations for needed material. Many Canadian libraries are linked by Telex, which accelerates the exchange of



The beautiful Library of Parliament in Ottawa.

Malak (missing)

information and loans between libraries.

Rapidly increasing costs have led to pressure on libraries to share their resources and services. The National Library has taken the lead in plans for co-ordination on a national scale. In consultation with specialists from other libraries, the National Library is studying the possibility of establishing a computer-based library information network in Canada. One of the tangible results of this initiative is the automation of *Canadiana*, the first completely computer-based issues of which are expected in early 1973.

Eight Canadian universities now offer degrees in library science. In 1971, the University of Toronto School of Library Science became the first Canadian school to offer a doctoral degree in this discipline. There are an increasing number of post-secondary courses in the community colleges for the training of library technicians. As the application of automation to library operations increases, systems analysts, organization and methods specialists, computer programmers, and information scientists are being added to library staffs. At the same time, the demand for subject specialists in the larger libraries is drawing other professional personnel into the library field.



Montreal's travelling bibliobus carries about 8,000 volumes on its 19 stops in the metropolitan area.

See Sidaway/Gazette

The National Archives

The Public Archives of Canada commemorated its centennial in 1972. It was the occasion for meetings of Canadian archivists and the planning of collective projects. Closer collaboration between institutions and a greater dissemination of documents in order to serve the public were the main themes. At the meetings it was proposed that the production of facsimiles and of microfilm copies of documents should be made available across the country and that travelling exhibitions of documents be prepared.

While continuing the *Union List of Manuscripts in Canadian Repositories* and the *Register of Post-Graduate Dissertations in Progress in History and Related Subjects*, a new research tool will be created, a "Guide to archival sources in Canada." This guide will give a summary description of all resources, manuscripts, maps, engravings, sound recordings, films, and prints from governmental or private sources, whether they are preserved in federal or provincial archives, in universities, public libraries, or historical societies, or whether they are still kept in the organisms that created them, cultural, religious, artistic, scientific societies or financial, industrial, or commercial firms. Whatever his field of study, the researcher will be able to find in the guide extremely useful information on the location and extent of the documentation available. The documents themselves will be much closer to the public through the reproductions and the travelling exhibitions.

Marked progress is also being made in the training of archivists. Four or five universities have given in 1972 or will give in 1973 courses in archival science, while courses in archival techniques are offered in some colleges. Before long, training facilities will be sufficient to fill all needs in this field.

The National Capital

A capital where all Canadians can feel at home: that is the goal of the National Capital Commission, an agency of the federal government.

This great undertaking will take decades – if it ever can be fully accomplished – but the objective is unwavering: a region where French and English and the myriad other cultures of Canada can mingle and work and live and visit in understanding and friendship.

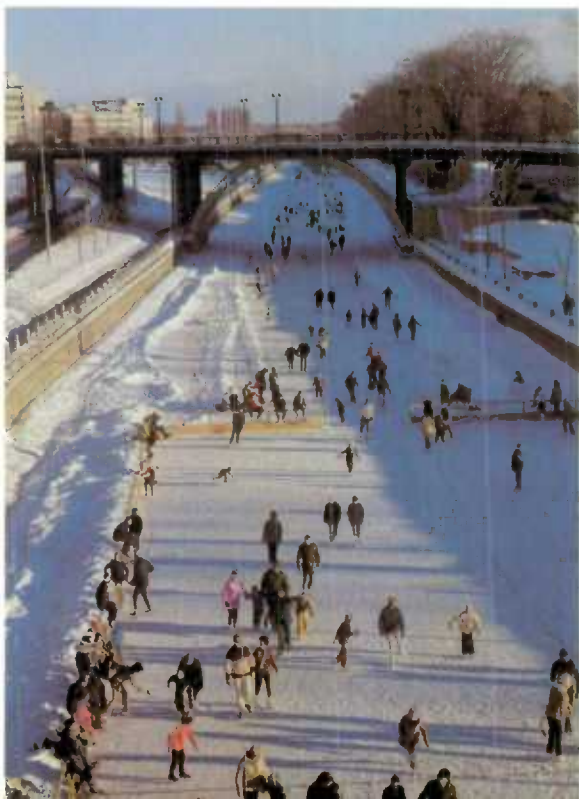
It is an ideal to appeal to the resourcefulness and goodwill of Canadians everywhere. The task is made even more challenging by the fact that the Capital Region encompasses all or parts of no fewer than 57 municipalities with their own jurisdictions, which speak for the 600,000 Canadians of every background living in the area.

The Canadian capital, unlike many other capitals of the world, does not operate under a single federal authority. However the National Capital Region, as defined in the National Capital Act, centres on Ottawa and Hull at the confluence of three rivers famed in Canadian history – Ottawa, Gatineau and Rideau – and takes in some 1,800 square miles of eastern Ontario and western Quebec: farms, forests, lakes, cities, towns, and mountains.

The Commission itself comprises 20 commissioners representing all the provinces. It wants to make the capital a place that can attract all Canadians as a symbol of their nationality.

*Malak
(missing)*

A popular innovation by the National Capital Commission is skating on the Rideau Canal.



Since 1858, when it was so designated by Queen Victoria, and until recent years, Ottawa alone had been considered the capital of Canada. "Westminster in the wilderness" it was often called then. And essayist Goldwin Smith described Ottawa as "a sub-Arctic lumber village converted by royal mandate into a political cockpit." Its winters are still long and cold. Even there the Commission has provided some relief by making part of the Rideau Canal into the world's biggest skating rink.

Ottawa grew slowly until the 1939-45 war. But during and after the war a growing government and its departments spurred rapid expansion and attracted people from all parts of the country.

In the last few years, a new idea of the capital has emerged. The federal and all provincial governments in January 1969, gave formal approval to this idea—that the capital's core be extended to and include the heart of neighbouring Hull across the river from Parliament Hill. This conception now is taking physical shape with a new bridge linking the two cities and new federal buildings rising in downtown Hull. These structures will manifest Canada's development as one state with two main languages and cultures.

In carrying out the role assigned to it by the government, the National Capital Commission undertakes public works itself, guides other federal ventures, and provides grants and other forms of aid to municipalities and other bodies in the Capital Region. It even lends a hand when townships in the Region want help to increase the use of the other official language.

The Commission has played a major role in urban expansion by overseeing the construction of government buildings inside and outside the downtown area. It is still developing an extensive series of scenic driveways along the Ottawa River and Rideau Canal and in Gatineau Park in the Quebec sector of the Capital Region.



On Sunday mornings the Ottawa River Parkway is closed to motorists so that cyclists may enjoy the fresh air and the view.



The Royal Canadian Mounted Police, who are celebrating their centennial this year, supervise the National Capital Commission's areas in Ottawa and Hull.

Malak

Gatineau Park covers 88,000 acres. And in a huge half-moon around Ottawa is the 44,000-acre Greenbelt designed to contain urban sprawl. The Park and the Greenbelt have permitted the development of recreational facilities easily accessible from the capital core. They range from a maple sugar shanty to flower and vegetable plots for apartment dwellers with green, or even brown, thumbs.

Not only did the government launch construction in 1970 of the Portage Bridge to link the Ottawa and Hull cores, but in early 1972 the Commission reached a long-sought goal: the acquisition of part of the Hull riverbank property of E. B. Eddy Co., which has been in business in the same place since 1851, with the eventual aim of obtaining all this land within 10 years for housing, parks, and other projects. This action has done more than anything else in recent years to change the face of the capital. Eddy's will relocate within the environs of Hull without laying off its workers.

The Commission now controls enough property in downtown Ottawa-Hull for a complete revitalization of the twin-city cores. It may set an example for all Canadian cities on how to make downtown living — not only work — attractive. There is new bounce in the capital centre.

In 1972, a new airport parkway was built from Ottawa International Airport to the heart of the capital. Other road rebuilding is taking place in co-operation with the Ontario and Quebec governments. There will be more bicycle paths, more promenades and more summer as well as winter use of the Rideau Canal. There will be more attention to Canada's past by preservation, refurbishing, and use of old buildings and places such as the Byward Market.

Will travellers from abroad ever flock to Ottawa as they do to London, Paris, and New York? Some day, says the Commission.

National Parks

Canada's more than 50 National Historic Parks and Major Sites, and its 28 National Parks, offer a wide variety of summer leisure experiences. These range from outings of a few hours' duration, to major wilderness excursions.

Some National Historic Parks and Major Sites are in or near major population centres, while others are in tranquil rural areas; visitors to a few National Parks get a bonus in the proximity of historical sites. This is true particularly in the Maritime Provinces, Quebec, and Ontario.

The most impressive restoration project, due to its magnificent scale, is the Fortress of Louisbourg on Cape Breton, Nova Scotia. This National Historic Park occupies almost 13,000 acres and work is under way to restore one fifth of the original 18th-century town, and its massive defences. Fascinating public tours are available during the summer and the architectural, political, military, and cultural history represented in the Fortress kindles the imagination. When complete, the Fortress of Louisbourg will rival many of its European counterparts.

Indian & Maritime Affairs
(colour print missing)



The dining room of the Governor in the Fortress of Louisbourg was the most richly furnished room in his suite. Here he entertained his senior officers or visiting dignitaries.



In addition to the national parks, each province has created its own areas, such as Algonquin Park, Ont. In 1971-72, about 13 million tourists visited Ontario's 115 provincial parks.

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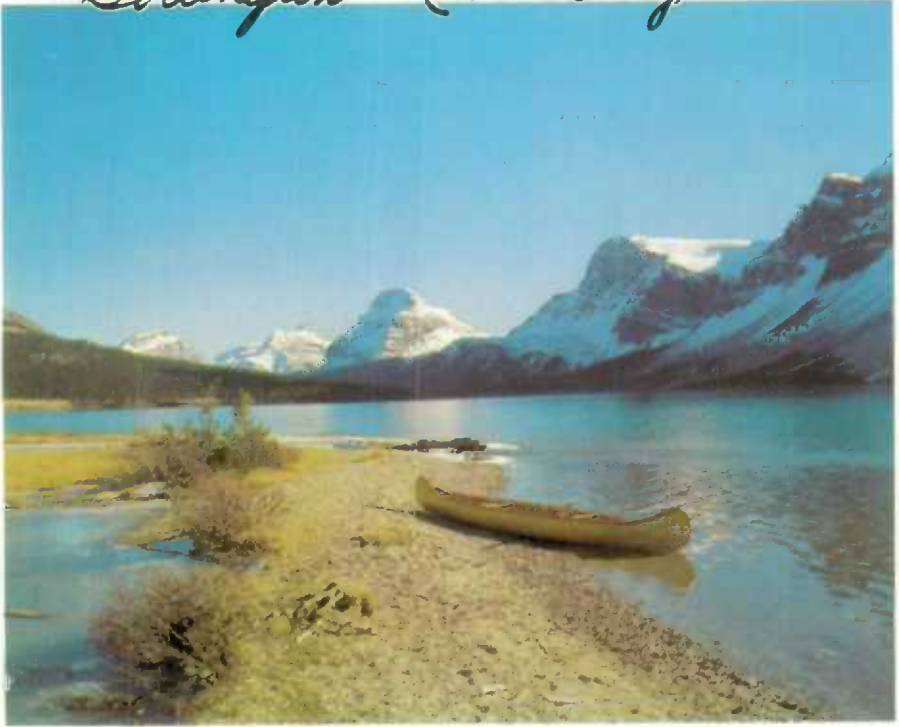
Fort Langley, built in 1827 as a Hudson's Bay trading post on the Fraser River, is well worth a visit. Today it is fully refurbished in authentic detail and looks as it did during its heyday as a store for Gold Rush prospectors of 1850.

In Manitoba, near Winnipeg, Lower Fort Garry is the chronicler of exciting and important times in the development of the West. Started in 1831 and completed 16 years later, the Fort has been the setting of dramatic moments in Canada's history. Particularly attractive is the Big House, also built in 1831, refurbished to its most elegant period in 1852 when it served as residence for the governor of Rupert's Land of the Hudson's Bay Company.

The homes of three Canadian Prime Ministers are among the National Historic Parks and Major Sites, and each reflects a distinct style of life. Sir Wilfrid Laurier's childhood home at St. Lin, Quebec, is a simple, unpretentious cottage; William Lyon Mackenzie King's "Woodside," at Kitchener, Ontario, reflects the solid, upper-middle class life of a Victorian Ontario household; and Sir John A. Macdonald's "Bellevue" is an elegant Italianate mansion. All are furnished according to their period.

The 28 National Parks, each with its own character, allow the study of natural history and the geological development of this vast and varied country. Canada is setting an enviable record in its continuing program to create "quiet places" where this and future generations can forget the noise and tensions of the city and enjoy nature in its primordial state.

Bodlington (missing)



Bow Lake in Banff National Park, Alta.

In these parks, one can follow nature trails with park naturalists or self-guiding pamphlets; hike through dense forest; skirt lovely lakes and, perhaps, wade through a sparkling stream; gaze in awe at mountain glaciers; enjoy bird-watching and study wildlife in its natural habitat; see countless wildflowers; sleep under stars more clearly visible than when seen from smog-filled cities; breathe deep of the fresh air; in short, refresh both body and mind.

Some of the Parks are vast areas set aside for eventual use, while others are more developed. Some have commercial accommodations within park boundaries, while others have such accommodations nearby. Campgrounds vary from those with complete services to areas set aside for pitching a tent during an overnight hike.

Ten new National Parks have been created since 1968 and, of these, three were created in 1972. These are Kluane, in the Yukon, and Nahanni and Baffin Island in the Northwest Territories. Baffin Island National Park was the first to be created north of the Arctic Circle. Total land mass in the National Parks system is about 49,800 square miles, or 32 million acres.

The National and Historic Parks Branch of the Department of Indian and Northern Affairs has a continuing program of acquisition of parklands and historic sites that meet national standards.

Recreation

Attendance at spectator sport attractions such as hockey, football, horse racing, and car racing remain high throughout Canada. However, the trend noted several years ago towards participation in outdoor activities has continued at an ever-increasing rate.

Camping in Canada has become a way of life in the summertime. Associated interests like hiking and canoeing also show an increase in popularity. Camping is indicative of the North American's new appreciation of the peacefulness of the rural and wilderness environment as opposed to the inherent stresses and strains of urban living. This continuing search for respite from the cities in semi-wilderness sites has had a variety of effects. A marked increase in sales for outdoor camping equipment and a higher utilization of wilderness resort facilities have not occurred without problems in other areas. Particularly apparent is the growing stress on park facilities during peak periods in July and August. The advent of the camper-trailer has created an unprecedented demand for fully serviced and semi-serviced campsites. The new camper-travellers are almost totally dependent on the facilities of public parks where they tend to congregate. The seasoned wilderness wanderer, on the other hand, leaves the asphalt far behind.

Resort-oriented summer activities such as golf, tennis, swimming, and trail riding have tended to level off for the past two years but have not declined as a result of the home-on-wheels trend. There also has been a significant increase in hiking, with new trails being developed in most provinces by volunteers. Among the biggest new developments are the international Chilkoot Trail from Alaska into British Columbia, the new Centennial Trail in British Columbia, the Rideau Trail from Ottawa to Kingston, Ont., and trails in the Laurentians.

But because Canada is such a vast land, and Saturday and Sunday are the universal days for recreation, just getting to these recreational facilities is fraught with problems. Motor traffic from cities to recreational areas is causing traffic congestion on weekends and holidays and the over-use of facilities at peak periods. The weekend crowds and lineups at the 800 golf clubs and 330 skiing areas of the country and the small number of patrons during the week are good examples of the imbalance of their use in Canada. Tourist vacation promotion by governments and other agencies help resolve this problem and experiments with extended day shifts and a three- or four-day work-week in industry may eventually have a beneficial effect on Canada's recreational patterns.

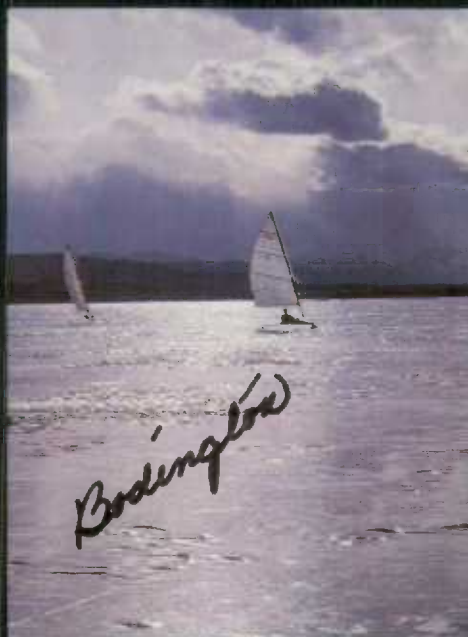
A significant development in the holiday resort business has been prompted by retired people and couples with no young children who prefer a quieter uncrowded autumn holiday. This trend has caused several summer resorts to extend their season beyond the traditional Labour Day weekend closing in September to the end of October. Keltic Lodge on Cape Breton Island, the Algonquin Hotel at St. Andrew's-by-the-Sea in New Brunswick and Manoir Richelieu at Murray Bay, Québec, are three major resorts that have extended their seasons in the past few years with earlier opening and later closing dates.

An outdoor winter vacation in Canada is now an important consideration for 2 million Canadians and an established reality for over 100,000 annual winter visi-



*Allura Dept
of Industries
+ Tourism*

Skiing in Jasper National Park, Alta.



Bodington

Ice boating on the Bow River between
Calgary and Banff, Alta.



Malak

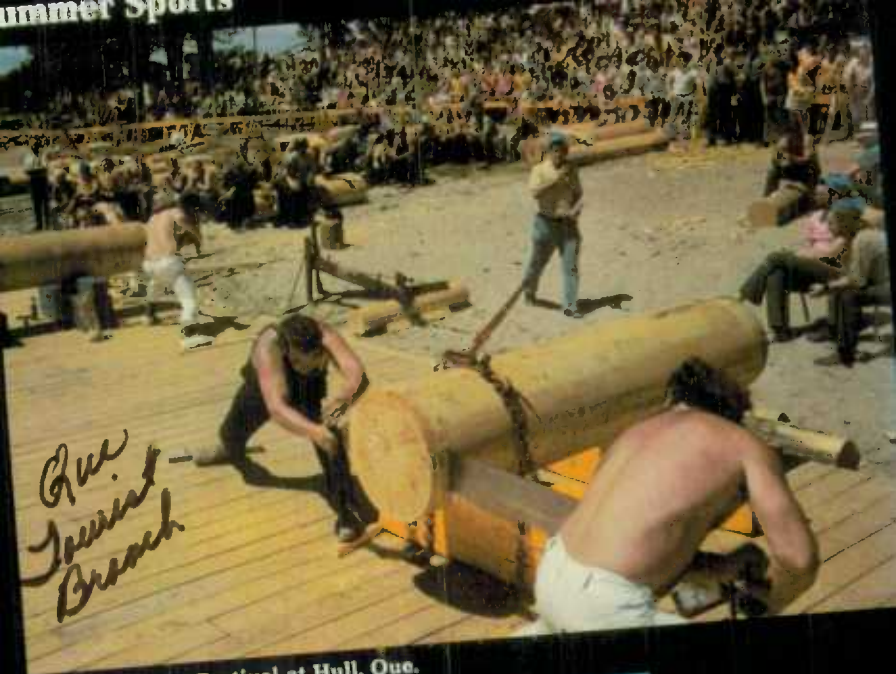


Ice fishing on Lake Simcoe, Ont.



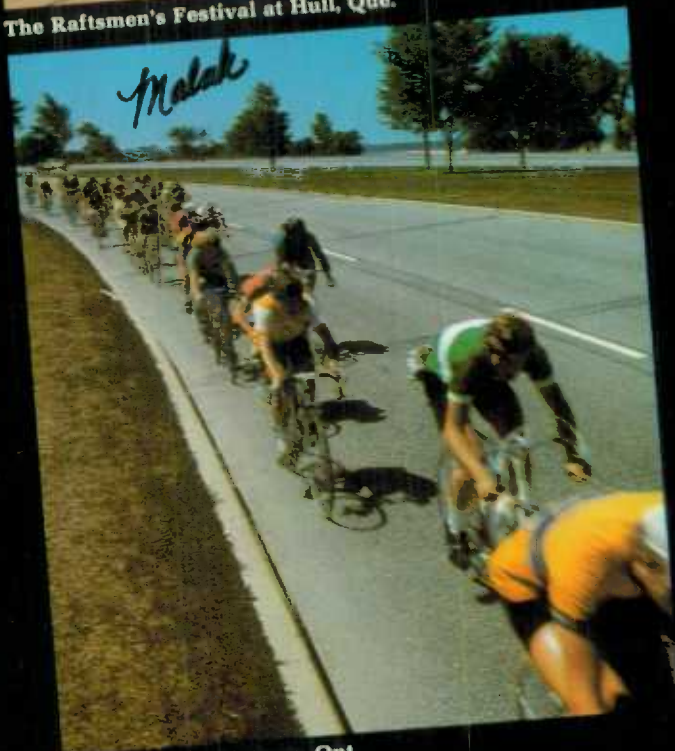
Ice palace at the Quebec Winter Carnival, Que.

Summer Sports



*Que.
Tourist
Bureau*

The Raftsmen's Festival at Hull, Que.



A cycle race in Ottawa, Ont.



A canoe regatta in Ottawa, Ont.



tors. Indoor interests, especially theatre and sports activities such as hockey, curling and bowling, may lead in numbers, but active participation in winter sports and recreation attracts the largest number of new recruits. This nationwide trend was referred to in 1972 as evidence that Canadians have finally learned to live in harmony with their winter environment. Alpine skiing, snowmobiling, and the astounding revival of cross-country skiing are the leading activities. Skating, snowshoeing, and broomball have either been revived or have increased in popularity to become significant secondary pastimes in the outdoors.

Recreation is as diverse a subject as an individual's preference for a change of scene or his indulgence in an absorbing hobby. Canada is a land of changes; a land of four distinct seasons offering a variety of terrain and vegetation that includes snow-capped mountains, boreal forests, the mind-bending space of the great plains, and the pastoral tranquility of valley farms.

Sport

The federal Fitness and Amateur Sport Act of 1961 provides for federal aid for sporting and recreational projects in Canada through direct services and grants to national organizations. Sport Canada and Recreation Canada, a reorganized version of the old Fitness and Amateur Sport Directorate of the Department of National Health and Welfare, administers the federal program with the advice of a National Advisory Council.

Grants are made to encourage amateur sport and recreation and to assist Canadian participation in international competitions. A grants-in-aid program enables amateur athletes to maintain their athletic career while continuing their education.

Nat. H & W.

Leslie Cliff, here practising for the Olympics, shows the style that won her a silver medal at the games.



The Mass Media

The Press

The print media in Canada, as elsewhere, are dominated by a powerful daily press: in 1971, 100 English and 12 French daily newspapers served 93 communities and had a combined circulation of 4.5 million, or a total readership representing about three quarters of the nation's households. As in other countries, there is an increasing trend toward group ownership of the daily press: more than two thirds of the dailies today are being produced by 12 publishing groups — in 1966 a total of 63 publishers produced 110 dailies.

Serving the needs of the smaller areas of population and the dormitory suburbs of the metropolitan areas are about 900 weekly or twice weekly newspapers with a total circulation of about 3 million. About 130 of these are in French. Playing a unique role on the news media scene in Canada are those newspapers which serve the needs of new Canadians whose mother tongue is neither English nor French. Publications in this category, generally weeklies, total about 85; they appear in 23 languages (including one daily in Italian in Toronto) and have a circulation of close to three million.

Serving the business, professional, and technical need for knowledge is the professional and business press. Some 490 periodicals offering 118 identifiable classifications of interest in the professions, business, trade, and industry have a combined circulation of about one million.

Cultural and recreational activities of Canadians are reported in some 300 separate publications, most of them monthlies, although some are quarterlies and a few are weeklies. They cover such interests as education, sports, hobbies, religion, entertainment, motoring, boating, travel, the arts, music, TV, and radio.

The activities and points of view of university students are contained in 88 periodicals. Three of them are bilingual and four are French. With few exceptions, these publications are edited by undergraduates.

The farming community is served by 59 publications of which 8 are bilingual or French. These magazines cover all aspects of Canadian farm activity.

National Film Board

The National Film Board of Canada is a unique film organization. Established in 1939, its world-wide reputation stems from the documentary film tradition established by its founder, the late John Grierson, as well as from its renowned animated productions, theatrical shorts, and, in recent years, outstanding feature films.

Financed largely by an annual grant from the Canadian government, the NFB operates independently, and in all the film and audio-visual fields. The chairman of the Board, who is also the Government Film Commissioner, is appointed by the federal government, as are the members of the Board of Governors — three from the federal public service and five from the public at large, representing the various regions of Canada — who determine general policy for the NFB.

With a government grant, sponsored films for government departments, and



Mon Oncle Antoine, starring Jacques Gagnon and Jean Duceppe, effectively portrays life in a small mining town in Quebec during the 1940's.

Info Can.

earnings from commercial activities, the NFB produces about 100 new films each year, plus an equal number of versions and revisions. Productions are in the two official languages, English and French. They include theatrical features and shorts, TV specials, documentaries and the entire spectrum of educational aids from filmstrips to multi-media kits. Many films are translated into a wide range of languages for distribution abroad.

Outside Canada, NFB distribution offices are located in London, Paris, Tokyo, Buenos Aires, New Delhi, New York, Chicago, and San Francisco. They handle commercial activities such as the sale of prints and contracts with TV and theatrical distributors. Some 85 Canadian embassies and trade posts abroad have libraries of NFB films for non-commercial use.

Because the NFB was Canada's first large film establishment with full production and laboratory facilities, it has been an ideal training ground for many of the people now involved in Canada's rapidly expanding commercial film industry. In 1963 the NFB paved the way for Canadian-made theatrical features with the release of its first two productions in this category, "Drylanders" and "Pour la suite du monde." One of the latest productions, "Mon Oncle Antoine" has received critical acclaim in Canada and abroad. The Technical Research Division makes its findings available to the film industry and the Still Photography Division publishes and exhibits the work of Canadian photographers.

In the United States and in western Europe, people interested in visiting Canada can view all parts of the country through Canadian travel films distributed by the National Film Board for the Canadian Government Travel Bureau. Libraries of travel films are located in convenient centres abroad. In the United States, about 500 public libraries are among the distributors of Canadian travel films.



The Canadian Film Development Corporation contributes each year to a number of films, among them *A Fan's Notes*, directed by Eric Till.

Canadian Film Dev. Corp. (missing)

The NFB is not a gigantic film factory, but its presence is felt throughout the world to some degree in every form of film activity. It is here that Norman McLaren devises film techniques that regularly contribute to film-making innovations. The more than 1,200 international awards the Board has earned over the 33 years of its existence attest to unique accomplishments achieved with modest means.

Private Film Makers

Canada's private motion picture industry experienced modest growth during 1971. Television commercials and sponsored documentaries represented over 75 per cent of some 4,350 productions completed that year, and remained the backbone of the private sector. Total revenue for the 137 companies actively engaged in production and laboratory operations exceeded \$33 million. Feature film production, through the financial resources of private investors and government funding, increased to 33 releases in English and French. In 1971, more than 50 educational institutions across Canada offered various film courses.

Broadcasting

The 1968 Broadcasting Act provided a statutory statement of broadcasting policy for Canada, reinforcing the mandate of the national broadcasting service to be provided by the Canadian Broadcasting Corporation. It also created the Canadian Radio-Television Commission as the single public authority to regulate and supervise all aspects of the Canadian broadcasting system, both public and private.

The Canadian Broadcasting Corporation

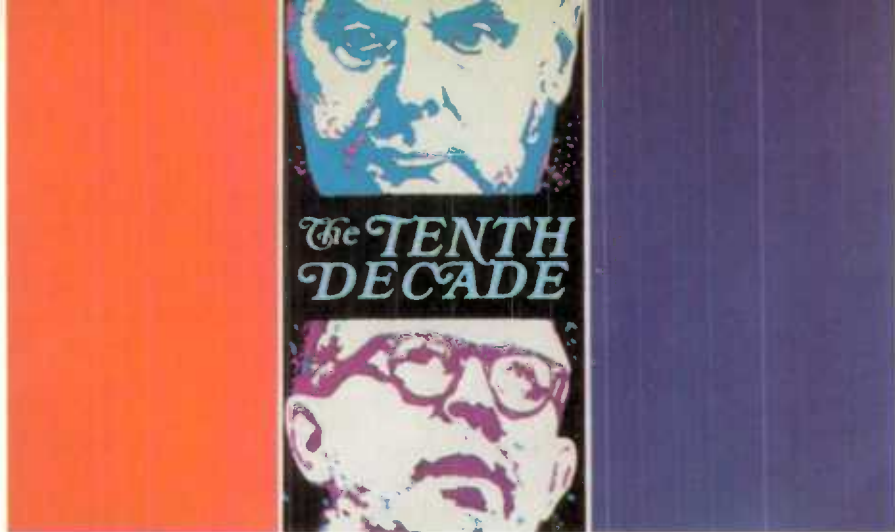
The CBC is a publicly-owned corporation responsible for providing a national broadcasting service in Canada. It was created by an Act of Parliament in 1936, replacing another public agency, the Canadian Radio Broadcasting Commission, which had been operating since 1932. The CBC obtains most of its financing from public funds voted annually by Parliament; supplementary revenue is obtained from commercial advertising. The CBC reports to Parliament through the Secretary of State. The general principles of national broadcasting are set out in the Broadcasting Act of 1968, but within those principles the CBC itself has sole authority to decide its policies and program schedules.

The CBC has facilities in many different locations and a total of about 9,000 employees. The head office of the Corporation is in Ottawa. English-language radio and television operations are centred in Toronto, with regional production points in major cities across the country. French-language radio and television networks have their operational centre in Montreal, and facilities there were consolidated in 1972 in a large new broadcasting complex, the *Maison de Radio-Canada*. There are French regional centres at other points in Quebec and in most other provinces. The CBC Northern Service, as well as carrying national programming, provides shortwave and community radio in the Far North in English, French, and several Indian and Eskimo languages. The CBC Armed Forces Service, in co-operation

Armees Landry /CBC.

The handsome new headquarters of Radio Canada in Montreal.





The Tenth Decade, a documentary on federal politics in the 1960's, has been a popular success.

C.B.C.

with the Department of National Defence, provides recorded and shortwave radio programs, television films, and touring entertainment parties for Canadian military bases in Canada and abroad.

Montreal is also the headquarters for Radio Canada International, the CBC's shortwave service established in 1945, which broadcasts daily in 11 languages to eastern and western Europe, Africa, Australasia, Latin America, the Caribbean, and North America. This service also distributes programs to foreign broadcasters by means of music and spoken-word transcriptions and special relay circuits. In other international activities the CBC sells a wide variety of its programs to other countries; it belongs to several international broadcasting organizations; and it co-operates with foreign broadcasters in the production and exchange of programs and the training of broadcasting students. The Corporation maintains offices in London, Paris, New York, and Washington, as well as news bureaus in Moscow and the Far East.

The program service of the CBC is varied, with emphasis on Canadian material. In 1971 both the English and French television networks had prime time Canadian content levels of about 70 per cent, and in radio the level was about 75 per cent. The CBC is the major employer of Canadian talent, engaging about 30,000 Canadian artists and performers in the course of a year. Among the special program projects in 1971-72 were the documentary film series *The Tenth Decade*, reviewing Canadian political history from 1957 to 1967, and *The Whiteoaks of Jalna*, a television drama series adapted from the works of Canadian author Mazo de la Roche.

CBC networks are available to a very large majority of Canadians: about 98.6 per cent of the population can listen to CBC radio, and about 96.6 per cent are within reach of CBC television. In January 1972, there were 397 outlets for the CBC's radio networks: 44 CBC-owned originating stations, 254 CBC-owned low power relay transmitters, and 99 privately-owned stations affiliated with the CBC. In tele-

vision, CBC network outlets totalled 336: 19 CBC-owned originating stations, 90 CBC-owned network relay and rebroadcasting transmitters, 19 "frontier coverage packages"—developed by the CBC to provide delayed videotape service in the Far North—and 42 privately-owned affiliates with their 166 rebroadcasters.

Coverage is being extended as finances allow to those isolated communities still without service, and the CBC also expects to lease channels on the domestic communications satellite Anik, which is scheduled to go into operation in 1973.

Private Radio and Television

Six hundred and eleven privately-owned broadcasting stations existed in Canada in 1971: 276 AM, 67 FM, 56 television, and 212 television rebroadcasting stations. The Canadian Association of Broadcasters, private broadcasting's non-profit trade association, incorporated in 1926, comprises 574 stations, and the CTV and Radio diffusion Mutuelle Limitée. A 1971 CAB highlight was the publication of a *Broadcast Code for Advertising to Children*, which won support from government and the Canadian Radio-Television Commission, and endorsement in principle from the CBC. In 1971, private radio employed over 6,000 persons and private television over 4,000. The head office of the Canadian Association of Broadcasters is in Ottawa; branch offices in Toronto and Montreal gather and distribute many Canadian programs and some foreign ones. CAB's Radio Bureau division produces *Report From Parliament Hill*, a non-partisan free-time radio series featuring reports by Members of Parliament. Running since 1944, and aired by 80 stations in 1971, the series is private broadcasting's longest running public-service program. CAB for many years sponsored the Dominion Drama Festival, and carries on a program of in-station training for foreign students. CAB stations qualify for awards, presented at each annual meeting, for excellence and originality, for exceptional news presentations and for major engineering achievements.

*EFTO
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Popular shows on the CTV network are hosted by Ian Tyson (left) and John Hewer, of the *Fig and Whistle* show.



Population

The population of the world was estimated at 3,561 million in mid-1970. North America contributed 321 million, or 9 per cent and Canada's share was 21 million or 0.6 per cent. However, Canada's population occupied 7.3 per cent of the land area of the world. The distribution of the Canadian population and its pattern of growth are very interesting. The provincial and rural-urban distribution, the sex-age-marital status patterns, and the components of growth are discussed in the following paragraphs.

The population of Canada according to the 1971 census was 21,569,000, marking an increase of 3,331,000 since the 1961 census and of 1,554,000 since the 1966 census. This growth has been distributed very unevenly among the provinces; only three have seen their share of the total population enlarged. In 1961, out of every 100 persons in Canada, 34.2 lived in Ontario, 8.9 in British Columbia, and 7.3 in Alberta. By 1971, these proportions had increased to 35.7 in Ontario, 10.1 in British Columbia, and 7.5 in Alberta, while Quebec's share had dropped from 28.8 to 27.9, the Atlantic Provinces' from 10.4 to 9.6, Manitoba's from 5.1 to 4.6, and Saskatchewan's from 5.1 to 4.3.

Numerical and Percentage Distribution of Population by Province

Province or Territory	Population in thousands			Percentage distribution		
	1961 census	1966 census	1971 census	1961	1966	1971
Canada	18,238	20,015	21,569	100.0	100.0	100.0
Newfoundland	458	493	522	2.5	2.5	2.4
Prince Edward Island	105	109	112	0.6	0.5	0.5
Nova Scotia	737	756	789	4.0	3.8	3.7
New Brunswick	598	617	635	3.3	3.1	3.0
Quebec	5,259	5,781	6,028	28.8	28.9	27.9
Ontario	6,236	6,961	7,703	34.2	34.8	35.7
Manitoba	922	963	988	5.1	4.8	4.6
Saskatchewan	925	955	926	5.1	4.8	4.3
Alberta	1,332	1,463	1,628	7.3	7.3	7.5
British Columbia	1,629	1,874	2,185	8.9	9.3	10.1
Yukon Territory	14	14	18	0.1	0.1	0.1
Northwest Territories	23	29	35	0.1	0.1	0.2

The growth in the Canadian population during the decade beginning in 1960 has been associated with a significant increase in the population living in urban centres. According to the 1961 census about 11.2 million or 62 per cent of all Canadians lived in urban centres having populations of 5,000 and over; by 1966 this section of the population had risen to 65 per cent or about 13 million. There were 325 urban centres with a population of 5,000 and over in 1966 and only 306 at the time of the 1961 census. A total of 40 cities registered populations of 50,000 or more at the time of the 1966 census; there were only 29 such cities in 1961.

The urban development is typified by the growth of the 22 metropolitan areas of Canada, whose population has increased by 11 per cent between 1961 and 1966,

while that of the rest of Canada increased by only 5 per cent. At the 1966 census they contained 10,684,482 persons or 53.4 per cent of the total population of Canada and by June 1, 1971, they had grown to 11,874,748 or 55 per cent.

Continued population gains in urban areas at the expense of rural areas are shown in the 1971 census: whereas 69.6 and 30.4 per cent of Canada's total population lived in urban and rural areas respectively in 1961, the proportion had changed to 71.6 and 23.9 per cent by 1966. (The definition of the urban areas covered all cities, towns of 1,000 population and over, whether incorporated or not, as well as the urbanized fringes of cities of 10,000 population and over. The remainder of the population is classed as rural.) The rural population is further subdivided into those living on census farms (farms of one acre or larger with annual sales of \$50 or more) and those who belong to the rural non-farm population. Between 1961 and 1971, there was a decline of 130,596 persons in the rural population. Most of this decline occurred in the rural farm section which decreased by 485,416 while the rural non-farm population increased by 354,820. During the same period the urban segment of the population increased by about 1,684,000. More than half of this gain occurred in cities of 500,000 and over.

There was a wide variation in the degree of urbanization of the provinces in 1971, as may be observed in the accompanying table.

The distribution of population by sex and by province in 1961, 1966, and 1971 shows some significant changes. Over the years the number of men per thousand women has been declining. By 1971, women in two provinces outnumbered men: Quebec had 987 men per 1,000 women, while Ontario had 994 men per 1,000 women. In the two territories there were considerably more men than women. In all the other provinces the sex ratio was gradually shifting toward an increasing proportion of women. For all Canada in 1971, there were an estimated 1,002 men per 1,000 women; in 1961, this had been 1,022 men per 1,000 women.

The distribution of population by age in 1961, 1966, and 1971 indicates that the

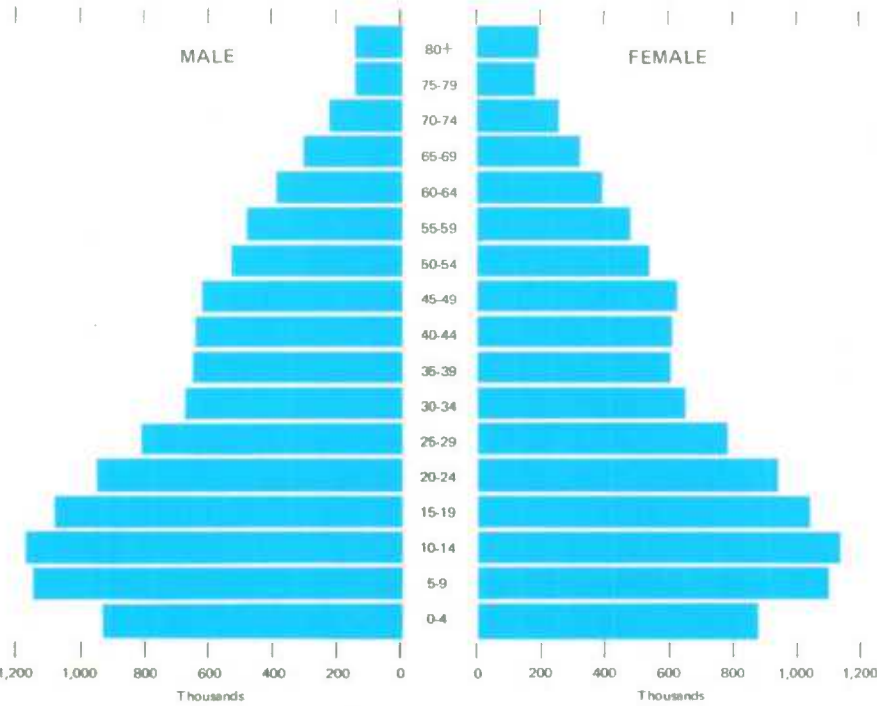
Rural and Urban Population, Canada and Provinces, 1971¹

Province or Territory	Total Population	Urban ²	Rural
Canada	21,568,310	16,410,780	5,157,525
Newfoundland	522,105	298,800	223,305
Prince Edward Island	111,645	42,780	68,860
Nova Scotia	788,960	447,400	341,555
New Brunswick	634,560	361,145	273,410
Quebec	6,027,765	4,861,240	1,166,520
Ontario	7,703,105	6,343,630	1,359,480
Manitoba	988,245	686,445	301,805
Saskatchewan	926,245	490,630	435,610
Alberta	1,627,870	1,196,250	431,620
British Columbia	2,184,620	1,654,410	530,215
Yukon	18,390	11,215	7,170
Northwest Territories	34,805	16,830	17,980

¹ Figures may not add, owing to rounding.

² Includes persons living in centres of 1,000 or more.

Age and Sex Distribution of Population (Estimated) 1971



proportion under 15 is steadily declining. In 1961 the population under 15 constituted 33.9 per cent of the total, in 1966, 32.9, and in 1971, 29.6. At the same time, the population in the labour force age group (15-64) has increased from 58.4 per cent in 1961 to 59.4 and 62.3 per cent respectively in 1966 and 1971. The proportion of population aged 65 and over, however, has remained fairly constant at 8 per cent.

The preceding chart shows the age and sex pyramid of the 1971 estimated population for the whole of Canada. It may be remarked that the numbers in age group 0-4 have diminished significantly in recent years and the pyramid stands on a narrower base. This situation will have appreciable effects on the numbers entering school and the work force in the future. Another feature of interest in the population profile is the large number in the school and university age groups: a continuation of crowded class rooms, increased numbers entering the labour force, increased numbers of marriages and perhaps a reversal of the decreasing numbers of births are likely results. The smaller numbers in the age group between 25 and 45 are attributable to low birth rates during the depression and World War II.

The components of population change (for the nation as a whole) are births,

deaths, immigration, and emigration. The following table shows the number of births, deaths, immigrants, and emigrants during the periods July 1961–June 1966 and July 1966–June 1971.

Components of Population Change for Canada, 1961-66 and 1966-71

(In thousands)

Census population	Births	Deaths	Immigrants	Emigrants	Population at end of period
1961 = 18,238	During the period 1961-66				
Total number	2,249	731	539	280	20,015
Average per year	450	146	108	56	
1966 = 20,015	During the period 1966-71				
Total number	1,849	767	890	418	21,569
Average per year	370	153	178	84	

On June 1, 1970, the estimated number of families in Canada—excluding the Yukon and Northwest Territories—was 4,908,000, an increase of 390,000 or 8.6 per cent since the 1966 census, and of 768,000 or 18.6 per cent since the 1961 census. The average number of persons per family in Canada on June 1, 1970 was 3.8, almost the same as in the 1961 and 1966 censuses. The population living in families constituted 87.9 per cent of the total population of Canada on June 1, 1970. The average family was largest in Quebec at 4.1 persons, followed by the Atlantic Provinces at 4.0, and Ontario and the Prairie Provinces at 3.7, while British Columbia had the smallest average-sized family—3.6 persons.

In June 1970 the average number of children in a family remained almost the same at 1.8 from the 1961 and 1966 censuses at 1.9. It should be mentioned that by children in a family is meant the number of unmarried children, under 25 years of age, living at home.

The combined number of families with no children (accounting for 29 per cent of all families), or with only one child showed a very slight decrease at 48.3 per cent from 48.4 per cent at the 1966 census and a considerable decrease from the 49.6 per cent of all families as shown by the 1961 census. By contrast, families with three or four children—21.7 per cent of all families in June 1970—showed slight decreases from the 1966 census figure of 21.9 per cent but an increase from the 1961 census figure of 20.9 per cent. Families with five or more children in 1970 accounted for 7.9 per cent of all families in Canada; in the 1966 census they accounted for 9.2 per cent.

The 1970 estimates of the number of children in a family show marked differences from region to region. Families with no children, for example, were only 25.3 per cent of all families in Quebec and 27.9 in the Atlantic Provinces, but constituted 29.7 per cent in Ontario, 31.6 per cent in the Prairie Provinces, and 32.6 per cent of the total in British Columbia. On the other hand, families with five or more children accounted for 11.9 per cent of all families in the Atlantic Provinces, 11.1 per cent in Quebec, 6 per cent in Ontario, 6.8 per cent in the Prairie Provinces, and 4.7 per cent in British Columbia.

According to the 1970 family estimates for Canada, 29.1 of the heads of "normal families," that is, families with both husband and wife living at home, were under 35 years of age, 24.1 per cent were between 35 and 44 years, 20.8 were between 45 and 54 years, 15.1 per cent between 55 and 64 years, and 10.9 per cent over 65 years of age.

Population 15 Years and Over by Marital Status, 1956, 1961, and 1966

Marital status	Numerical distribution			Percentage distribution			Percentage increase
	1956	1961	1966	1956	1961	1966	
Population 15 and over	10,855,581	12,046,325	13,423,123	100.0	100.0	100.0	11.4
Single	2,960,929	3,191,206	3,764,833	27.3	26.5	28.0	18.0
Married	7,146,673	8,024,304	8,723,217	65.8	66.6	65.0	8.7
Widowed	711,211	778,223	870,297	6.6	6.5	6.5	11.8
Divorced	36,768	52,592	64,776	0.3	0.4	0.5	23.2

Canada's single population 15 years of age and over increased by 18 per cent in the 1961-66 period but only by 8 per cent in 1956-61 and by 5 per cent in 1951-56. The marked increase in the single adult population is mainly the result of a substantially larger number of persons in the young adult ages who were born in the postwar period when the birth rate was high. In contrast, the married population increased by 8.7 per cent between 1961 and 1966; the gain in the previous five-year period was 12.3 per cent. The combined widowed and divorced population increased to 12.5 per cent in 1961-66; it was 11.1 per cent between 1956 and 1961.

Provincially, the largest proportion of single people in the adult population lived in the Northwest Territories and Quebec, 33.3 per cent and 33.1 per cent respectively; the smallest proportion was in British Columbia, 24.6 per cent. Ontario showed the largest percentage of its population 15 years of age and over to be married, 67.6 per cent, while Prince Edward Island showed the smallest, 60.5 per cent. British Columbia, with 8.4 per cent, had proportionally more widowed and divorced persons than other provinces while the smallest proportions were recorded in the Yukon and the Northwest Territories, 4.9 per cent in each, and in Quebec, 5.8 per cent.

Government

Canada is a federal state, established in 1867. In that year, the British Parliament, at the request of three separate colonies (Canada, Nova Scotia, and New Brunswick), passed the British North America Act, which "federally united" the three "to form ... one Dominion under the name of Canada." The Act merely embodied, with one modification (providing for the appointment of extra Senators to break a deadlock between the two Houses of Parliament) the decisions which delegates from the colonies, the "Fathers of Confederation," had themselves arrived at.

The Act divided the Dominion into four provinces. The pre-Confederation "province of Canada" became the provinces of Ontario and Quebec; Nova Scotia and New Brunswick retained their former limits. In 1870, the Parliament of Canada created Manitoba; in 1871, British Columbia and in 1873 Prince Edward Island entered the Union. In 1905, the Parliament of Canada created Saskatchewan and Alberta, and in 1949 Newfoundland came in.

The B.N.A. Act gave Canada complete internal self-government, and gradually the country acquired full control over its external affairs also. It is now a fully sovereign state, except that a few (but very important) parts of its Constitution can be

changed only by Act of the British Parliament. This limitation, however, is purely nominal. The British Parliament invariably passes any amendment requested by the Canadian. The only reason the full power of amendment has not been transferred to Canada is that Canadians have not been able to agree on any amending formula.

The B.N.A. Act gave the Canadian Parliament power to "make laws for the peace, order and good government of Canada in relation to all matters ... not ... assigned exclusively to the Legislatures of the provinces." To make assurance doubly sure, the Act added a list of examples of this general power. These included defence; raising money by any kind of taxation; regulation of trade and commerce; navigation and shipping; fisheries; money and banking; bankruptcy and insolvency; interest; patents and copyrights; marriage and divorce; criminal law and criminal procedure; penitentiaries; interprovincial and international steamships, ferries, railways, canals and telegraphs; and any "works" declared by Parliament to be "for the general advantage of Canada." Amendments have added unemployment insurance, and power to amend the Constitution except in regard to the division of powers between Parliament and the provincial Legislatures, the rights guaranteed to the English and French languages, the constitutional rights of certain religious denominations in education, the requirement of an annual session of Parliament, and the maximum duration of Parliament.

The Act of 1867 gave Parliament and the provincial Legislatures concurrent power over agriculture and immigration (with the national law prevailing over the provincial in case of conflict); and amendments provided for concurrent jurisdiction over pensions (but with provincial law prevailing in case of conflict).

Decisions by the Judicial Committee of the British Privy Council (the final court of appeal for Canada until 1949) made the examples of the "peace, order and good government" power almost swallow up the general power of which they were supposed to be examples. The general power came to mean little more than jurisdiction to pass temporary laws to meet wartime emergencies. But judicial decisions also interpreted Parliament's powers to cover interprovincial and international telephones and interprovincial and international highway traffic, and all air navigation and broadcasting.

The B.N.A. Act established a limited official bilingualism. In debates in both Houses of Parliament, members may use either English or French; the records and journals of both Houses must be kept in both languages; Acts of Parliament must be published in both; and either language may be used in any pleading or process in courts set up by Parliament. The same provisions apply to the legislature and courts of Quebec.

In fact, the Government and Parliament of Canada, and the Governments and Legislatures of Quebec, Ontario, New Brunswick, and Newfoundland, have extended bilingualism beyond the constitutional requirements. The whole of the central administration at the national capital, and anywhere there is a sufficient French-speaking or English-speaking minority, is now being thoroughly bilingualized. In 1969, Parliament adopted the Official Languages Act which declared that English and French enjoy equal status and are the official languages of Canada for all purposes of the Parliament and Government of Canada. The same

The Houses of Parliament in Ottawa.



thing is happening in New Brunswick. Quebec has long been fully bilingual, both officially and in fact.

Except for limited official bilingualism, and certain educational rights for some religious minorities, the Canadian Constitution provides no specific protection for basic rights like freedom of worship, of the press, and of assembly. Such rights are protected by the ordinary law; but all of them could be curtailed or abolished by Parliament or the provincial Legislatures. Such action would be contrary to the Canadian tradition, however. Indeed, in 1960 the Parliament of Canada adopted a Bill of Rights and the present Government has proposed a constitutional Charter of Human Rights, placing such rights beyond the power of either Parliament or the Legislatures.

Each provincial Legislature has exclusive power over the amendment of the provincial Constitution (except as regards the office of Lieutenant-Governor, the legal head of the provincial executive): natural resources; direct taxation for provincial purposes; prisons; hospitals, asylums and charities; municipal institutions; licences for provincial or municipal revenue; local works and undertakings, incorporation of provincial companies; solemnization of marriage; property and civil rights; the administration of justice (including the establishment of courts, civil and criminal, and civil procedure); matters of a merely local or private nature; and education, subject to certain safeguards for denominational schools in Newfoundland and Protestant or Roman Catholic schools in the other provinces. Judicial decisions have given "property and civil rights" a very wide scope, including most labour legislation and much of social security.

The Canadian Constitution

The B.N.A. Act and amendments form the basic law of the Canadian Constitution. But they provide only a skeleton framework of government. This is filled out by judicial interpretation, by various Acts of Parliament and the Legislatures, and, most of all, by custom or "convention": the generally accepted understandings about how the legal machinery should be worked. A person taking the B.N.A. Act literally would think Canada was governed by an absolute monarch. In fact, the monarch's powers are exercised, as the Fathers of Confederation put it, "according to the well understood principles of the British Constitution"; that is, according to the usages and understandings which gradually transformed the British monarchy into a parliamentary democracy. These conventions Canada has inherited and adapted to suit her own needs.

The Government of Canada

The Executive. By free and deliberate choice of the Fathers of Confederation, Canada is a constitutional monarchy. The executive government "is vested in the Queen" of Canada (who is also Queen of Britain, Australia, and New Zealand). In strict law, her powers are very great. In fact, they are exercised on the advice of a Cabinet responsible to the House of Commons which is elected by the people.

For most purposes, the Queen is represented by the Governor-General (now always a Canadian), whom she appoints, on the advice of the Canadian Cabinet,

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Her majesty Queen Elizabeth attending British Columbia's Centennial celebrations.

for a period of, normally, five to seven years. In very extraordinary circumstances, the Governor-General may act on his own. For instance, if the Prime Minister dies, the Governor-General must choose a new one from the party with a majority in Parliament, to hold office till that party can choose a new leader. Again, if a Cabinet came out of an election with less than half the seats in Parliament, and asked for an immediate fresh election, the Governor-General would have to refuse, since a newly elected Parliament must at least be allowed to meet and try to transact public business.

Except in such extraordinary circumstances, however, the Queen or the Governor-General must act on the advice of the Cabinet, or, in a few cases, of its head, the Prime Minister. The Prime Minister appoints the members of the Cabinet; decides when Parliament shall meet; and normally decides when a new Parliament shall be elected (though there must be an election at least every five years, unless war, invasion, or rebellion makes it impossible). The Cabinet appoints the members of the Senate (the Upper House of Parliament), the judges of the superior, district, and county courts, and the Lieutenant-Governors of the provinces. It can annul any provincial law within one year of its passing. It commands the armed forces, appoints public servants, pardons criminals, declares war, makes peace, appoints ambassadors, makes and ratifies treaties, and makes regulations within the limits set by Acts of Parliament.

The Cabinet is unknown to the law, the Prime Minister very nearly so. The B.N.A. Act provides only for a "Queen's Privy Council for Canada," appointed by

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The Governor-General, the Rt. Hon. Roland Michener, reads the Speech from the Throne as he opens a session of Parliament.

the Governor-General to "aid and advise" him. In fact, this body does nothing. It consists of all Cabinet Ministers, all former Ministers, ex-Speakers of both Houses, the Chief Justice, ex-Chief Justices, and various distinguished citizens appointed as a mark of honour. Its only practical importance is that it provides the legal basis for the Cabinet, which, legally, is simply "the Committee of the Privy Council."

The Cabinet consists of those Privy Councillors whom the Prime Minister invites to its meetings. In practice, this means the heads of all departments and ministries, and usually also a few ministers of state without departments or ministries. In November 1972, the Cabinet had 30 members: the Prime Minister, 27 heads of departments, and 2 ministers without portfolio. Usually, there is one Senator without portfolio. By custom, all ministers must have a seat in one House or the other, or get one within a reasonable time.

The Cabinet has no fixed term. It holds office till the Prime Minister dies or resigns. Sir Wilfrid Laurier's Cabinet lasted for over 15 years, Sir John A. Macdonald's second Cabinet for almost 13.

If an opposition party wins more than half the seats at a general election, the Cabinet resigns, and the Governor-General calls on the leader of the victorious party to become Prime Minister. The new Prime Minister chooses his Cabinet from his own party: at least one minister from every province (except, usually, Prince Edward Island), and normally eight to ten each from Ontario and Quebec, six to eight from the Western Provinces, at least one English-speaking Protestant from Quebec, at least one French-speaking minister from outside Quebec, and at least one Irish Roman Catholic.

Info Can.

The Prime Minister of Canada, the Rt. Hon. Pierre Trudeau, applauds the President of the United States after Mr. Nixon addressed Parliament during his visit in 1972.



The Cabinet must speak as one on all questions of Government policy. A minister who cannot support that policy must resign. Each minister of a department is answerable to the House of Commons for that department, and the whole Cabinet is answerable to the House for Government policy and administration generally. If the Cabinet is defeated in the House on a motion of want of confidence, it must either resign office—when the Governor-General will call on the Leader of the Opposition to form a new Cabinet—or advise a fresh election—generally the latter nowadays.

Defeat of a major Government bill will ordinarily be considered a vote of want of confidence and lead to the same consequences. But the Cabinet can choose to consider any such defeat not decisive. It is then open to the House to vote straight want of confidence.

Only the Cabinet can introduce bills for the raising or spending of public money. Ordinary members of the House of Commons can move to reduce proposed taxes or expenditures, but not to raise them. The rules of the House allot most of its time to Cabinet business, and nearly all legislation now comes from the Cabinet. The Cabinet also has the sole power to move closure, cutting off debate; and, if the parties fail to agree, the Cabinet can move to fix a time-table for the various stages of a bill. But the rules are careful also to provide abundant opportunity for the Opposition to question, criticize, and attack. Twenty-five days of each parliamentary session are specifically allotted to the Opposition to debate any subject it pleases, and on six of those days it can move want of confidence.

The Legislature: Parliament. Parliament consists of the Queen, the Senate and the House of Commons.

The Senate has 102 members, appointed by the Cabinet: 24 from Ontario, 24 from Quebec, 24 from the Maritime Provinces (10 each from Nova Scotia and New Brunswick, 4 from Prince Edward Island), 24 from the Western Provinces (6 each), and 6 from Newfoundland. Senators now retire at age 75.

The B.N.A. Act gives the Senate exactly the same powers as the House of Commons, except that money bills must originate in the Commons. The Senate can reject any bill, but rarely does. It does most of the work on private bills (incorporation of companies, and so on), and subjects general legislation to careful scrutiny in committee. Special Senate committees have also investigated major public problems and produced valuable reports. At Nov. 20, 1972, the Senate had 74 Liberals, 1 Independent Liberal, 17 Progressive Conservatives, 1 Social Credit, 2 Independents, and 7 vacancies.

The House of Commons, to which alone the Cabinet is responsible, has 264 members: 7 from Newfoundland, 11 from Nova Scotia, 10 from New Brunswick, 4 from Prince Edward Island, 74 from Quebec, 88 from Ontario, 13 each from Manitoba and Saskatchewan, 19 from Alberta, 23 from British Columbia, and 1 each from the Yukon and the Northwest Territories. They are elected by single-member constituencies, broadly speaking in proportion to the population of each province; but no province can have fewer members in the Commons than in the Senate. The total number of members is redistributed after each decennial census. Any adult Canadian citizen (with obvious exceptions, such as people in jail) can vote. In



The opening of Parliament is a ceremony in which members of the House of Commons, Senators, and the justices of the Supreme Court (shown in their scarlet robes) take part.

Malak

November 1972 the Liberals had 109 members, the Progressive Conservatives 107, the New Democratic Party 31, the Social Credit Party of Canada 15, Independent 1, and no affiliation 1.

All legislation goes through three "readings." The first is purely formal. On the second, the House gives the bill "preliminary consideration," and if satisfied, refers it to a committee, where it is dealt with clause by clause. Money bills, and such others as the House thinks fit, are referred to the Committee of the Whole, that is, the whole House, sitting under special rules facilitating detailed discussion. All other bills are sent to one of the 18 "Standing Committees" (12 to 30 members each) which specialize in a certain subject or subjects. The appropriate committee then reports the bill to the House, with or without amendments, and at this stage any member may propose amendments, which are debatable. Then comes third reading. If the bill passes this, it is sent to the Senate, where it goes through much the same procedure.

The Canadian Constitution would be unworkable without political parties. Yet parties are almost totally unknown to Canadian law: a notable example of the conventions of the Constitution. They make possible a stable Government, capable of carrying its policies into effect. They provide continuous organized criticism of that Government. They make possible an orderly transfer of power from one Government to another. They help to educate the electorate on public affairs and to reconcile divergent elements and interests from different parts of the country.

The Liberal party has its roots in the pre-Confederation Reform parties which struggled for the establishment of parliamentary responsible government in the 1840's. The Progressive Conservative party goes back to a coalition of moderate Conservatives and moderate Reformers in the province of Canada in 1854, six years after responsible government had been won. It was broadened into a national party in 1867, when Sir John A. Macdonald, the first national Prime Minister, formed a Cabinet of eight Conservatives and five Liberals or Reformers, whose followers soon became known as "Liberal-Conservatives." The present name was adopted in 1942. The New Democratic Party dates from 1961, when the

major trade union federation (the Canadian Labour Congress) and the C.C.F. party joined forces to launch a new party. (The C.C.F. — Co-operative Commonwealth Federation — had been founded in 1932, by a group of farmer and labour parties in the western provinces.) The Social Credit party of Canada is based on the monetary theories of Major Clifford Douglas and, at the present time, its members in the House of Commons are all from Quebec.

The Judiciary. Most of the courts are provincial, but their judges, from county courts up, are appointed by the Government of Canada (except for the courts of probate in Nova Scotia and New Brunswick). Parliament has power to establish a general court of appeal, and other courts for the better administration of the laws it passes, and has established the Supreme Court of Canada and other courts. The Supreme Court of Canada and the provincial courts form a single system, dealing with cases arising under both dominion and provincial laws. The Supreme Court of Canada may also give advisory opinions on any law or proposed law, dominion or provincial.

The Supreme Court of Canada is made up of a Chief Justice and eight Puisne Justices, appointed by the Government of Canada. Three of the nine must be Quebec lawyers. Judges of this court and the provincial superior courts can be removed only by Address to the Governor-General from both Houses of Parliament. None has ever been removed.

Provincial and Territorial Government

In each province, the machinery of government is substantially the same as that of the central government, except that no province has an Upper House.

Most of northern Canada west of Hudson Bay is not part of any province. It is

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Each of the 10 provinces has its own legislature. The legislature for the province of Saskatchewan is located in Regina.



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a few.

Barbara Johnston



The inhabitants of Selkirk, Man., choose by vote a new mayor and three new councillors.

organized in two territories, the Yukon and the Northwest Territories, which come directly under the Government and Parliament of Canada but enjoy a growing degree of self-government.

The Yukon is ruled by a Commissioner, appointed by the Government of Canada, and an elected Council of seven. The Commissioner in Council can pass laws dealing with direct taxation for local purposes, establishment of Territorial offices, sale of liquor, preservation of game, municipal institutions, licences, incorporation of local companies, solemnization of marriage, property and civil rights, and matters of a local and private nature.

The Northwest Territories are ruled by a Commissioner, appointed by the Government of Canada, and a council of fourteen, of whom four are appointed by the central Government and ten elected. The Commissioner in Council has substantially the same powers as in the Yukon.

Municipal Government

Municipal government, being a matter of provincial jurisdiction, varies considerably. All municipalities (cities, towns, villages, and rural municipalities) are governed by an elected Council. In Ontario and Quebec, there are also counties, which, for certain purposes, group smaller municipal units, and both these provinces have begun to set up regional municipalities for metropolitan areas.

In general, the municipalities are responsible for police and fire protection; local jails, roads, and hospitals; water supply and sanitation; and schools (often administered by distinct boards elected for the purpose). They get their revenue mainly from taxes on real estate, permits, and licences, and grants from the provinces. The total number of municipalities is now about 4,500.

EUGENE FORSEY and JEAN-CHARLES BONENFANT

Citizenship

Canadian unity and identity are strengthened through intergroup understanding and increased participation by all citizens in their local and national communities. This is the special concern of the Citizenship Branch of the Department of the Secretary of State. Its responsibilities range from promoting human rights to helping finance language classes for immigrants' families, and funding Friendship Centres to help Canada's native peoples adapt to urban life.

Before 1970, the branch had a few formally separate divisions that gave grants to groups encouraging native participation, ethnic integration, human rights, travel and exchange, and citizenship development.

Special programs still serve special groups, but more emphasis is now placed on the common aim of encouraging citizens to help develop Canada's bilingual and multicultural character. There are too many elements in Canadian life for anyone to draw a master plan for the achievement of this objective. The most effective way for individuals to make an impact on the quality of their lives is through organizations founded by citizens for purposes which they themselves have determined. The Citizenship Branch therefore concentrates on co-operation with voluntary agencies and with unstructured social action groups which express the needs and interests of people across Canada.

*M. Melus
Linda Scott Travel Bureau*

Japanese dancers perform at the Obon Festival, in Stanley Park, Vancouver, B.C.





In Gimli, Man., women wear celebration dresses at the annual Icelandic festival.

*E. Oak Cedar House
Frank Lussan*

The branch maintains 18 regional offices which work closely with citizens' groups, organizations, and local government agencies. Regional officers, trained in the social sciences, are available as resource people to help agencies and groups to organize and plan.

Recent activities of the branch include support of bodies such as the Canadian Council on Social Development, the Canadian Association for Adult Education, and an increasing number of citizens' action groups. Youth programs such as the summer hostels and the innovative Opportunities for Youth Program have taken place under the auspices of the Citizenship Branch. A multicultural policy, announced in October, 1971, is designed to support ethnic cultural groups and to encourage them to develop their culture and share it with their fellow citizens.

Another major activity of the Citizenship Branch is the registration of new Canadian citizens. Every year, some 60,000 people are granted citizenship. The legal aspects of Canadian citizenship were first prescribed by the Citizenship Act of 1947. Since then 1,150,000 people have become citizens, mostly through the 13 Citizenship Courts in the principal cities. Outside these centres, ordinary courts of law deal with matters of citizenship, in co-operation with the Citizenship Branch. The branch also seeks the support of voluntary associations in urging eligible residents of Canada to become citizens. The Citizenship Branch is thus geared to the general needs of citizens from the moment they assume citizenship through the various stages of awareness to the contributions they can make to the Canadian mosaic.

Education

Educational administrators are continually responding to changes in Canadian life, caused by social, economic, demographic, and technological pressures. Their response to the changing environment and to a population needing and demanding more education, has facilitated tremendous growth in student enrolments (especially at the tertiary, or post-secondary, level), teaching staff, and education costs. Over the past decade, the increase in the number of students and teachers in Canada was about 50 per cent and 70 per cent respectively. In addition, total expenditures on education as a proportion of the gross national product grew from 5 per cent in 1961-62 to an estimated 8.7 per cent in 1970-71. Thus, the educational picture in the 1970-71 academic year shows over 6.5 million full-time students on various steps of the learning ladder, over 300,000 full-time teachers, about 200,000 full- and part-time non-teaching personnel working in the school system, and an estimated total expenditure on education of \$7,300 million. Another way of looking at these statistics is to observe that our vast educational system consumes the total energy of about one third of the country's population at a cost of approximately one fifth of all tax revenues collected.

Exciting changes with far-reaching effects have accompanied this tremendous growth. School systems in all provinces have been reorganized and consolidated; as a result, school districts have been enlarged. Educational administrators have increasingly recognized the need to provide equal access to education for each pupil regardless of his ability, sex, ethnicity, or socio-economic status and to prepare a student for his future career by offering diversified programs of a relatively high standard. In this regard, programs and policies have been formulated to stress the individual interests and abilities of pupils in diverse subjects. In emphasizing individuality, the trend is towards non-graded systems; promotion by subject; diversified, enriched curricular materials; decreases in year-end departmental examinations and emphasis on continuous evaluation; flexible program scheduling; and an expansion of guidance facilities. The open-area school design fostering flexible teaching methods and the use of innovative educational aids and facilities (such as television, tape recorders, and so on) are additional means of enriching the learning of individual students. The trend is also towards the growing professionalization of teachers, with staff increasingly recruited from teacher-training programs in universities. In the last decade there have also been numerous innovations in tertiary education. This sector has witnessed many new structural changes, considerable expansion of facilities, and diversification of programs.

Education Jurisdictions

Under the British North America Act, the provinces are responsible for the education of all persons. Exceptions to the above include private schools and federally-sponsored schools for Indian and Eskimo students, children of servicemen in Europe, and inmates of federal penitentiaries. In addition the federal government helps finance tertiary education in the provinces, participates in informal education, and makes grants-in-aid for research personnel and equipment.

Provincial autonomy has resulted in distinct educational systems' being developed to serve the particular requirements of individual provinces. There are, however, certain similarities. Each province has established a department of education headed by a minister who is a member of the Cabinet, and administered by a deputy minister who, as a public servant, advises the minister and administers legislation relating to education. Each department of education is engaged in supervising the quality of educational systems, certifying teachers, providing financial assistance to school boards, and determining courses of study and lists of textbooks.

Reorganizations of many provincial departments of education have occurred in recent years. For example, in Newfoundland, following the recommendations of the Royal Commission on Education and Youth, the department is being restructured on a functional rather than a denominational basis. The department is now divided into five specific areas: instruction, supervision, special services, administration, and further education. In Quebec, under amendments to legislation in 1964, a unified public authority at the provincial level was inaugurated; the Department of Youth and of Public Instruction was replaced by the Ministry of Education which includes in its structure a minister, deputy minister, and two associate deputy ministers—one each for the Catholic and non-Catholic sectors. In 1971, its centennial year, British Columbia effected major changes in departmental structure involving the transfer of the statutory duties of the superintendent of education (a position which has been eliminated) to the deputy minister, and the realignment of the duties of the various assistant superintendents who are now known as superintendents of educational administration.

Man Dept of Ed.

Gymnastics are an integral part of a student's educational program in Manitoba.



The Stephen Leacock Educational Complex in Scarborough, Ont., will accommodate three schools from kindergarten to Grade 13.

*Ont
Dept of
Ed.*



Linked to changes in the original departments of education, some provinces have recently established a second governmental department dealing exclusively with post-secondary education. The major cause was the growing requirements of the tertiary sector because of considerable recent expansion. Provinces with two departments concerned with education are Alberta, Manitoba, Ontario, and Saskatchewan. In addition, Quebec has established two directorates within its department of education, one concerned with universities and the other with colleges.

Elementary and Secondary Education

School Administration. The provinces have delegated considerable responsibility for operating publicly-controlled elementary and secondary schools to locally-elected or appointed school boards whose authority is determined by legislation. These boards are responsible for building and maintaining schools, hiring teachers, and preparing a budget. With a decrease in the degree of centralization in most provinces, local authorities exercise greater control in setting year-end examinations in the final year or years of secondary school, and in determining the curriculum and textbooks to be studied.

A most important change in the last decade has been the restructuring of local educational administrations, entailing the creation of larger school districts operating larger schools. Enlarged administrative units ensure that all areas in the provinces have similar levels of education; and larger schools, more financially solvent, are in a better position to provide the necessary teaching and administrative personnel, and up-to-date educational equipment, thereby enriching their students' learning experiences.



At Arctic Bay, north Baffin Island, pupils are keen to answer the teacher's question.

Lorne Smith

Following the recommendations made by the Royal Commission on Education and Youth in 1964, school districts have been consolidated in Newfoundland. The 300-odd "denominational" boards were reduced to 35 districts and in January 1971 there were 12 Roman Catholic school districts, 21 integrated Protestant boards, and one each for the Pentecostal and Seventh Day Adventist denominations. The trend in Prince Edward Island and Nova Scotia is also towards the consolidation of small educational units. In the former, a newly-passed School Act provides for the amalgamation of approximately 300 small local units into five regional boards. In the latter, the consolidation of school boards was recently initiated with the formation of three regional municipal boards, and plans are under way to amalgamate school boards in the entire province with approximately 20 regional boards. Similarly, New Brunswick has replaced its 422 school districts with 33 enlarged districts.

In Quebec, legislation enacted in 1961 created large units of administration for secondary school education. The number of elementary school boards was reduced from 1,100 to 250 as a result of legislation passed in 1972.

As a result of legislation in the late 1960's, significant administrative reorganization occurred in Ontario. Thousands of small units, administered by three-member boards of trustees, were replaced by about 200 enlarged county boards of education integrating elementary and secondary school operations. Large cities have been exempted from this reorganization and are allowed to administer their own school systems. Most Roman Catholic school administrations have been in-

tegrated within these county boards, although separate schools have the option of whether or not to join.

In all four western provinces school districts have been consolidated. In fact, Alberta and British Columbia were the precursors of this trend towards amalgamation in Canada. Since 1937 in Alberta, the school districts' authority has to a large extent been assumed by enlarged school divisions (aggregations of designated school districts) and gradually counties are superseding divisional organization. In the mid-1940's, British Columbia reduced the number of school districts from 650 to 74 large administrative districts. In the 1960's school administration in Manitoba was reorganized. In this province, in January 1971, over 90 per cent of public school enrolments were the responsibility of 44 unitary boards administering elementary and secondary education within their districts; and the rest came under four secondary divisional boards and 44 smaller elementary district boards. In Saskatchewan, recommendations regarding implementation of consolidated school districts are being considered.

School Organization

Kindergarten classes for five-year-olds are provided by the publicly-controlled school system in many provinces and in most large urban centres. Some kindergarten and nursery schools for children from three to five years of age are operated privately. There also now exist a number of variants on the 8-4 elementary-secondary plan, leading from Grade 1 to university, followed traditionally by most provinces in the past. Some modifications include: the introduction of junior high schools resulting in a 6-3-3 or 6-3-4 plan; the subtraction of one or two years of elementary school; the addition of one or two years of secondary school; and the initiation of divisions each consisting of three years.

Most secondary schools offer a limited number of technical and commercial subjects as options in the academic curriculum. Vocational, technical, and commercial secondary schools, at one time found only in large cities, now are an integral part of the high-school system in many provinces. In addition, increasing numbers of composite schools (offering several optional programs in academic or technical subjects, agriculture, home economics, and commerce) allow flexibility for individual interests and capabilities.

A key change in Canada in the last few years has been the increasing tendency towards non-graded or continuous progress school organization, which allows students to advance at their own rate. Many provinces are in the process of developing innovative approaches in handling non-graded school systems.

The Atlantic Provinces are accelerating the development of a school organization emphasizing promotion by subject rather than by grade using a "credit" system. Nova Scotia has in addition introduced a program allowing secondary school students with high academic standing to carry one or more extra courses.

In Quebec, programs with graduated options and promotion by subject are increasingly emphasized.

Ontario is also proceeding with stress on a "credit" system. In the secondary schools, implementation of this policy is leading to increasingly flexible individual program scheduling, optional diversified course offerings, and promotion by subject.

The western provinces are also encouraging less rigid classification by grade. For example, Saskatchewan with its divisional school organization is implementing policies of non-grading including continuous evaluation and flexible promotions.

Since 1969, Nova Scotia has made provision for individuals (with incomplete formal high school education) to obtain secondary school accreditation by passing a series of tests prepared by the Commission of Accreditation of the American Council on Education. Similarly, Alberta now allows adults who have upgraded their education through informal learning experiences and adult education courses to obtain a secondary school diploma.

The trend towards giving French-language instruction in the elementary grades of publicly-controlled schools has accelerated in many provinces. In addition, recent legislation in Ontario provides for French-speaking students to receive their entire elementary-secondary education in French. Similarly, in 1970 Manitoba passed legislation which allows schools to teach in French. This same legislation provides for the instruction of students in other languages at the elementary and secondary levels.

Education systems in the Northwest Territories and the Yukon are primarily geared to fulfilling the needs of the local population, chiefly the Eskimo, Indian, and Métis living in isolated settlements. Responsibility for education was moved

B. C. Dept. of Ed.

At an elementary school in New Westminster, B.C., Grade 4 pupils learn by means of filmstrips and recorded commentary.



from the federal Department of Indian and Northern Affairs to the new Department of Education in the Northwest Territories. The official transfer occurred in the Mackenzie District in April 1969 and in the Franklin and Keewatin Districts in April 1970. The Territorial Department of Education is continuing the progress made by the federal government in providing a far-flung, modern and solidly-based school system and it has rapidly begun constructing numerous new schools and developing new curricular materials relating to the cultural backgrounds of the students. By choice the schools in the Northwest Territories follow the programs of Alberta and Manitoba.

The majority of schools in the Yukon have always been classified as public and have been administered directly by the Yukon Department of Education in Whitehorse. Since the early 1960's the only remaining federal government school was the Indian Residential School located in Carcross. This was closed before the 1969-70 school year. By choice the Yukon follows the British Columbia school curriculum although the program is adapted to incorporate material relevant to the heritage of the native peoples.

That the Northwest Territories and Yukon are facing the challenge of preparing their students to compete in contemporary Canadian society is indicated by the fact that more children are enrolled in school and more children are staying in school longer and completing Grade 12.

Enrolment

Table 1 presents a statistical profile of public elementary and secondary education in Canada for 1970-71 by province and territory. There has been a sharp increase in public school enrolments during the past two decades, owing mainly to the high birth rates during the war and postwar years. From 1951-52 to 1970-71, enrolment in public schools increased by over 100 per cent which culminated in an enrolment of 5,650,335 in 1970-71. Similarly, in the past 10 years the number of students enrolled in public schools has grown by over 35 per cent. During this period the increase in enrolment at the secondary level has been greater than that at the elementary level. The disproportion between the elementary and secondary sectors will be even more pronounced in the 1970's because elementary enrolments are expected to decline, as a result of the lower birth rates in the mid-sixties. In contrast, secondary enrolments will increase, as a result of the large number of elementary school students of the 1960's who will attend high school in the 1970's and the trend for students to stay in school longer.

Public elementary-secondary school enrolment as a percentage of the total population reveals that the surge in enrolment has been greater than the total population growth in Canada during the past two decades; in 1970-71, 26 per cent of the Canadian population was enrolled in public schools whereas only 23 per cent was enrolled in 1961-62 and 18 per cent in 1951-52. Public school enrolment in 1970-71 of 5,650,335 constituted 96.2 per cent of the total possible number of elementary-secondary students. Only 3.1 per cent was enrolled in private schools including private kindergarten and nursery schools. Less than 1 per cent was enrolled in federal schools (Indian schools and National Defence schools overseas) and provincially-operated schools for the blind and the deaf.

Table 1. Statistical Profile of Public Elementary and Secondary Education,¹ Canada, 1970-71

Province	Population (Estimated as of June 1st, 1970)	Est. Birth Rate (Live births per 1,000) ²	Enrol- ment ³	Enrolment as a % of Total Population	Number of School Districts (as of January 1971)	Number of Full-time Teachers			Number of Pupils per Teacher
						Elementary	Secondary	Total	
Thousands									
Newfoundland.....	518	24.2	160,915	31.1	35	4,832	1,605	6,437	25.0
Prince Edward Island.....	110	17.8	30,622	27.8	247	1,099	507	1,606	19.1
Nova Scotia.....	766	18.5	214,897	28.1	73	6,593	3,406	9,999	21.5
New Brunswick.....	624	18.5	175,912	28.2	33	5,215	2,682	7,897	22.3
Quebec.....	6,013	15.3	1,585,757 ⁴	26.4	..	..	..	74,254 ⁴	21.4
Ontario.....	7,637	17.6	2,022,401 ⁵	26.5	214	59,307	33,693	93,000 ⁵	21.7
Manitoba.....	981	18.6	246,946	25.2	92	7,709	3,825	11,534	21.4
Saskatchewan.....	942	17.5	247,332	26.3	121	7,396	3,581	10,977	22.5
Alberta.....	1,600	20.0	423,922	26.5	191	12,900	7,458	20,358	20.8
British Columbia.....	2,137	17.2	526,991	24.7	75	12,273	9,302	21,575	24.4
Yukon.....	16	28.2	4,634	29.0	..	162	61	223	20.8
Northwest Territories.....	33	40.5	10,006	30.3	2	460	91	554	19.1
Total, Canada.....	21,377	17.4	5,650,335	26.4	..	..	..	258,414	21.9

¹ Also includes separate schools.² Average for 1970 calendar year.³ Does not include full-time enrolments in private elementary-secondary schools; and 38,804 students in 8 provinces (excluding Quebec and Saskatchewan) in private kindergarten and nursing schools; 27,556 students in Indian schools operated by the Federal Department of Indian and Northern Affairs; 5,867 students in National Defence schools overseas; and 3,364 and 702 students in schools for the deaf and blind, respectively.⁴ Estimate.⁵ Taken from the Report of the Minister of Education, Ontario, 1970.

The increase in the number of teachers in the public school system has been greater than the growth in student enrolment during the past two decades. This is revealed by the decrease in the student-teacher ratio from 26:1 in 1951-52 to 22:1 in 1970-71. The increase in teaching staff will not be as sharp in the 1970's because of the expected decline in elementary school enrolment.

Vocational and Technical Education

There has been a rapid development of vocational and technical education in recent years. In addition to vocational and composite high schools and community colleges and related institutions discussed elsewhere, several other basic types of vocational education are available including publicly-operated trade schools and related institutions, publicly-supported vocational training programs involving business and industry given outside a formal institution, and private trade schools and business colleges.

Most provincial trade or vocational schools and related institutions, including trade or industrial divisions of community colleges, less permanently-established vocational centres, and nursing aide schools, require some high school education for entrance although some centres offer upgrading courses. Courses generally take one school year for completion although a few involve more time.

Two types of publicly-organized and supported training programs are given in business and industry, apart from those programs connected with the training of registered apprentices. One involves groups of employees who, because of the rapidly changing technological and economic environment, require training or re-training. Other training in industry involves structured training on-the-job for unemployed persons without which they would remain unemployable. The best known and numerically most important type of private vocational school is the "business college," which qualifies its graduates as typists, stenographers, and bookkeepers. Other numerically important private vocational schools are barbering and hairdressing schools, welding schools, radio and TV schools, and large nationally-operated correspondence schools which provide diverse courses in vocational and related academic subjects.

Adult Continuing Education

There is a wide array of adult education in Canada today. Many institutions at the secondary and tertiary levels, including school boards, provincial and private schools, business and professional associations, community colleges and universities, offer a considerable variety of correspondence or extension courses, or both. In addition to providing diversified programs, these institutions emphasize flexibility by providing part-time day or evening classes. As a consequence, hundreds of thousands of adults are now pursuing further academic, vocational, and cultural education to obtain accreditation or follow individual interests. In 1969-70 in Canada, over 445,000¹ students were enrolled in adult education programs given by school boards, and over 125,000 students were enrolled part-time in universities.

¹ This is an estimated figure of students based on 774,898 course registrations in school board adult education programs.



A revolutionary method of teaching music, called the pantonal system, has been introduced at the Trois-Rivières campus of the University of Quebec.

Info Service, Quebec.

Tertiary Education

The past decade has witnessed an extraordinary rise in enrolments in the tertiary level of education which has surpassed the elementary-secondary growth rate during the same period. This educational level comprises two main sectors: the non-degree-granting institutions, encompassing community colleges and other related institutions, teachers' colleges, and diploma schools of nursing; and degree-granting institutions, including universities and affiliated colleges. The increase in enrolments has been especially marked in the universities and community colleges and other related institutions.

Several factors have contributed to this continuing significant growth. Some are the high birth rates in the postwar years which resulted in increases in enrolments at the elementary-secondary level and culminated in a rise in numbers at the tertiary level, and higher retention rates in secondary schools. Other factors are the growing diversification of types of post-secondary institutions and programs which cater to individual interests and abilities, and the high correlation, especially when the Canadian economy is experiencing growth, between more education and occupational and social mobility.

Community Colleges and Related Institutions

Community colleges have grown to accommodate the need for more education. Enrolments are rapidly increasing, largely because of the community colleges' flexi-

ble, open-door policies. Many community colleges are provincially-supported and student fees are low or non-existent; most are oriented to the community's needs; most provide diversified programs on a full- and part-time basis in both day and evening classes; and many integrate theoretical classroom study with associated work experience. Although high school graduation is a prerequisite for entrance into post-secondary programs, many institutions provide a qualifying year for students without the equivalent of a high school diploma. In addition, some institutions permit older applicants without the necessary qualifications to register by classifying them as "mature" students.

Linked to individual needs, these colleges are meeting the growing demand within the community labour force for para-professional and technical manpower. A major determinant of this increasing demand has been the realization within most professions of the important contribution made by the para-professional. Community colleges offer two- or three-year programs in three main divisions — applied arts, business and commercial, and technological studies — leading to a diploma of technology and applied arts. In addition, some colleges offer the first one or two years of the equivalent of a university program.

Enrolments have recently increased at an extremely high rate. Table 2 reveals that the total enrolments in community colleges in 1970-71 were 134,275: 85,689 in technical programs and 48,586 in university transfer studies. The number of full-time students enrolled in vocational programs alone grew from 11,000 in 1960-61 to 85,689 in 1970-71. From 1969-70 to 1970-71, the number of full-time students enrolled in vocational programs increased by 16,572 or 24.0 per cent, and those in university transfer studies grew by 11,684 or 31.7 per cent.

Harland Studio

In St. John's, Nfld., students wishing to pursue a practical occupation study at the College of Trades and Technology.



Provincial Systems of Community Colleges

In the Atlantic Provinces, community colleges are comprised of the College of Fisheries, Navigation, Marine Engineering and Electronics, and the College of Trades and Technology in Newfoundland; Holland College in Prince Edward Island; an agricultural college, two institutes of technology, and a land survey institute in Nova Scotia; and two institutes of technology in New Brunswick. All these institutions stress vocational training geared directly to employment. In Nova Scotia, the Nova Scotia Agricultural College has recently integrated the vocational and university equivalent programs into its curriculum, and a bilingual college was established to serve the Acadian population.

In Quebec, the *Collèges d'enseignement général et professionnel* (CEGEPs), offering three-year terminal technical studies and two-year academic programs (a prerequisite for entrance to university), were inaugurated in the mid-sixties, following recommendations of the Royal Commission on Education. This new college system incorporated a variety of post-secondary institutions, including many normal schools, diploma schools of nursing, and institutes of technology. A few classical colleges and public technical institutes and related institutions are still independent of the CEGEP structure. In the 1970-71 academic year, there were over 30 CEGEPs. In addition to the two institutions which existed in 1970-71, two new English-language CEGEPs, Sir John Abbott and Champlain College, began operations in the early 1970's. In 1970-71 total enrolment in this educational sector was 70,385.

In Ontario in 1965, colleges of applied arts and technology (integrating institutes of technology and vocational centres) were established in 20 regions. These colleges, termed CAATs, are oriented to providing vocational and technical education. Other institutions in this educational sector include the Ontario College of Art, four colleges of agricultural technology, and a school of horticulture. In 1970-71, there were 37,483 students enrolled in the CAATs and other related institutions. This represented an increase of 14.5 per cent during the year.

In 1969 Manitoba, in setting up a community college structure, redesignated the Manitoba Institute of Technology and Applied Arts and the two vocational centres, as the Red River, Assiniboine, and Keewatin Community Colleges, respectively.

Two of the three colleges in existence at present in Saskatchewan, offer vocational programs only. One church-related college, St. Peter's College, offers a one-year university equivalent program.

A recently established community college structure in Alberta, now under the jurisdiction of the Department of Advanced Education, incorporated the two institutes of technology, the three agricultural and vocational colleges, and the five public colleges. These latter, offering both university and technical programs (with one exception), were previously called "junior" colleges. In addition, two private colleges offer one- or two-year university equivalent programs.

As a result of recent amendments to legislation, British Columbia restructured, expanded, and strengthened its community college system. Both district and regional colleges are now classified as regional colleges providing technical and university transfer programs. In 1970-71, there were eight regional colleges (one of which was a city college), two schools of art, the British Columbia Institute of



Medical laboratory technicians are shown in training at the Nova Scotia Institute of Pathology.

N.S. Dept of Ed.

Technology (provincially-operated), and two private colleges offering academic programs only.

Schools of Nursing

Nurses' training ranges from nurses' (R.N.) diploma programs—given traditionally in hospital schools but now more and more within regional schools of nursing and community colleges—to undergraduate and graduate degrees in nursing science offered in the universities. In addition, some universities permit individuals with a nursing diploma to qualify for a university nursing degree by taking one or two additional years of study.

Increasingly since 1964, when the Ryerson Institute of Technology included a nurses' (R.N.) diploma program in its course offerings, regional schools of nursing and community colleges are providing nursing education. Provinces offering some nurses' diploma programs outside the hospitals include Prince Edward Island, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. In addition, the course is being reduced from three years to two in many provinces.

In 1970-71 the total enrolment in nurses' (R.N.) diploma programs within hospi-

tal schools, regional schools of nursing, and community colleges was 26,545 (see Table 3 for provincial breakdowns). This represents a modest increase of 635 students or 2.4 per cent from 1969-70 to 1970-71. In this same year, 4,333 students were enrolled in full-time university programs in nursing.

Teacher Training

Years ago the teachers' college was the principal post-secondary non-university institution. A very different situation has developed in the last decade. The trend is towards the training of elementary school teachers in universities and the disappearance of teachers' colleges providing one-year post-secondary programs. Traditionally, a prerequisite for teachers at the secondary school level has been a university degree in education integrating academic and professional courses, or a degree and one year in a college of education affiliated with a university. Candidates for both elementary and secondary teaching certificates are now required to have a university degree in six provinces: Newfoundland, Prince Edward Island, Manitoba, Saskatchewan, Alberta, and British Columbia. The four remaining provinces are phasing out their teachers' colleges and stressing university professional training. The number of teachers' colleges decreased from 35 in 1969-70 to 25 in 1970-71 and the corresponding enrolments during the same period declined from 14,906 to 10,601. In contrast, the number of students enrolled in education programs at the undergraduate level in universities increased from 28,068 to 30,679 during this time.

University Education

Universities have a long history in Canada. Churches, provinces, and interested groups of individuals have been instrumental in establishing them. The original universities and colleges included both French and English institutions. Today there exist over 60 universities in Canada that confer degrees. In addition there are significant numbers of colleges affiliated with a university.

Universities and colleges at present differ with regard to language of instruction, size, number of faculties, and so forth. The largest group of universities provide instruction in English, although there exist a number of French degree-granting institutions. In addition, there are a few bilingual institutions including the University of Ottawa and Laurentian University in Sudbury, Ont. Institutions range in size and number of faculties from those with full-time enrolments of less than 1,000 students and one faculty to universities with more than 10,000 students with numerous faculties offering a comprehensive range of programs. In order to accommodate the tremendous increase in student enrolments in the last two decades, many universities were expanded considerably. In addition, several new universities were chartered—such as Simon Fraser, Brock, and Trent Universities—and some institutions were given degree-granting status—for example, the University of Victoria and Notre Dame University of Nelson.

Depending on the province, a student must have a junior or senior matriculation certificate in order to gain admission to courses leading to a first degree. Many universities now require or suggest in addition that students write specified apti-

tude tests. The length of programs varies from three to four years for a pass bachelor's degree to five years or longer for a professional degree in medicine, theology, and law. The master's degree program following the bachelor's degree requires one or more years of study, and doctorates require a minimum of two years of study and intensive research after completion of the master's degree. Table 2 shows that in 1970-71, 316,953 full-time students were enrolled in degree, diploma, and certificate programs in universities, 205,385 or 64.8 per cent of whom were men. The increase in enrolment in this sector during the decade was 188,059 or 145.9 per cent while the growth during the previous year only was 17,064 or 5.7 per cent. It is noteworthy that in the last 10 years part-time enrolment increased at a higher rate than full-time enrolment.

Table 2. Full-time Enrolment in Tertiary Education,¹ Canada, 1970-71

Province	Community Colleges and Related Institutions ²				Teachers' Colleges	
	Vocational Programs		University Transfer Programs			
	Total	Males	T	M	T	M
Newfoundland	705	555	—	—	—	—
Prince Edward Island	175	113	—	—	—	—
Nova Scotia	837	594	194	168	872	241
New Brunswick	616	526	—	—	1,003	174
Quebec	29,727	15,649	40,658	23,966	2,074	..
Ontario	37,483	26,962	—	—	6,652	1,721
Manitoba	2,084	1,488	—	—	—	—
Saskatchewan	1,722	845	31	22	—	—
Alberta	7,359	4,869	2,309	1,434	—	—
British Columbia	4,981	..	5,394	3,362	—	—
Canada, Total	85,689	..	48,586	28,952	10,601	..

Province	Non-University Sector		University Sector	
	Diploma Schools of Nursing ³		Universities and Affiliated Colleges	
	T	M	T	M
Newfoundland	715	11	6,378	4,081
Prince Edward Island	175	—	1,755	1,018
Nova Scotia	952	3	15,820	9,783
New Brunswick	1,014	9	10,580	6,790
Quebec	7,468	245	62,113	42,146
Ontario	10,430	103	121,115	80,048
Manitoba	1,279	25	16,941	10,701
Saskatchewan	866	7	14,860	9,230
Alberta	2,054	15	31,043	19,100
British Columbia	1,592	17	36,348	22,488
Canada, Total	26,545	435	316,953	205,385

¹Includes enrolments in the non-university sector (including post-secondary courses in community colleges and related institutions); teachers' colleges (outside the universities); and diploma schools of nursing; and in the university sector (including universities and affiliated colleges).

²Related institutions include a number of private colleges; The Nova Scotia Agricultural College, Ontario College of Art, etc.

³As some community colleges and related institutions include nurses' (R.N.) diploma programs, some students have reported twice: once in the community college category, and again in the diploma schools of nursing category.

Financing Education

In 1968-69, total education expenditures were \$5,783,033,000 representing 8.1 per cent of the Gross National Product. Of this amount \$3,758,205,000 or 65 per cent was spent on the financing of elementary-secondary education across Canada. The major portion of the costs in this sector of education is borne by the provincial and local governments — 51.1 per cent and 39.4 per cent respectively in 1968-69.

The federal government's contribution to education is an important one, especially for vocational and post-secondary education: in 1968-69, the government spent \$1,189,104,000 on education: in 1969-70, federal expenditures are estimated at \$1,329,000,000. Under the terms of the Adult Occupational Training Act of 1967, the federal government pays the total costs incurred by the provinces to provide vocational training of adults in a training course arranged by a federal Manpower office or in an apprenticeship training program. It also pays part of the capital expenditure required for provincial occupational training facilities. The terms of the Federal-Provincial Fiscal Arrangements Act, which also came into effect in 1967 for five years, stipulates that the federal government will assist the provinces in post-secondary education by providing \$15 per capita of population or 50 per cent of post-secondary operating expenditures, whichever is greater. In 1968-69 federal expenditures in vocational, university, and post-secondary non-university education (including community colleges and related institutions, and diploma schools of nursing) were \$218,462,000, \$606,348,000, and \$150,096,000 respectively.

Frontier College

Frontier College's volunteers labour by day and teach their fellow workers by night.



Senior students of the Western College of Veterinary Medicine hold a dog in position for an x-ray.



*Gibson Photos/
Univ. of Sask.*

Table 3. Education Expenditures of Public School Boards
for 1969 Calendar Year

Province	Local Taxation	Provincial Government	Federal Government	Fees	Other	Total
Thousands of dollars						
Newfoundland	648	49,186	—	906	1,844	52,584
Prince Edward Island	3,710	8,454	—	60	100	12,324
Nova Scotia	41,817	50,432	795	29	405	93,478
New Brunswick	—	64,279	—	11	185	64,475
Quebec	424,868	588,897	5,807	4,645	6,383	1,030,600 ¹
Ontario	739,573	685,647	10,032	3,942	20,203	1,459,397
Manitoba	63,870	79,478	593	847	2,184	146,972
Saskatchewan	83,004	62,152	2,142	149	2,826	150,273
Alberta	135,421	154,941	4,920	1,958	3,634	300,874
British Columbia	180,170 ²	129,278	3,343	178	9,542	322,511
Yukon	—	4,828	314	53	226	5,421
Northwest Territories	401	432	6	—	43	882
Total, Canada	1,673,482	1,878,004	27,952	12,778	47,575	3,639,791

¹Estimate. ²Includes provincial government grants to reduce local taxation in the amount of \$51,388.

Health and Welfare

Health Care

Responsibility for the administration of health care services in Canada is a direct concern of provincial governments, with municipalities often exercising considerable authority over matters delegated to them by provincial legislatures. The federal government has jurisdiction over a number of health matters of national scope and provides important financial assistance to provincial health and hospital services. All levels of government are aided by a network of voluntary agencies in different health fields.

Advances in medicine and the development of better health services have contributed to a pronounced improvement in the health of Canadians during recent decades. In the period 1941-68, life expectancy at birth for men rose from 63 to 69 years and for women, from 66 to 75.5 years. The infant mortality rate fell steadily from 61.1 per 1,000 live births in 1941 to 18.8 in 1970. The proportion of births taking place in hospitals rose from 49 to 99.6 per cent, and the maternal mortality rate dropped from 36 to 2.0 per 10,000 live births. The four leading causes of death in 1970 were circulatory diseases, tumours, accidental deaths, and diseases of the respiratory system.

The Department of National Health and Welfare is the chief federal agency in health matters. In conjunction with other federal agencies and with provincial and

A.E.C.L.

The Theratron 780 produced by Atomic Energy of Canada Ltd. is the most advanced and accurate cancer therapy unit in the world.





A physicist at the Toronto General Hospital replays an x-ray videotape of a patient's left heart chamber on a TV screen used in conjunction with a computer.

Globe + Mail

local health agencies it works to raise the health level of all Canadians.

Through the *Health Protection Branch* the department is responsible for protecting the Canadian public from hazards to health in foods, drugs, cosmetics, and medical devices sold to the public, and conducts programs in epidemiology and nutrition. The Branch also strives to eliminate harmful industrial and other chemical wastes from the environment and to protect the public from harmful radiation resulting from the use of radioactive materials. The *Medical Services Branch* operates quarantine and immigration medical service and provides health services to Indians and Eskimos and other special groups. The *Health Programs Branch* administers federal aspects of hospital and medical care insurance programs and provides advisory and consultative services to provincial and local health agencies concerning the health of Canadians. It also provides financial assistance for studies designed to improve health services in Canada, and supports the development of facilities for education and research in the health field. The *Non-Medical Use of Drugs Directorate* attacks the problem of non-medical use of drugs and conducts public education programs on smoking to reduce the incidence of lung cancer and other diseases attributable to the habit.

Medical Care Program. The Medical Care Act was passed by Parliament in December 1966 and began to operate on July 1, 1968. As of April 1, 1972, all prov-

inces and territories had entered the federal medical care program. The Medical Care Act provides that the federal government contributes to a province half the cost, for every person, of all insured services furnished under the plans of all provinces, multiplied by the number of insured persons in that province, provided that the provincial plan meets specified conditions. These conditions are comprehensiveness of medical services, universality of coverage, administration by public authority, and portability of benefits between provinces.

Before the adoption of this Act, about 20 per cent of the Canadian population had no form of protection against the rapidly rising costs of medical and surgical care. The rest had varying degrees of protection, in a wide range of private plans and public arrangements. Under the new program comprehensive insurance is available on equal terms and conditions to all residents of all provinces. This feature protects any Canadian from being refused coverage because of his health, occupation, or age.

The people of Canada today have truly comprehensive protection against the costs of medically required services of physicians and surgeons. This protection is available to all residents and is fully portable from province to province.

Hospital Insurance and Diagnostic Services. The federal-provincial hospital insurance program now covers 99.5 per cent of the insurable population of Canada. The system of federal grants-in-aid to the provinces to meet about 50 per cent of the cost of specified hospital services is set out in the federal Hospital Insurance and Diagnostic Services Act of 1957. Under the Established Programs (Interim Arrangements) Act, provinces can contract out of various federal-provincial programs, including hospital insurance, and on January 1, 1965, Quebec did so. Accordingly, the federal contribution to the Quebec hospital insurance program is made through tax abatement and not under the Hospital Insurance Act.

To participate in the program, a province is required to make available to all of its residents, under uniform terms and conditions, standard ward hospital care and other specified in-patient benefits including laboratory and radiological diagnostic services. The provinces also have the option of providing particular insured out-patient hospital services; the range of such services that are provided as insured benefits vary considerably from province to province. The provinces are also responsible for determining methods of financing and administering the hospital insurance plans.

Federal legislation applies only to services provided by approved active treatment, chronic, and convalescent institutions and related facilities; it specifically excludes mental hospitals, tuberculosis sanatoria, and custodial care institutions. Federal payments to the provinces under this program for the fiscal year 1970-71 amounted to \$1,053 million.

Drug Control and Drug Abuse. Since 1966, every manufacturer and distributor of drugs has been required to submit to the Health Protection Branch information on all drug products he is marketing in Canada. From this and other information decisions are made regarding the types of control that will be exercised. Furthermore, when a new drug with unknown properties is to be placed on the market, the manufacturer is required by law to provide information concerning adverse side effects, the manufacturing process to be used, the results of the drug in clinical tests,



Most provinces have an agreement with the federal government that patients referred by a doctor may use the 12 federal prosthetic centres.

Nat H & W.

Greater Winnipeg Industrial Topics

At the Manitoba Rehabilitation Hospital, patients adjust to their new limbs.



and the formulation of dosage norms. This information is studied carefully to ensure that the drug is safe and that it is effective for the purposes claimed. Even after the drug is marketed, the Health Protection Branch has the authority to ban its sale if it is shown through the adverse-drug-reaction program that the drug is unsafe and injurious to health.

A further safeguard is provided through the Proprietary or Patent Medicine Act, which controls manufacturing, licensing, labelling, advertising, and merchandising of home remedies which are often sold in retail outlets that are not drug stores. Another important function of the Health Protection Branch is to exercise control over the traffic in narcotics or the possession, exportation, importation, or cultivation of narcotics by persons other than those authorized under the Narcotics Control Act. This control is achieved through co-operation with the Royal Canadian Mounted Police and other law enforcement agencies.

Following the interim report of the Commission of Inquiry into the Non-medical Use of Drugs (the LeDain Commission), the Department has undertaken various other approaches to the problem of the non-medical use of drugs. The Food and Drugs Act and the Narcotic Control Act have been amended to provide for the establishment of regional laboratories across Canada to analyze drugs. The new regulations will permit a physician to send samples of controlled or narcotic drugs, obtained from his patients, to scientists for analysis.

A new program of tighter control on methadone and amphetamines has been introduced, under which only physicians authorized by the Minister and associated with a specialized clinic can prescribe methadone, while amphetamines will be used only for treating those particular disorders for which they are uniquely suited.

Chronic Illness and Rehabilitation. Increased longevity resulting from effective measures against infant mortality and communicable disease, together with gener-

Dani England/Vancouver Sun

A six-year-old patient enjoys physiotherapy on a giant plastic ball at the G.F. Strong Rehabilitation Centre, Vancouver, B.C.





Nat H & W.

al advances in medical care and drugs, have focused professional and public attention on the control of chronic disease and long-term illness. Advances are being made in multiphasic screening for the detection of chronic conditions such as diabetes and glaucoma; voluntary organizations co-operate with public agencies in this screening. Most larger general hospitals have set up specialized out-patient clinics for arthritis, diabetes, cystic fibrosis, heart defects, cancer, orthopaedics, and neurology. Extended treatment wards in general hospitals, chronic-disease hospitals, nursing homes, or homes for special care; domiciliary facilities for the aged and feeble; and day centres are available in most cities in Canada.

The success of programs for the rehabilitation of injured workers under provincial workmen's compensation, for war veterans through the Department of Veterans Affairs, and for handicapped children under various auspices, has stimulated the expansion of rehabilitation services to the disabled. The Department of National Health and Welfare through its National Health Grant Program has promoted the development of rehabilitation services. Since January 1966 the Department has also assumed responsibility for nation-wide prosthetic services. There are three prosthetic and orthotic research and training centres in addition to the central prosthetic establishment in Toronto.

Mental Illness and Mental Retardation. Governments and citizens' groups are developing special community resources to provide continuing care for the mentally ill and the mentally retarded. The facilities of general hospitals and community psychiatric hospitals for short-term in-patient psychiatric therapy and related day care, emergency, and out-patient services have been expanded. The Canadian Mental Health Association through its White Cross Centres aids the social and vocational adjustment of discharged psychiatric patients.

Family Planning Program. In September 1970, the Department initiated a program of research, training, and public information in the field of family planning. Under this program the Department provides financial assistance to provincial departments and private agencies carrying out research and disseminating family-planning information. The aim of the Family Planning Program, which has been allotted \$685,000 for the fiscal year 1971-72, is to reduce the number of unwanted children, and of abused, neglected, deserted, and abandoned children, as well as attendant welfare costs.

Social Welfare

A wide range of income security and social services are provided by federal, provincial, and local governments and by voluntary agencies in Canada. The Department of National Health and Welfare has the major federal role in welfare matters; other federal agencies with important welfare functions include the Unemployment Insurance Commission, the Department of Veterans Affairs, and the Department of Indian and Northern Affairs. The provinces and, by delegation, the municipalities, have primary responsibility for the administration of social assistance and welfare services to persons in need. Public services are complemented by a wide range of services provided by voluntary agencies.

A number of programs are available to provide protection to Canadians: the Canada Pension Plan, old age security pensions and the guaranteed income supplement, family and youth allowances, provincial assistance programs for persons in need, child welfare services, and services for the elderly, including institutional care.

A White Paper on Income Security for Canadians, tabled in the House of Commons on November 30, 1970, contained proposals to make certain changes in the old age security pension and the guaranteed income supplement, to replace family allowances with a Family Income Security Plan, to amend the Canada Pension Plan, and to hold discussions with the provinces to improve provincial social assistance programs financed through the Canada assistance plan. The proposals relating to old age security and the guaranteed income supplement were enacted in December, 1970, and a Bill relating to payment of benefits in respect of children to replace the Family and Youth Allowances programs, received first reading in the House of Commons in September, 1971.

The Canada Pension Plan. In 1966 a contributory social insurance program was introduced. With its counterpart, the Quebec Pension Plan, it covers most of the Canadian labour force. The minimum age for membership is 18. Employees and employers both contribute at a rate of 1.8 per cent on earnings between \$600 and the maximum of pensionable earnings, which was \$5,500 a year in 1972. The earnings ceiling is adjusted up to a maximum of 2 per cent in accordance with the Pension Index developed for the plan. Self-employed persons contribute 3.6 per cent of their earnings provided that these are at least \$800 a year. Monthly retirement pensions to persons 65 years of age or over are equal to 25 per cent of the contributor's average monthly pensionable earnings but are payable at reduced rates until 1976 when they become payable at their full rates.

Old Age Security. The federal government pays a monthly pension to all persons aged 65 and over who meet the residence requirements. A person must have resided in Canada at least 10 years immediately before his application is approved; any gaps in this 10-year residence can be made up by periods of residence in earlier years from age 18, equal to three times the gap, provided the applicant has lived in Canada for the year immediately prior to making an application. From 1968 to 1970 the basic pension of \$75 was increased annually by 2 per cent on the basis of the Pension Index. Under 1970 legislation the monthly pension was set at \$80 effective from January 1971, and under an amendment to the Old Age Security Act in May



Benefits under federal social security must be applied for. Such programs as the Canada Pension Plan maintain district offices across Canada, where trained staffs assist applicants and provide advice and information.

Hal. N & W.

1972 the basic pension will be escalated annually effective January 1972 to reflect changes in the Consumer Price Index. The number of recipients of old age security was 1,756,548 by December 31, 1971, and payments for the fiscal year 1970-71 amounted to \$1.600 million.

Guaranteed Income Supplement. Old age security pensioners who have little or no other income may receive a supplement under the Guaranteed Income Supplement program introduced in 1967. Under legislation enacted in 1970, the maximum supplement is \$55 for a single pensioner or for a couple where only one spouse is a pensioner, and \$95 where both spouses are pensioners. These amounts were increased to \$67.12 and \$119.24 respectively, effective January 1, 1972, to guarantee an OAS-GIS income of \$150 a month for a single person and \$285 a month for a pensioner couple. The supplement is reduced by \$1.00 for every \$2.00 of income over and above the old age security pension. For persons eligible to receive the supplement, both it and the old age security pension increased in 1972 by 2 per cent on the basis of increases in the Pension Index and under legislation passed in

May 1972 will be escalated annually each April effective in 1973 to reflect changes in the Consumer Price Index. A declaration is made each year on the preceding calendar year's income, and benefits in the current fiscal year are based on this declaration. Income is determined in the same way as under the Income Tax Act, and for each married applicant it is taken as one half of the combined income of the married couple. In 1972 the maximum supplement together with the old age security pension guarantees a monthly payment of \$137.70 to a single pensioner or a couple where only spouse is a pensioner, and \$260.10 to a couple when both are pensioners.

On December 31, 1971, there were 978,068 persons receiving supplements. Expenditures for the 1970-71 fiscal year amounted to \$280 million.

Family Allowances, Family Assistance, and Youth Allowances. Family allowances are paid by the federal government to the mother on behalf of children under 16 years of age who were born in Canada or who have lived in Canada for one year. The monthly rate is \$6 for children under 10 years of age and \$8 for children aged 10-15. On December 31, 1971, family allowances were being paid for 6,795,299 children in 3,054,304 families. Payments for the 1970-71 fiscal year amounted to \$558 million.



*Paul
Baich
(missing)*



Dunsley

Family assistance is paid at the family allowance rates for each child under 16 without a year's residence who is supported by an immigrant who plans to reside permanently in Canada, or by a Canadian returning to Canada to live here. It is paid for a period of one year until the child is eligible for family allowances. On December 31, 1971, there were 19,875 children in 9,575 families receiving this form of assistance. Payments in the 1970-71 fiscal year amounted to \$2.7 million.

Children resident in Quebec may receive additional allowances under the Quebec family allowance program introduced in 1967. These allowances are payable twice yearly for Quebec children from birth until their sixteenth birthday at the annual rate of \$30 for one child, \$65 for two, \$105 for three, \$155 for four, \$215 for five, \$285 for six, and an extra \$70 for each child after the sixth. In addition, a supplementary allowance at the annual rate of \$10 is payable for children aged 12 to 16 years inclusive.

Under the federal government's youth allowances program, \$10 a month is payable for children aged 16 and 17 who are attending school full time or who are unable to attend school because of mental or physical disability. Quebec has its own schooling allowances program for which it receives compensation from the federal government. It is comparable to the federal program which operates in other provinces. On December 31, 1971, allowances were being paid for 507,492 youths exclusive of those in Quebec. Federal expenditures on these youth allowances for the 1970-71 fiscal year were \$58 million.

Social Assistance. Financial aid is available to persons in need and their dependents through provincial or municipal departments of welfare. The costs of aid and of certain welfare services supplied to such needy persons are shared by the federal government under the Canada Assistance Plan. Persons assisted include widows and other needy mothers with dependent children, persons who cannot work because of their age or because of mental or physical disability, unemployed persons, and persons whose benefits from other sources are not adequate to meet their needs. Allowances are granted to cover the basic costs of food, clothing, personal care, and shelter, and to cover special needs such as household furnishings, school supplies, and homemaker services when necessary. Aid may also be given in the form of institutional care for elderly persons who are no longer able to look after themselves.

The special federal-provincial programs for disabled persons and blind persons under which allowances of \$75 a month are paid to needy persons with at least 10 years' residence have been discontinued in a number of provinces and the needy blind and disabled are now assisted in these provinces under provincial social assistance programs without residence requirements.

Child Welfare. The term "child welfare" refers particularly to statutory services for the protection and care of children who are neglected or who are temporarily or permanently without parental care. Services include protection for children in their homes, foster home care, adoption services, and services to unmarried parents. Statutory child welfare services come under the jurisdiction of provincial authorities and are administered by provincial departments of welfare or by voluntary agencies, usually children's aid societies. The objective of these programs is to strengthen the family and if the family has broken down to provide substitute care for the children according to their needs. The number of completed adoptions in Canada is currently about 19,000 a year.

Welfare Services. Welfare services in communities are available from provincial, municipal, and voluntary agencies. Among these are programs for the elderly, rehabilitation and counselling services, homemaker and day care services, community development services, and services for special groups such as youths, the handicapped, and immigrants.

Public day care services for children of working mothers have developed unevenly throughout Canada, and are largely concentrated in large urban areas.

Services for the Aged. A variety of community services under public and voluntary auspices serve older persons. These include information, counselling and referral services, friendly visiting, housing registries, and homemaker services. Clubs and centres provide recreation and social activities in addition to the usual services. In some centres "meals-on-wheels" programs have been organized. Specially designed low-rental housing projects have been built for older persons, financed through federal low-interest loans and provincial, municipal, and voluntary funds. Institutions for older persons unable to care for themselves are operated under public, voluntary, or religious auspices, and include residential and nursing homes.

National Welfare Grants. To assist in the development and strengthening of welfare services in Canada, the federal government provides project grants to provincial and municipal welfare departments, national and local voluntary agencies and organizations, schools of social work, and research institutions for demonstration, research, manpower, social action, and other projects considered to have national significance.

Training grants and fellowships are awarded to individual Canadians for professional education and training in social work. The variety of provisions within the program along with the associated consultative services allow it to operate as a flexible instrument in the development of welfare services and to emphasize experimental and innovative activities in the welfare field.

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

The federal Fitness and Amateur Sport Act of 1961 provides federal aid through direct services and grants to national organizations. The Department of National Health and Welfare administers the federal program with the advice of a National Advisory Council. Grants are made to encourage amateur sport and recreation and to assist Canadian participation in international competitions.

International Welfare and Social Security. Canada plays a prominent role in international social welfare at the United Nations through membership on the Commission for Social Development and the Executive Board of UNICEF. Governments at all levels, non-governmental bodies and individuals participate in the work of such international non-government agencies as the International Council on Social Welfare and the International Union of Family Organizations. Agreements on social security with other countries are negotiated to ensure that Canadians moving between Canada and other countries do not suffer loss of their social security rights. Technical assistance in the social welfare aspects of development is supplied to other countries.

Nat. H & W.

A young Calgary boy on the parallel bars is among the beneficiaries of the Fitness Award program of the Department of National Health and Welfare.



Veterans Affairs

Nearly one million Canadian veterans receive assistance from the Department of Veterans Affairs. Services include medical treatment for eligible veterans as well as other services such as land settlement, home construction, welfare services for veterans and their dependents, and educational assistance for children of the war dead.

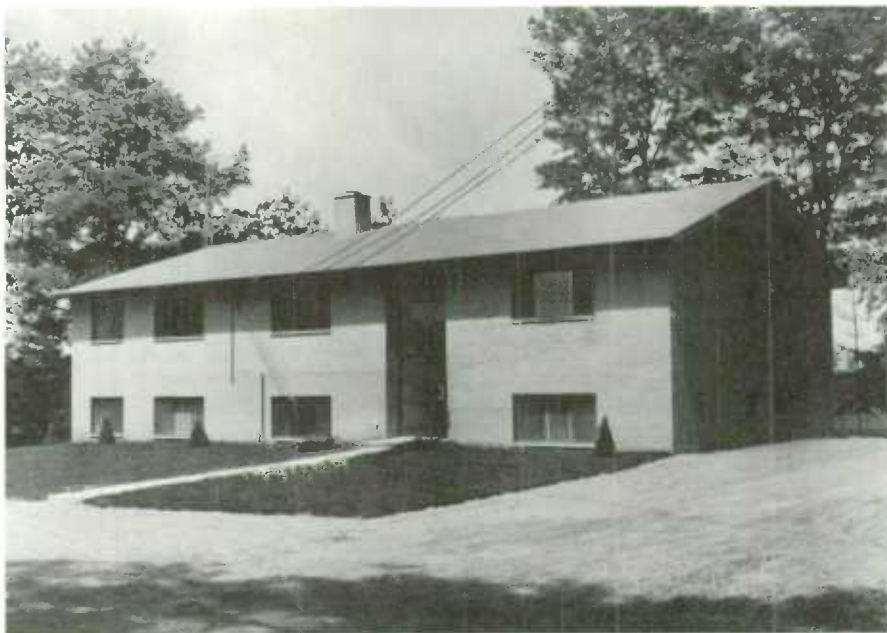
Four independent bodies are also responsible to the Minister of Veterans Affairs. The *Canadian Pension Commission* is responsible for the administration of the Pension Act. Pensions totalling more than \$232 million for death and disability were paid to nearly 155,000 veterans and dependents in the 1971-72 fiscal year. The *War Veterans Allowance Board* administers the War Veterans Allowance Act. In 1971-72 it paid out more than \$77 million in allowances to veterans and their dependents. The *Pension Review Board* and the *Bureau of Pensions Advocates* are the other two independent bodies. They were established in 1971.

The re-establishment of Canada's World War II veterans is now virtually completed but the medical treatment and welfare services are increasing and will almost certainly continue to do so for many years to come. The Department is responsible for operating nine hospitals and three veterans homes in Canada. During 1971-72 nearly 32,000 veterans were treated or given long-term care in these institutions.

John Evans

Counsellors in the Department of Veterans Affairs are experienced in helping veterans and their wives.





Over 1,600 elderly Canadians are accommodated in housing financed by the Canadian Legion of veterans.

Royal Canada Legion

Treatment for pensioned disabilities is also provided by the Department in non-departmental hospitals, both at home and abroad, to Canadian veterans who require it.

Loans and assistance to veterans to engage in full- or part-time farming or commercial fishing, or to build homes, are provided by the Veterans Land Act. Since the Act was passed in 1942, loans and grants have been made to more than 122,000 veterans, including nearly 3,000 in 1971-72. From the beginning of operations to the end of the last fiscal year loans advanced have totalled close to \$1,131 million of which \$598 million, or 53 per cent, has been repaid.

Two distinguished foreign groups were welcomed in Canada by the Department in the past year. In September, some 60 French visitors, members of *l'Union nationale des Évadés de guerre* and their families arrived in Canada for a ten-day visit. They were welcomed by members of the Canadian Branch of the Royal Air Forces Escaping Society, and an official dinner was given in their honour by the Minister of Veterans Affairs.

In October, eight members of the Netherlands War Graves Committee came from Holland to spend six days in Ottawa. They were welcomed by the Governor-General and were entertained by both the Department of Veterans Affairs and the Royal Canadian Legion. While in Ottawa they participated in a special bulb-planting ceremony at the National War Memorial.

Canada Department of Agriculture

The Canada Department of Agriculture is nearly as old as the country it serves. When it was created by Act of Parliament in May 1868, the Department's most urgent task was to control livestock diseases and prevent their entry into Canada. Agriculture, however, was only one area over which the new Department had jurisdiction. For some time, it was also involved with immigration, public health and quarantine, the census and statistics, patents, copyright, and industrial designs and trademarks.

In 1886, the Department's system of experimental farms was established to assist farmers in making the best use of their resources. Today, the services of the Department extend from the farmers to the consumer, through all steps in the



Fine examples of Canadian Holstein bulls in the exercise yard of the Central Experimental Farm of the department of agriculture, in Ottawa.

production, processing, and marketing of crops and livestock.

Among its many activities are the following, carried out by the Production and Marketing and Health of Animals branches: the inspection and grading of farm products; protection of crops and livestock from diseases and pests; promotion of high-quality seed and purebred livestock; and enforcement of laws governing the sale of such farm supplies as feed, fertilizers, and pesticides. The Department also administers price support, crop insurance, and other programs to assist farmers who have experienced unavoidable losses caused by weather, changing markets, and some other hazards.

Other Agencies

The Canadian Grain Commission, the successor to the Board of Grain Commissioners, was established to implement the regulations of the new Canada Grain Act which became effective on April 1, 1971. The Act provides for the introduction of a new schedule of wheat grades and the protein testing of wheat to enable the Canadian Wheat Board to offer protein guarantees to customers. The Commission is also responsible for licensing grain elevators.

Two federal agencies – the Canadian Dairy Commission and the Canadian Livestock Feed Board – operate independently but report to the Minister of Agriculture. The Dairy Commission supports the market price of major processed dairy products, and makes direct payments to producers to supplement returns from the market. The Livestock Feed Board ensures availability and price stability of feed grains to meet the needs of livestock farmers.

The Farm Credit Corporation, a Crown Agency that reports to Parliament through the Minister of Agriculture, makes loans to individual farmers and to groups of farmers operating as syndicates.

Some Recent Developments

Agriculture reached a notable milestone with the passing by Parliament of the Farm Products Marketing Agencies Act early in 1972 and the subsequent appointment of a six-member National Farm Products Marketing Council. The federal legislation makes it possible to co-ordinate the operations of producer marketing boards, established under provincial marketing legislation, into a nation-wide marketing system. All provinces have passed such legislation, enabling their producer groups to set up their own provincial marketing boards.

A national marketing agency will be set up for a commodity only if the majority of Canadian producers of the commodity – eggs, for example – are in favour of doing so. The marketing legislation applies to all farm products which, in interprovincial and export trade, are not covered under the Canadian Wheat Board Act and the Canadian Dairy Commission Act. The Marketing Council will oversee the establishment and operation of national marketing agencies.

In 1971, details of a \$150 million small farms development program were announced. The program is aimed at helping the small farmer who wants to continue farming but needs more acreage to develop a profitable business. The program would also benefit those farmers who choose to retire or leave farming.

Labour and Manpower

Labour Legislation

Labour legislation is enacted by both the federal Parliament and the provincial Legislatures. Parliament has authority to enact labour laws governing employers and employees in certain industries, in particular transportation and communication services extending beyond the limits of a province. Most laws for the protection of workers are provincial. Labour Ordinances are enacted by the Territorial Councils of the Yukon and Northwest Territories.

Labour Standards. In the labour standards field, a minimum age for employment and minimum standards of wages, hours and overtime, annual vacations and public holidays for workers under federal jurisdiction are set by the Canada Labour (Standards) Code. A number of additional employment standards, including maternity leave, equal pay, notice of termination of employment, and severance pay, were established by amendments to the Code in 1971. Similar standards in most of these areas are set by provincial legislation.

A compulsory school attendance law in each province forbids the employment of school-age children during school hours. In general, 18 years is the minimum age for work underground in a mine and 15 or 16 years, the minimum age for other employment. Minimum wages applying to most employees have been established in every jurisdiction, as indicated in the table below. Wage payment and wage collection laws have been a subject of legislative attention in recent years.

**General Minimum Wage Rates for Experienced Adult Workers
as of July 1, 1972**

Jurisdiction	Hourly Rates
Federal	Workers 17 and over: \$1.75
Newfoundland	Workers over 18: \$1.40
Prince Edward Island	Men over 18, \$1.25; women 18 and over: \$1.10
Nova Scotia	Workers 18 and over: \$1.55 (\$1.65 from July 1, 1973)
New Brunswick	Workers 18 and over: \$1.40 (\$1.50 from Jan. 1, 1973)
Quebec	Workers 18 and over: \$1.50
Ontario	\$1.65
Manitoba	Workers 18 and over: \$1.65
Saskatchewan	\$1.75
Alberta	Workers 18 and over: \$1.55
British Columbia	\$1.50
Yukon	Workers 17 and over: \$1.75
Northwest Territories	Workers 17 and over: \$1.50

Eight jurisdictions—the federal, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, the Yukon, and the Northwest Territories—have general laws regarding hours of work. They either set maximum hours beyond which work is prohibited except under special regulations or with a permit, or establish standard hours, after which an overtime rate must be paid. Working hours in specific industries are regulated under other laws in each jurisdiction.



The Labour College of Canada celebrated its tenth anniversary this year. This unique institution of higher learning for trade unionists, operated jointly in Montreal by the Canadian Labour Congress and the Universities of Montreal and McGill, has graduated a total of 830 English- and French-speaking union members, 133 of them from developing countries.

Murray Mosher Photo Features

Hours of Work

Jurisdiction	Daily and Weekly Limits
Federal	Standard hours: 8, 40 after which 1½ times regular rate must be paid Maximum hours: 48
Ontario	Maximum hours: 8, 48
Manitoba	Standard hours: 8, 44, after which 1½ times regular rate must be paid
Saskatchewan	Standard hours: 8, 40, after which 1½ times regular rate must be paid
Alberta	Maximum hours: 8, 44
British Columbia	Maximum hours: 8, 44

Employees throughout Canada are legally entitled to a paid annual vacation. Two weeks with pay after a year of employment is the general standard. In Ontario and Saskatchewan, the vacation increases with length of service (one week after the first year and two weeks thereafter in Ontario, and three weeks after five years

in Saskatchewan). Vacation pay is payable on termination of employment before completion of a year's service.

Under federal, British Columbia, and Saskatchewan legislation, employees are entitled to eight paid holidays; Alberta and Manitoba provide for seven and Nova Scotia for five. Employees who work on a holiday must be given premium pay in addition to a normal day's wages. Nova Scotia and Ontario require an overtime rate to be paid when employees work on one of seven holidays.

All jurisdictions have enacted laws to ensure fair employment practices; they forbid discrimination in employment and trade union membership on grounds of race, colour, religion or national origin. This legislation has been expanded in most provinces to form a human rights code. Eight provinces (Newfoundland, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia) prohibit employment discrimination based on sex, and four (Newfoundland, Ontario, Alberta, and British Columbia) forbid discrimination on grounds of age.

Equal pay provisions are in force in all jurisdictions except Quebec and the Yukon. These laws have been strengthened in the federal jurisdiction and a number of provisions in regard to the criteria for determining equal work and the method of enforcement.

Parliament and seven provinces (Newfoundland, Prince Edward Island, Nova Scotia, Quebec, Ontario, Manitoba, and Saskatchewan) have enacted legislation

Terry Pearce

Melly is one of the CBC Eskimo radio announcer/operators at Frobisher Bay.



requiring an employer to give notice to the individual worker whose employment is to be terminated. In federal undertakings, two weeks' notice is required. In Ontario and Nova Scotia the period of notice varies, with length of service, from one week to eight weeks. In the other provinces, notice of one week or notice equal to the regular pay period is the usual requirement.

The federal, Ontario, Quebec, and Nova Scotia legislation requires the employer to give advance notice of mass layoffs in order to permit government authorities to develop programs for the re-establishment of the employees affected. The length of notice required varies with the number of employees involved. Under the federal Code, severance pay is payable on termination of employment to an employee who has had five or more years of continuous service with his employer.

Notice of Mass Lay-offs

Jurisdiction	When Notice Required	Length of Notice	To Whom Notice Given
Federal	50 or more employees dismissed within 4 weeks	50-99 employees: 8 weeks 100-300: 12 weeks More than 300: 16 weeks	Minister of Labour, Department of Manpower and Immigration, and trade union or employee
Nova Scotia	10 or more employees dismissed within 4 weeks	10-99 employees: 8 weeks 100-299: 12 weeks 300 or more: 16 weeks	Minister of Labour and each employee
Quebec	10 or more employees dismissed within 2 months	10-99 employees: 2 months 100-299: 3 months 300 and over: 4 months	Minister of Labour and Manpower
Ontario	50 or more employees dismissed within 4 weeks	50-199 employees: 8 weeks 200-499: 12 weeks 500 or more: 16 weeks	Minister of Labour and each employee

An employee is entitled to maternity leave of at least 17 weeks (11 pre-natal and 6 post-natal) under federal jurisdiction and in Nova Scotia, and at least 12 weeks (6 pre-natal and 6 post-natal) in New Brunswick, Ontario, and British Columbia. The Ontario Act applies to employers with 25 or more employees. To be eligible for leave under the federal, Ontario, and Nova Scotia laws, the employee must have worked for her employer for at least a year. The law protects the employee against dismissal for reasons arising from maternity leave during a specified period or throughout pregnancy, and Ontario, Nova Scotia, and the federal government guarantee that on her return to work she must be reinstated without loss of benefits.

Safety laws set minimum standards of safety and health to be observed in places of work. These laws are continually being revised to meet new conditions. Workmen's compensation laws provide benefits for disability caused by work accidents or industrial disease. Legislation is in effect in all provinces providing for government-supervised apprenticeship training and for the certification of skilled tradesmen.



Shift operators at the Point Tupper, N.S., refinery of Gulf Oil work three or four 12-hour days a week, at their own request.

P.W. Sculthorp / Staff Oil

Collective Bargaining

All jurisdictions have laws governing collective bargaining. These laws recognize the right of employees to organize and they require an employer and a certified trade union to conclude a collective agreement covering wages and other terms of employment. Except in Quebec, a representative labour relations board is responsible for the certification of a trade union as the exclusive bargaining agent for a unit of employees. In Quebec, certification functions are performed by special officers of the Department of Labour and Manpower and there is provision for appeals to the Labour Court. Unfair practice provisions place limitations on employers, and on employees and their unions, regarding interference with each other's rights.

Under all the Acts, government conciliation services are available to assist the parties to reach an agreement; a strike or lockout is forbidden while such conciliation is in progress. A collective agreement is binding on the parties covered. While it is in force, strikes are prohibited and disputes must be settled through a grievance procedure and, if necessary, arbitration.

In some provinces certain classes of employees engaged in essential services, such as firemen, policemen, or hospital employees, are forbidden to strike and must submit any unsettled contract disputes to binding arbitration. Both *ad hoc* and continuing laws have been adopted in a number of jurisdictions to end strikes that are deemed to endanger the public interest. In British Columbia, the Mediation Com-

mission, set up under a 1968 statute to act as an independent mediation agency, may, at the direction of the Cabinet, invoke compulsory arbitration to protect the public interest and welfare.

In most provinces civil servants have collective bargaining rights and the right to negotiate is being extended to members of various professional groups. A number of provinces have enacted legislation adapted to the special characteristics of the construction industry. In several, provision has been made for accreditation of employers' organizations as bargaining agents, a procedure somewhat similar to union certification.

Unemployment Insurance

Unemployment Insurance has been part of Canada's social and economic life since the Unemployment Insurance Act was passed in 1940. From that time to this the basic structure of the Act has remained unaltered. However, various amendments have brought new categories of workers into the plan and contributions and benefit rates have been raised periodically to keep abreast of changing economic conditions.

In 1968, when Parliament approved upward revisions of both contributions and benefit rates, and broadened the scope of coverage, the Unemployment Insurance Commission was instructed to carry out a full-scale investigation of the program and to recommend appropriate changes in approach and structure. The Unemployment Insurance Act of 1971, which took effect on June 27 of that year, was the result of extensive studies. Its basic objectives are: (1) to provide assistance in coping with an interruption of earnings resulting from unemployment, including unemployment due to illness, and (2) to co-operate with other agencies engaged in social development.

Under the Unemployment Insurance Act of 1971, coverage is extended to all regular members of the labour force for whom there exists an employer-employee relationship. The only non-insurable employment is that which is remunerated at less than \$30 per week or 20 times the provincial hourly minimum wage, whichever is the lesser. The coverage became universal in January 1972. Coverage, contributions, and benefit entitlement cease at age 70.

Employers and employees pay for the cost of initial benefits as well as the cost of administration; the employer's rate is 1.4 times the employee's rate. The government's share is confined to the cost of extended benefits as well as the extra cost of initial benefits that are due to a national unemployment rate greater than 4 per cent. There is no fund, and employer and employee contributions are adjusted yearly. The Taxation Branch of the Department of National Revenue commenced to collect contributions at the beginning of 1972. Persons who did not contribute formerly, either because of their occupation or by virtue of being over the salary ceiling, will pay a preferred rate for the first three years. For those who had been excluded because of their occupation, the preferred rate is portable. However, in the case of persons formerly excluded because of the salary ceiling, the preferred rate continues only so long as the employee remains with the employer he had on January 2, 1972. An experience-rating formula for employers may be introduced in 1974 to reflect the additional expense of benefits generated by large employers who have laid off more than an average number of employees.

The duration of benefit under the new program is not determined solely by the length of time a person has worked. A claimant can draw to a maximum of 51 weeks depending on his employment history and the prevailing economic conditions, provided that (1) he has at least 8 weeks of contributions in the last 52 and (2) he has been available, capable, and searching for work. Persons with 20 or more weeks of insured earnings (called a "major labour force attachment") are eligible for a wider range of benefits that includes a pre-payment of three weeks of regular benefit for work-shortage lay-offs; benefit payments when the interruption of earnings is caused by illness or pregnancy; and three weeks retirement benefit for older workers. A claimant is not entitled to be paid benefit until he has served a two-week waiting period that begins with a week of unemployment for which benefits would otherwise be payable.

Sickness benefits are available up to a maximum of 15 weeks for persons with major labour force attachment who have suffered an interruption of earnings due to illness, injury, or quarantine (excluding Workmen's Compensation). If a person becomes ill while receiving unemployment benefits, sickness benefits are available, but the combined duration of benefits during the initial benefit period cannot exceed 15 weeks.

Maternity benefit is available for eight weeks before confinement, the week of confinement, and six weeks after, to women who have had a major labour force attachment. They must also have been part of the labour force at least 10 of the 20 weeks prior to the 30th week before the expected date of confinement.

Retirement benefit is available for three weeks. It is paid in a lump sum to claimants with a major labour force attachment who are 65-70 and who have signified they have left the labour force by having applied for the Canada Pension Plan or the Quebec Pension Plan, and to persons over 70 years of age. In the case of those over 70, the application must be within 32 weeks of the 70th birthday as employment weeks are no longer earned after that time. The benefit is paid without a waiting period and without regard to earnings or availability.

The benefit rate for all claims will be two thirds of a person's average insured earnings in the qualifying period, to a maximum of \$100 per week and with a minimum of \$20 per week. For claimants whose average qualifying earnings are \$50 per week or less and who have dependents, the benefit rate is 75 per cent. During the later stages of benefit all claimants with dependents draw benefit at 75 per cent of qualifying earnings, subject to the \$100 maximum.

Income from employment in excess of 25 per cent of the benefit rate is deducted from the benefits payable. In the case of sickness and maternity, proceeds of wage-loss plans are not deducted from unemployment benefits during the waiting period but are deducted afterwards. All work-related income is deducted both during the waiting period and after the waiting period has been served.

Manpower Programs

The Department of Manpower and Immigration pursues an active manpower policy aimed at helping Canadians respond to economic and technological change. It offers counselling and placement services across the country.

To assist more than 4,000 Manpower counsellors in 390 Canada Manpower Centres to meet departmental goals, Parliament has passed important legislation.

Under the Canada Manpower Training Program, a worker may be referred by a CMC counsellor to a course to develop or upgrade skills. Persons are eligible for courses and training allowances when they have been out of school for 12 months following attainment of the provincial school-leaving age. The Canada Manpower Mobility Program, provides assistance to CMC clients who are unemployed or are about to be, or who are under-employed and have little or no prospect of finding employment in the area where they live. Assistance is provided in the form of financial grants to enable workers to travel to seek suitable employment, to relocate, or to take occupational training outside their home area. Rehabilitation services are available to physically or socially handicapped CMC clients through cost-sharing agreements with provincial governments. The Vocational Rehabilitation Program provides for training, medical restoration, aptitude assessment tests, counselling, and training allowances. The Canada Manpower Consultative Services Program assists management and labour to cope with problems resulting from technological and economic change. Special employment programs are conducted for students, older workers, retiring members of the armed forces, and seasonal workers.

The Canada Manpower Centres are co-ordinated by five regional offices in Halifax, Montreal, Toronto, Winnipeg, and Vancouver. All manpower programs and services are implemented through these field offices, linked by Telex communication to facilitate the flow of complete labour market information from coast to coast.

Peter Brugg.

A Local Initiatives Program project in Ottawa teaches older citizens many crafts and arts. This project also aims at helping community groups to successfully organize themselves.



Immigration

Immigration has played a major role in the development of Canada's manpower resources and in the growth of its population. Since Confederation more than 10 million immigrants have come to Canada. Immigration is an integral part of manpower policy and helps materially in meeting the needs of the economy for skilled, technical and professional manpower. The flow of immigration has varied from year to year because of the changes in demand for manpower in Canada and of the economic conditions in the principal source countries.

Since World War II, Canada has admitted more than 3.5 million immigrants, primarily from Britain, Italy, Germany, the United States, and the Netherlands. The peak years for immigration since World War II were 1957 when 282,164 persons were admitted and 1967 when 222,876 settled in Canada.

In 1971, 121,900 persons were admitted. Of these, immigrants from the United States represented 20 per cent, the largest share of the total. Other large groups were from Britain (13.3 per cent), the West Indies (8.8 per cent), Portugal (7.5 per cent), Italy (4.7 per cent), India (4.3 per cent), Hong Kong (4.1 per cent), and Greece (3.9 per cent).

Canada's labour force during 1971 was augmented by 61,282 immigrant workers. Of these, 32.1 per cent were classed in the professional and managerial categories, and 26.3 per cent in the manufacturing, mechanical and construction trades. Clerical workers accounted for another 16.1 per cent. The 2,160 agricultural workers who settled in Canada that year accounted for 3.5 per cent of the total.

Ontario continued to attract the most immigrants, 64,357. Quebec was second with 19,222 immigrants, and British Columbia was a close third with 18,917 immigrants.

Canada is still a young man's country as evidenced by the fact that the largest number of immigrants — 25,720 — was in the 20 to 24 age group during 1971. Many skilled immigrants continue to fill acute shortages of qualified people in certain areas, thus providing essential services to the Canadian public. In 1970 alone, Canada welcomed 1,113 physicians and surgeons, 72 dentists, and 905 medical and dental technicians.

An Assisted Passage Loan was introduced in 1951 to help those who might not be able to come to Canada because of financial circumstances. In 1970, the scheme was made universal. Since its inception, approximately \$56 million has been loaned to some 310,000 immigrants; 89.3 per cent of it has been repaid.

On October 1, 1967, new immigration regulations came into effect, and the principles governing the selection of immigrants were spelled out in detail. An assessment system permits immigration officers to apply the same standards in the same way to potential immigrants from all areas of the world. The regulations formally confirm that Canadian citizens or permanent residents of Canada are entitled to bring their dependents to Canada; the privilege of citizens or permanent residents in applying for more distant relatives to come to Canada is extended to all areas of the world as new classes of relatives become eligible.

By linking selection standards to conditions within Canada, the new regulations seek to ensure a flow of immigrants suited to the economic and manpower requirements of the country. They make a clear distinction between dependents



Canada's ten millionth immigrant arrived in 1972. Dr. Swinson, an English psychiatrist, has taken up an appointment at a hospital in Toronto, Ont., and will also lecture and do research at the University of Toronto.

Globe & Mail

and relatives entering the work force. There are three categories of immigrants: "sponsored dependents," "nominated (non-dependent) relatives," and "independent applicants," who are neither sponsored nor nominated.

Sponsored dependents are admitted to Canada provided they are in good health and of good character. Independent applicants must meet certain standards under an assessment system based on education and training, pre-arranged employment, personal assessment, occupational skill, age, knowledge of French or English, relatives in Canada, and employment opportunities in the area of destination. Nominated applicants are defined as sons and daughters aged 21 or over, married sons and daughters under 21, brothers and sisters, parents or grandparents under 60, nephews, nieces, uncles, aunts, and grandchildren but not cousins.

Canadian immigration offices—or the services of an immigration officer—are maintained in 31 countries. These include Argentina, Australia, Austria, Belgium, Britain, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Italy, Jamaica, Japan, Lebanon, the Netherlands, Norway, Pakistan, the Philippines, Portugal, Spain, Sweden, Switzerland, Trinidad, the United States, and Yugoslavia. Canadian immigration officers stationed in these countries make periodic visits to other countries in their area that are not serviced by immigration officers to process applicants from those countries.

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Displays for trade fairs abroad, such as this in Hanover, Germany, are designed by Industry, Trade and Commerce.

Industry, Trade and Commerce

The Department of Industry, Trade and Commerce seeks to promote the growth of the Canadian economy through the development of the manufacturing and processing industries and the expansion of trade and tourism. It comprises five major groups: Trade and Industrial Policy, Industry and Trade Development, Office of Economics, Office of Tourism, and Administration.

The **Trade and Industrial Policy** group recommends policies and programs to improve the growth and efficiency of Canadian industry, gain access to foreign markets for Canada's goods, and safeguard its trade relations with other countries.

The **Industry and Trade Development** group co-ordinates departmental operations at home and abroad involving industrial and trade development. It sets up and administers incentive programs and works closely with other federal agencies and provincial trade departments, as well as with the business and trade communities. Components of the group are: Operations, External Services (including the Trade Commissioner Service), a Grains Program Office and the Offices of Science and Technology, Design, and Promotional Services. The Operations unit includes nine industry sector branches: Aerospace, Marine and Rail; Agriculture, Fisheries and Food Products; Apparel and Textiles; Chemicals; Electrical and Electronics; Machinery; Materials; Mechanical Transport; and Wood Products.

The **Office of Economics** continually assesses current and prospective economic changes abroad affecting Canadian trade. It forecasts changes in the structure of industries and markets, analyzes capital investment in Canada and abroad, and does research into industrial productivity.

The **Office of Tourism**, comprising the Canadian Government Travel Bureau and the Travel Industry Branch, promotes travel by foreigners to and within Canada as well as travel within the country by Canadians.

Regional Economic Expansion

The Department of Regional Economic Expansion was formed in April 1969 to carry out, in co-operation with the provinces, a vigorous and co-ordinated effort to reduce regional economic disparities in Canada.

The programs that the Department administers are of a long-term nature, in recognition of the fact that regional disparities are not recent in origin and, by their very nature, cannot be resolved in a short period. The Department's strategy is composed of three major and closely-related activities: industrial incentives, infrastructure assistance, and social adjustment and rural development.

The objective of the Industrial Incentives program is to create continuing, productive employment by making investment in viable industry more attractive in the regions of the country where growth has been relatively slow. The Regional Development Incentives Act of June 1969 (amended December 1970) provides for a system of grants and loan guarantees to private industry to locate, expand, or modernize their operations in certain designated regions in all the provinces.

Infrastructure assistance is provided under the Special Areas program to create, in certain potential growth-centres, the necessary supports to industrial development. To attract new job-producing industries, these centres must be able to provide the utilities and services required, and also have adequate social capital facilities, such as housing, schools, water systems, and transportation to meet the needs of a growing population. Special Areas agreements are in effect between this Department and seven of the ten provinces.

The Department's efforts to facilitate social adjustment and rural development take several forms. Under the Agricultural and Rural Development Act, the Fund for Rural Economic Development Act, the Prairie Farm Rehabilitation Act, the Newfoundland Resettlement Agreement and other federal-provincial agreements, programs are designed to attack the social and human problems that slow growth over the decades has inevitably brought. The aim is to facilitate the access of people in rural areas to employment opportunities, as well as to improve their incomes through a more efficient use of rural resources. Departmental and provincial planners work together to identify further measures which can be taken to overcome the persistent problems of regional economic disparities.

Gathering hay in Newfoundland.

Malak



Protection of the Environment

Environment Canada was created as a federal government department in June 1971, to spearhead the attack on pollution and ensure the proper management and development of Canada's renewable natural resources. It has the responsibility to initiate government-wide programs and to co-ordinate efforts related to environmental protection. It also provides specialist advisory services to other departments, both in the formulation of programs and in the development of regulations under federal Acts assigned to other ministers.

Elements within the federal government already involved in work related to the environment and renewable resources were integrated into the new Department, which has been organized into seven services. These are: the Atmospheric Environment Service; the Environmental Protection Service; the Fisheries Service; the Lands, Forests and Wildlife Service; the Water Management Service; the Policy Planning and Research Service; and the Finance and Administration Service.

Environment Canada has six goals. The first is to carry on established resource programs and services. The Department is responsible for management and research in specific areas such as fisheries, water, forestry, migratory birds, wildlife, atmospheric research, and weather forecasting. These responsibilities and services are crucial to the management of both the resources and the whole environment.

The second goal is to clean up and control pollution. Emphasis is on curbing the more serious instances of air, water, and land pollution and preventing the development of new environmental hazards.

The third goal is to assess and control the impact on the environment of major development. Environment Canada is committed to ensuring that the costs and benefits of all consequences to the environment are taken into account before commitments are made for industrialization and construction. Development plans should include provisions for minimizing adverse effects and maximizing beneficial effects on the environment.

The fourth goal of Environment Canada is to initiate long-term environmental programs and to provide leadership and support in pursuing this goal. In the interval there is an urgent need to continue and build upon basic and comprehensive studies in areas of primary environmental concern, for example, the atmosphere, the Great Lakes, the continental shelves, the coastal waters and other water bodies that are subject to intensive human use, and ecologically vulnerable areas in the Arctic and sub-Arctic.

The fifth goal of Environment Canada is to promote and support international environmental initiatives. Environmental problems span the boundaries between nations and their solution often requires effective international co-operation. Just as Canada can afford no pollution havens within its borders, so in this era of multi-national corporations it is in Canada's interest to work toward world standards of pollution control. In the research and the collection of data international co-operation is essential, particularly about the air and the oceans, and in support of missions concerned with fish and migratory birds. International co-operation in the development of environmental technology will be of continuing importance.

The sixth goal is to develop an environmental information and education pro-

gram. Citizens need facts upon which to base judgements and actions. They will look to Environment Canada as a primary source of facts about the environment and the causes, costs, and cures of pollution.

Federal Legislation

A considerable amount of new or amended legislation aiming to protect the environment has been introduced by the federal Government over the past year or so.

The **Fisheries Act** has been amended to strengthen and expand the means of preventing the pollution of waters inhabited by fish. Fines up to \$5,000 a day may be levied on conviction for breaches of the Act, and the new amendments also provide the mechanism to ensure that new plants install adequate pollution-control equipment before they go into production. Polluters can also be assessed the costs of cleaning up pollution.

The **Canada Water Act** provides for federal-provincial consultation and agreements for comprehensive water basin planning and for the designation of water-quality management areas. The Act also provides for the setting up of joint agencies for water-quality management as well as the establishment of commissions or other bodies to conduct comprehensive multi-purpose water-resource management programs. Provision for control of nutrients, such as phosphates in detergents, is also covered by this Act.

Husley

At the Canada Centre for Inland Waters in Burlington, Ont., more than a thousand people will be engaged in studying how to clean up the Great Lakes. Close to the centre are nine universities where water research is conducted.



Barbara Johnstone (missing)



The **Clean Air Act** gives the federal government authority to set national air quality objectives and national emission standards where there is a significant danger to health or where international agreements on air-pollution control are involved. National emission guidelines are being developed to assist the provinces and local governments in developing uniform regulations across Canada. Under the Act, the federal government is also empowered to regulate the composition of fuels that may be produced or imported into Canada. Authority is given to the federal government to enter into agreements with individual provinces to combat air pollution within the province or in interprovincial problem areas. Penalties can go as high as \$200,000 for contravening a national emission standard and up to \$5,000 a day for producing or importing prohibited fuels or contravening other requirements set out in the Act.

The **Arctic Waters Pollution Prevention Act** has been passed to protect the delicate and unique ecological balance of the Canadian Arctic. It lays down stringent anti-pollution regulations in "shipping safety control zones" which extend up to 100 miles offshore in Arctic waters north of the 60th parallel.

The **Northern Inland Waters Act** provides for licensing the use of water in the Yukon and the Northwest Territories and designated bodies of water in these areas.

Amendments to the **Oil and Gas Protection and Conservation Act** extend the federal authority to control pollution on Canada's submerged continental shelf and on the seabed.

The **Canada Shipping Act** includes provisions which prohibit pollution of the atmosphere by ships, as well as provisions to protect against the pollution of water by discharges from vessels.

Federal Programs

The Environmental Protection Service (EPS) is a new branch of Environment Canada. It takes action to prevent problems from developing and to solve those that exist and come under the jurisdiction of Environment Canada. Its activities include problem surveillance, control of air and water pollution, solid wastes management, control and disposal of environmental contaminants, control of activities having an ecological impact, noise control, emergency pollution centre operations, and management of the federal government's own clean-up program.

In carrying out these tasks EPS works in the closest possible co-operation with provincial governments and industry across the country. EPS serves as the public's point of contact with Environment Canada for problems related to the enhancement and protection of the natural environment. The Service has been responsible for drawing up a series of national industrial effluent regulations under the federal Fisheries Act. These have been made in conjunction with the provinces and industry. Regulations have been developed for the pulp and paper industry and the chlor-alkali industry which limit the amount of discharge of pollutants into water frequented by fish. Other regulations are being developed for the food processing, petrochemical, and mining industries.

Alberta Dept of Lands & Forests

The Alberta Ecology Corps aim to provide 1,400 jobs for young adults interested in such programs as erosion control, reforestation, and stream improvement.





Paper is a material that may be recycled. From waste newspaper and other papers can be produced gypsum papers, roofing felts, shingles, and tar paper.

To control water pollution in other areas the Department administers the nutrient control provisions for laundry detergents and fulfils Canada's obligation under the terms of the Canada-United States bilateral agreement to certify the quality of water in areas where shellfish grow. It is also involved in a number of other projects effecting the abatement of water pollution.

To control air pollution, objectives have been proposed recently for five major pollutants—sulphur dioxide, particulate matter, carbon monoxide, photochemical oxidants, and hydrocarbons.

The Environmental Protection Service operates a test facility which evaluates new vehicles for compliance with emission regulations under the federal Motor Vehicle Safety Act, and it is participating in the further development of these standards.

Some of the ongoing programs which cannot be neatly catalogued under the heading of air and water quality exclusively include an assessment and a clean-up of pollution problems associated with federal activities and facilities, the beginning of a storage and retrieval system of information concerning solid-waste treatment, and the safe disposal of pesticides and other surplus hazardous substances in government stocks. Other concerns are the testing of technical equipment, part of the accelerated Capital Cost Allowance program to control pollution, contingency planning for environmental emergencies, and the development of protocols for testing chemicals that may be dangerous to the environment.

Consumer and Corporate Affairs

The chief objective of the Department of Consumer and Corporate Affairs is to protect the basic rights of the consumer:

First, the right to safety—freedom from physical and economic injury—that the products one buys to eat, to wear, to drive, to use around the house will not be the direct cause of physical injury or illness.

Second, the right to full and accurate information—to be able to know what one is buying, what it costs, what it consists of, how to look after it, and, most important, how it compares in nature, quality, and quantity with similar commodities competing with it.

Third, the right to honesty and fair dealing—honesty on the part of the manufacturer, the retailer, the broker, honesty in advertising, in oral descriptions, in packaging, in labelling. In short, freedom from fraud and deception as far as possible throughout the whole economic system.

Fourth, the right of choice—a right which is fundamental to our whole social structure—to choose between freely competing products in a truly competitive system.

The Department consists of three elements. First, the Consumer Affairs Bureau develops standards, specifications, and regulations for consumer products, carries out research into the economic well being and physical safety of consumers, operates a nation-wide consumer complaint and information service, and administers regional and local offices in 27 cities across Canada. Second, the Combines Investigation Branch promotes the maintenance of free and open competition as a stimulus to the achievement of maximum production, distribution, and

Mike Kerr Photography!
Dept of Consumer & Corp. Affairs

A research officer of the Consumer Affairs Bureau tests a stuffed toy for flammability.





An inspector of the Consumer Affairs Bureau checks electric meters for accuracy.

*Mike Kew Photography /
Dept of Consumer & Corp Affairs*

employment. And third, the Bureau of Corporate Affairs has a regulatory function over patents, capital formation and corporate regulation, securities, insolvency and bankruptcy — in short, to protect the investor and the creditor against corporate malpractice, and to regulate the framework within which business operates.

A draft bill on competition policy was tabled in the House of Commons in June of 1971. Comments and views of business leaders in all sectors of the economy were invited so that appropriate legislation could be drafted to ensure efficiency and productivity through competition.

Important regulations established by the Department in 1971 under the 1969 Hazardous Products Act provided for mandatory labelling of virtually all household chemical products sold in Canada, eliminating a wide variety of dangerous features in toys, and banning dangerously flammable fabrics from the market. Safety standards were established for the lead content of glazed pottery as containers used for food.

In 1971 also, Parliament adopted an amended Bills of Exchange Act, giving time-payment purchasers some recourse to enforce product warranties or guaranties after sale of the payment contract by the retailer; the Packaging and Labelling Act, regulating information on the packaging and labelling of products; and the Textile Labelling Act designed to provide Canadian consumers with full information as to fibre content of practically all wearing apparel, fabrics, and household textile products sold in Canada.

Under the Canada Corporations Act new regulations came into force relating to insider trading, proxy solicitation, investigation, financial disclosure, and take-over bids. The proclamation of the Canada Cooperative Associations Act allowed for the federal incorporation of co-operatives.

Other legislation under review includes the Bankruptcy Act soon to be replaced by a new bill on bankruptcy and other federal insolvency legislation.

External Relations

The Department of External Affairs

Established in 1909 and headed by a minister styled Secretary of State for External Affairs, the Department of External Affairs has three main purposes: 1) to provide information and advice to the government on issues of foreign policy; 2) to foster understanding of Canada and its people by other governments and nations; and 3) to provide service to Canadian travellers and foreign citizens abroad.

In December 1971, Canada had diplomatic, consular and/or trade representation in 126 countries. (The asterisk denotes non-resident representation and the country shown in parenthesis is that in which the accredited Canadian representative resides.)

- | | | |
|-------------------------------|----------------------------|-------------------------------|
| * Afghanistan (Pakistan) | Greece | Norway |
| Algeria | Guatemala | Pakistan |
| Argentina | * Guinea (Senegal) | * Panama (Costa Rica) |
| Australia | Guyana | * Paraguay (Argentina) |
| Austria | Haiti | Peru |
| * Bahamas (Jamaica) | Holy See | Philippines |
| * Barbados (Trinidad) | * Honduras (Costa Rica) | Poland |
| Belgium | Hong Kong | Portugal |
| * Bolivia (Peru) | * Hungary (Czechoslovakia) | * Romania (Yugoslavia) |
| * Botswana (South Africa) | * Iceland (Norway) | * Rwanda (Republic of Zaïre) |
| Brazil | India | * San Marino (Italy) |
| Britain | Indonesia | Senegal |
| * British Honduras (Jamaica) | Iran | * Sierra Leone (Nigeria) |
| * Bulgaria (Yugoslavia) | * Iraq (Iran) | Singapore |
| * Burma (Malaysia) | Ireland | * Somali Republic (Ethiopia) |
| * Burundi (Republic of Zaïre) | Israel | South Africa |
| Cameroon | Italy | Spain |
| * Central African Republic | Ivory Coast | * Sudan (Arab Republic |
| (Cameroon) | Jamaica | of Egypt) |
| Ceylon | Japan | * Swaziland (South Africa) |
| * Chad (Cameroon) | * Jordan (Lebanon) | Sweden |
| Chile | Kenya | Switzerland |
| China, People's Republic of | * Korea (Japan) | * Syrian Arab Republic |
| Colombia | * Kuwait (Iran) | (Lebanon) |
| * Congo, People's Republic of | Lebanon | Tanzania, United Republic of |
| (Republic of Zaïre) | * Lesotho (South Africa) | Thailand |
| Costa Rica | * Liberia (Ivory Coast) | * Togo (Ghana) |
| Cuba | * Libya (Tunisia) | * Tonga (New Zealand) |
| Cyprus | * Luxembourg (Belgium) | Trinidad and Tobago |
| Czechoslovakia | * Malagasy Republic | Tunisia |
| * Dahomey (Ghana) | (Ethiopia) | Turkey |
| Denmark | Malaysia | * Uganda (Kenya) |
| * Dominican Republic | * Mali (Senegal) | Union of Soviet |
| (Venezuela) | * Malta (Italy) | Socialist Republics |
| * Ecuador (Colombia) | * Mauritania (Senegal) | United States of America |
| Egypt, Arab Republic of | * Mauritius (Tanzania) | * Upper Volta (Ivory Coast) |
| * El Salvador (Costa Rica) | Mexico | * Uruguay (Argentina) |
| Ethiopia | * Monaco (France) | Venezuela |
| * Fiji (Australia) | * Morocco (Spain) | * West Indies, Associated |
| Finland | * Nepal (India) | States (Trinidad) |
| France | Netherlands | * Western Samoa (New Zealand) |
| * Gabon (Cameroon) | New Zealand | Yugoslavia |
| * Gambia (Senegal) | * Nicaragua (Costa Rica) | Zaire, Republic of |
| Germany | * Niger (Ivory Coast) | * Zambia, United Republic of |
| Ghana | Nigeria | (United Republic of Tanzania) |

Canada is also represented on International Commissions for Supervision and Control in Indo-China. It has permanent missions to the United Nations in New York and Geneva; the European Economic Community, the European Atomic Energy Community, and the European Coal and Steel Community in Brussels; the Organization for Economic Co-operation and Development, and the United Nations Educational, Scientific and Cultural Organization in Paris; the International Atomic Energy Agency and the United Nations Industrial Development Organization in Vienna; the North Atlantic Council in Brussels; and the Conference of the Committee on Disarmament in Geneva.

Canada and the United Nations. It is a fundamental element of Canadian foreign policy to continue actively to strengthen the United Nations as an effective instrument for international co-operation and, in particular, to improve its capacity to discharge its charter responsibilities. To this end eleven major policy objectives have been defined: contributing to social and economic development; working to stop the arms race; promoting peacekeeping and peace-making through the United Nations; reconciling Canadian objectives in southern Africa; taking measures to prevent further deterioration in the human environment; promoting international co-operation in the peaceful uses of satellite systems; promoting international co-operation in the use of the seabed beyond the limits of national jurisdiction; promoting observance of human rights, including adherence to and respect for various United Nations conventions, contributing to the progressive development and codification of international law; projecting Canada as a bilingual country

The Secretary-General of the United Nations, Mr. Kurt Waldheim, with the King of Sweden and Canada's Mr. Maurice Strong, Secretary-General of the UN conference on the Human Environment.

U.N.





Many Canadians living in Windsor, Ont., cross the famous undetended border every day to work in the American automobile city of Detroit, Michigan.

Heintz

within the United Nations context; and contributing to the institutional development of the United Nations as a centre for harmonizing the actions of nations. Canada maintains permanent missions to the United Nations in New York and Geneva, and a Bureau of United Nations Affairs in Ottawa provides advice and coordinates the implementation of Canadian policy towards the UN.

Canada participates in all of the specialized agencies of the UN, one of which is located in Canada, the International Civil Aviation Organization (ICAO) in Montreal. Canada is the eighth highest contributor to the regular budget of the UN. Since 1946 Canada has contributed close to \$510 million to activities of the United Nations family of organizations.

Canada and the United States. No other country is as important to Canada as the United States. It is doubtful whether any two countries in the world are so intimately interrelated. Canadians and Americans are constantly involved in exchanges at all levels—governmental, corporate, and personal. As a result differences and frictions do occur from time to time between the two countries but, nevertheless, the relationship between them remains one of friendly discussion and of constant effort at mutual understanding in the working out of problems.

While the two governments conduct most of their everyday business through official channels, they have also established over the years a number of permanent bilateral organizations, such as the International Joint Commission. The IJC has come to be the focus of joint endeavours to deal with pollution and problems of the envi-

ronment along the Canada-United States border. There are similar permanent organizations in such areas as defence co-operation (the Permanent Joint Board on Defence), fisheries, agricultural marketing, balance of payments, and other questions. Canadian and American legislators meet every year in the Canada-United States Inter-Parliamentary Group to discuss matters of common concern.

The particular importance of Canada's economic relations with the United States is reflected by the existence of a Ministerial Committee on Trade and Economic Affairs. The two countries are each other's best customer. In 1971 Canadian exports to the United States totalled \$12,006 million, accounting for 68 per cent of Canada's total exports. The exports of the United States to Canada were approximately \$10,949 million, about 24 per cent of their total. There is also great interdependence in the financial field with large American investments in Canada and substantial Canadian investments in the United States.

The openness of the common border has encouraged a great movement of people between Canada and the United States; there were over 38 million visits by Americans to Canada in 1971 and over 34 million visits by Canadians to the United States.

Canada and the Commonwealth. Canada has long been an active member of the Commonwealth which has evolved significantly in size, shape, and outlook in recent years. Today it is composed of 30 freely associated sovereign nations. Commonwealth countries cover about one quarter of the earth's land surface and represent approximately 720 million people of many races, colours, creeds, and languages. They include economically developed and developing members as well as governments committed and uncommitted to international power groupings.

Canada views the Commonwealth as a unique and extensive association linking nations from six continents and five oceans, and capable of exerting a beneficial influence for international peace and progress. In a world increasingly divided between developed and developing nations, and along racial lines, and tending towards organization on a regional basis, the Commonwealth serves to help bring a global perspective to bear on many major international issues. Shared values and traditions derived from historical experience permit an informality of encounter between Commonwealth leaders and officials which gives the Commonwealth a unique character. In general, relations between Commonwealth countries are motivated by a spirit of friendship and understanding and characterized by the desire to consult and co-operate where possible in the interests of political, economic, and social development.

Commonwealth developing countries continue to receive considerable sums of Canadian assistance through the Colombo Plan, which now includes non-Commonwealth countries; the Special Commonwealth African Assistance Plan (SCAAP); and the Canadian program for Commonwealth Caribbean assistance. Canada's total allocated contribution under the Colombo Plan from its inception in 1951 to March 1972 was approximately \$1,517 million. The Canadian allocation to SCAAP from 1960 to March 1971 totalled more than \$216 million, while approximately \$135 million has been allocated to Commonwealth Caribbean countries since 1966. Canada has contributed \$12.4 million since 1957 to the Commonwealth Scholarship and Fellowship Plan, which in the 1971-72 academic year sponsored 288 students, mostly from developing countries, for study in Canada. During 1971 in the fields of education and technical assistance Canada provided 1,770 Canadian



Films produced by the National Film Board are distributed abroad to make Canada better known. The Film Librarian in the Canadian High Commission in New Delhi, India, is kept busy meeting the requests of borrowers.

N. Srinivasan

teachers and experts to assist developing countries in Southeast Asia, Africa, and the Caribbean area, of which 657 were assigned to Commonwealth countries.

Relations with the Commonwealth Caribbean. The present close relationship between Canada and the Commonwealth Caribbean is a logical progression from the historical ties existing between the two areas. Trading relations over several centuries have been close and have been supplemented by considerable Canadian commercial interests and investment in the area. Common association in the Commonwealth has also contributed to understanding through mutually shared traditions, institutions, and values. These factors have all contributed to increased communication between the two areas. In the past few years this communication has been emphasized through the large movement of people between the West Indies and Canada as tourists, students, businessmen, and immigrants.

The extent and complexity of Canadian interests in the area, both governmental and private, continue to develop. At present it is estimated that there is \$450 to \$550 million in Canadian investment in the region. During 1971 Canadian exports amounted to \$116.7 million—down from \$134 million in 1970—and imports totalled \$100 million—up from \$77.9 million in 1970. In the past five years over \$100 million has been allocated to the Commonwealth Caribbean under the Canadian development assistance program. At present there are over 3,000 Canadians living as permanent residents in the region and over 125,000 Canadians visit the islands annually. During 1971 nearly 14,000 West Indians immigrated to Canada.

Canada and Europe. While Canadian interest in most areas of the globe is increasing, Canada's relations with Europe remain of special importance. They are deeply rooted in Canada's origins, springing from the common cultural heritage which is shared with Britain and France and also reflecting the ties with other European countries from which Canada's population is derived. These relations contribute to the richness of Canada's national life and to the diversity of its links with the outside world. They have been strengthened by Canada's substantial participation, on European soil, in two World Wars and by Canada's continuing stake in European security in the interests of international peace.

Canada's traditionally close bilateral relations with Britain and France are of particular importance since Britain's recent decision to join the Common Market has broad implications for Canada, and since there is increasing interest by many Canadians in our French heritage. Britain and several other western European countries have been among Canada's major partners in external trade and have been its chief source of immigrants. As a result of its growing prosperity, dynamism, and unity, which will probably be accelerated by the enlargement of the Common Market, western Europe will undoubtedly assume increasing importance in Canada's external relations.

In recent years, Canada's relations with the Soviet Union and the other Communist countries of eastern Europe have developed considerably. Recently, thanks to a general relaxation of international tensions, there has been a considerable growth of exchanges in fields as varied as industrial technology, culture, and education. Trade has been increasing, not only in wheat but in other commodities as

Sturgeon Lamurov / Info Can.

On a visit to Canada, President Tito of Yugoslavia received an honorary degree at Dalhousie University in Halifax, N.S.



well. In 1971 the Prime Minister visited the Soviet Union, and Canada was host to Premier Kosygin of Russia, President Tito of Yugoslavia, and the Romanian Foreign Minister. Canada regards the development of mutually advantageous relations and exchanges with the Soviet Union and eastern Europe as an important contribution toward better East-West understanding and the ultimate goal of a European settlement.

Canada and the Middle East. The Arab-Israeli dispute has been a recurrent threat to world peace since the end of the Second World War. Throughout this period, Canada has participated in United Nations' efforts to bring calm and stability to the area. The Canadian government favours full implementation of Security Council Resolution 242 of November 22, 1967, as the best available means of achieving a just and lasting peace in the Middle East.

Canada has contributed substantially to various relief agencies engaged in assisting victims of the dispute. A leading contributor to the United Nations Relief and Works Agency for Palestinian refugees (UNRWA) since its establishment, Canada pledged \$1.55 million to this Agency for 1972. Canadian support has taken the form of cash, food aid, and other supplies necessary for relieving the plight of the refugees. In emergency situations, Canada has also provided assistance through the Red Cross.

Canadian military officers continue to serve with the United Nations' Truce Supervisory Organization (UNTSO) which maintains observers along ceasefire lines in the area. Until their withdrawal in May 1967, Canadian personnel served in Gaza and Sinai with the United Nations' Emergency Force (UNEF).

Canada and Africa. Canada maintains diplomatic relations with almost all independent African nations. Through traditional links within the Commonwealth, Canada has been closely associated with the social and economic development of most of the English-speaking countries. More recently, Canadian relations with French-speaking African countries have been greatly strengthened, largely through rapid expansion of bilateral technical and economic assistance programs.

Canada welcomed President Hamani Diori of Niger on an official visit in June 1971, and in September received a delegation of Foreign Ministers, officials, and representatives of the Organization of African Unity, headed by President Mokhtar Ould Daddah of Mauritania.

The Minister of Industry, Trade and Commerce, the Honourable Jean-Luc Pepin, visited Algeria in November 1971, and Morocco the following month. The Honourable Jean Chrétien, Minister of Indian and Northern Affairs, made an official visit to Cameroon in January 1972 as Canada's representative at the inauguration of the "Centre de rééducation pour les handicapés du Canada de Yaoundé" founded by Cardinal Paul-Émile Léger of Montreal. Resident diplomatic missions in Canada were opened by Algeria, Gabon, and Niger. Canada opened an embassy in Algiers, and established relations with Liberia through the accreditation of the ambassador in the Ivory Coast.

The total value of direct Canadian bilateral aid to African nations during the fiscal year 1971-72 was over \$86 million. This was in addition to large-scale Canadian assistance that reached Africa through multilateral channels and non-governmental organizations.

Canada and the French-Speaking Community. In order to give expression to Canada's national character, the Canadian government promotes the multiplication and strengthening of ties with the countries which share with it the heritage of the French language and culture. Canada's membership in this vast cultural community, spread over four continents, makes it natural that it should want to be associated with the French-speaking nations. Since by so doing the government extends Canadian bilingualism into the sphere of international affairs, participation in the French-speaking community has become a basic and permanent part of Canada's policy.

Canada continues to extend the important bilateral relations which it has already established with most of the French-speaking countries: agreements for cultural and scientific co-operation with France and Belgium; diplomatic relations with the new independent French-speaking states in Africa and the progressive opening of embassies in these countries since 1960; visits between parliamentarians; exchanges of students, public servants, and professors; art exhibitions and intensified programs of co-operation with the developing French-speaking countries.

The increased self-awareness of the French-speaking community has also given rise to the formation of a number of private and governmental international organizations which have the French language as their common denominator. In this connection Canada took an active part in establishing in 1970 the Agency for Cultural and Technical Co-operation between entirely or partially French-speaking nations. Today the Agency numbers 22 independent states: Belgium, Burundi, Cameroon, Canada, Chad, Dahomey, France, Gabon, Haiti, Ivory Coast, Luxembourg, Madagascar, Mali, Mauritius, Monaco, Niger, Rwanda, Senegal, Togo, Tunisia, Upper Volta and the Republic of Vietnam. Canada contributes 33.5 per cent (over \$1 million in 1972) of the Agency's budget and participates in all its programs and activities: youth exchanges, international film festivals, discussions and seminars on the distribution of books, tourism, promotion of handicrafts, and various initiatives in the fields of educational and scientific research. Canada also participated in the Agency's establishment of the international school in Bordeaux, consisting of a management training centre and a centre for studies on the Third World. In 1972, the management students came to Canada for practical training to supplement their theoretical knowledge. All these initiatives make the Agency a meeting point and a means of achieving mutual understanding, cultural dialogue, and close co-operation between the member countries and their respective peoples.

Canada also hosted the second General Conference of the Agency, which was held in Ottawa and then in Quebec City in the fall of 1971. During this conference the Quebec government was admitted to the institutions, activities, and programs of the Agency as a participating government. This act gave formal recognition to the special interest Quebec has always had in co-operation with the French-speaking community and at the same time assured it of a more important position within the Agency; this means that Quebec can make a greater contribution to the community and thus further Canada's policy in this area.

Canada is also taking part in the Conference of Education Ministers and the Conference of Ministers of Youth and Sports from the French-speaking states of Africa

and from Madagascar. Over the past few years, Quebec has provided the chairman for the Canadian delegations to these conferences. The governments of New Brunswick, Ontario, and Manitoba are also showing an increasing interest in the French-speaking community by becoming more involved in the Agency's programs and in conferences of French-speaking nations.

Canadian support is also given to private international associations of French-speaking groups. Among the most important of these are the *Association internationale des parlementaires de langue française* (AIPLF), the *Association des universités partiellement ou entièrement de langue française* (AUPELF), the *Institut de droit d'expression française* (IDEF), the *Conseil international de la langue française* (CILF), and so on.

The Canadian government intends to participate actively in all efforts to set up a framework favourable to greater co-operation among French-speaking nations on all levels, both governmental and private. In so doing it honours its bilingual and multicultural vocation, encourages the growth of the French culture within its borders, and contributes to the spread and development of this culture in foreign countries. This growing and diversified interest in French-speaking nations reflects a priority in Canada's international activities, and the government's vigorous policy in this area indicates the importance it attaches to the French culture as an essential element of the Canadian identity. This policy serves the interest of Canada as a whole and of all Canadians.

External Affairs

In October 1971 Canada played host to the Second General Conference of the Agency for Cultural and Technical Co-operation. It was attended by more than 200 delegates from 25 countries that are wholly or partially French-speaking.



Canada and Latin America. Canada maintains formal diplomatic relations with all the republics of Latin America and has 11 resident diplomatic missions in the area, 7 of them with multiple accreditations. Its political, economic, and cultural relations with these countries, as with the principal institutions of the inter-American system, have been developed in a way which projects Canada's distinctive capacity to contribute to hemispheric progress.

On the broader scale, Canada's application for Permanent Observer status in the Organization of American States was formally approved on February 2, 1972, leading to the establishment of a new Permanent Observer Mission in Washington, headed by an Ambassador. Moreover, Canada was admitted to the Pan American Health Organization in September 1971, and to the Inter-American Institute of Agricultural Sciences in April 1972. It is Canada's intention to seek membership in the Inter-American Indian Institute and other selected agencies of the OAS as this becomes feasible. Canada was already an active member of five inter-American organizations: the Pan American Institute of Geography and History, the Inter-American Statistical Institute, the Inter-American Centre of Tax Administration, the Centre for Latin American Monetary Studies, and the Postal Union of the Americas and Spain.

Canada has also strengthened its economic ties with Latin America. In the area of development aid and technical assistance, the Canadian government signed an agreement with the Inter-American Development Bank in 1964, by which Canada undertook to make available \$10 million on concessional loan terms to finance development projects in Latin America. Similar contributions were made in subsequent years, and to date \$74 million has been provided. These funds have been administered by the Bank on behalf of the Canadian government. However, in accordance with the government's new policy orientation, Canada considered applying for full membership in the Bank in 1972, a development designed to increase very considerably Canada's capacity to extend development aid to Latin America.

In the 1960's, the government instituted, through the Canadian International Development Agency, a program for the support of non-governmental organizations working in Latin America as well as in other developing countries. Voluntary organizations such as the Canadian University Services Overseas, the Canadian Executive Services Overseas, Oxfam, and religious missionary communities have received substantial assistance by this means for projects they are carrying out in Latin America. In 1971, new policy considerations led the Canadian government to initiate as well a program of bilateral technical assistance to the area, involving an annual expenditure of about \$10 million to finance projects chiefly in the fields of agriculture, education, health, and community development. This assistance has been concentrated at the outset in four zones: Brazil, Peru, Colombia, and the countries of the Central America Common Market, but other countries are also eligible for help with selected projects in those fields.

The government's foreign policy review, published in June 1970, also considered Canadian trade with Latin America as a means of strengthening its bonds with the countries in that area. In pursuit of this objective, Canada continued to facilitate its exchanges with Latin America through the provision by the Export Development Corporation (formerly the Export Credits Insurance Corporation) of

loans and insurance to support the sale of Canadian goods and services to Latin American buyers. By 1972, these loans had reached a total of about \$300 million and the total liability in respect of insurance extended for exports to Latin America by ECIC and EDC had been about \$1,000 million. Trade missions of Canadian businessmen and government officials to Latin American countries were also promoted, and a special relationship developed with the Canadian Association for Latin America which groups 70 major businesses and industries in this country.

The various changes made in the developing picture of Canada's relations with Latin America have resulted from the positive implementation of policy guidelines for the systematic expansion and strengthening of Canada's ties with this important area, both multilaterally and bilaterally. The successful convening of the Canada-Mexico Ministerial Committee at Ottawa in October 1971 was a significant bilateral achievement.

Canada-Asia and the Pacific. Although Canada has for many years maintained numerous links, both official and private, with Asian and Pacific countries, its interest in expanding its presence in this region is growing, as was demonstrated by the establishment of an Embassy in the People's Republic of China in 1971.

Canada was a founding member of the Colombo Plan under which development aid in the form of loans, grants, and technical assistance is extended to a number of countries and it participates in the work of the UN Economic Commission for Asia and the Far East (ECAFE), including the Mekong Committee and the Asian Development Bank.

Through membership in the Commonwealth Parliamentary Association, the Commonwealth Foundation, and other similar organizations, Canada maintains useful links with the Commonwealth countries of Asia and the Pacific.

In addition to its programs of development assistance and its diplomatic and commercial relations with countries of Asia and the Pacific, Canada has continued

Industry, Trade & Com.

The Hon. Jean-Luc Pepin, former Minister of Industry, Trade and Commerce, with Premier Chou En-Lai in China, on the occasion of the first Canadian economic mission in the summer of 1971.



since 1954 to maintain its membership on the International Commissions for Supervision and Control (ICSC) in Vietnam, in Laos, and (until the Commission adjourned on December 31, 1969) in Cambodia.

Arms Control and Disarmament. Canada has long played an interested and concerned role in international negotiations on arms control and disarmament issues. As a member of the United Nations Conference of the Committee on Disarmament (CCD) in Geneva, Canada has been able to participate in discussions and efforts to achieve agreement on various issues. On February 11, 1971, along with many other countries, Canada signed a treaty which was the result of two years of work in the CCD and which will prohibit the emplacement of nuclear weapons and other weapons of mass destruction on the seabed. Also in 1971, Canada participated in the CCD's negotiations on a treaty which would prohibit the production, stockpiling, and development of biological weapons and provide for their destruction; this treaty was endorsed by the United Nations General Assembly on December 16, 1971, and was opened for signature in March 1972. The General Assembly also adopted a Canadian-sponsored resolution designed to encourage agreement on a prohibition of underground nuclear tests. Canada's ultimate objective in disarmament negotiations in the United Nations and elsewhere remains the achievement of general and complete disarmament under effective international control.

Foreign Policy and Defence. In consonance with basic foreign policy objectives, Canada's defence policy is designed to assure the protection of Canadian sovereignty and contribute to the maintenance of world peace. Canada rejects a non-aligned or neutral role in world affairs, and participates in collective security arrangements with other states in the interests of Canadian national security and in defence of values shared with Canada's friends. In addition to conducting surveillance of its own territory and coastlines, Canada co-operates with the United States in the defence of North America through the North American Air Defence Command (NORAD), and in other ways. To the extent feasible, activities in Canada essential to continental defence are carried out by Canadian forces.

Canada continues to be a member of the North Atlantic Treaty Organization (NATO), along with the United States and most of the countries of western Europe. The stabilizing influence of NATO reduces the likelihood of a world nuclear conflict originating in Europe, where the vital interests of the two major powers are involved. Canada also attaches importance to NATO's role in fostering measures of political accommodation and arms control between East and West. Besides participating actively in NATO's political activities, Canada contributes militarily to the Alliance: Canadian forces in Europe number 5,000 men. Canadian activities in continental defence also constitute a contribution to NATO, as North America is part of the North Atlantic Treaty area.

As a responsible member of the international community, Canada also considers it desirable to have forces available for UN or other international peacekeeping roles. At the present time there are more than 700 Canadian officers and men serving the United Nations and the International Control Commissions in countries around the world.

Canadian International Development Agency

Although Europe and the Middle East received Canadian relief assistance after the Second World War, Canada's involvement in international development assistance really began in 1951 when the country became a founding member of the Colombo Plan. The Plan was established to help the newly independent states of South and Southeast Asia, and this is still one of Canada's major areas of foreign aid concentration with a total allocation over the past 21 years of approximately \$1,300 million.

In the past 11 years, the flow of Canadian resources has broadened to include both technical and capital assistance to some 70 countries in Asia, Africa, Latin America, and the Commonwealth Caribbean. Canada's allocations for international development have increased more than sixfold from \$64.4 million in the 1963-64 fiscal year to \$426.4 million for 1971-72, excluding loans made by the Export Development Corporation to help developing countries purchase equipment from Canadian companies.

During 1969, CIDA undertook a comprehensive review of Canada's policies in the field of international development assistance as part of an over-all review of Canadian foreign policy. Following the findings of this review, the Government of Canada confirmed its commitment to the support of international development.

About 24 per cent of Canadian assistance is multilateral. Funds are given or loaned to support the development projects of such international agencies as the United Nations, the World Bank, the International Development Association, and a number of regional development banks.

CIDA

Together CIDA and the Cameroons built a bridge east of Yaoundé made of Canadian steel and cement. The bridge was financed by a grant of \$500,000 from CIDA.





CIDA

About 750 pumps have been installed in Ecuador by CARE of Canada with assistance from CIDA.

Canadian bilateral aid is extended mainly in the form of goods and services. The principal recipients are: India, Bangladesh, Pakistan, Ceylon, Malaysia, Indonesia, Nigeria, Ghana, Tanzania, Francophone Africa, Latin America, and the Commonwealth Caribbean. Various kinds of assistance are provided under Canada's bilateral aid program, including capital projects such as the construction of schools, dams, roads, and transmission lines; commodity aid is given in the form of food, fertilizers, equipment, and raw materials for industry and also technical and educational assistance. Under the latter program, Canada provided 241 advisers and 855 educators to developing countries in 1971 and provided training in Canada for 1,832 students from these areas.

As a result of the 1969 foreign policy review, CIDA began a bilateral technical assistance program with Central and South American countries in 1971. In September of the same year Canada joined the Pan-American Health Organization, making a first contribution of \$982,992 two months later. In 1972 Canada became a full member of the Inter-American Development Bank (IDB) and will in the next three years subscribe U.S. \$40 million to the Bank's capital stock and \$60 million to its Special Operations Fund. Together with bilateral assistance, this will raise Canada's over-all Latin American program to about four times its former level.

As well as working in multilateral and bilateral areas, CIDA is also involved with non-governmental aid organizations and business and industry.

In the 1968-69 fiscal year, \$5 million was allocated to help voluntary and non-governmental agencies increase their contribution to international development. This figure rose to \$11.9 million in 1970-71. It has been estimated that the total value of private assistance to developing nations from Canadian organizations is

about \$39 million annually. Many of these groups were pioneers in the development field and are operating successful programs that can be expanded and strengthened with the support that CIDA offers them.

CIDA became involved in the area of business and industry both to help the private sector of developing countries' economies and to expand suitable Canadian overseas enterprises, resulting in the transfer of business knowledge and investment funds to these nations. In this endeavour, CIDA works closely with Canadian business, the Department of Industry, Trade and Commerce, international finance corporations, development banks, and overseas corporations to identify and help finance worthwhile investment opportunities in all types of secondary industry in the developing world.

In the spring of 1970, Parliament gave final approval to a new initiative in international development, the formation of the International Development Research Centre. First proposed by the Rt. Hon. Lester B. Pearson, the Centre focuses advanced scientific and technical knowledge on the difficulties of the developing countries by sponsoring or conducting research designed to bridge the growing technological gap between the developed and developing world. The Centre finances research wherever the most capable people and institutions are available, on such problems as mineral resources evaluation, food conservation and distribution, improvement of agricultural products and techniques, and the development of labour-intensive industry.

CIDA

The President of CIDA fills a basket of earth on the site of an adult literacy centre in India that is supported by CIDA.



Canadian Executive Service Overseas

Incorporated by the Canadian International Development Agency in 1967, Canadian Executive Service Overseas is an element of Canada's foreign aid program. CESO expresses Canada's emphasis on development by making available to enterprises in developing countries the skills and experience of Canadian specialists with long records of achievement in their fields of endeavour. These specialists serve as volunteers, without fee or salary and spend up to six months overseas with organizations that invite them to act as consultants and advisers to local management. In addition to immediate benefits, local managers will be left with a knowledge of new work methods and an increased capability for solving problems.

The success of these activities requires that three functions be performed by the retired senior executives who staff CESO. One is to make known to organizations overseas the resources available from CESO; this is accomplished through CESO representatives and Canadian foreign service officers abroad. The second is to recruit Canadian specialists, well qualified both professionally and personally, who are willing to serve as volunteers filling the needs discovered by CESO representatives abroad; recruitment is done by the head office staff, supported by regional representatives in major centres across Canada. The third is to get the volunteers to and from the site of their projects, and to prepare them to perform effectively in an altogether new environment.

Hundreds of Canadian volunteers have now served in dozens of countries. Host organizations maintain the volunteers while they are on assignment, thus sharing the costs as well as the benefits of the service.

C.E.S.O.



Near Nova Lima, Brazil, a CESO volunteer and the local chemist and metallurgist check the operation of a tailing filter to recover minerals being lost.



A Canadian nurse from Edmonton, Alta., works for CUSO in Georgetown, Guyana, teaching anatomy and nursing.

CUSO

Canadian University Service Overseas

During its first decade—from 1961 to 1971—CUSO grew from an initial handful of Canadian graduates working in 4 countries, to become a complex program involving some 1,300 Canadians in 44 countries. This record is the more impressive for the fact that all CUSO workers are recruited for two years in response to direct requests from overseas, and that their salaries—usually equivalent to the salary of a similarly qualified worker in the host country—are paid by the government or agency employing them. It is this principle that differentiates CUSO from many similar agencies such as Britain's Voluntary Service Overseas or the American Peace Corps, and ensures a real commitment on both sides.

CUSO's stated aim remains the same after ten years: to help bridge the manpower gap, providing developing countries with the skilled professional and technical personnel needed until they can train enough of their own people to fill these positions. As a result the CUSO program has changed over the years. The demand in the 1970's is for better-qualified, more experienced personnel. Teachers—still the largest group in the program, 917 in January 1972—are needed at

secondary and post-secondary levels, not in elementary schools. Mathematics and science are by far the most requested subjects.

In the health field, experienced nurses are needed not for general nursing, but as nursing tutors. Doctors and medical technologists are also often requested to train nationals of their host countries. The fields of technology and agriculture have undergone considerable expansion in recent years. CUSO now has some 40 engineers, technologists, technicians, and tradesmen in the field, and over 80 agriculturalists in positions ranging from farm management to research.

An independent non-profit organization, CUSO draws on four major sources for direct and indirect financial support. In 1970-71 the Canadian International Development Agency (CIDA) provided a direct grant of \$4.25 million, which was almost matched by an estimated \$4 million paid in CUSO workers' salaries and benefits by overseas governments. A further \$447,000 was raised from the private sector, including donations from individuals and organizations participating in the Sponsorship Programme, plus the hundreds of thousands of Canadians who took part in the "Miles for Millions" marches. Indirect support, conservatively estimated at over \$500,000 comes from such sources as universities and colleges providing office space, equipment, and staff for local recruitment and selection committees; the mass media, which carry recruitment advertising free of charge; and the pharmaceutical companies that donate medical kits packaged by the Department of National Health and Welfare.

CUSO

CUSO's newest program is in Papua, New Guinea. Here a business development specialist, who is a CUSO volunteer, talks to local businessmen.





Scientists of the Defence Research Board drill through ice in the High Arctic to study ice movement.

National Defence

As stated in the White Paper on Defence dated August 1971, Canada's involvement in a catastrophic war between the super powers would be largely a consequence of geography. Since there is not much that Canada itself can do directly in self-defence, its over-riding defence objectives must be to promote political reconciliation, to work for arms control and disarmament, and to contribute to the system of stable mutual deterrence. To this end, the government's policy is to participate in collective security arrangements. Canada's military role in North American defence includes contributing to the stability of deterrence by assisting the United States in operating a comprehensive system of warning. It will also provide some active defence against any potentially hostile air, sea, or land forces within the North American area.

The Canadian Government has decided that to the greatest extent feasible defence activities on Canadian territory will, in normal peacetime circumstances, be carried out by members of the Canadian Armed Forces. During periods of international crisis, however, special arrangements are required to increase the protection of North America and to contribute to the maintenance of stable mutual deterrence. There are, therefore, a number of bilateral Canadian-American defence agreements which specify the terms and conditions of joint co-operative defence arrangements for Canadian territory, airspace, and waters.

The control and management of all matters relating to National Defence, the Canadian Armed Forces, the Defence Research Board, Defence Construction (1951) Limited, and Canada Emergency Measures Organization are the responsibility of



The Department of National Defence's summer student employment program provided training or jobs for more than 12,500 students in 1971.

the Minister of National Defence.

The 1971 White Paper on Defence indicated the roles to be played by the Canadian Forces in assuring security and in safeguarding sovereignty and independence, and the contributions to be made to national development. The priorities for Canada's defence policy were stated as protection of Canadian sovereignty, co-operative defence of North America, fulfilment of commitments to NATO, and contributions to international peacekeeping. The manning level of the forces has been progressively reduced over the past eight years. In 1964 the total strength was approximately 120,000; in 1972 it was 84,000. It is planned to stabilize the total strength at 83,000 in 1973. In 1972 the defence budget was \$1,863 million.

Mobile Command, the largest user of manpower, now has a field force of three Combat Groups, each about 3,500 men, the Canadian Airborne Regiment, and the Combat Training Centre. Mobile Command also commands the Militia and Air Reserve. Tactical air support of Mobile Command is provided by two squadrons of CF-5 aircraft.

In Europe, as Canada's contribution to NATO, are the 4th Canadian Mechanized Battle Group and the 1st Canadian Air Group under one commander. The Battle Group consists of infantry, armoured, artillery, engineer, and various support units and the Air Group consists of three attack squadrons of CF-104 aircraft. The Air Group's reconnaissance role was discontinued on July 1, 1972. The duty of the land

forces is tactical reconnaissance for the Central Army Group. The Battle Group is now more compatible with the combat groups in Canada, from the point of view of organization, equipment, and training.

Modernization of existing destroyers was completed in 1972. In that year three of the four DDH-280 class, gas-turbine equipped helicopter destroyers will be delivered to the Department of National Defence. The fourth ship will be delivered in the spring of 1973. The building program that introduced modern support ships into the forces has been completed. New long-range maritime patrol aircraft are being considered to replace existing machines.

The re-equipping of land forces with a family of light-weight tracked vehicles and a family of observation, reconnaissance, utility and transport helicopters, and light over-snow vehicles is continuing. Finally, the air forces have been provided with tactical transport aircraft and more recently five Boeing 707 jet transport aircraft. In addition, there is an interceptor jet modernization program.

Canadian military assistance to other nations is embodied in two programs: Military Training Assistance and Mutual Aid. Military Training Assistance provides aid to non-NATO countries. Assistance programs provide no equipment but concentrate on staff and technical training. Currently, 11 nations are benefiting from Canadian military assistance; 5 Canadians are serving on training teams in 2 foreign countries and 38 officers and men of other nations are receiving training in Canada. Mutual Aid provides training, mostly of pilot aircrew, to Canada's NATO partners.

Since 1964, Canadian UN troops have helped keep the peace in Cyprus. Canadian units are replaced every six months.



Economics

Individuals and societies have many needs and desires. But the resources – the machinery, labour, land, savings, and enterprise – that can be used to satisfy these wants are strictly limited. Even in relatively affluent Canada there are very few people or organizations who could not use an extra thousand dollars. Hence the universal need for a system to ration the use of the resources of a nation or a household. Succinctly put, the economic system serves to determine what is to be produced, for whom, by whom, and how. Robert L. Heilbroner* has pointed out that all of the systems that man has found for solving these problems can be categorized into three different types: tradition, command, and market. The first and most primitive is the economy of tradition. In such a society each person produces today what he produced yesterday, which is usually what was produced a hundred years ago by his grandfather. The techniques of production and the distribution of the product are held constant over time. By definition, societies of tradition are very stable, but they are incapable of coping with external change.

*Robert L. Heilbroner, *The Economic Problem* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1968).

Historically, change from a tradition-based economy has usually been made possible by the emergence of a strong personage and his assumption of a position of command from which, once invested with the necessary authority, he could effect changes in the traditional solutions. Under the command system the ordinary citizen found that instead of repeating what he did previously he had to do what he was told to do. He also found that in the shift to a command economy there had been a shift in power from "the past" to the élite.

Canadians are, of course, familiar with traditional solutions and non-solutions to many of their economic and social problems. They are even more familiar with the use of command to solve resource administration problems, especially within households and companies. In the main, however, the administration of Canada's resources is in the hands of "the market."

The market economy works something like this. Each person's basic resource is his time and energy, which are sold in the labour market for money on terms that are individually or collectively arranged with buyers. Income from labour is spent or saved, and savings (earned or inherited) can be sold in the capital market for additional income.

From the fruits of his labour (and maybe that of his ancestors) each individual (or household) then enters the commodity and service markets as a buyer. He wanders through stores, reads the ads and, with his income dollars, purchases this product or that. If he likes it—or is persuaded he likes it—he may purchase it again. Each customer has "free choice."

Of course consumers can only buy products that exist. Products and services are brought into existence (produced) by individuals or firms who are "enterprising." These entrepreneurs must start with an idea of a product or service that they think will sell. They must then acquire capital resources—land, machinery, working capital, and so on—made possible by the savings (income which is not consumed) of themselves and others. These entrepreneurs and savers must be prepared to accept risks: they may not meet with the interest they had hoped for on the part of the consumer. Production is usually made in the anticipation of sales and these sales may or may not materialize.

The enterprisers who are successful and sell large quantities of their products will find their businesses profitable. They will be encouraged to produce more of these products and to expand their facilities (plough back profits or invest new savings). Other entrepreneurs are very likely to be persuaded to make similar investments in order to try to imitate their success.

On the other hand, enterprisers who have guessed wrong will incur losses which will force them to curtail production and perhaps go out of business altogether. In this simple way the coincidence of consumers exercising their free choice, enterprise, and the profit motive enables consumers to direct production. Of course there are many problems. The market system, like the systems of tradition or command, is far from perfect but it does provide a means of solving economic problems.

There is no serious attempt nowadays to maintain a pure market system, however, and elements of command and tradition abound in the Canadian market economy. As a result, the economy is in fact, if not in theory, a much-modified market system. What one earns is mainly a function of the agreement one can

reach with customers or with the organization for which one works, but the government has commanded that wages be no lower than some minimum figure and it similarly rules on conditions of work, collective bargaining procedures, and so on.

In the main, it must be agreed that there is free choice. However, it is illegal to buy some drugs; advertising is regulated in various ways; hours during which goods are available may be prescribed, and so on. Generally it is left up to individual enterprise to supply goods and services, but external defence is provided collectively in market economy countries in just about the same way as it is in command economic systems.

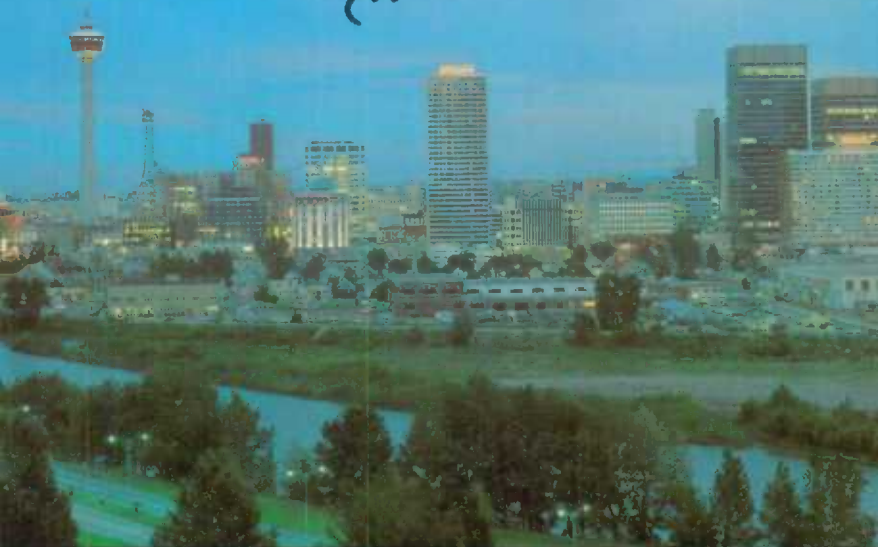
Many other goods and services are produced by the government, either by departments like the post office, which is under the immediate control or command of the government, or by Crown corporations, such as the Canadian National Railways, which operate very much like public companies. Even in the private sector it would be virtually impossible to find a single product or service which is not subject to government regulation or influence.

One of the best ways of understanding Canada's economic system is to examine some of its problem areas. It will be seen that solutions generally involve some mixture of law (command), the market, and the ever-present dead hand of the past (tradition).

One of the most talked about problems at the moment is pollution. This is an issue which is currently popular, rather than new. Pollution is a social cost which is all too often not the private cost of the person or organization causing the pollution. Differences between private and social costs have long been recognized as a problem of the market system and indeed of any other type of economy. One city's sewage flowing into the drinking water of the next city down stream is every bit as much a problem in command societies as it is in Canada. But the solution is fairly simple. There are two options. First of all a government can in some circumstances simply prohibit pollution, which means that the manufacturer and, ultimately, his customers must pay the full cost of producing a pollution-free product. Where this is not possible, or politically acceptable, the community may levy a "pollution tax" so that the pollution can be dealt with by the government on a collective basis. In some cases the revenue of the tax on polluters might be used to compensate the victims of pollution. Using either the prohibition or the tax approach should lead to a better, more rational market system. In the process the economy or the individuals or firms involved will not be ruined so long as collective action is taken. If one province or one municipality tried to place a new pollution tax on, say, a pulp and paper company when a similar tax was not imposed elsewhere in that industry, the result would simply be to drive that company out of business or to a new location where it would incur costs in line with those of its competitors. In many cases pollution has to be tackled nationally, and even internationally.

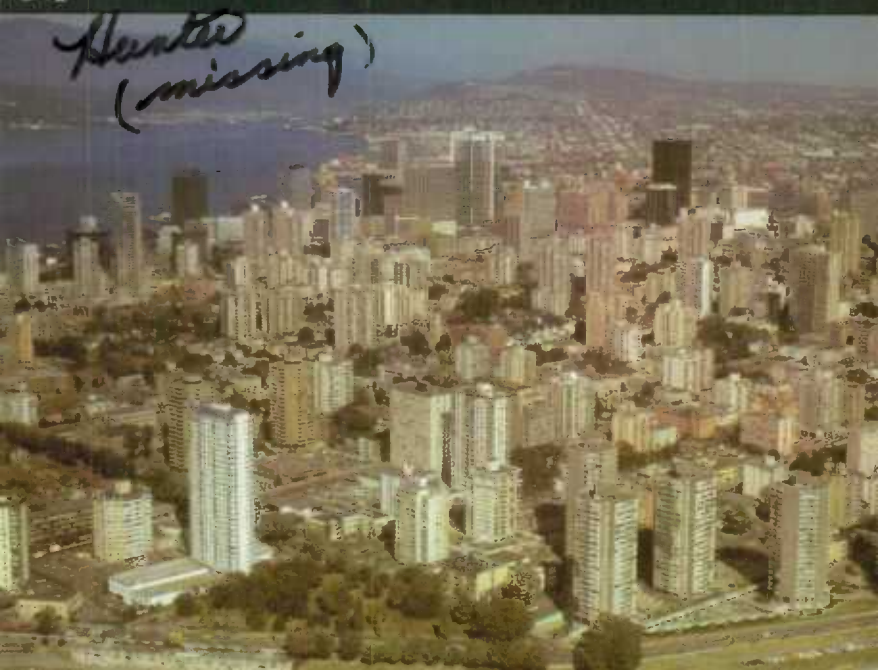
Another one of the most pressing current problems is undoubtedly the control of inflation and unemployment. To understand this problem it must first be recognized that every type of economy has a tendency to fluctuate. Even in static, traditional economies fat years were followed by lean ones. Command societies do have the power to control prices and wages — more or less — by controlling busi-

*Hunter
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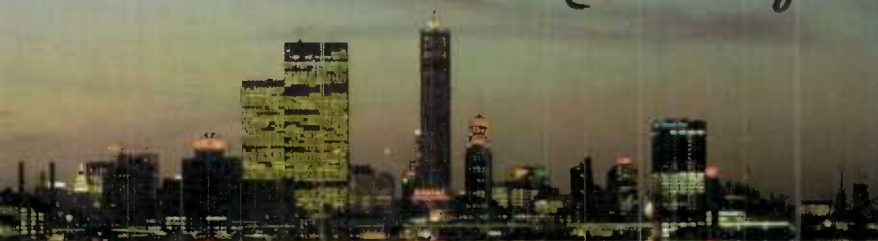


Calgary

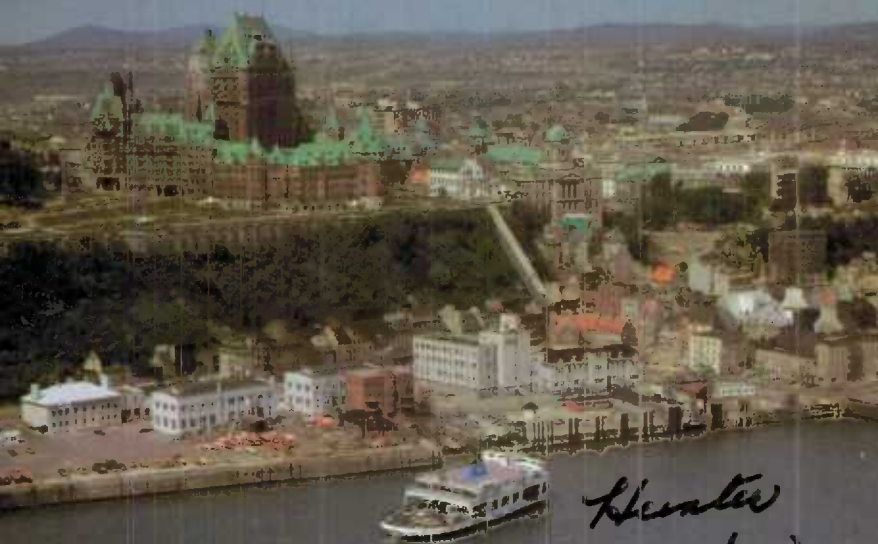
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Quebec

ness organizations and unions. Unemployment can be disguised if not cured by simply preventing layoffs. However, these techniques for controlling inflation and unemployment enormously complicate the problem of effecting transfers of resources from one use to another. In the market system an attempt is made to use indirect means for keeping the economy growing with a minimum of inflation and unemployment.

Let us first consider unemployment. The cure for unemployment is, of course, more employment, and more employment will occur when businessmen, households, and governments buy more products and services. How then, in a time of unemployment, can more spending be encouraged? It must first of all be recognized that primary responsibility for counteracting the cycle must rest with the central government. A company, a household, or a local government that by itself tried to spend the economy out of a recession would simply end up in bankruptcy. Only a powerful central government with a considerable arsenal of monetary and fiscal tools has the power to lean against the wind of a recession without falling on its face.

The government can do a number of things to increase total income, expenditures, and employment. The most obvious is to spend money itself on, say, public works. In this case the increase in employment is direct and the additional products and services will be determined by "the command" of the government. Alternatively the government can reduce taxes, leaving more income in the hands of the taxpayers. It can safely be assumed that a very large portion of this additional, after-tax income will be spent on capital or consumers' goods via the usual market mechanism involving consumers' choice and the profit and loss mechanism. Whether the government increases its own spending or reduces taxes, the result is very likely to be that its expenditures will exceed revenues so that a government deficit will result. This deficit will be financed, not by additional taxation which would be self-defeating, but by creating new money or borrowing and putting to use funds that would otherwise remain idle.

Fiscal policy, which is what has been discussed, leads therefore to monetary policy — the control of the money supply and the rate of interest in order to limit unemployment and inflation. Through the Bank of Canada the government can cause the money supply to be increased. This additional money can be used for more government spending, or it may simply be made available to businesses and consumers through the banking system. Other things being equal, an increase in the supply of money will normally reduce the cost of its use (the interest rate) and therefore persuade households and businessmen to spend more money on (or hire more people to produce) hydro stations, factories, houses, cars, and so on.

The present state of economic knowledge suggests that there would be absolutely no trouble curing unemployment if it were not for the related problem of inflation. Unhappily many of the policies designed to increase spending and employment will also tend to exert an upward pressure on prices.

There is no easy solution to this quandary. There is an inverse relationship between inflation and unemployment. Years of significant price increase are years of relatively low unemployment. When unemployment is high, price increases usually constitute less of a problem. Unfortunately, it is not even a matter of making a simple choice between different combinations of unemployment and infla-

tion. Economists are beginning to suspect that sustained periods of rising prices may create expectations of further price increases which get built into business and wage contracts. The result is that it will require ever-increasing amounts of unemployment to hold the rate of inflation to a given level. (In economic parlance this is referred to as an outward shift in the Phillips curve, which is just another name for the curve or function that shows the trade-off relationship between unemployment and inflation.)

In Canada at the present time, in addition to the usual monetary and fiscal policies, the federal government is trying to use public education and "moral suasion" and some rather more direct approaches to shift this curve back so that there can be less unemployment and less inflation. Moral suasion must persuade businessmen to make sure that higher profits are matched directly by lower prices. High profits would normally encourage businessmen to expand capacity and output. This in turn, would force down prices. The persuasion technique must aim at encouraging businessmen to make sure this process works promptly, or that high profits which, for some reason, are not used to expand output are used to reduce prices. Moral suasion must also persuade the unions and executives that if inflation is to be avoided, wage and salary increases in the long run simply cannot exceed gains in productivity. Material welfare can be improved when and only when output is increased.

In other words real wages are dependent primarily on output and not on money wages. When money wages run ahead of output, the government is faced with a dilemma. To oversimplify, the government could decide to let the inflationary process run its course, and provide the necessary additional dollars so that the higher wage bill—the number of workers times their new higher wage rate—could be financed. This higher income would then bid up the prices of the given quantity of goods available, and the inflationary process would go on. On the other hand, the government could take a tougher line and say in effect that sufficient dollars would be provided to maintain employment at wages just sufficient to buy the nation's output at constant prices. Under this plan the money wage bill and the money income of the nation would be determined; there would be full employment as well as stable prices and wage increases which would buy the additional output resulting from higher productivity. On the other hand, with the total wage bill thus fixed, if some workers and executives demand and receive more than their share of income, dollars will simply not be available to hire all workers, and unemployment will result.

Here then is the real problem. Excessive wage and salary settlements (including executive salaries) must produce either inflation or unemployment or some of each. Must this painful unemployment course be taken or can wage and salary demands be talked down so that more employment and more price stability can be achieved?

Competition and its regulation are not the burning issue that pollution or inflation is, but the regulation of business is under continuing review, and it is an extremely important element of a market system. Competition means the existence of alternatives. Thus a competitive market is one which provides choices, and therefore freedom. Freedom can, in fact, be defined as the ability to choose from among alternatives: a man who has no alternative has no problem of choos-



The centuries-old tradition of shopping at a market is still popular.

Dunsley

ing and no freedom. A competitive market not only provides choice and freedom but in so doing it effectively limits the power of each firm.

The classical economists were so taken with the idea of competition that in their text books they constructed a market in which there was "perfect competition" among a large number of small buyers and sellers. It is now recognized that such a market is unobtainable and not even desirable in most industries. For example, it would mean the loss of the lower costs that can be obtained in large and efficient manufacturing plants. It is also recognized that choice, like all good things, can be carried too far: each additional choice that is offered in the same market, for essentially the same product, may have a declining value. Indeed a point may be reached where yet another brand of soap to be priced and compared may be nothing more than a nuisance to the housewife.

Canadians tend to be quite pragmatic in their approach to competition. Generally, they favour freer international trade, which gives them the option of buying foreign products. They discourage price agreements. They have laws that would discourage mergers that go too far in removing the number of alternatives, and they are beginning to insist on the dissemination of more and better information about products and about the financial operating results of the companies that produce them. These last two points have been rather neglected, and yet they are absolutely essential to "consumer sovereignty." Adequate and accurate information about products is necessary if consumers are to choose their products wisely, and knowledge about the profits and losses associated with making products is necessary if businessmen are to be able to choose their investments in such a way as to expand the production of goods that are wanted and to avoid expanding facilities to make products that are not.

It is a characteristic of the Canadian economic system that attention tends to get focused on its problems. Perspective should not be lost however, nor should the accomplishments of the economy be forgotten. The average Canadian today lives a longer, a healthier, and in most respects a better life than did the nobleman of a few centuries ago.

D. E. ARMSTRONG

Economic Growth in 1971

A strong resurgence of economic activity characterized the year 1971. The Gross National Product rose by 8.9 per cent in current dollars in 1971 – higher than the 7.1 per cent increase in 1970 – and it reached a level of \$93,100 million. This advance was accompanied by further deceleration in the implicit price index which rose by 3.3 per cent in 1971; it rose by 4.5 per cent in 1970 and 4.5 per cent in 1969. After removing the effect of prices, real growth amounted to 5.5 per cent in 1971 – the largest annual gain since 1968 – in sharp contrast to the increase of only 2.5 per cent in 1970. The current strength of the economy would be more clearly revealed by an examination of rates of growth since the beginning of the recovery period. Since the fourth quarter of 1970, the GNP rose by 10.1 per cent, with a corresponding volume increase of 5.5 per cent.

Domestic demand was the major source of growth in 1971, unlike 1970 when the external sector provided most of the stimulus. Consumers' spending, especially on durable goods, accelerated sharply after 1970, as did expenditures on housing construction, while current expenditures by governments continued to be one of the fastest growing elements of demand. Business fixed investment in plant and equipment rose less rapidly in 1971, and investment in business non-farm inventories did not contribute to growth in the year.

The income side of the national accounts gave a somewhat stronger picture of economic performance in 1971 than did the expenditure side. Several categories of income displayed remarkable growth. In particular, corporation profits rose by about 15.9 per cent, while they had declined by 5.3 per cent in 1970. Accrued net income of farm operators increased by 23.3 per cent against a decline of 12.9 per cent in 1970. Finally, net income of non-farm unincorporated business rose by 5.6 per cent, against 2.5 per cent in the previous year. Labour income which constitutes by far the largest category of income rose by some 9.9 per cent in 1971, an increase of about 1.5 per cent over the 1970 figure.

Against the background of strong economic expansion in 1971, the rate of unemployment remained above 6 per cent during 1971, a level which had been reached as early as the second quarter of 1970. Although the number of persons employed showed a relatively large increase in 1971 – rising by 2.5 per cent compared with 1.3 per cent in 1970 – the strong growth in the labour force of 3.1 per cent was not fully absorbed.

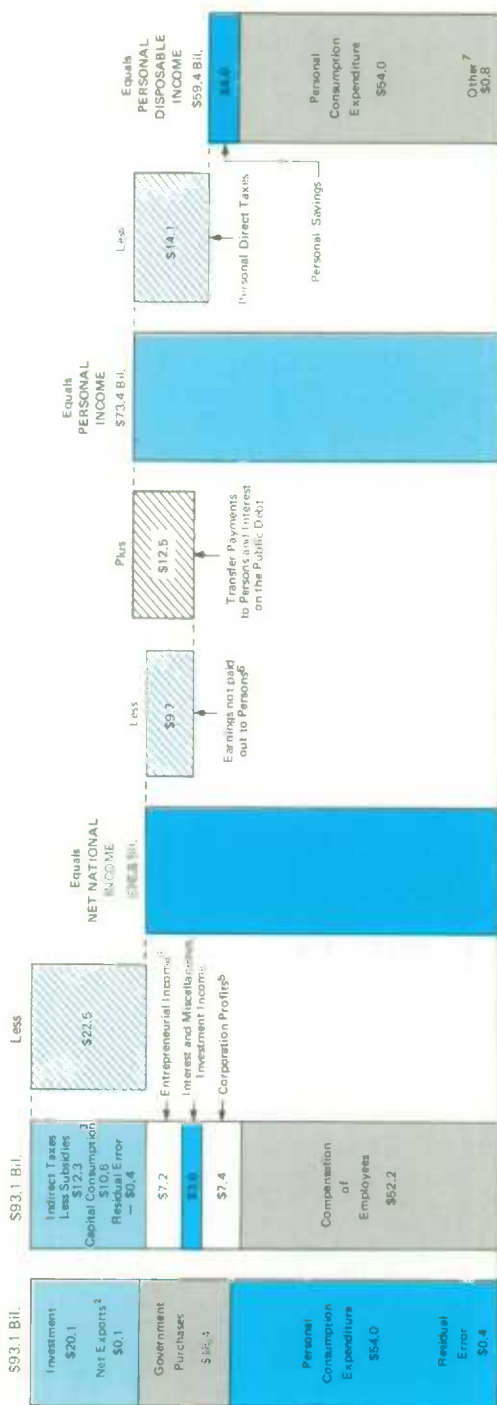
Consumer Goods and Services

Consumers' spending on goods and services increased by 7.8 per cent in 1971. The 1970 increase was 5.4 per cent. This represented a return to the rates of growth ranging between 8 per cent and 10 per cent that had prevailed since the mid-sixties. The acceleration was due to increased spending on goods. A very large increase of 14.4 per cent was recorded in purchases of durable goods. Expenditures on semi-durables also accelerated, but to a lesser extent, by 8.7 per cent over 1970. Purchases of non-durable goods rose by 7.2 per cent in 1971 slightly less than the 7.5 per cent increase in 1970. Spending on services, up 5.9 per cent, rose less than in previous

Relation between Gross National Product, Net National Income¹ at Factor Cost, Personal Income, Personal Disposable Income, and Personal Net Saving, 1971

- GROSS NATIONAL EXPENDITURE = GROSS NATIONAL PRODUCT is the market value of the total of goods and services produced by Canadian residents during the year
- NET NATIONAL INCOME AT FACTOR COST is the total earnings of labour and property from the production of goods and services.
- PERSONAL INCOME is the total income received by Canadian residents from all sources.
- PERSONAL DISPOSABLE INCOME is equal to personal income less direct personal taxes and less other current transfers to governments; it is the income available to persons for consumption expenditure or saving.

GROSS NATIONAL EXPENDITURE = GROSS NATIONAL PRODUCT



1 At factor cost, i.e., at the cost of labour and capital used.
 2 Exports valued at \$22,275 million minus imports of \$22,166 million.
 3 And miscellaneous valuation adjustments.
 4 Includes accrued net income of proprietors from farm production and net income of non-farm unincorporated businesses.
 5 Includes accrued net income of proprietors from farm production and net income of non-farm unincorporated businesses.
 6 Consists mainly of undistributed corporation profits, corporation profit taxes and government investment income.
 7 Interest on consumer debt and personal remittances to non-residents.
 Some columns may not add due to rounding.

years, due in part to the extension of medicare to all provinces, which had the effect of transferring most of the spending on health services from the consumer to the government sector.

Purchases of new motor vehicles rose by about 27 per cent in 1971 and accounted for more than half the growth of spending on consumer durable goods. This high level of purchases in part reflected the effects of the strikes in the fourth quarter of 1970 and to some extent the expectations of price increases. Among other categories of durable goods which also showed strong acceleration, in line with the high level of new residential construction, purchases of home appliances rose 11.9 per cent, and furniture 10.2 per cent. Recreation equipment also rose sharply, by 13.4 per cent.

Within semi-durable goods, purchases of women's clothing, which constitutes about one third of spending in the category of personal expenditure, recorded an increase of 9.5 per cent in 1971 against 2.8 per cent in 1970. This represents almost half the increase in semi-durable goods. Spending on such goods as household furnishings, textiles, and dinnerware also contributed largely to the over-all increase. Among non-durable goods, expenditures on alcoholic beverages, tobacco, and utilities rose somewhat more slowly than in 1970, while purchases of non-durable household furnishings, drugs, toilet articles, and cosmetics rose at an accelerated pace.

Government Current Expenditure on Goods and Services

Current expenditures of governments on goods and services grew in 1971 by 12.0 per cent, a rapid but slightly slower rate of growth than in the previous year when they rose by 15.8 per cent. These expenditures contributed strongly to the rate of growth of Gross National Expenditures in 1971. Provincial governments' expenditures rose by 16.3 per cent while municipal spending increased by 13.6 per cent. The rate of increase of expenditure by the federal government rose to 6.5 per cent, slightly higher than that of 7.3 per cent recorded in 1970. At the federal and municipal levels of government, increases in wages and salaries accounted for most of the gains, while at the provincial level expenditures under medicare contributed more to the increase.

Gross Fixed Capital Formation

Investment in capital goods contributed substantially to the growth of the GNP in 1971, more so than it had in 1970. The rate of increase was 11.0 per cent, rising from 5.2 per cent in 1970, owing in large measure to the very substantial increase in spending on new housing, which rose by 23 per cent, following a decline of 6.2 per cent in the previous year. Dwelling starts, supported by easier financing conditions, reached a record high of almost 234,000 units. Government outlays on fixed capital formation also rose strongly in 1971, by 16.3 per cent.

The increase in business investment in plant and equipment of \$653 million, or 5.8 per cent, was largely concentrated in non-residential construction, which rose by \$546 million, or 10.1 per cent. By contrast, spending on machinery and equipment rose by only 1.8 per cent in 1971. A decline in business fixed investment was observed in the manufacturing industries. This decline was only partially offset by

the increased outlays shown by utilities. These two sectors normally constitute the largest portion of the investment program. The agricultural sector and mining industries as well as governments showed a rather strong increase while other industries experienced relatively less change.

Investment in Inventories

There was little change in investment in inventories during 1971 as a whole. The accumulation of inventories totalled \$137 million in contrast to \$142 million in 1970 and a sizable \$1,467 million in 1969. In contrast with the previous year, when an accumulation of \$273 million in the non-farm sector was partly offset by a decumulation of \$118 million in farm inventories, in 1971 farm and non-farm inventories showed accumulations of approximately \$90 million each. The swing in farm inventories was mainly due to a substantial increase in grain production.

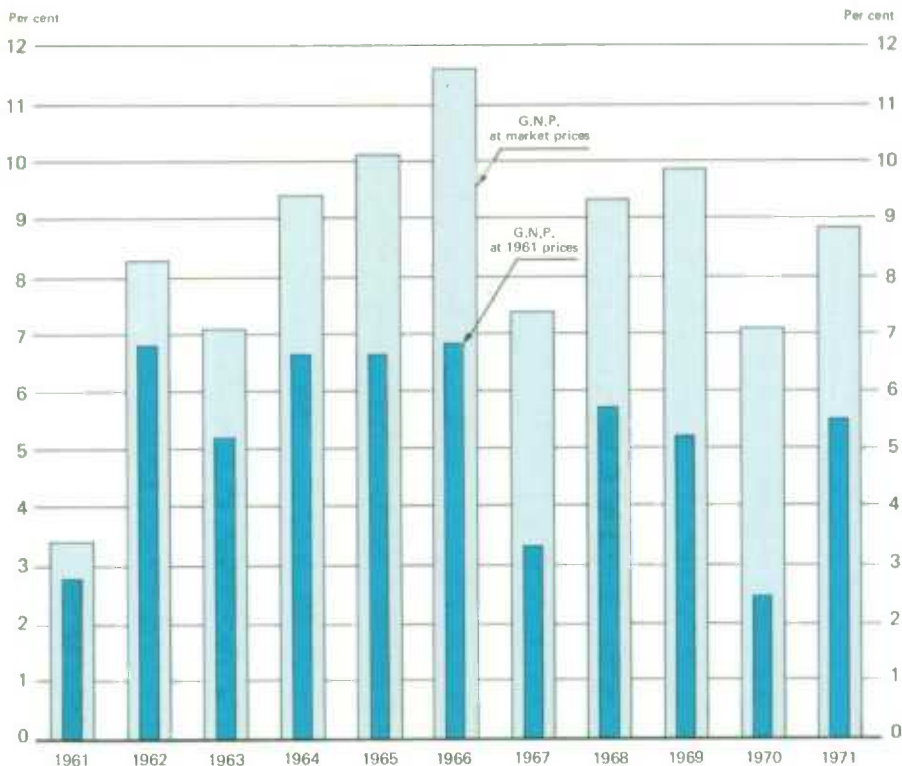
Investment in non-farm business inventories in 1971 remained relatively low at \$87 million compared with \$273 million in 1970, \$969 million in 1969, and \$479 million in 1968. In 1971, a strong accumulation of inventories at the retail level was accompanied by reductions at the wholesale level and in the manufacturing industries. In the preceding year most industries had shown modest increases. The stock-to-sales ratio in manufacturing industries was reduced noticeably in 1971. This was also the case in wholesale trade, while the stock-to-sales ratio in retail trade has remained essentially unchanged.

Munch Canada Ltd
(column to)



This empty warehouse illustrates the relatively low level of non-farm business inventories in 1971.

In 1971 the GNP Increased by 8.9 per cent. With Prices Increasing by 3.3 per cent, the Gain in Volume was 5.5 per cent. Year-to-Year Change.



Exports and Imports of Goods and Services

The external sector was influenced by a number of important factors. The recovery in economic activity in Canada during 1971, the highly unsettled state surrounding the United States balance of payments problems and the measures taken in August to alleviate them, and the lagged effects of the decision to float the Canadian dollar in June 1970 all contributed to changes in this sector.

The positive balance on current transactions in goods and services declined dramatically in 1971 to \$66 million from \$894 million in the previous year, as the surplus on merchandise trade diminished steadily through the year and net payments for services continued to grow.

The principal factor underlying the change in merchandise transactions was the growing demand for imports as the Canadian economy strengthened. Imports of goods rose by over 12 per cent to \$15,556 million, with a 10 per cent increase in American sales to Canada and a remarkable 38 per cent increase in imports from Japan. Motor vehicles and parts imports overshadowed other commodity groups

both in absolute dollar levels and in the rate of increase, which were \$4,449 million and over 26 per cent.

Demand for Canadian exports of goods and services, although increasing in 1971 by 5.3 per cent, was stepped down from the high rate of growth experienced in 1970. Total exports of goods of \$17,785 million reflected strong demands—a gain of 10 per cent—from the United States, but diminished sales to the United Kingdom, Japan, and the European Common Market. Recovery in demand in these latter countries during the year generally lagged behind the North American economies. Particularly strong increases in motor vehicles and parts, wheat, lumber, and petroleum and natural gas sales were registered; motor vehicles and parts sales reached \$4,305 million, almost 20 per cent above sales in 1970.

In the area of services, the growing deficit, which reached \$2,163 million, was due largely to the higher level of investment income payments abroad, reflecting an unusually high outflow in the final quarter of 1971. Total payments and receipts were both higher than in the previous year, although only modestly so in the case of receipts. Some offsets occurred in service items as a slightly reduced deficit in the international travel account was in part offset by lower net earnings on account of freight and shipping transactions.

Incomes

On the income side, the strong increase in corporation profits was characteristic of the early stage of economic recovery. Preliminary estimates show an increase of 15.9 per cent in 1971, a marked improvement over the 5.3 per cent decline in 1970. Most of the growth appears to have taken place in the first three quarters of the year, as a gain of 6.8 per cent in the first quarter was followed by gains of over 10 per cent in both the second and third quarters. Before deduction of depreciation, profits rose by 10 per cent in 1971.

Labour income increased by 9.9 per cent in 1971 a rise of 1.5 per cent from 1970 and a decline of 2 per cent from 1969. While both the goods-producing and service-producing industries advanced at a faster rate than in 1970 the acceleration was greater in the goods-producing industries.

Wages and salaries in the goods-producing industries increased by 8.7 per cent, as a result of increases in average earnings. Except for 1969, this constituted the largest gain since 1966. The most notable increases took place in manufacturing and construction which were affected by strikes to a larger degree in 1970 than in 1971. Manufacturing wages and salaries rose by 7.5 per cent (they rose by 5.8 per cent in 1970), while in construction the increase was 13.9 per cent in 1971 but only 5.4 per cent in the previous year.

Wages and salaries in the service-producing industries increased by 10.8 per cent, while gains of 10.0 and 13.8 per cent were recorded in 1970 and 1969 respectively. Employment advanced at about the same rate as in 1970 while average earnings accelerated slightly. All industries registered advances of 11.7 per cent, although a large part of the increase was due to higher wages and salaries in services. Larger gains were recorded in the commercial sector than in the non-commercial sector.

All remaining components of income with the exception of interest and miscellaneous investment income recorded stronger rates of growth in 1971. Mainly owing

to larger crops, accrued net income of farm operators from farm production was much improved, increasing by 23.3 per cent in 1971 after declining sharply by 12.9 per cent in 1970. Net income of non-farm unincorporated business rose by 5.6 per cent in 1971 against 2.5 per cent in 1970.

Personal income grew by 10.4 per cent in 1971; it had increased by only 7.6 per cent in 1970. Rising wages and salaries and government transfer payments to persons, the latter up by 18.5 per cent, contributed mainly to this acceleration. Personal disposable income also grew very strongly, by 10.0 per cent, the largest increase since 1966.

Source of Personal Income, 1950, 1960, and 1969-71

Source	1950	1960	1969	1970	1971
	Millions of dollars				
Wages, salaries, and supplementary labour income	8,998	19,582	43,036	46,633	51,260
Military pay and allowance	154	559	884	914	908
Net income received by farm operators from farm production	1,165	1,023	1,424	1,121	1,441
Net income of non-farm unincorporated business, including rent	1,882	3,192	5,193	5,325	5,624
Interest, dividends, and miscellaneous investment income	983	2,029	4,867	5,268	5,631
Current transfers:					
From government (excluding interest)	1,025	3,099	6,178	7,025	8,328
Charitable contributions by corporations	40	81	136	140	143
Personal remittances from non-residents	15	30	95	107	112
Personal income	14,262	29,595	61,813	66,533	73,447

Disposition of Personal Income, 1950, 1960, and 1969-71

Disposition	1950	1960	1969	1970	1971
	Millions of dollars				
Personal expenditure on consumer goods and services:					
Durable goods	1,576	3,236	6,975	6,798	7,778
Semi-durable goods	2,162	3,577	6,426	6,645	7,222
Non-durable goods	4,896	9,002	15,073	16,205	17,369
Services	3,848	9,664	19,018	20,392	21,594
Total personal expenditure on consumer goods and services	12,482	25,479	47,492	50,040	53,963
Personal direct taxes and other deductions:					
Income taxes	612	1,979	7,464	8,774	10,097
Succession duties and estate taxes	66	158	241	259	275
Miscellaneous taxes	62	234	852	1,068	1,113
Employer and employee contributions to social insurance and government pension	237	657	2,350	2,446	2,561
Total personal direct taxes and other deductions	977	3,028	10,907	12,547	14,046
Other current transfers:					
To corporations	29	123	526	643	636
To non-residents	36	98	163	168	178
Total other current transfers	65	221	689	811	814
Personal savings	738	867	2,725	3,135	4,624
Personal income	14,262	29,595	61,813	66,533	73,447
Personal disposable income	13,285	26,567	50,906	53,986	59,401

Industrial Growth

Early in the 1960's, the Canadian economy had rebounded from the relative stagnation which had marked the late 1950's. With few exceptions, the 1960's witnessed rates of growth approaching those achieved during the early 1950's. In the first year of the 1970's, there was a dampening of the rate of growth, reflecting to some extent the tightened monetary and fiscal situation introduced in the previous year. Nevertheless, considered over the total period, that is, from the first quarter of 1961 to the fourth quarter of 1971, real output had advanced by 75.8 per cent, or at an average quarterly rate of 1.3 per cent. By comparison, in the period of industrial expansion which began in the fourth quarter of 1957 and which peaked in the first quarter of 1960, total real output increased by 10.5 per cent, or by 1.1 per cent on an average quarterly basis.

The pattern of slow growth during the late 1950's, followed by substantial advances in output, was widespread among the major industries.* The exceptions were chiefly those that even during the period of general slowdown benefited from the introduction of new technology, new products, or new marketing techniques. Such, for example, were the industries producing petroleum and coal, the chemicals group, the public utilities, air transport, and the communications industries. There are also some industries, chiefly within the community, business, and personal service group, which expanded at a steady rate, relatively immune to cyclical change, mainly in response to such factors as the growth of population. During the 1960's and to date, these industries have continued to expand steadily. A few of the primary industries, for example agriculture, which are strongly influenced by external factors such as the weather, exhibited sharp fluctuations in annual output. This made it more difficult to define a clear-cut trend. However, the harvesting of several record grain crops during the 1960's and substantial sales of wheat abroad exerted a favourable influence not only on the agriculture industry, but indirectly also on the transportation and storage industries that handled the wheat, the grain-milling industry, which produced large quantities of flour for export, and so forth, down to the retailer who supplied the increased demand of the farm population.

The following Table shows average quarterly growth rates for all the major industry groupings for the period 1961 to 1971 and from the fourth quarter of 1957 to the first quarter of 1960. Particularly striking are the changes in output in such industries as construction and durable manufacturing. As can be seen from the Table, the 1.8 per cent average quarterly increase in the output of manufacturers of

*For the purpose of this article, wherever real output by industry is mentioned, "industry" includes agriculture, forestry, fishing and trapping, mining, manufacturing, public utilities, construction, wholesale and retail trade, transportation, storage, communication, finance, insurance and real estate, public administration and defence, and community, business, and personal service. Production represents the unduplicated output of individual industries located in Canada, as measured in 1961 dollars. Total production is the sum of the output of all the individual industries. The measurement of real output is difficult in some of these industry areas and labour input measures had to be used to represent output in some major industries. Consequently the measures may not be as sensitive to fluctuations as proper output measures would be.

durables since the first quarter of 1961 was the highest for any major industry group save electric power and gas utilities. The above-average advance of the durable manufacturing component can in fact be said to be among the most notable features of the economy's performance since 1961.

Quarterly Growth Rates¹

	4th Q. 1957- 1st Q. 1960	1st Q. 1961- 4th Q. 1971
Real Domestic Product	1.1	1.3
Goods-producing industries	1.2	1.4
Agriculture	0.7	0.9
Forestry	3.5	1.2
Fishing and trapping	-1.6	-0.1
Mining	1.7	1.6
Manufacturing	1.4	1.4
Non-durables	1.5	1.2
Durables	1.3	1.8
Construction	-0.5	1.2
Electric power and gas utilities	2.8	1.8
Service-producing industries	1.0	1.3
Transportation, storage and communication	1.1	1.5
Transportation	1.0	1.5
Trade	1.1	1.4
Wholesale	1.7	1.7
Retail	0.8	1.2
Finance, insurance and real estate	1.0	1.0
Community, business and personal service	1.3	1.4
Public administration and defence	0.5	0.7

¹ Based on the terminal years compound interest rate formula.

Heater (missing)

Substantial sales of wheat, after several years of bumper crops, benefited not only farmers, but also various other industries.





The Gardiner Dam on the Saskatchewan River. The electrical power utility is among the fastest growing industries in the economy.

Heater

Since the first quarter of 1961 to the present, five industry groups have advanced more slowly than during the period from the fourth quarter of 1957 to the first quarter of 1960. One of these was electric power and gas utilities, which nevertheless was still among the fastest growing industry groups in the economy. The average quarterly rate of increase of mining was marginally lower than in the 1957-60 expansion. The deceleration in both electric power and gas utilities and mining appeared to be a phenomenon which brought the rate of growth of these two industries more in balance with that of the economy as a whole. Both industries had experienced exceptional expansionary pressures during the earlier postwar years. Canadian mines were stimulated by a strong world-wide demand for their products, while a vast network of hydroelectric projects was needed to supply a growing population and an increasing industrialization. In addition, the tapping of Canada's natural gas resources in the western provinces, coupled with the construction of the trans-Canada pipelines, made it possible to use gas in the heavily populated urban areas of central Canada. All these developments had started from a relatively small base, and required large-scale capital investments which reached a peak in the 1955-58 period. The result was a surge in the output of the industry concerned as each new project became operational. These industries are strongly affected by technological innovations and change. But once these changes have been made, it is not surprising to see a gradual easing in the rate of growth.

inflow together with a current account surplus of \$227 million and \$119 million allocation of special drawing rights produced an increase in Canada's net official monetary assets of \$896 million.

A decrease in the sale of new Canadian securities abroad and very large retirements of Canadian securities held by non-residents were major factors in reducing long-term capital inflows. Other significant items were an increase in financial advances under loan aid programs by the government of Canada in the fourth quarter and an increasing volume of export credits, directly or indirectly at the risk of the government of Canada over the year. Partially offsetting transactions having the opposite effect on the long-term capital balance were large inflows of foreign direct investment in Canada during the first and fourth quarters and relatively large net sales of foreign securities by Canadians in each quarter of the year.

Canada's net official monetary assets totalled US \$5,570 million at December 31, 1971, an increase of US \$891 million in the course of the year. The increase in reserves, of US \$578 million, in the fourth quarter was the largest since the second quarter of 1970 when the Minister of Finance announced that the Canadian dollar would no longer be pegged to within 1 per cent of its par value of US \$0.925. The increase in Canada's official holdings of United States dollars resulted on balance from purchases of foreign exchange in the last quarter of the year when an unusual degree of uncertainty existed in the exchange markets.

Bodington

Metal from the smelter at Trail, B.C., on the docks at New Westminster, awaiting shipment abroad.



Capital Movements. Capital movements between Canada and other countries in 1971 produced a net inflow of \$550 million, an increase of \$80 million over 1970. Inflows of capital in long-term forms declined \$260 million from 1970 levels to \$478 million, while short-term capital movements led to an inflow of \$72 million, a change of \$340 million from a 1970 net outflow of \$268 million. The net capital

**Canadian Balance of International Payments
1969-71**

Item	Between Canada and All Countries			Between Canada and U.S.		
	1969	1970p	1971p	1969	1970p	1971p
Millions of dollars						
Current account						
Current receipts:						
Merchandise exports	14,832	16,750	17,746	10,463	10,859	12,003
Services:						
Gold production available for export	108	96	90	...	...	...
Travel expenditures	1,074	1,234	1,296	961	1,082	1,147
Interest and dividends	451	526	545	260	330	350
Freight and shipping	935	1,121	1,170	523	561	615
Other service receipts	1,262	1,382	1,339	743	762	678
Transfer receipts	461	496	543	209	231	252
Total current receipts	19,123	21,605	22,729	13,159	13,825	15,045
Current payments:						
Merchandise imports	14,007	13,833	15,552	10,127	9,806	10,903
Services:						
Travel expenditures	1,292	1,460	1,497	893	936	930
Interest and dividends	1,366	1,523	1,613	1,143	1,275	1,365
Freight and shipping	996	1,084	1,147	562	569	604
Other service payments	1,862	2,014	2,068	1,242	1,359	1,442
Transfer payments	552	611	625	177	167	169
Total current payments	20,075	20,545	22,502	14,144	14,112	15,413
Current account balance	-952	+1,060	+227	-985	-287	-368
Capital account						
Direct investment:						
In Canada	+720	+770	+905	+564	+573	+599
Abroad	-370	-280	-315	-287	-217	-179
Portfolio transactions:						
Canadian securities:						
Outstanding issues	+55	-186	-251	-25	-148	-126
New issues	+2,089	+1,219	+1,170	+1,502	+1,024	+886
Retirements	-440	-483	-728	-382	-325	-581
Foreign securities:						
Outstanding issues	+112	+83	+243	+112	+75	+255
New issues	-47	-32	-57	-30	-18	-22
Retirements	+37	+10	+10	+7	+5	+5
Other long-term capital transactions	-51	-363	-499	+26	-72	-122
Net long-term capital transactions	+2,105	+738	+478	+1,487	+897	+715
Net short-term capital transactions	-1,088	-268	+72	-348	+19	+832
Net capital balance	+1,017	+470	+550	+1,139	+916	+1,547
Balance settled by exchange transfers	-	-	-	-366	+823	..
Allocation of Special Drawing Rights	...	+133	+119	...	...	...
Net official monetary assets	+65	+1,663	+896	-212	+1,452	..

.. Not available.

... Not applicable.

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Canada

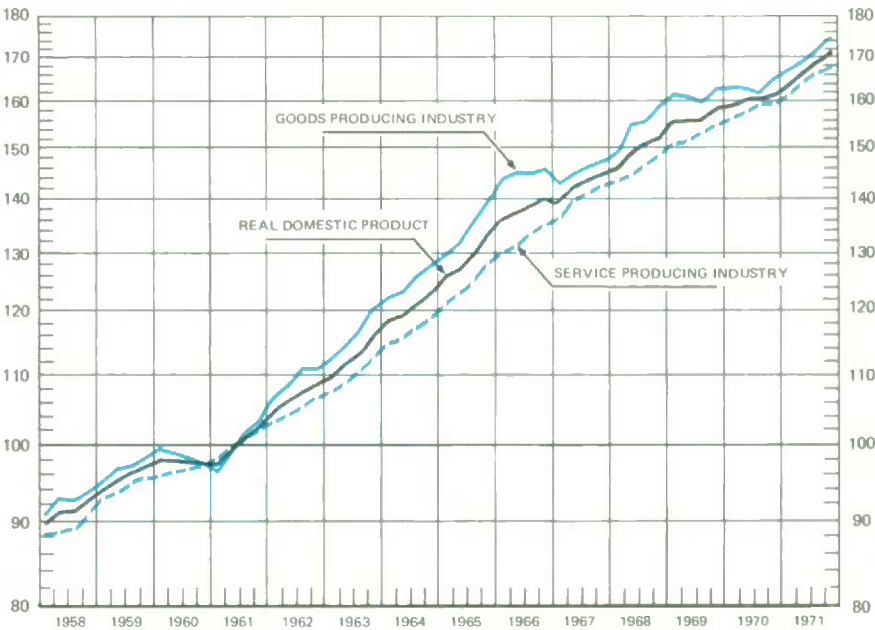
SCALE 1:20,900,000 OR ONE INCH TO 330 MILES
MILES 100 200 300 400 500
KILOMETRES 100 200 300 400 500
Federal Capital ● Provincial Capital *



The explanation for the slower average quarterly growth rate to date in forestry in contrast to the 1957-60 period is to be found in the substantially depressed level of output in this industry by the end of 1957. The high levels of output during the earlier part of the 1950's had resulted in over-production and inventory accumulation. This, coupled with a drop in domestic and foreign prices during 1957, resulted in a sharp drop in output during that year.

The following chart illustrates the growth since 1957 in total real domestic product with a breakdown of the goods-producing and service-producing sectors. Since 1961 within the goods-producing industries, the durable manufacturing component has provided a prime thrust. The major factor behind this advance in the output of durables was the unprecedented increase in the production of motor vehicles and motor-vehicle parts, which by the end of 1971 had increased by 336 and 198 per cent, respectively, from the first quarter of 1961. Except for production stoppages due to labour disputes, motor-vehicle production advanced without major interruption until the second quarter of 1966 when output declined significantly. By the second quarter of 1967, motor-vehicle production had recovered from the 1966 setback with renewed vigour. The temporary decline in production of this industry, in both Canada and the United States, has been variously related to changes in economic conditions in North America generally, and particularly to the tightening of monetary conditions, and the upward drift of

**Real Domestic Product, by Industry, by Quarters, Index 1961 = 100,
Adjusted for Seasonal Variation**





At the push of a button, the automatic pivoting pillar buck—or "Monster" as it is called—instantly applies 135 welds to sub-assemblies and forms a new automobile body.

Ford Motor Co. of Can.

prices. In addition, public concern about car safety has also been mentioned as a factor in the decline of car sales. Clearly, none of these factors offers a unique explanation. By the second quarter of 1967, improved consumers' confidence and liquidity had increased and a buoyant export market encouraged an increased production of motor vehicles. However, since 1968, various inhibiting factors such as strikes and shortages of parts have directly or indirectly checked motor-vehicle production. Production slumped sharply in 1970 in response to the softening in consumer demand and growing popularity of overseas manufactured vehicles reinforced by the impact of the automobile strike, an explanation for the first annual decline in total manufacturing output since 1958 and for the first annual standstill in the volume of retail trade since 1951. However, in 1971, motor vehicle production recovered to its 1969 level. The iron and steel industry has been another major contributor to industrial growth since 1961, increasing by 112 per cent since the first quarter of 1961. By 1965, however, it was operating at full capacity and thus this industry as well experienced some levelling off during 1966 and 1967. Since the end of 1967, the industry has made solid gains, if one deducts the direct or indirect negative effects of time lost in labour disputes in the latter part of 1969 and in 1970. This strong expansion continued through 1971 when output increased by 9 per cent between the first and the fourth quarters.

The increase in the volume of construction has been a notable feature of industrial growth since 1961, despite strikes in 1969 and 1970. This activity first sur-

passed its 1958 peak in 1962. In the intervening period, the output of the construction industry had hovered around its 1957 level, as the industry failed to recapture the momentum of the investment boom of the mid-1950's. Large-scale new investments both in social and industrial capital were made, however, during the mid-1960's. These investments reached a new high for that time in the first quarter of 1966. Large-scale investments in such industries as chemicals, pulp and paper, and in hydroelectric power development during the mid-1960's provided a boost to non-residential construction, as did the massive investments in social capital such as hospitals and particularly schools, which had to be built to accommodate the rapidly increasing school population. Construction activity was also spurred by projects commemorating Canada's Centennial in 1967 and by outlays for Expo 67. However, at this high level of activity, certain segments of the industry in some regions were straining against their available resources. Early in 1967, non-residential construction backed off from the rapid pace in 1966. The combination of strikes, scarce and costly funds, increasing costs, as well as the June 1969 deferral of capital-cost allowances on commercial projects in three provinces have all contributed to the levelling off of output in this sector.

The growing demand for housing, stimulated by the influx of people from rural areas and immigrants from abroad into the larger urban centres, and to some extent by the entry into the labour and housing markets of the first waves of the "baby boom" of the mid-1940's, resulted in a considerable expansion in residential construction, particularly during 1964 and in 1969, when house-building activity set new records. With this went a new emphasis on the construction of multiple-dwelling units. The rate of housing starts peaked early in 1969 and continued sliding until the final quarter of 1970, reflecting scarcity of mortgage funds.

Bodington

The new high school at Hay River, N.W.T.





The style of "Habitat" in Montreal is still architecturally advanced.

rising interest rates, and construction costs. The easing on the supply side was directly evident in the sharp increase in residential construction activity in the closing quarter of 1970 which continued in 1971.

Throughout the 1961-71 period, the service-producing industries have been a significant source of increases in the aggregate output of the Canadian economy. Transportation, trade, and the community, business, and personal service industry groups all experienced above-average quarterly growth rates. Over the period as a whole, railway transport has contributed the major share of the gains in transportation, although the output of the air, pipeline, and inter-urban and rural bus transport industries grew more rapidly. In general, transportation played a vital role in meeting Canada's large and growing export commitments. This was clearly indicated by the upsurge in activity of the rail and water transport industries at the height of the grain deliveries to overseas countries during 1963 and 1964. In 1966 and 1969, critical components of the transportation group were severely affected directly and indirectly by strikes. 1970, however, was relatively unmarred by serious labour difficulties and the transportation group during the first part of the year advanced to a level well above strike-depressed 1969, led by air and pipeline transport. By the end of 1971 transportation output had nearly doubled from its 1961 level.

In summary, the Canadian economy since 1961 has experienced a period of reasonably sustained economic advance. Over the period as a whole, the vital manufacturing sector of the economy has exhibited strength, with increasing industrial diversification. Foreign demand for Canadian commodities remained high, with the result that exports increased their share of total output, particularly during 1970. Despite some weakening during 1970, consumer demand since 1961 has provided strong support for the gains in aggregate output. After a period of indecisive gains and losses extending through 1969 and part of 1970, over-all industrial output since the end of 1970 has shown renewed strength.

Natural Wealth

Agriculture

Although Canada has changed from a predominantly rural, agricultural country to one that is largely urban and industrial, agriculture remains an important part of the scene, accounting for more than 25 per cent of the country's economic activity.

The total investment in Canadian agriculture amounts to more than \$23,000 million, with about 68 per cent of it in real estate, 19 per cent in machinery, and 13 per cent in livestock and poultry. Export of agricultural products is an important source of foreign exchange for Canada, the fourth largest exporter of farm products in the world. In 1971, agricultural exports amounted to a record \$1,980 million — about 11 per cent of the value of the country's total exports that year.

In terms of employment, agriculture continues to be the leading primary industry in Canada, ranking ahead of forestry, fishing, mining, and oil wells. In 1971, more than twice as many workers were engaged in agriculture as in all the other primary industries combined.

The past decade, however, has seen farm workers and farms declining in number. From 681,000 in 1961, the number of farm workers was down to 510,000 in 1971. There were 481,000 farms in Canada in 1961, 431,000 in 1966, and a projection of the rate of decline to 1980 indicates that the number will be down to 315,000 by that year.

While the numbers of workers and farms have been shrinking, farm size, capital investment, and mechanization have been growing and the result has been rising productivity. Since the beginning of the 1960's, agricultural productivity, or net output per man, has been rising at an average annual rate of 4.8 per cent, compared to 2.6 per cent for non-agricultural commercial industries. It is estimated that one farmer today can feed 40 people from his farming efforts — eight times as many as a farmer of the early 1900's could feed.

Family farms dominate the agricultural picture in Canada. Some of these are incorporated, some are partnerships, but most are individually owned and operated. As farms have become fewer and larger, many farmers have rented additional land, and some farmers rent all the land they farm. Of the 174 million acres of land being farmed today, 76 per cent is owned by farm operators and 24 per cent is rented. Less than one Canadian farm in 100 is under hired management.

The cultivated area of a farm is usually limited to whatever size the family can manage, but some farmers have hired help. On a farm specializing in crops such as fruits or vegetables, the acreage is small but the labour requirements tend to be high. On a mechanized grain farm on the Prairies, a farmer may work 1,000 acres or more but the total labour requirement is low.

Though 80 per cent of the country's farmland lies in western Canada, farming is carried on in all provinces and even in some parts of the Yukon and Northwest Territories.

There are five main types of farms: dairy, livestock (excluding dairy), grain, combination grain and livestock, and special crops. Farms specializing in general livestock production are found mainly in Alberta and Ontario, and to a lesser extent in Quebec and Saskatchewan. Quebec and Ontario have the most dairy farms, but half

Malak (missing)



A field of corn on a prosperous farm in Ontario.

of Nova Scotia's farms are in dairying. General grain farms with such crops as wheat, rapeseed, oats, barley, and flax are found mostly in Saskatchewan, Alberta, and Manitoba and these provinces also have the most farms engaged in a combination of grain and livestock production. Ontario has the most special-crop farms — those that gain most of their revenue from vegetables, fruits, potatoes, other root crops, and tobacco — with Quebec second and British Columbia third.

Agriculture benefits the country in other ways than simply providing sufficient food for the population's needs and as a source of foreign exchange from sales abroad. The processing of farm products and the manufacture of farm machinery, feeds, and fertilizers contribute to industrial employment in Canada, and thousands of jobs at the retail level depend on the sale of agricultural products and supplies. At the same time, farm customers provide an important marketing area for producers of petroleum products, building materials, electric power, and other products.

Field Crops. Wheat, oats, barley, rapeseed, flaxseed, and rye are the major field crops of the Prairie Provinces. The major wheat-producing area of the region is the southwest corner of Manitoba, central and southern Saskatchewan, and the southeastern part of Alberta. Production of coarse grains and oilseeds tends to be concentrated in the more northerly districts where soil moisture levels are higher and the growing season is shorter.

Prairie farmers in recent years have been faced with the problem of having to modify their traditional production patterns in favour of others better suited to prevailing market conditions. Canada's reliance on exports to market the bulk of its wheat production, combined with declining demand in the international wheat market, has prompted sizable reductions in wheat acreage over the past few years from record acreages of 29 and 30 million in the late 1960's. In 1969, following a year of reduced marketings and increasing stocks, the wheat acreage fell to 25 million. However, heavy yields resulted in a larger crop than in the year before and stocks rose sharply again. In the spring of 1970, the federal government implemented "Operation Lift" — a one-year program designed to reduce wheat inventories by diverting cropland from wheat to summerfallow or forage crops. As a result, the total wheat acreage was reduced to approximately 12.5 million acres in 1970 — half that of the previous year.

Efforts are continuing to encourage a switch from grains by prairie farmers. The federal government in 1971 unveiled a 3-year, \$40,000,000 program under which prairie grain growers would receive \$10 an acre to switch grain crop and summerfallow acreage into forage production. Wheat acreage in 1971 was 19 million, third lowest since 1920. The two years of lower production, coupled with a high level of marketings, have made sizable reductions in Canada's wheat surplus.

Many western Canadian farmers have turned to coarse grains and oilseed crops as

*E. Bolk
Can. Govt. Travel Bureau*

Wheat on a farm in Grande Prairie, Alta.



alternatives to wheat production. Increasing world demand for edible oils has favoured rapeseed production in Canada, particularly of the low erucic varieties developed by the Research Branch of the Canada Department of Agriculture. Canada today ranks as the world's biggest producer and exporter of rapeseed. In 1971, rapeseed exports amounted to 50,754,000 bushels and had a value of \$148,211,000; the previous year's exports totalled 28,030,000 bushels with a value of \$79,009,000.

Flaxseed production rose from 9 million bushels in 1967 to 48.9 million in 1970 before falling back to 25.7 million in 1971. The post-1967 increase in production came at a time when the world demand for flaxseed as a source of industrial linseed oil began falling off. Meantime, flaxseed has found a new — although somewhat limited — market in Europe where it is being used for livestock feeding. The build-up of flaxseed stocks that occurred in the past few years is declining somewhat and the expected relatively low level of production in the main producing countries — Argentina, the United States, and Canada — could bring the industry into a healthier position by the end of the 1972-73 crop year.

Barley production is increasing on the Prairies. The region's acreage of this crop in 1971 amounted to 14.6 million acres, an increase of 50 per cent over the 1970 acreage. The gain reflects a combination of a sharp increase in the export demand and a continuation of the growing domestic demand that has been under way for some years for barley for feed.

Field crops outside the prairie region reflect the emphasis on providing livestock feeds for local consumption, thus a large proportion of land is devoted to forage crops, pasture, and mixed grains. In addition, a steadily increasing volume of corn is being grown for feed.

Potatoes are an important cash crop in Prince Edward Island and New Brunswick, and in Ontario soybean crops contribute to Canada's supply of edible vegetable oil.

Malak

Potatoes are sprayed on a farm in Prince Edward Island.





Saling alfalfa at Brooks, Alta.

Brodington

Estimated Area, Yield, and Production of Principal Field Crops, 1970 and 1971

Crop	Area in Acres		Yield per Acre in Bushels		Production in Bushels	
	1970	1971	1970	1971 ¹	1970	1971 ¹
Winter wheat	355,000	339,000	43.9	41.3	15,584,000	14,001,000
Spring wheat ²	12,129,000	18,889,000	26.0	27.0	315,935,000	509,692,000
All wheat	12,484,000	19,228,000	26.6	27.2	331,519,000	523,693,000
Oats for grain	7,149,000	7,110,000 ^r	51.5	53.0	367,850,000	377,154,000
Barley	10,042,900	15,206,500	41.4	43.1	415,704,000	654,822,000
Fall rye	875,700	972,000	22.6	23.2	19,800,000	22,535,000
Spring rye	139,000	124,000	18.9	18.0	2,627,000	2,228,000
All rye	1,014,700	1,096,000	22.1	22.6	22,427,000	24,763,000
Flaxseed	3,368,300	2,010,500	14.5	12.8	48,932,000	25,659,000
Mixed grains	1,939,800	1,988,600	50.8	51.7	98,573,000	102,792,000
Corn for grain	1,196,900	1,335,000	84.3	81.0	100,925,000	108,118,000
Buckwheat	151,800	103,400	18.7	20.6	2,833,000	2,125,000
Peas, dry	86,400	75,900	18.9	24.2	1,631,000	1,833,000
Beans, dry	82,000	95,100	22.6	25.7	1,857,000	2,444,000
Soybeans	335,000	360,000	31.0	28.0	10,385,000	10,080,000
Rapeseed	4,050,000	5,475,000	17.8	18.0	72,200,000	98,500,000
<hr/>						
Potatoes	319,900	312,800 ^r	172.4 lb.	174.4 lb.	55,138,000 lb.	54,537,000 lb.
Mustard seed	200,000	265,000	940	886	187,900,000	234,750,000
Sunflower seed	70,500	215,000	785 tons	708 tons	55,350,000 tons	152,250,000 tons
Tame hay	13,620,000	13,868,000	2.08	2.00	28,266,000	27,770,000
Fodder corn	701,300	696,000	13.54	13.44	9,496,000	9,357,000
Field roots	9,700	10,300	12.99	13.40	126,000	138,000
Sugar beets	68,771	81,045 ^r	13.33	15.00	916,906	1,216,000

¹As indicated on the basis of conditions on or about October 20.

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

^rRevised figures.



The apple is still the most important fruit grown in Canada.

Malak (missing)

Fruits and Vegetables. The fruit and vegetable industry is an important part of the agricultural and food distribution sectors of the economy. Fresh and processed fruits and vegetables account for more than one third of the quantity of all food consumed in Canada and one sixth of the value of food consumed. There are over 25 fruit and vegetable crops (potatoes excluded) grown commercially in Canada with an annual farm value of almost 200 million dollars.

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

In addition to tree fruits, strawberries and raspberries are cultivated commer-

cially in the Maritimes, Quebec, Ontario, and British Columbia. British Columbia fruit growers also produce loganberries commercially in the Lower Mainland and on Vancouver Island. Grapes also are grown quite extensively in the Niagara district of Ontario and on a smaller scale in British Columbia. The native blueberry is found wild over large areas in Canada and is harvested in commercial quantities in the Atlantic Provinces, Quebec, and Ontario. A cultivated crop is grown in British Columbia.

The production of field-grown vegetables in Canada is seasonal. During the winter when no domestic vegetables are being harvested, except in greenhouses, supplies of most fresh vegetables are imported duty free from the United States. During our growing season a large percentage of the domestic requirements are met from Canadian output. Some vegetables are exported from Canada, particularly to a few large centres of population in the United States, close to the border.

From the point of view of income, potatoes are the most important of the vegetables produced in Canada. They account for almost two thirds of the value of all vegetable production and about 3 per cent of Canadian cash farm income. Production slightly exceeds consumption and normally about 5 per cent is exported. The processing industry plays an important part in the marketing of Canadian-grown fruits and vegetables. Over the years factories have been built in most of the important growing regions and considerable proportions of fruit and vegetable crops are canned, frozen or otherwise processed each season, especially asparagus, beans, peas, corn, and tomatoes. In recent years the importance of freezing has been increasing although the amount of produce processed in this way is still much smaller than the volume canned. Most of the vegetables for processing are grown under a system whereby the processor contracts annually with each grower for certain acreages.

The output of frozen cherries and berries has increased significantly in recent years and this trend will likely continue as improvements are made in technology, promotion, distribution, and retail storage facilities. However, the processing of canned tender tree fruits has declined considerably and imports have increased rapidly. Over the past 25 years the tonnage and value of exported vegetables has varied considerably but there is a slight upward trend. However, in the same period vegetable imports have doubled, while their value has increased from \$25 million to approximately \$125 million. The volume of fruit exports during the last 25 years has remained relatively constant with slight value increases; however, fruit tonnage imports have doubled. Canada imports ten times the value of its exported fruits.

Livestock. Preliminary estimates for 1971 indicate that total cash receipts from farm produce were \$4,467 million of which \$2,661 million (60 per cent) came from livestock and animal products, a decrease from 63 per cent in 1970. Cattle (including calves) and pig sales in 1971 amounted to \$1,071 million and \$431 million respectively. This represents 24 and 10 per cent of total cash receipts. Cash receipts from the sale of sheep and lambs in 1971 increased to about \$8.7 million from about \$8.0 million in 1970.

Cattle. On June 1, 1971, the number of cattle and calves on farms in Canada (not including Newfoundland which had 8,554 head at the time of the June 1, 1966 census) was estimated at 13,660,000 head, up 5 per cent from 13,060,000 at June 1, 1970 and 7 per cent above the 1965-69 average. This also represents a record high for this time of year and is 3 per cent above the previous high of 13,260,000 in 1965. The number of milk cows and dairy heifers decreased, continuing the downward trend which began in 1962. Beef cows, estimated at 3,398,500 head increased by 10 per cent over a year earlier. There was an increase in all provinces except Prince Edward Island. It should also be noted that beef cows, beef heifers, steers, and calves showed increases in 1971 over the year previous and the estimates represent all time highs. Inspected slaughter of cattle in 1971 amounted to 2,786,908 up 3 per cent from 1970 while calf slaughter at 464,240 decreased by 7 per cent from a year earlier. It is expected that rapid increases in the number of beef cows since 1969 will be brought out in cattle slaughterings in 1972 and 1973.

Exports of slaughter cattle (200 lbs. and more) in 1971 amounted to 11,346, down 35 per cent from 1970, whereas feeder cattle (200 lbs. and more) increased by 102 per cent from 7,507 in 1970 to 15,130 in 1971. Calf exports to the United States numbered 108,800, a decrease of 7 per cent from a year earlier. Total imports of Oceanic beef in 1971 (figures produced by the Canadian Cattlemen's Association) were approximately 33 per cent below comparable figures for 1970.

Possible reasons for reduced imports from Australia and New Zealand in 1971 are these: (1) Australia has suffered severe, widespread drought which has resulted in reduced production; (2) in both Australia and New Zealand herds are expanding which in turn reduces, temporarily, the available supply; (3) in 1971 both

Malak

Rounding up cattle in Saskatchewan.



Australia and New Zealand sought to find and open new and expanded markets outside North America.

Imports of Beef

	Australia	New Zealand	U.S.A.	Total
	Millions of pounds			
1970	50.2	72.7	5.8	128.7
1971	22.1	60.3	17.4	99.8
% Change	-56%	-17%	+195%	-22%
	-33%			

The Canada Department of Agriculture reports that the weighted average price per hundredweight of choice slaughter steers at Toronto for 1971 was \$34.30 over the value of \$32.25 in 1970. The weighted average price for good feeder steers was \$34.15 in 1971 and \$33.95 in 1970. These prices were well above the 5-year averages (1966-70) of \$29.55 and \$30.10. Choice and good veal calves averaged \$40.05 in 1971 and \$40.00 in 1970. The five-year average was \$37.00.

Pigs. On June 1, 1970, pigs on farms in Canada (not including Newfoundland which had 7,307 at the June 1, 1966, census) numbered 7,374,000, up 4 per cent from June 1, 1970. This figure exceeds the five-year (1965-69) average by 32 per cent but is still below the record high of 7,413,000 in 1943. Poor international grain markets along with low hog prices caused farmers to hold their pigs and use their grain. Pig carcasses graded in 1971 numbered 10,113,281 according to the Canada Department of Agriculture; this was a 17 per cent increase over 1970. The increased slaughter lowered prices, making the weighted, average price at Toronto \$25.80 per hundredweight for Index 100 hogs, a drop from \$32.20 in 1970 and \$35.70 in 1969. The lowered prices, however, boosted exports of both pork and live pigs. Exports of pork increased by 40 per cent from 70,550,548 in 1970 to 98,777,216 in 1971. Export of live pigs increased by 10 per cent to 67,649.

Sheep. The sheep and lamb population of Canada (not including Newfoundland, which had 14,381 at June 1, 1966) increased by 11 per cent from 898,000 in 1970 to 997,500 in 1971. This continues an upward trend started in 1970. The West showed a remarkable increase of 19 per cent; the East had an increase of only 2 per cent. The breeding flock of sheep one year old and over increased by 11 per cent. Inspected slaughter of sheep and lambs in 1971 was 205,032 while there was an inspected slaughter of 181,332 in 1970 and 212,751 in 1969. Exports of sheep and lambs dropped by 13 per cent from 6,649 in 1970 to 5,780 in 1971 according to "Trade of Canada Numbers." Imports of live animals increased from 28,121 in 1970 to 37,412 in 1971. This increase was due entirely to an increase in imports from the United States. Imports of mutton and lamb decreased by 38 per cent from 70,010,600 lbs. in 1970 to 43,675,500 lbs. in 1971. The weighted average price for good lambs at Toronto was \$30.65 per hundredweight in 1971, down from \$33.65 in 1970 but up from the 1966-70 average of \$29.85.

Estimated Meat Production and Disappearance, 1969 and 1970

	1969	1970	1969	1970
	<u>Beef</u>		<u>Veal</u>	
Animals slaughtered No.	3,254,600	3,220,800	903,500	823,000
Meat exports '000 lb.	82,812	118,723	3,529	6,024
Meat production '000 lb.	1,801,347	1,805,823	107,619	97,068
Domestic disappearance '000 lb.	1,843,850 ^f	1,809,489	106,585	96,286
Per capita consumption lb.	87.4 ^f	84.5	5.1	4.5
	<u>Pork</u>		<u>Mutton and Lamb</u>	
Animals slaughtered No.	8,730,100	10,092,600	413,000	363,800
Meat exported '000 lb.	56,655	71,287	690	635
Meat production '000 lb.	1,134,496	1,328,114	18,081	16,016
Domestic disappearance '000 lb.	1,093,618	1,184,003	84,307	75,727
Per capita consumption lb.	51.9	55.3	4.0	3.5
	<u>Offal</u>		<u>Canned Meat</u>	
Production '000 lb.	115,560	121,267	132,405	147,316
Domestic disappearance '000 lb.	81,965	72,723	159,106	168,568
Per capita consumption lb.	4.0	3.4	7.5	7.9

^fRevised.

Per Capita Disappearance of Meats on a Cold Dressed Carcass Weight Basis

Year	Beef	Veal	Mutton and Lamb	Pork	Offal	Canned Meat	Total
	Pounds						
1935	53.6	9.8	6.0	39.3	5.5	1.5	115.7
1940	54.5	10.8	4.5	44.7	5.5	1.3	121.3
1945	65.4	12.4	4.3	52.8	5.6	3.3	143.8
1950	50.8	9.4	2.2	55.0	4.9	5.1	127.4
1955	69.1	8.4	2.6	49.2	5.3	4.2	138.8
1960	70.0	6.9	2.9	52.6	4.8	6.4	143.6
1966	84.2	7.0	3.4	46.9	3.6	4.2	149.3
1967	84.0	7.2	3.6	53.8	3.9	4.7	157.2
1968	86.5	6.4	4.2	53.6	3.8	4.7	159.2
1969	87.4 ^f	5.1	4.0	51.9	4.0	4.6	157.0
1970	85.6	4.4	3.7	56.9	3.4	4.7	158.7

^fRevised.

Dairying. Milk is produced in every province of the country. According to estimates of June 1, 1970, there were 2.6 million milk cows producing a total of 18.3 thousand million pounds of milk during that year.

Although milk was produced throughout the country, production was more concentrated in some provinces than in others. The provinces of Quebec and Ontario produced 73 per cent of the country's milk supply in 1970. In general, milk production tends to be concentrated in the more densely populated regions.

Approximately 63 per cent of the total milk supply was used in the manufacture of dairy products. The most important dairy products were butter, cheese, other concentrated milk products, and ice cream mix. In 1970, of the dairy products 42

Milk Production and Utilization, Canada, by Regions
1968-70

Region	Year	Total Milk Production	Milk Used for Dairy Factory Products	Fluid Milk Sales	Milk Used on Farms
Thousands of pounds					
Maritimes	1968	828,752	371,176	363,619	93,957
	1969	852,582	404,959	354,322	93,301
	1970	826,966	384,009	355,332	87,625
Quebec and Ontario	1968	13,386,760	9,087,426	3,453,082	846,252
	1969	13,801,236	9,555,626	3,415,180	830,430
	1970	13,332,589	9,048,283	3,472,174	812,132
Prairies	1968	3,218,196	1,815,463	790,521	612,212
	1969	3,150,315	1,760,925	788,332	601,058
	1970	3,169,599	1,769,525	809,919	590,155
British Columbia	1968	927,874	355,524	522,166	50,184
	1969	907,249	327,108	529,997	50,144
	1970	949,357	336,080	562,877	50,400
Totals, Canada	1968	18,361,582	11,629,589	5,129,388	1,602,605
	1969	18,711,382	12,048,618	5,087,831	1,574,933
	1970	18,278,511	11,537,897	5,200,302	1,540,312

Heater

Holstein-Friesian cattle on a farm near Windsor, Que.



per cent was used in the manufacture of creamery butter, 13 per cent for cheese, and 8 per cent for concentrated milk products, including ice cream mix. Fluid milk sales accounted for about 28 per cent and farm use accounted for the balance. The latter implies milk fed to livestock, farm home consumption, and the making of farm butter.

There are fewer and bigger dairy farms than a decade ago. Using the census years of 1956, 1961 and 1966, there were respectively 399,000, 309,000 and 222,000 farms reporting milk cows, and 33,000, 38,000 and 39,000 farms with herds of 18 to 32 cows.

The principal dairy breeds in Canada are: Holstein, Ayreshire, Guernsey, and Jersey. In addition, a considerable amount of milk comes from dual-purpose breeds.

During 1970, the farm value of milk production was approximately \$742 million. The farm value of milk used in factories was \$366 million, and that for fluid sales \$314 million.

Poultry and Eggs. The poultry industry has changed over the years; formerly many farmers raised a few hens and now a few farmers raise thousands of hens. Along with the change in numbers there have been advances in breeding, housing, and disease control. An excellent example of disease control is the introduction of Marek's vaccine. This vaccine is still in its preliminary testing stage but has reduced loss due to Marek's disease, in test flocks, from 80 to 100 per cent.

The seasonal variations in the number of eggs reaching market have largely disappeared, as the vagaries of climate have been eliminated and as poultry farms have been built in the neighbourhood of large cities such as Montreal, Toronto, Winnipeg, and Vancouver. Other districts where egg production and broiler production are concentrated are the Annapolis Valley of Nova Scotia, Moncton in New Brunswick, and south-western Ontario. Eggs and poultry are marketed under firm standards applied uniformly from coast to coast by the federal government's inspection service.

Summary of Supply and Disposition of Poultry Meat and Eggs in Canada, 1970

	Total Poultry Meat	Fowl	Chicken	Turkey	Goose	Duck	Eggs
	Thousand pounds eviscerated weight						'000 doz.
Stocks at January 1	51,009	3,205	20,511	26,545	235	513	2,237
Production	980,161	83,157	662,604	225,307	3,661	5,432	495,650
Imports	4,655	1,367	1,720	277	—	1,291	12,586
Total supply	1,035,825	87,729	684,835	252,129	3,896	7,236	510,473
Exports	7,271	—	2,059	5,192	1	19	7,062
Stocks at December 31	70,104	6,401	30,434	32,230	392	647	5,801
Eggs used for hatching	...	...	...	...	...	...	30,945
Domestic Disappearance	958,450	81,328	652,342	214,707	3,503	6,570	466,665
			pounds				dozen
Per Capita	44.8	3.8	30.5	10.0	0.16	0.31	21.8

...Figures not applicable.



White turkeys on a farm near Exeter, Ont.

Hen (missing)

Furs. Fur trading led to the early colonization of Canada. The first explorers returning to the Old World carried with them the pelts of fur-bearing animals obtained from Indian trappers. The desire to gain control of this trade led to the formation of companies and associations which, in return for certain privileges in the trade, agreed to promote colonization in the new country. The first company chartered to trade in furs was formed by a number of merchants of France in 1603. Exploration of the northern and western parts of Canada showed that the territory abounded in wildlife, and in 1670 an English company – the Hudson's Bay Company – was chartered to trade in furs, and built its first trading post on Hudson Bay. Other posts were soon erected and their establishment was continued until their locations extended to the Pacific. The first Canadian company to trade in furs was formed by a number of Montreal merchants in 1783. In 1821 all fur-trading companies of British North America were united under the Hudson's Bay Company.

Furs are sorted and inspected at an auction in North Bay, Ont.

Patterson



Fur statistics have been collected and published annually since 1920. For the 1970-71 fur season the reported harvest of pelts was 4,486,259, less than the 5,140,230 for the 1969-70 season, while the value decreased to \$27,442,442 from \$34,246,942. The value of wildlife pelts sold during the 1970-71 season amounted to \$12,983,661 or 47.3 per cent of the total value. The value of pelts produced by fur farms decreased to \$14,458,781 from \$18,687,262. The value of mink pelt sales was well below the 1965-66 peak of \$29,505,450.

The value of undressed furs exported during the 1970-71 season decreased to \$26,247,000 from \$28,784,000 in the previous season. Imports increased to \$21,095,000 in 1970-71 from \$18,696,000 for 1969-70.

Number and Value of Pelts Produced, by Kind, 1970-71

Kind	Number	Value	Average Value	Average Value 1966-71
	Dollars			
Wildlife				
Badger	2,014	20,900	10.38	9.74
Bear				
Black or brown	2,007	39,784	19.82	24.08
Grizzly	14	980	70.00	81.89
White	361	77,824	215.58	171.43
Beaver	355,379	4,461,127	12.55	14.67
Cougar	3	81	27.00	28.28
Coyote or prairie wolf	28,462	361,385	12.70	10.51
Ermine (weasel)	48,233	27,453	0.57	0.82
Fisher	6,637	176,452	26.59	17.80
Fox				
Blue	83	969	11.67	12.69
Cross and red	34,744	409,616	11.79	9.92
Silver	316	4,793	15.17	16.30
White	26,218	322,613	12.30	14.00
Not specified	13	156	12.00	11.16
Lynx	42,365	1,157,606	27.32	28.27
Marten	52,312	413,317	7.90	8.32
Mink	67,378	527,497	7.83	11.03
Muskrat	1,572,885	2,110,101	1.34	1.15
Otter	15,654	435,434	27.82	23.89
Rabbit	26,460	12,268	0.46	0.46
Raccoon	31,818	113,250	3.56	4.16
Seal				
Fur Seal	9,898	351,230	35.48	50.41
Hair Seal	185,126	1,677,904	9.06	7.75
Skunk	178	64	0.36	0.44
Squirrel	475,573	153,722	0.32	0.47
Wildcat	3,408	42,374	12.43	13.19
Wolf	2,475	49,576	20.03	22.28
Wolverine	596	35,185	59.04	38.62
Sub-total	2,990,610	12,983,661	...	...
Ranch-raised				
Fox	1,255	39,144	31.19	33.76
Mink	1,494,394	14,419,637	9.65	11.54
Sub-total	1,495,649	14,458,781	...	...
Total	4,486,259	27,442,442	...	...

...Figures not applicable.

Forestry

Canada's forests are among her greatest renewable resources. Stretching across the continent in an unbroken belt 600 to 1,300 miles wide, they provide raw material for the great lumber, pulp and paper, plywood, and other wood-using industries so vital to the country's economy. In addition, the forests of Canada control water run-off and prevent erosion, they shelter and sustain wildlife, and they offer unmatched opportunities for human recreation and enjoyment.

Productive forests—those capable of producing usable timber—cover nearly one million square miles. Total volume of wood in these forests is estimated at more than 750,000 million cubic feet. Four fifths of this wood is coniferous and one fifth is deciduous.

Three quarters of Canada's productive forest area is known as the Boreal Forest, stretching in a broad belt from the Atlantic coast westward and then northwest to Alaska. The forests of this region are predominantly coniferous, with spruce, balsam fir, and pine the most common species. Many deciduous trees are also found in the Boreal Forest; poplar and white birch are the most widespread.

The Great Lakes—St. Lawrence and Acadian regions are south of the boreal region. Here the forests are mixed, and many species are represented. Principal conifers are eastern white and red pine, eastern hemlock, spruce, cedar, and fir.

Crown Zellerbach

A 300-year-old Douglas fir, on the coast of British Columbia.





The main deciduous trees are yellow birch, maple, oak, and basswood.

Entirely different in character is the coastal region of British Columbia. Here the forests are coniferous, and because of a mild, humid climate and heavy rainfall, very large trees are common — 200 feet tall and more than six feet in diameter. This region contains less than 2 per cent of the country's forest area, but supplies almost one fourth of the wood cut. Principal species are cedar, hemlock, spruce, fir, and Douglas fir.

The coniferous forests of the mountainous regions of Alberta and the British Columbia interior are mixed; distribution and characteristics of species depend on local climate, which ranges from dry to very humid. Production in this area has expanded rapidly in recent years with the establishment of many new pulp mills.

The only true deciduous forests in Canada occupy a relatively small area in the southernmost part of Ontario, which is predominantly an agricultural district.

Ownership and Administration of Forests

Eighty per cent of Canada's productive forest land is publicly owned. Under the British North America Act, the various provincial governments were given the exclusive right to enact laws regarding management and sale of public lands within their boundaries, including the timber and wood on those lands. In the

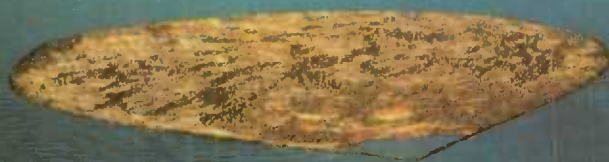
northern territories, which contain only about 8 per cent of the country's productive forest land, the forests are administered by the federal government.

For many years the policy of both the federal and provincial governments has been to retain in public ownership lands not required for agricultural purposes. In some of the older settled areas of Canada, however, a high proportion of land is privately owned, especially in the three Maritime Provinces, where nearly two thirds of the productive forest area is owned by individuals and companies. Thus, the administration and protection of most of Canada's productive forest area is vested in the various provincial governments, which make the forests available to private industry through long-term leasing and other arrangements.

Forest Industries

This group of industries accounted for approximately 17.7 per cent of all Canadian exports in 1971. It includes logging; the primary wood and paper manufacturing industries, using roundwood as their chief raw material; and the secondary wood and paper industries, using lumber, wood pulp, basic paper, and so on, as raw material to be converted into a host of different wood and paper products.

Hunter



Logging. The output of Canada's forests, in the form of saw-logs, veneer-logs, bolts, pulpwood, poles, and other roundwood, is estimated at 4,288 million cubic feet for 1970. This is slightly less than in 1969 (4,304 million cubic feet). British Columbia accounted for approximately 45 per cent of the total, followed by Quebec with 24 per cent and Ontario with 14 per cent. In the provinces east of the Rocky Mountains the production of roundwood decreased by 59 million cubic feet from the level of production reached in 1969. This was partly counterbalanced by a slight increase in production in British Columbia. Most of the roundwood for industrial use was processed at least to some extent in Canada. About 3 per cent was exported in the rough.

Mechanization of logging operations in eastern Canada appears to have levelled off and major new developments in this respect are not anticipated for the next few years. As a consequence labour productivity in logging is expected to increase less rapidly than it did in previous years. This is already apparent: the number of employees in the logging industry dropped by 2 per cent from 29,606 in 1969 to 28,930 in 1970 while the total production also dropped, if only slightly.

Sawmills and Planing Mills. This industry is particularly dependent upon the general economic condition of the country and on the state of foreign markets, particularly the market in the United States. As economic conditions in Canada and America improved somewhat, particularly because residential construction in both countries increased in the course of 1971, the lumber market improved considerably, both in price and volume. As a consequence, lumber production in Canada resumed its upward trend to reach a total of approximately 12,850 million board feet in 1971, an increase of 13 per cent over 1970 when production amounted to approximately 11,350 million board feet. The long-term trend towards increased size of individual sawmills and towards more complete automation is continuing, particularly in the interior of British Columbia, where the sawmill industry is becoming more and more integrated with the pulp and paper industry. The sawmill and planing mill industry provided 48,776 man-years of employment in 1970 and paid \$314,014,000 in salaries and wages. The total value of shipments of their products amounted to \$1,135,377,000 of which lumber accounted for \$925,358,000 and pulp-chips for \$124,863,000. The value of exports of lumber amounted to \$663,775,000 in 1970 and to \$829,437,000 in 1971.

Other Wood Industries

This group includes the shingle mills, veneer and plywood mills, and particleboard plants which, like the sawmills and pulp and paper mills, are primary wood industries. It also includes the secondary wood industries which further manufacture lumber, plywood, and particleboard into flooring, doors, sashes, laminated structures, prefabricated buildings, boxes, barrels, caskets, woodenware, and so on. In 1970 these industries provided 38,933 man-years of employment and paid \$237,319,000 in salaries and wages. The value of shipments of their products was \$814,698,000. Of this amount the veneer and plywood industry accounted for \$262,118,000 and the sash, door, and millwork industry (including the hardwood flooring industry and the manufacturers of prefabricated buildings) for \$338,537,000.



Bowater's paper mill at Carleton Place, Nfld.

Hunter

Pulp and Paper

The manufacture of pulp and paper has been Canada's leading industry for many years. Though it is not growing as fast as some other manufacturing industries in Canada it still ranks first in employment, salaries and wages paid, and in value added by manufacture. The gross selling value of production of this one industry accounts for 3.4 per cent of the total Gross National Product and it contributed 12.5 per cent of the total value of domestic exports in 1970 (13.2 per cent in 1969 and 13.1 per cent in 1968). Canada is the second largest producer of wood pulp in the world (18,589,885 tons in 1969) after the United States (40,490,000 tons), and the largest exporter. It is by far the largest producer of newsprint, with 8,938,000 tons in 1969 which is close to 40 per cent of the world total.

Although the pulp and paper industry is primarily engaged in the manufacture of wood pulps and basic papers and paperboards, it also produces converted papers and paperboards and even chemicals, alcohol, and other by-products. Approximately 70 per cent of the wood pulp manufactured in 1970 was converted in Canada to other products, particularly newsprint. The rest was exported.

Quebec has the largest share of Canada's pulp and paper industry, accounting for 36.5 per cent of the total value of factory shipments in 1970. It is followed by Ontario with 25.7 per cent and British Columbia with 22.9 per cent. The development in British Columbia has been climbing rapidly in recent years owing to the establishment of a number of kraft pulp and paper mills, particularly in the interior. In eastern Canada also the kraft sector of the pulp and paper industry has grown most quickly.

Paper-converting Industries

These include the asphalt roofing manufacturers, the paper box and bag manufacturers, and other paper converters. In 1970 this group counted 496 establishments (502 in 1969), employed 40,709 persons (40,766 in 1969) and paid

\$276,718,000 in salaries and wages (\$255,663,000 in 1969); the value of factory shipments set a new record of \$1,079,686,000 (\$1,062,535,000 in 1969). In contrast to the basic pulp and paper industry the paper converting industries are primarily dependent on the domestic market.

**Principal Statistics of the Pulp and Paper Industry
1967, 1968, and 1969**

Item	1967	1968	1969
Establishments .....No.	136	137	138
Employees .....No.	73,983	73,498	75,427
Salaries and wages .....\$'000	516,724	552,162	611,591
Value of shipments of goods of own manufacture .....\$'000	2,301,044	2,446,874	2,771,276
Value added - manufacturing activity.....\$'000	1,052,085	1,080,941	1,259,411
Pulp shipped.....'000 tons	5,150	5,985	6,899
.....\$'000	630,604	719,397	862,098
Paper and paperboard shipped .....\$'000 tons	10,963	11,183	12,093
.....\$'000	1,542,726	1,574,616	1,733,151
Newsprint exported.....\$'000 tons	7,464	7,479	8,235
.....\$'000	955,261	989,831	1,260,579

Reforestation in Ontario. Jack pine is an important source of pulp and lumber from Quebec to Alberta.



Fisheries

The commercial fisheries of Canada are centred in the coastal provinces and inland areas bordering large bodies of fresh water. With an annual catch of well over one million metric tons (2,200 million pounds), Canada ranks among the leading fish-producing nations of the world.

On the Atlantic coast, Canadians lead fleets from 15 or more countries in cropping some of the world's most abundant stocks of fish and shellfish feeding on the vast underwater pastures of the continental shelf. On the Pacific coast, a narrow continental shelf is less productive of marine life, but careful management provides a continuing supply of salmon and other seafood products for world markets. Inland fisheries in central and northern lakes produce whitefish and other freshwater fish products mainly for North American customers.

Thanks to favourable market conditions, prices for fishery products were generally high in 1971, compensating in part for lower catches of some species. Total landings of 2,500 million pounds returned gross earnings of \$204 million to 65,000 fishermen. The catch showed a volume decline of 6 per cent while earnings slipped by 1 per cent from the previous season.

The bulk of Canada's fisheries production comes from the Atlantic coast, where fishermen in 1971 landed 2,200 million pounds, worth a record \$133 million. Atlantic coast catches have been in gradual decline since reaching a peak of 2,500 million pounds in 1968, but earnings of fishermen have been steadily on the increase.

One of the principal groups of fish harvested by Atlantic coast fishermen consists of "groundfish," those species which live and feed close to the seabed. Catches of two of the better known groundfish, cod and haddock, have fallen in recent years, but the fall has been offset by increased catches of redfish and small flatfishes. As a result, total groundfish catches have remained relatively stable at 1.1 or 1.2 million pounds since 1965. 1971 landings included: cod, 448 million pounds; redfish, 249 million pounds; small flatfishes, 282 million pounds; and haddock, 54 million pounds. Less than half (40-45 per cent) of the groundfish catch is taken by large vessels; the balance is landed by inshore boats.

Herring make up fully one third of all Canada's fish landings. Rapid expansion of the east-coast herring fishery in the 1960's reached its peak in 1968 when landings amounted to 1,200 million pounds, but they have since been in gradual decline, and in 1971 dropped to 924 million pounds. Gross earnings to fishermen from this fishery were \$13.2 million, a very slight decline from the previous year.

Lobster landings, of 38 million pounds, were slightly higher than those of 1970 and above the five-year average for the period 1966-70. On the average, prices to fishermen were higher than in 1970 and, as a result of the higher prices and larger volumes, gross earnings to fishermen reached an all-time high of \$33 million.

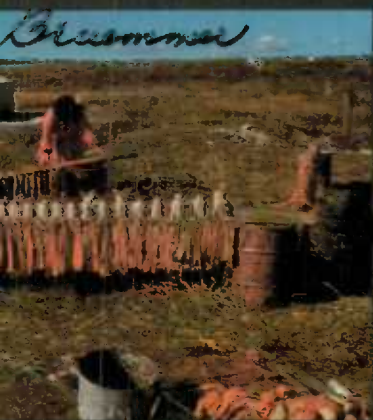
The downward trend in scallop landings that has been evident in recent years continued in 1971; landings totalled only 11.2 million pounds, 14 per cent less than in the previous year. Higher prices to fishermen were not sufficient to maintain the value to fishermen which declined by 8 per cent.

Both quantities landed and values to fishermen were lower than in 1970 in three provinces—New Brunswick, Prince Edward Island, and Quebec. In Newfoundland, landings were down but values to fishermen were marginally higher.

Malak



Braemar



3

Hunter



Finally in Nova Scotia more fish were landed and gross earnings to fishermen were higher.

On the Pacific Coast, landings of fish and shellfish in 1971 amounted to 220 million pounds whose value to fishermen was \$57 million, a decline from 1970 of 8 per cent in quantity and of 5 per cent in value to fishermen.

The most important fishery in this region—the salmon fishery—is subject to large annual fluctuations and it had been forecast that 1971 would be one of the worst production years in the Fraser River history. It turned out, however, that the runs were better than expected and the salmon fishermen of British Columbia enjoyed a good average year: salmon landings were reported at 131 million pounds valued to fishermen at \$43.8 million. Corresponding averages for the 1966-70 period were 141 million pounds and \$38.5 million.

Halibut was scarce on the main grounds fished by the Canadian fleet and landings of 24 million pounds were 20 per cent below those of 1970, the lowest level since 1955. Prices to fishermen were, on the whole, slightly lower than in 1970 and gross earnings to fishermen were less than \$8 million.

A ban on Pacific herring fishing for reduction purposes imposed as a conservation measure in 1966 remained in effect during the year but fishing for food purposes was allowed and more than 20 million pounds were caught.

Estimated landings in the inland fisheries amounted in 1971 to 75 million pounds valued at \$12.3 million in comparison with 96 million pounds and \$13.3 million in 1970.

The total value of Canada's fishery products in 1971 was estimated to be close to the all-time record of \$421 million reached in 1970. Exports to various countries of the world totalled \$294 million, an increase of \$14 million (5 per cent) over the 1970 figure. The United States absorbed 68 per cent of the Canadian exports, Europe 22 per cent, the Caribbean area and other countries about 5 per cent each.

The production of frozen groundfish fillets and blocks on the Atlantic coast amounted to 250 million pounds, 4 per cent more than in 1970. A downward trend in the production of salted groundfish continued in 1971, particularly in Newfoundland, the largest producing area. In that province, 65 million pounds of cod were used for salting during the year, less than the 91 million pounds salted in 1970. As a result of lower landings of herring and the increased use of the species for food purposes, the output of herring meal on the Atlantic coast declined to 59,000 tons from 80,000 tons in 1970. Total fish meal production was 101,000 tons.

The pack of Pacific canned salmon in 1971 was 1,405,000 cases (of 48 pounds each), slightly lower than both the 1970 pack and the 1966-70 average annual pack. The production of canned sockeye and coho was greater than the five-year average while that of pink and chum was lower.

1. Irish moss, gathered mainly on the shores of Prince Edward Island, is used in the chemical and paint industries, and as a stabilizer in certain foods.
2. A Canadian delicacy, Arctic char, is caught and dried in Eskimo settlements.
3. Iced fish caught in Prairie lakes are rushed to a fish-filleting plant, at Amisk Lake, Sask.
4. On the West Coast, seiners bring in a rich harvest of salmon.

Minerals and Energy

Canada is richly endowed with mineral wealth: it ranks among the world's largest producers of minerals. A great deal of Canada's history is closely entwined with mineral exploration and development, beginning with Frobisher's search for illusory gold in the 16th century. Coal in Nova Scotia and iron ore in Quebec were discovered and later mined in the 17th and 18th centuries. The Geological Survey of Canada, founded in 1842, encouraged the collection of information about Canada's minerals. In the next decade came the first gold rush – to Barkerville in the Cariboo district of British Columbia. Silver, zinc, and lead were subsequently found in the Kootenay district. Crews blasting a roadbed for the Canadian Pacific Railway in northern Ontario first revealed the riches in copper and nickel to be found there. The most famous event in Canadian mining history undoubtedly was the Klondike gold rush of 1896, but more significant have been the discoveries in the 20th century of cobalt, silver, uranium, asbestos, and potash among other minerals, as well as more copper, nickel, and iron ore.

The remarkable progress of the Canadian mining industry since the Second World War is shown by the increase in value of mineral production from \$499 million in 1945 to \$5,916 million in 1971. A measure of the importance of mining to the Canadian economy may be found in the following figures. In 1970 expendi-

Hunter (missing)

The search for oil, gas, and minerals has brought many companies to the Northwest Territories.

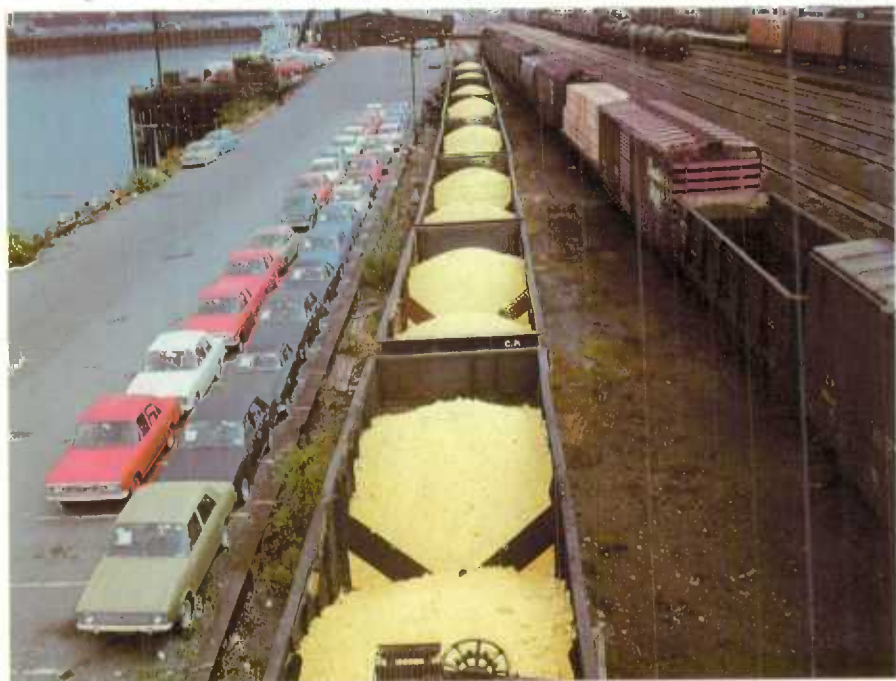


tures by mining and exploration companies (excluding the petroleum and natural gas industry) for exploration, development and capital and repair expenditure was greater than \$1,187 million; over \$5,000 million worth of mineral products exported—almost a quarter of Canada's export trade; more than 100,000 Canadians employed in the industry; and about 300 mines operating. Cities such as Sudbury, Ont., and Trail, B.C., depend almost entirely on the mineral wealth in the surrounding area, while Toronto and Calgary are financial centres for the mining and oil industries and many people employed in these cities depend on mining for their livelihood.

The value of production of Canadian minerals in 1971 increased to \$5,916 million from \$5,713 million in 1970 and \$4,736 million in 1969. Metallic minerals accounted for 50 per cent of the value of Canadian mineral production in 1971. In order of importance the principal metallic minerals produced in Canada are nickel, copper, iron ore, zinc, lead, gold, and silver. Led by petroleum and natural gas, mineral fuels accounted for 34 per cent of the total value of production. Non-metallic minerals and structural materials each accounted for 8 per cent. The main structural materials are cement, sand and gravel, and stone, while the non-metallic minerals group is dominated by asbestos followed by potash, salt, and elemental sulphur. The leading mineral commodity in 1971 was crude petroleum with a value of production of \$1,351 million, up from \$1,156 million in 1970 and \$423 million in 1960.

Haas

Natural gas is the major source of elemental sulphur. Half of it is transformed into fertilizers.





International Nickel's Frood-Stobie concentrator in Sudbury, Ont.

Nickel production in Canada in 1971 amounted to 293,947 tons valued at \$798 million, a decrease from 305,881 tons and \$830 million in 1970. Rising labour costs during recent years have contributed to an increase in the price from \$1.00 a pound in 1968 to \$1.36 a pound in 1971. Most of Canada's nickel is produced in the Sudbury, Ont., region from mines operated by the International Nickel Company and Falconbridge Nickel Mines Ltd.

Copper production in 1971 amounted to 714,507 tons, valued at \$755 million; the figures for 1970 were 672,717 tons and \$779 million. Canada ranks fourth in the production of copper in the non-Communist world. The major producing provinces were Ontario (303,631 tons), Quebec (187,062 tons), and British Columbia (134,110 tons). The International Nickel Company with mines, mills, smelters, and a copper refinery in the Sudbury district of Ontario is Canada's largest copper producer. The second largest Canadian production comes from the Kidd Creek Mine near Timmins, Ont. operated by Ecstall Mining Ltd. The leading copper producers in Quebec are Gaspé Copper Mines at Murdochville and the Opemiska mines at Chapais.

The fourth most important mineral in Canada is iron ore. Production in 1971 amounted to 48 million tons (worth \$560 million); in 1970 it was 52 million tons (worth \$589 million). The Iron Ore Company of Canada's Carol Lake mine in Labrador is the leading producer, followed by Quebec Cartier Mining Company at Gagnon, Que., and the Iron Ore Company mines on the Quebec-Labrador border. Canada is the fourth leading producer of iron ore, following the U.S.S.R., the United States, and France.

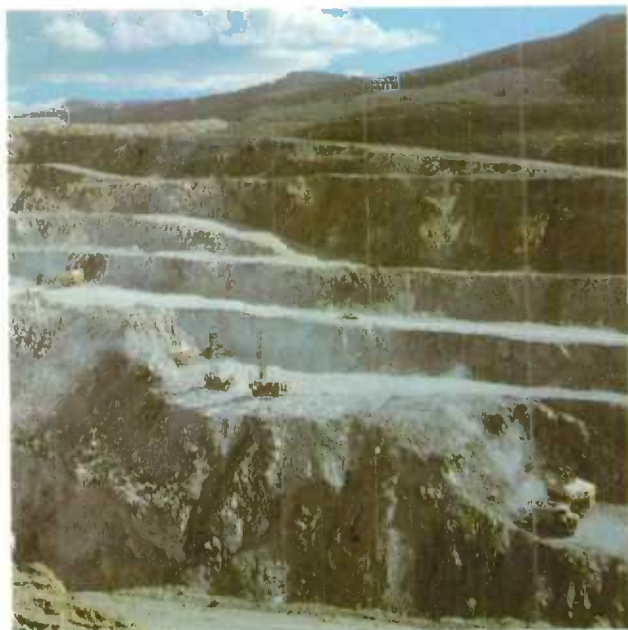
Ranked according to value of production, zinc was the fifth most important mineral produced in Canada. Production was 1,227,376 tons valued at \$411 million in 1971; in 1970 1,251,911 tons worth \$399 million were mined. Zinc production in Canada has almost tripled during the last ten years. Canada is the leading zinc producer in the non-Communist world – it provides nearly a third of the total mined. Three relatively new mines account for over half the Canadian output of zinc: Ecstall Mining Ltd. near Timmins, Ont., Pine Point Mines Ltd. at Pine Point, N.W.T., and Brunswick Mining and Smelting Corporation Ltd. near Bathurst, N.B.

Natural gas production continued its phenomenal growth with an output of 2,298,000 million cubic feet worth \$319 million. Production in 1970 was 2,277,109 million cubic feet (\$315 million) and in 1960 was only 523,000 million cubic feet (\$52 million).

Among Canada's most important minerals, asbestos continued to hold seventh position in 1971 with production of 1,641,000 tons, valued at \$210 million. Over 80 per cent of the asbestos produced in Canada comes from the province of Quebec; the rest comes from the Yukon, British Columbia, Newfoundland, and Ontario. The largest asbestos-producing mines are the Canadian Johns-Manville Company Ltd.'s Jeffery Mine at Asbestos, Que., and the Asbestos Corporation Ltd.'s British Canadian and King-Beaver mines located at Black Lake, Que., and Thetford Mines, Que., respectively. Canada produces approximately a third of the world's total supply of asbestos and is second only to the U.S.S.R., in annual production.

Cement is the most important structural material produced in Canada and the ninth in the list of minerals. About two thirds of Canadian cement comes from Ontario and Quebec where 13 of the 24 cement plants in Canada are located. The

Stratton



At the Anvil mine at Faro, Yukon, lead, silver, zinc and traces of gold are mined.

largest of these are operated by the St. Lawrence Cement Company at Clarkson, Ont., the Canada Cement Company at Montreal, Que., and the Miron Company at St. Michel, Que.

Among the minerals of lesser importance whose production has increased enormously in the past decade are natural gas by-products, elemental sulphur, potash, and molybdenum. The growth in natural gas by-products (pentane, butane, propane, and so on) from \$16 million in 1960 to \$202 million in 1971 is, of course, directly related to the increased production of marketable natural gas which was made possible by the construction of a network of pipelines to transport the natural gas from the fields in western Canada to consumers in the East.

In 1971, elemental sulphur production dropped to 3,065,000 tons from 3,548,310 tons in 1970 and the value dropped to \$20.8 million from \$28.3 million. The decline in value is attributable to an over-supply of sulphur in the world market. Natural gas is the major source of elemental sulphur in Canada so its production is in direct proportion to natural gas production regardless of the price of sulphur. Nearly all sulphur is transformed into sulphuric acid of which one half is used in the manufacture of fertilizers.

Canadian potash production increased from less than \$1 million in 1960 to \$128 million in 1971 as a number of mines were opened in Saskatchewan between 1962 and 1970. The largest Canadian potash producer is the International Minerals and Chemical Corporation (Canada) Ltd. which operates two mines at Esterhazy, Sask. About 95 per cent of the world's potash is used as fertilizer.

Canada is second only to the United States among the producers of molybdenum. The value of production increased from \$1 million in 1960 to \$44 million in 1971. Over 80 per cent of the Canadian production comes from three mines in British Columbia which are operated by Endako Mines Ltd., British Columbia Molybdenum Ltd., and Brenda Mines Ltd.

Falconbridge Nickel Mines Ltd.

The control room of the new nickel-iron refinery of Falconbridge.



Canada's Mineral Production, by Kind, 1970 and 1971

Mineral	1970		1971 ¹		
	Quantity	Value in Dollars	Quantity	Value in Dollars	
Metallics					
Antimony	lb.	726,474	1,104,040	330,000	249,000
Bismuth	lb.	590,340	3,370,554	267,000	1,331,000
Cadmium	lb.	4,307,953	15,336,313	4,132,000	7,889,000
Calcium	lb.	443,557	374,476	304,000	282,000
Cobalt	lb.	4,561,213	10,207,366	4,992,000	10,936,000
Columbium (Cb ₂ O ₅)	lb.	4,694,239	4,819.951	2,176,000	2,199,000
Copper	lb.	1,345,434,265	779,242,403	1,429,013,000	754,517,000
Gold	troy oz.	2,408,574	88,057,464	2,243,000	79,268,000
Indium	troy oz.	..	..	..	..
Iron ore	ton	52,314,020	588,631,153	48,475,000	559,779,000
Iron, remelt	ton	..	31,591,232	..	30,917,000
Lead	lb.	778,369,611	123,138,074	813,370,000	109,803,000
Magnesium	lb.	20,707,110	7,140,807	14,504,000	5,205,000
Mercury	lb.	..	..	..	..
Molybdenum	lb.	33,771,716	57,140,574	26,637,000	44,338,000
Nickel	lb.	611,762,362	830,166,823	587,894,000	798,162,000
Platinum group	troy oz.	482,428	43,556,597	468,000	38,928,000
Selenium	lb.	663,336	5,704,690	690,000	5,964,000
Silver	troy oz.	44,250,804	81,863,988	44,938,000	70,103,000
Tantalum	lb.	317,024	2,251,182	450,000	3,150,000
Tellurium	lb.	58,333	365,748	22,000	136,000
Thorium (ThO ₂)	lb.	..	..	..	..
Tin	lb.	263,716	421,946	294,000	512,000
Tungsten (WO ₃)	lb.	3,726,800	..	3,100,000	..
Uranium (U ₃ O ₈)	lb.	8,208,734	..	8,021,000	..
Yttrium [Y ₂ O ₃]	lb.	..	..	..	..
Zinc	lb.	2,503,821,441	398,858,754	2,454,751,000	410,680,000
Total metallics .....	..	3,073,344,135	..	2,934,348,000	..
Non-metallics					
Arsenious oxide	lb.	141,250	15,500	..	..
Asbestos	ton	1,661,644	208,146,533	1,641,000	210,435,000
Barite	ton	147,251	1,388,125	137,000	1,170,000
Diatomite	ton	..	..	..	..
Feldspar	ton	10,656	290,541	10,000	302,000
Fluorspar	ton	..	4,595,522	..	2,550,000
Gem stones	lb.	128,572	145,441	75,000	100,000
Grindstone	ton	..	..	..	1,000
Gypsum	ton	6,318,523	14,199,415	6,800,000	15,043,000
Helium	Mcf.	..	..	..	..
Iron oxides	ton	..	..	..	..
Lithia	lb.	..	..	..	..
Magnesitic dolomite, brucite	ton	..	3,332,000	..	3,000,000
Mica	lb.	..	..	..	..
Nepheline syenite	ton	486,667	5,801,228	500,000	6,000,000
Nitrogen	Mcf.	..	..	..	..
Peat moss	ton	320,471	10,167,631	326,000	10,401,000
Potash, (K ₂ O)	ton	3,420,212	108,694,791	3,872,000	128,067,000
Pyrite, pyrrhotite	ton	362,669	1,699,474	318,000	1,186,000
Quartz	ton	3,238,037	6,810,737	2,526,000	4,655,000
Salt	ton	5,358,896	36,097,817	5,334,000	36,835,000
Soapstone and talc ²	ton	72,055	1,141,894	67,000	1,110,000
Sodium sulphate	ton	490,547	7,601,778	480,000	7,640,000

Canada's Mineral Production, by Kind, 1970 and 1971 – Concluded

Mineral		1970		1971 ¹	
		Quantity	Value in Dollars	Quantity	Value in Dollars
Non-metallics, concluded					
Sulphur, in smelter gas	ton	705,876	7,433,101	676,000	5,106,000
Sulphur, elemental	ton	3,548,310	28,353,509	3,065,000	20,771,000
Titanium dioxide, etc.	ton	..	34,622,589	..	38,765,000
Total non-metallics .....		...	480,537,626	...	493,137,000
Mineral fuels					
Coal	ton	16,604,164	86,067,421	19,336,000	133,928,000
Natural gas	Mcf.	2,277,108,791	315,099,792	2,297,653,000	318,528,000
Natural gas by-products	bbl.	77,783,497	160,109,956	88,362,000	202,503,000
Petroleum, crude	bbl.	461,180,059	1,156,453,580	500,306,000	1,351,010,000
Total fuels .....		...	1,717,730,749	...	2,005,969,000
Structural materials					
Clay products (bricks, tile, etc.) .....		..	42,661,070	..	46,825,000
Cement	ton	7,945,915	156,193,740	9,534,000	194,218,000
Lime	ton	1,647,954	21,074,866	1,519,000	19,050,000
Sand and gravel	ton	202,656,000	133,558,000	201,450,000	134,250,000
Stone	ton	65,322,840	87,975,750	64,800,000	88,100,000
Total structural materials .....		...	441,463,426	...	482,443,000
Grand total .....		...	5,713,075,936	...	5,915,897,000

¹Preliminary estimates.²Includes pyrophyllite.

.. Figures not available.

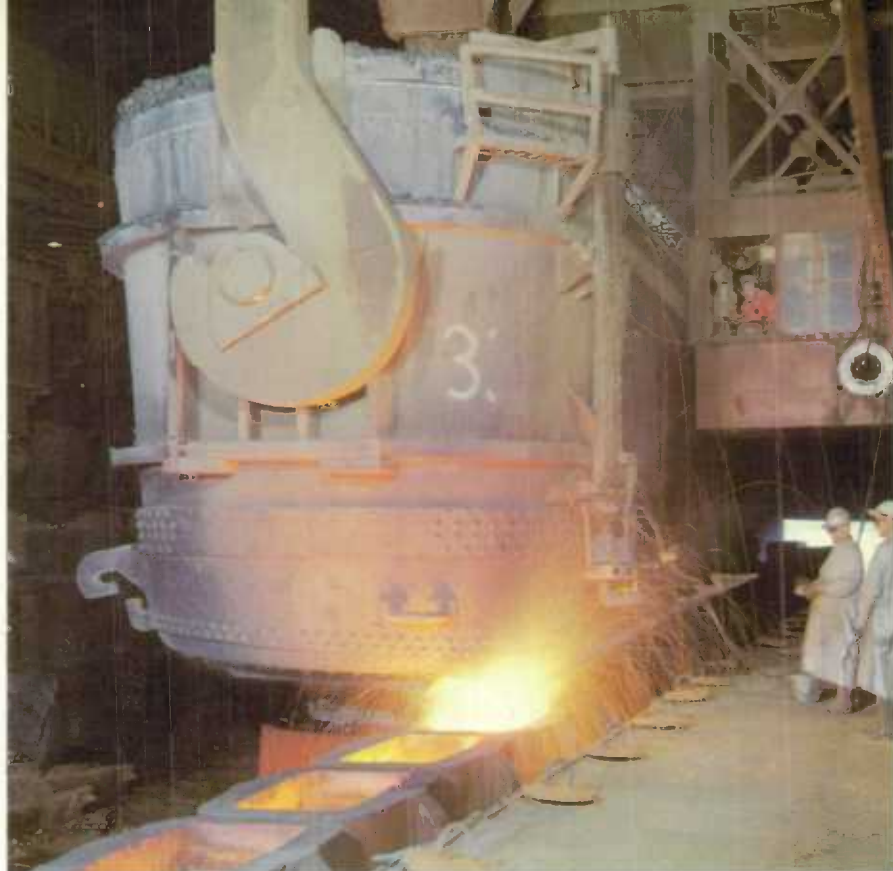
... Figures not appropriate or not applicable.

– Nil or zero.

Canada's Mineral Production, by Class, 1961-71

Year	Metals	Non-metals	Fossil fuels	Structural materials	Total
	Millions of dollars				
1961	1,387	210	674	331	2,603
1962	1,496	217	770	356	2,840
1963	1,510	253	885	379	3,027
1964	1,702	287	973	403	3,365
1965	1,908	327	1,045	434	3,714
1966	1,985	363	1,152	481	3,980
1967	2,285	406	1,234	455	4,380
1968	2,493	447	1,343	440	4,722
1969	2,378	450	1,465	443	4,736
1970	3,073	481	1,718	441	5,713
1971 ¹	2,934	493	2,006	482	5,916

¹Preliminary estimates.



Teeming a heat of steel at a Hamilton, Ont., plant.

Hunter

Canada's Mineral Production, by Province, 1969-71

Province	1969		1970		1971 ¹	
	Value in Dollars	Per cent	Value in Dollars	Per cent	Value in Dollars	Per cent
Newfoundland	256,935,937	5.4	353,204,018	6.2	336,715,000	5.7
Prince Edward Island	451,500	—	640,000	—	650,000	—
Nova Scotia	58,631,575	1.2	56,932,457	1.0	59,536,000	1.0
New Brunswick	94,592,565	2.0	104,360,504	1.8	107,361,000	1.8
Quebec	717,175,486 ^r	15.1	800,923,801	14.0	770,008,000	13.0
Ontario	1,223,380,337	25.8	1,590,135,577	27.6	1,562,646,000	26.4
Manitoba	246,340,849	5.2	331,857,872	5.8	319,959,000	5.4
Saskatchewan	344,629,386 ^r	7.3	379,145,873	6.6	381,826,000	6.5
Alberta	1,205,308,015	25.5	1,394,714,967	24.4	1,652,071,000	27.9
British Columbia	433,934,789 ^r	9.2	489,834,639	8.6	531,573,000	9.0
Yukon	35,402,563	.8	77,511,933	1.4	94,031,000	1.6
N.W. Territories	119,170,870	2.5	133,814,295	2.4	99,521,000	1.7
Totals	4,735,953,872^r	100.0	5,713,075,936	100.0	5,915,897,000	100.0

¹Preliminary estimates.

^rRevised.



Shell's Sednaeth 1 drilling for oil off the east coast of Canada.

Petroleum and Natural Gas

The petroleum industry is Canada's leading mineral producer; it extracted about \$1,872,041,000 worth of hydrocarbon products in 1971, an increase of 14.7 per cent over 1970. Crude oil, Canada's most important mineral, contributed \$1,351,010,000 (500,306,000 barrels) to this total. Natural gas production accounted for \$318,528,000 (2,298,000 million cubic feet) and pentanes, propane and butanes for \$202,503,000 (88,362,000 barrels). In addition, elemental sulphur is a very valuable by-product of gas processing plants. Alberta accounted for 82 per cent of all production, Saskatchewan for 11 per cent, British Columbia for 5 per cent, and all the other provinces for 2 per cent.

Shipments of all commodities except sulphur increased in 1971. The production of synthetic crude increased by 28.6 per cent. Canada exports large quantities of natural gas and crude petroleum to the United States. In 1971 natural gas exports amounted to 910,778,277Mcf. (thousand cubic feet) with a value of \$254,720,186. This was an increase of 16.8 per cent over exports in 1970, and the demand in the United States for natural gas continues to grow. Canada exported 270,770,504 barrels of crude oil valued at \$786,851,000 in 1971, an increase in value of 21.2 per cent over the figure for 1970. Imports amounted to 244,971,778 barrels. Refineries located east of the "energy line" (a line running from Pembroke south to Brockville, Ont.) operate on imported crude oil. This is supplied mainly by Venezuela, but some comes from the Middle East and Africa. Canadian crude, mostly from western Canada, is used west of the energy line.

Total sales of refined petroleum products were 522,393,454 barrels in 1971, comprising 174,768,355 barrels of gasoline, 174,603,862 barrels of middle distillates, 109,285,270 barrels of heavy fuel oils, and 63,735,967 barrels of lubricating oils and grease, asphalt, and other products.

The movement of oil and natural gas necessitates large pipeline systems to carry these products to many parts of the continent. Consequently, oil and gas pipelines have become a major form of transportation. In 1971 the transportation of crude oil and its equivalent, liquefied petroleum gases, and refined petroleum products amounted to 401,807 million pipeline barrel miles, up 9 per cent from 1970; and that of natural gas to 1,390,669 million Mcf. miles, an increase of 10 per cent in a year. This increase was a direct result of the heightened demand for natural gas.

In 1970 the total operating and capital expenditures of the petroleum industry amounted to \$1,472,113,000. The industry has made great efforts to find new reserves and increase its production of hydrocarbon products since 1961, when its investment was only \$716,158,000. In 1970 geological and geophysical work accounted for \$174,029,000 of the total; \$164,243,000 was spent on acquiring land or leases; \$269,033,000 on exploratory and development drilling; \$311,058,000 on capital additions; \$252,674,000 on field, well, and natural-gas plant operations; and \$301,076,000 on royalties, taxes, and other miscellaneous expenditures. Seventy per cent of all expenditure, amounting to \$1,035,348,000 was in Alberta, 9 per cent in Saskatchewan, and 8 per cent in British Columbia.

Info Can

A refinery in Regina, Sask.



In recent years, there has been an enormous increase of geological and geophysical exploration in the Northwest Territories, in the Arctic Islands, and off the coasts of Canada. Panarctic Oil, a joint venture of the federal government and private investors, has found gas on Melville and King Christian Islands and oil on the Fosheim peninsula of Central Ellesmere Island. Imperial Oil has discovered oil in the Mackenzie Delta. As a result, many companies that have large holdings in these areas have increased their exploratory work. Seismic, geological, and geophysical surveys have indicated that the potential Canadian conventional oil reserves are over 125,000 million barrels, including 25,000 million off the east coast. The Athabasca tar sands have an estimated 300,000 million barrels of synthetic crude oil recoverable by mining or thermal processes.

*Bruce Martin/Alberta Gas Trunk Line
(Colour print missing)*



A pipeline to carry natural gas from Alberta to southern and eastern regions is being laid.

Coal

In western Canada, bituminous coal production again in 1971 showed a significant increase but not as substantial as had originally been expected; rising costs and start-up difficulties with equipment retarded the anticipated growth rate. The Japanese steel industry's increasing needs for high grade coking coal, and its attempts to diversify its sources of supply, resulted in the signing within the last few years of long-term contracts with western Canadian coal operators calling for 175

to 200 million tons in the next 15 or so years. To meet these contractual commitments, it has been necessary to invest heavily in equipment at the various mines, in transportation facilities between the mines and the port, and in developing deep sea terminals on the West Coast capable of handling the tonnages involved. However, because of the financial and technical difficulties experienced by the western Canadian bituminous coal industry in recent months, certain contracts with Japanese steel interests are being re-negotiated. Nevertheless, earlier shipments to Japan amounted to approximately 1 million tons per annum, but 1970 showed 4.4 million being exported, and in 1971 shipments increased to 7.7 million. Further, in spite of the present short-term problems, exports should reach the level of 15 to 20 million tons per annum by the mid 1980's.



Kaiser's plant in the Elk Valley, B.C. Here coal is washed and dried, then stored for shipment.

*A.C. Cross Photography Ltd
(colour print missing)*

The low cost, open-pit sub-bituminous mines in Alberta and lignite mines in Saskatchewan are expected to continue to supply increasing amounts of coal to thermal electric installations, as the development of the few remaining hydro sites cannot by itself meet the growing demand for electrical energy in this geographical area.

In eastern Canada, the continued rationalization of the Nova Scotia bituminous industry resulted in the further closure of mines and a fall in production, while the New Brunswick bituminous industry, now consolidated into one operation

under the provincially owned N.B. Coal Limited, increased production mainly as a result of increased demand by thermal power plants.

Canadian production of coal in 1971 increased to 19.3 million tons, 16.5 per cent or 2.7 million tons more than in 1970. Excluding subvention payments, the preliminary value of this production amounted to \$134 million, a rise from the 1970 value of \$86 million. Imports, 90 per cent of which go to steel mills and thermal plants in Ontario, reached 17,800,000 tons, while exports amounted to 7,700,000 tons.

Production of Coal, by Province, 1970 and 1971

	1970	1971 ¹
	Short tons	
Nova Scotia	2,122,358	1,946,000
New Brunswick	395,642	510,000
Saskatchewan	3,819,191	3,242,000
Alberta	6,783,911	8,914,000
British Columbia	3,483,062	4,724,000
Total Canada	16,604,164	19,336,000

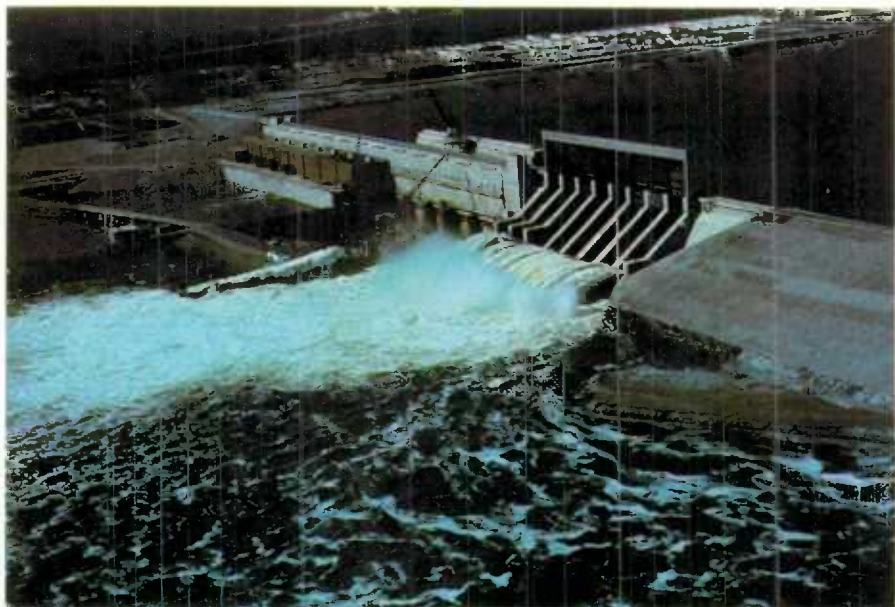
¹Preliminary estimates.

Electricity

Canada's electrical power development has grown steadily at a remarkable rate since the beginning of this century. A modest 133,000 kilowatts of generating capacity in 1900 had increased to approximately 46,800,000 by the end of 1971.

Although water power traditionally has been the main source of electrical energy in Canada and still is, thermal sources are becoming more important and this trend is expected to continue. The choice between the development of a hydro-electric power site and the construction of a thermal generating station must take into account a number of complex considerations, the most important of which are economic. The heavy capital costs involved in constructing a hydro-electric project are offset by maintenance and operating costs considerably lower than those for a thermal plant. The long life of a hydro plant and its dependability and flexibility in meeting varying loads are added advantages. Also important is the fact that water is a renewable resource. The thermal station, on the other hand, can be located close to areas where power is needed, with a consequent saving in transmission costs. However pollution problems at these plants are coming to be regarded as an undesirable factor.

The marked trend towards the development of thermal stations which became apparent in the 1950's can be explained to some extent by the fact that in many parts of Canada, most of the hydro-electric sites within economic transmission distance of load centres had been developed, and planners had to turn to other sources of electrical energy. More recently, however, advances in extra-high-voltage transmission techniques have given impetus to the development of hydro power sites previously considered too remote. Nevertheless, thermal stations should be the more important of the two sources in the long run.



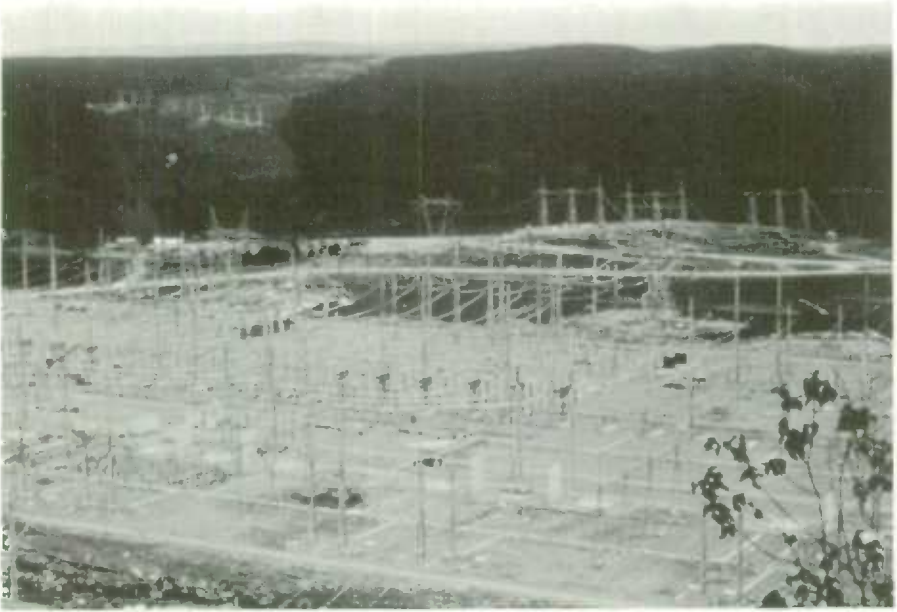
The Kettle Rapids site on the Nelson River in Manitoba, will have an ultimate capacity of 1,219,200 kw.

Manitoba Hydro

Water Power Resources and Developments

Substantial amounts of water power have been developed in all provinces except Prince Edward Island, where there are no large streams. The resources of Newfoundland are estimated to be considerable; topography and run-off favour hydro-electric power development. In fact, the most dramatic development of any single hydro project is now taking place at Churchill Falls in Labrador. When this project is completed in the late 1970's, the capacity of the plant will reach 5,225,000 kw., thus making it the largest single generating plant of any type in the world. The water power of Nova Scotia and New Brunswick, small in comparison with that of other provinces, is none the less a valuable source of energy. The numerous moderate-sized rivers provide power for the cities and for the development of the provinces' timber and mineral resources. Quebec is richest in water power resources, with over 40 per cent of the total for Canada, and has the most developed capacity. Even this considerable figure could be doubled if plans for the development of a number of rivers flowing into James Bay become reality. Ultimately this development could result in an additional 12 to 15 million kw. The present largest single hydro-electric installation in Canada is Hydro-Quebec's 1,574,260-kw. Beauharnois development on the St. Lawrence River. Others are the Bersimis I development, with a capacity of 912,000 kw., and the 742,500-kw. Chute des Passes plant of the Aluminum Company of Canada Ltd. Another signifi-

CP colour 6



Transmission lines from the Churchill Falls power development to the Hydro-Quebec system. This undertaking took five years to build, at a cost of \$950 million.

cant development is Hydro-Quebec's Manicouagan-Outardes project which when completed will produce 5,540,000 kw. on the two rivers. Already some 3,900,000 kw. are installed. Almost all of the sizable water power potential in Ontario within easy reach of demand centres has been developed, and planners are looking to more remote sites. Most of the hydro-electric power produced in the province comes from the Hydro-Electric Power Commission of Ontario, the largest public utility in Canada. Its chief stations are on the Niagara River at Queenston, with total generating capacities of 1,804,200 kw. Manitoba is the most generously endowed of the Prairie Provinces, with immense potential on the Winnipeg, Churchill, Nelson, and Saskatchewan Rivers. In Alberta, most of the developments are located on the Bow River and its tributaries. British Columbia ranks second in terms of potential water power resources, and is third in installed generating capacity. The current development of the Peace and Columbia Rivers will provide immense power resources in the future. In the Yukon Territory and the Northwest Territories, water power is of special importance in the development of mining areas, such as Mayo and Yellowknife. In the Yukon, most resources are on the Yukon River and its tributaries. Although not yet thoroughly surveyed, the rivers flowing into Great Slave Lake, and the South Nahanni River draining into the Mackenzie River have considerable potential.

Conventional Thermal Power

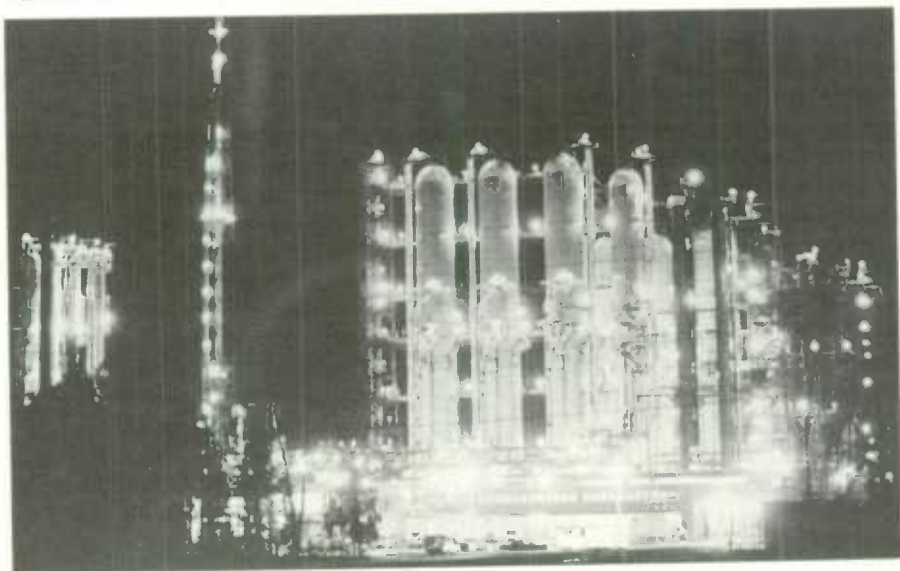
Some 90 per cent of all conventional thermal power generating equipment in Canada is driven by steam turbines and the remainder of the load is carried by gas turbine and internal combustion equipment. Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Saskatchewan, Alberta, and the Northwest Territories depend on thermal stations for most of their power requirements. The abundance of Quebec's wealth of water power has so far limited the application of thermal power in that province to local use. The James Bay project, if completed, should maintain hydro pre-eminence. Manitoba and British Columbia both have substantial amounts of thermal capacity but current development is still of hydro electricity.

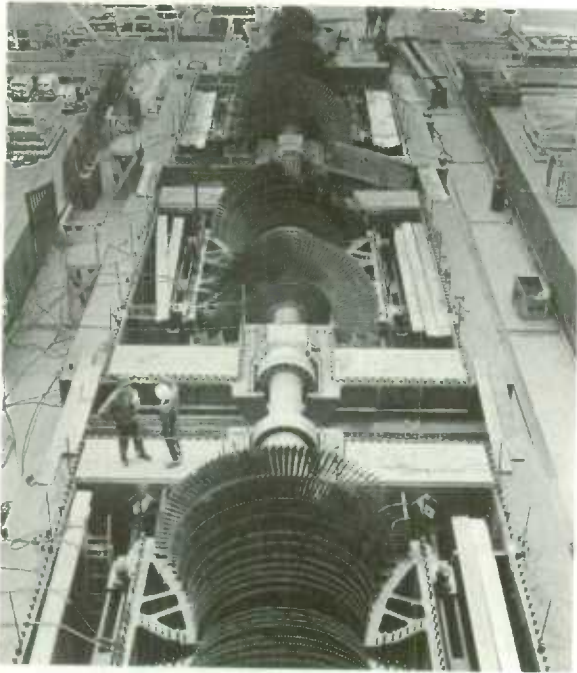
Nuclear Thermal Power

Development of commercial electric power generation in thermal plants using the heat generated by nuclear reactors is one of the major contributions of Canada to energy resource technology. This development has centred around the CANDU reactor which uses a natural uranium fuel with a heavy-water moderator. Heavy water as a moderator provides a high energy yield and facilitates the handling of spent fuel. The first experimental reactor went into use in 1962 at Rolphton, Ont., with a capacity of 20,000 kw. Since then, four major nuclear projects have been undertaken. The first full-scale nuclear plant is situated at Douglas Point on Lake Huron. It consists of a single unit, completed in 1967, with a capacity of 220,000

A.E.P.L.

The Bruce heavy-water plant supplies the heavy-water moderator used by the CANDU nuclear reactor. In conjunction with natural uranium.





A.E.C.L.

One of the four giant turbines at the new Pickering generating station in Ontario.

kw. The second project is a four-unit 2,160,000-kw. capacity plant being built at Pickering east of Toronto. Its four units are coming on line from 1971 to 1974. Both the Douglas Point and Pickering plants use heavy water as a coolant. The third nuclear plant is a 250,000-kw. unit situated at Gentilly, Que., using boiling light water as a coolant. The fourth plant is the 3,200,000-kw. Bruce Station at Douglas Point, Ont., scheduled for completion by 1978. However the utilization of present nuclear plants has been hindered by a shortage of heavy water. Programs under way should alleviate this shortage in the near future.

Power Generation and Utilization

In 1970 Canada's generating facilities produced 204,992 million kilowatt hours of electric energy, 76 per cent in hydro-electric stations. Energy exported to the United States exceeded by 2,386 million kwh. the energy imported, bringing the total available to Canadian users to 202,606 million kwh. In the same year, industry used about 57 per cent of the total energy available in Canada; homes and farms accounted for 22 per cent, and commercial customers for 13 per cent. Average domestic and farm consumption continues to rise year by year. In 1970 it was 7,170 kwh., ranging from a low of 3,981 kwh. in Prince Edward Island to a high of 8,871 kwh. in Manitoba. The average annual bill for domestic and farm customers was \$112.74.

Business, Finance, and Industry

Capital Expenditures

A sustained rising income in Canada depends upon the capacity to produce and sell goods and services, among other things. This capacity, in turn, depends largely on the amounts spent on investment in new mines, factories, stores, power generating installations, communications and transportation equipment, hospitals, schools, roads, parks, and all other forms of capital which help produce income-generating goods and services.

Surveys of these capital expenditures are carried out at regular intervals every year. On each occasion statistics are published for expenditures on housing, non-residential construction, and machinery and equipment by all sectors of the Canadian economy.

A survey carried out early in 1972 indicated that capital expenditures were expected to reach a total of \$20,760 million during that year. This represents an increase of nearly 5 per cent above the 1971 total of \$19,788 million. The percentage increase expected in 1972 follows the unusually high year-to-year increase of 11 per cent recorded for 1971. However, it should be noted that the investment plans for 1972 were reported at a time when a high degree of uncertainty faced the business community. Some of the uncertainty was resolved during the survey period, with the December agreement on currency re-alignment and removal of the United States import surcharge. The effect of these favourable developments on capital expenditures plans would not be reflected to any significant degree in this survey, but it was expected to contribute to a build-up of expansion programs in the course of the year.

There was an increasing emphasis in 1972 on investment in the service-producing industries (such as utilities, trade, finance, commercial services, institutions, and government departments) as opposed to the goods-producing industries (such as agriculture, fishing, forestry, mining, manufacturing, and housing). The level of planned capital outlays was expected to be above that of 1971 by about 7 per cent in the service industries, while there was little change in the goods-producing sector, excluding housing.

The slower growth rate in 1972 in the goods-producing sector is largely attributable to plans for a reduced rate of expansion in certain resource-based forest and mineral industries, particularly in non-ferrous metal mines, non-metal mines (other than petroleum and gas), and in the paper products and rubber industries. In some of the goods-producing industries a substantial acceleration in capital spending was indicated in 1972, notably in iron mining, non-metallic mineral manufacturing, and petroleum refining, but these increases are insufficient to bring investment in the goods-producing sector, or in its major components—mining and manufacturing—above the 1971 level. House-building activities are expected to rise by 8 per cent.

The expansion in the service-producing sector is widely diffused through most of the component industries. The greatest rate of growth is likely to be in the trade, finance, and commercial services group with an increase of 14 per cent and in utilities with an increase of 6 per cent. All levels of government indicated

CAPITAL EXPENDITURES
Summary by Provinces, 1970-72¹
(Millions of dollars)

Province		Construc- tion	Machinery and Equipment	Total
Newfoundland	1970	369	134	503
	1971	497	159	656
	1972	548	161	709
Prince Edward Island	1970	34	20	54
	1971	48	21	69
	1972	57	21	78
Nova Scotia	1970	403	204	607
	1971	377	237	614
	1972	437	160	597
New Brunswick	1970	273	198	471
	1971	281	194	475
	1972	317	151	468
Quebec	1970	2,193	1,225	3,418
	1971	2,671	1,300	3,971
	1972	2,914	1,542	4,456
Ontario	1970	4,127	2,801	6,928
	1971	4,708	2,721	7,429
	1972	4,799	2,957	7,756
Manitoba	1970	575	296	871
	1971	577	246	823
	1972	638	281	919
Saskatchewan	1970	345	258	603
	1971	389	277	666
	1972	404	300	704
Alberta	1970	1,431	526	1,957
	1971	1,482	606	2,088
	1972	1,530	612	2,142
British Columbia ²	1970	1,569	817	2,386
	1971	2,084	913	2,997
	1972	2,041	890	2,931
Canada	1970	11,319	6,479	17,798
	1971	13,114	6,674	19,788
	1972	13,685	7,075	20,760

¹Actual expenditures 1970, preliminary actual 1971, intentions 1972.

²Includes Northwest Territories and Yukon.

increases in their capital spending in 1972, while spending by institutions was moderately lower.

Capital spending was expected to be higher in all major regions of Canada except in British Columbia and the Territories where it would decline by about 2 per cent. Increases were expected to range from 12 per cent in Quebec to 5 per cent in the Prairie region, 4 per cent in Ontario, and 2 per cent in the Atlantic region. Individual projects and special regional conditions are often reflected in changes in regional spending in any one year. For example, in the manufacturing industries group in Ontario, expansion programs by firms in the non-metallic mineral products, rubber products, textiles and clothing and knitting mills industries are slightly more than offset by declines in other areas, particularly paper products and primary metals. In the Prairie Provinces, declines in spending by manufacturers in

Manitoba, by manufacturers and utilities in Saskatchewan, and by the primary and construction industries in Alberta are more than offset by gains in utilities, institutions, and government departments in Manitoba and in the trade, finance, and commercial services group in Saskatchewan and Alberta. Increased spending by the utilities industry group has contributed significantly to the higher level of outlays in Ontario and Manitoba, while increased investment in manufacturing has added significantly to the total expenditures in Quebec and Newfoundland. Increased spending on housing was expected in all regions.

CAPITAL EXPENDITURES
Summary by Sectors, 1970-72¹
(Millions of dollars)

Sector		Construc- tion	Machinery and Equipment	Total
Agriculture and fishing	1970	225	615	840
	1971	225	748	973
	1972	224	793	1,017
Forestry	1970	48	42	90
	1971	44	41	85
	1972	52	51	103
Mining, quarrying and oil wells	1970	996	352	1,348
	1971	1,291	414	1,705
	1972	1,225	433	1,658
Manufacturing	1970	997	2,226	3,223
	1971	877	2,072	2,949
	1972	809	2,068	2,877
Utilities	1970	2,044	1,584	3,628
	1971	2,321	1,654	3,975
	1972	2,453	1,766	4,219
Construction industry	1970	15	259	274
	1971	16	275	291
	1972	17	283	300
Housing	1970	3,138	—	3,138
	1971	3,929	—	3,929
	1972	4,254	—	4,254
Trade — Wholesale and retail	1970	210	335	545
	1971	172	315	487
	1972	197	352	549
Finance, insurance and real estate	1970	419	138	557
	1971	469	141	610
	1972	508	144	652
Commercial services	1970	131	512	643
	1971	173	534	707
	1972	210	638	848
Institutional services	1970	1,095	216	1,311
	1971	1,180	230	1,410
	1972	1,129	233	1,362
Government departments	1970	2,001	200	2,201
	1971	2,417	250	2,667
	1972	2,607	314	2,921
Totals (all sectors)	1970	11,319	6,479	17,798
	1971	13,114	6,674	19,788
	1972	13,685	7,075	20,760

¹Actual expenditures 1970, preliminary actual 1971, intentions 1972.

Housing

The final count for housing starts throughout Canada in 1971 established a record by a wide margin. The total of 233,653 units exceeded the previous production high, set in 1969 at 210,415, by better than 23,000 dwellings.

The principal impetus to the 1971 performance was the exceptionally high volume of financial support channelled into the mortgage market by the private sector, particularly in the form of mortgages insured by the National Housing Act. The aggregate of all loans extended by approved lenders operating under the Act in 1971 surpassed \$1,800 million, a level far above that of any previous year and slightly over twice the total of loans approved in 1970. About 113,400 new and existing dwellings were involved and it was the first time that NHA-insured loans made by approved lenders were authorized for over 100,000 units in a single year.

Of equal importance to the increase in the money supply was the easing of the interest rates at which these funds were available. Between January and December 1971 rates on all types of NHA loans decreased by between one half and three quarters of a percentage point. Conventional rates dropped by nearly one full point. This improved financial climate for housing continued into the first half of 1972. However, as the economy in general gained momentum thereby creating a demand for investment funds, the decline was expected to be less marked and rates were expected to level off.

*Central Mortgage & Housing
(Colour photo missing)*

The C.R. Vlat Foundation sponsored this senior citizens' home in Toronto, Ont.





Town houses in Vancouver, B.C. Interestingly designed row housing is fashionable in cities across Canada.

*Selwyn Pullan Photography/
Central Mortgage & Housing*

All in all, it is quite possible that total housing starts in 1972 will approximate 240,000. The groundwork for such a performance had already been laid through implementation of federal housing policies evolved in the last three years and the peak level of direct lending commitments by Central Mortgage and Housing Corporation in the last two months of 1971.

The allocation of federal housing funds has, since 1969, been directed almost entirely to increasing the supply of dwellings for those in the lower income range. As a result, in the three years 1969-1970-1971 federal housing programs have produced more accommodation of this nature than in all previous years in Canada's housing history — some 125,000 units or about one in five of all new dwellings built during the three-year period. The current rate of housing production is well above that required to meet the federal objective of one million new dwellings in the five-year period ending in 1974.

The key to further expansion will be a continuing and steady flow of private funds into the mortgage market. For this purpose the Minister of State for Urban Affairs introduced new financing mechanisms in 1972. The federal government on its part will continue to direct its housing budget to the supply of low-income housing through the normal direct-lending programs available under the National Housing Act, together with a variety of special initiatives should they be required.

Government Finance

Federal Finance. The scope of the responsibilities assigned to the federal government by the British North America Act, together with the programs that have been introduced in the exercise of these responsibilities, have grown considerably since 1867 and have also become very complex. As a consequence, intricate financial arrangements between federal, provincial, and local governments have been developed to raise and share the revenues required to meet the greatly increased expenses faced by each level of government. The Federal-Provincial Fiscal Arrangements Act authorizes tax collection agreements and certain fiscal payments to provinces. "Established Programs" legislation of 1965 provides for the voluntary withdrawal by provincial governments from certain federal-provincial joint programs in exchange for increased tax abatements and tax equalization payments. Quebec is the only province to have availed itself of this option.

Federal government revenue, which excludes that collected on behalf of provincial governments, continues to come essentially from taxation. From fiscal year 1959-60 through fiscal year 1969-70, taxes have provided approximately 90 per cent of the gross general revenue. During this period, the revenue from corporate and individual income tax and general sales tax has ranged from 70 to 74 per cent of the gross general revenue. Corporate income-tax revenue, as a percentage of gross general revenue, has fallen from a high of 22 per cent in 1959-60 to 20 per cent in 1969-70, and individual income-tax revenue has risen from 31 to 39 per cent.

The largest items of federal government expenditure continue to be those related to social welfare, defence, charges on the national debt, and unconditional transfer payments to provincial and local governments. The cost of social welfare, as a proportion of the gross general expenditure, continued to rise and accounted for 23 per cent of the latter in 1969-70 against 20 per cent in 1959-60. Cost of defence services fell from 25 to 13 per cent over the same period, while debt charges and unconditional transfer payments to provincial and local governments remained fairly stable, at approximately 12 per cent and 8 per cent respectively.

During 1969-70 the major social welfare costs were the payment of \$1,731 million in old-age security, \$618 million in family allowances, and \$309 million in conditional shared-cost program grants to provincial governments.

The net debt of the government of Canada was \$16,943 million as of March 31, 1970, a decrease of \$393 million from the previous year; it amounted to 20 per cent of the gross national product. Unmatured bond debt outstanding at March 31, 1970, was \$19,742 million, while treasury bills outstanding amounted to \$2,895 million.

Federal-Provincial Programs. Federal government expenditures on joint federal-provincial programs have increased consistently throughout the past decade. The most common type administered by the provinces are called "conditional grant" programs. They receive financial support from the federal government, provided they are administered in accordance with conditions specified by that government. Various health and welfare programs come within this category. The Health Resources Fund Act, for example, provides that the federal govern-

**Gross General Revenue and Expenditure
of the Federal Government
Year Ended March 31, 1970**

Source	Revenue \$'000	Per- centage
Taxes—		
Income—		
Corporations.....	2,839,061	19.5
Individuals	5,588,121	38.5
On certain payments and credits to non-residents	248,511	1.7
General sales.....	2,294,341	15.8
Excise duties and special excise taxes—		
Alcoholic beverages	334,849	2.3
Tobacco	486,280	3.3
Other commodities and services	73,087	0.5
Customs import duties	818,283	5.6
Estate taxes	100,631	0.7
Other	5,921	—
Total Taxes	12,789,085	88.0
Privileges, licences and permits	27,465	0.2
Sales and services	375,475	2.6
Fines and penalties	5,361	—
Interest and Foreign Exchange Fund net profit	609,595	4.2
Own enterprises—Remitted profits.....	246,921	1.7
Bullion and coinage	19,940	0.2
Postal service	430,628	3.0
Other revenue (including conditional transfers from provincial governments)...	19,168	0.1
Total Gross General Revenue	14,523,638	100.0
Function	Expenditure \$'000	Per- centage
General government services	735,928	5.2
Protection of persons and property	274,491	1.9
Transportation and communication	594,876	4.2
Health	1,036,798	7.4
Social welfare	3,165,407	22.5
Recreational and cultural services	103,283	0.7
Education	638,970	4.5
Natural resources and primary industries	911,459	6.5
Trade and industrial development	217,196	1.5
National capital region planning and development.....	17,170	0.1
Defence services	1,814,664	12.9
Veterans' pensions and other benefits.....	424,258	3.0
Debt charges (excluding retirements)	1,725,237	12.3
Own enterprises—Payments in respect of deficits	246,003	1.8
International co-operation and assistance	180,650	1.3
Unconditional transfers to provincial governments—		
Statutory subsidies	31,794	0.2
Federal-provincial fiscal arrangements	729,240	5.2
Compensation due to withdrawal from joint programs	164,520	1.2
Share of income tax on public utilities	23,847	0.2
Grants in lieu of taxes on federal property (for local purposes)	2,124	—
Unconditional transfers to local governments—		
Grants in lieu of taxes	48,246	0.3
Special grants	700	—
Other expenditure	998,581	7.1
Total Gross General Expenditure	14,085,442	100.0

ment will set aside \$500 million to assist provinces in the acquisition, construction, or renovation of health training facilities during the period from January 1, 1966, to December 31, 1980. The terms of the Act provide that provinces are paid 50 per cent of the reasonable costs of projects approved by the Minister of National Health and Welfare. Projects that may qualify under this program include those related to medical schools, teaching hospitals, and schools of nursing, dentistry, and pharmacy. Other programs provide that the federal government will share in the cost of allowances to the aged, blind or disabled. Joint programs also provide for federal assistance in respect of hospital care, medical care, fitness and amateur sport, and the development and strengthening of welfare services through general and professional training and research. A more recent example of the "conditional grant" program is that designed to promote regional economic development and expansion.

Mac N + W



The costs of social welfare, such as old age pensions, continue to be the largest item in the federal budget.

Provincial Finance. Under the terms of the British North America Act, provincial governments can use "direct taxation within the province in order to the raising of a revenue for provincial purposes." Theoretically their powers of taxation are restricted in the sense that they cannot impose indirect taxes. In practice, however, provincial governments enjoy fairly wide taxing powers because of the judicial interpretation given to the concept of a direct tax. Over the years, the courts have held that a direct tax is one "which is demanded from the very person who it is intended or desired should pay it." This interpretation allows the provinces to tax all possible bases of imposition provided their taxes are levied in such a way as to be borne directly by a recipient of income if it is an income levy, by a holder of capital or by a succession beneficiary if it is a capital or succession levy, or by an ultimate purchaser or user if it is a sales or excise levy. The only taxes which the provinces may not raise are those which are expected to be passed on to

Finances of the Federal Government Years Ended March 31, 1868-1970¹

Year	Total Budgetary Revenue	Per Capita Revenue ²	Total Budgetary Expenditure	Per Capita Expenditure ²	Net Debt at End of Year	Net Debt per Capita ³
	\$	\$	\$	\$	\$	\$
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	286.37
1931	357,720,435	35.04	441,568,413	43.26	2,261,611,937	217.97
1941	872,169,645	76.63	1,249,601,446	109.80	3,648,691,449	317.08
1951	3,112,535,948	226.99	2,901,241,698	211.58	11,433,314,948	816.14
1952	3,980,908,652	284.17	3,732,875,250	266.46	11,185,281,546	773.59
1953	4,360,822,789	301.60	4,337,275,512	299.97	11,161,734,269	751.88
1954	4,396,319,583	96.15	4,350,522,378	293.06	11,115,937,064	727.15
1955	4,123,513,300	269.74	4,275,362,888	279.67	11,263,080,154	717.49
1956	4,400,046,639	280.29	4,433,127,636	282.40	11,280,368,964	701.47
1957	5,106,540,880	317.55	4,849,035,298	301.54	11,007,651,158	662.71
1958	5,048,788,279	303.96	5,087,411,011	308.29	11,046,273,890	646.74
1959	4,754,722,689	278.38	5,364,039,533	314.05	11,678,389,860	667.99
1960	5,289,751,209	302.57	5,202,861,053	326.20	12,089,194,003	676.51
1961	5,617,679,854	314.36	5,958,100,946	333.41	12,437,115,095	681.93
1962	5,729,623,724	314.16	6,520,645,674	357.53	13,228,137,045	712.34
1963	5,878,692,431	316.57	6,570,325,358	353.81	13,919,769,972	736.65
1964	6,253,704,039	330.92	6,872,401,519	363.70	15,070,149,452	781.24
1965	7,180,309,787	373.29	7,218,274,552	375.27	15,504,472,544	789.27
1966	7,695,820,204	391.76	7,734,795,525	393.75	15,543,447,865	776.58
1967	8,376,181,844	418.49	8,797,684,457	439.55	15,964,950,478	782.40
1968	9,076,589,448	444.82	9,871,364,117	483.77	16,759,725,147	807.93
1969	10,191,135,794	491.28	10,767,248,637	519.05	17,335,837,990	823.13
1970	12,323,845,349	585.15	11,931,289,475	566.51	16,943,282,116	792.59

¹These figures are derived from the Public Accounts of Canada and differ from those in the preceding table. Revenue and expenditure in this table are on a gross basis and net debt here represents the excess gross debt over net active assets.

²Based on estimated population on June 1 of the preceding year.

³Based on estimated population on June 1 of the same year.

other persons and are thus deemed to be indirect, such as import duties or sales and excise taxes imposed at other than the retail level of trade.

Federal-Provincial Fiscal Arrangements. Since provinces vary greatly in size, population, and the nature and extent of their economic development, it follows that their fiscal capacity, that is, their capability to raise revenues and thus to provide public services, varies widely. Over the years, measures have been adopted by the federal government in consultation with the provinces to attenuate disparities of fiscal capacity among the provinces. These measures have been embod-

ied in a series of federal-provincial fiscal arrangements which—besides redistributing part of the revenue collected by the federal government among the less affluent provinces in the form of equalization payments—have provided for certain agreements respecting the collection of the income and inheritance taxes.

The present federal-provincial fiscal arrangements became operative on April 1, 1972, and are scheduled to terminate on April 1, 1977. These arrangements are fairly complex but in essence they provide for a system of equalization under which payments are made to certain provinces to raise their revenues from various stipulated sources to a level that would prevail if calculated national average rates of return from these sources applied in these provinces. The arrangements also provide for special additional payments to the Maritime Provinces and incorporate agreements for the collection of provincial income taxes. These tax-collection agreements were originally to run for the same period as the arrangements. They were, however, extended indefinitely in 1968, subject to termination on due notice. Under the arrangements, certain provinces receive a substantial part of their revenues in the form of unconditional transfer payments, of which equalization accounts for a significant share.

Provincial Revenue and Expenditure. Estimated general revenue of all provinces for the fiscal year 1971-72 increased by \$1,405.1 million or 10.40 per cent over the fiscal year 1970-71. This growth in estimated revenue is largely attributable to the natural growth of certain important tax bases; namely, personal income and general sales which accounted for 4.82 per cent. Transfers from other levels of government (federal and municipal) accounted for 2.84 per cent. The other provincial revenue sources yielded an increase of 2.74 per cent.

Estimated expenditure of all provinces in the fiscal year 1971-72 increased by \$2,011.6 million or 14.24 per cent over 1970-71. Additional outlays for health and welfare account for 5.22 per cent and increases in outlays for education account

Nat. H&W.



Provincial expenditures on health and social welfare amounted to \$5,815 million in 1971-72.

Estimated Gross Provincial Revenue in 1971-72

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	Millions of dollars										
(1) Personal income tax	27.3	4.8	52.3	47.0	1,176.0	1,040.7	122.7	70.1	190.0	265.6	2,996.5
(2) Corporate income tax	7.7	1.2	11.6	9.1	189.0	290.0	30.0	14.1	53.8	77.5	684.0
(3) General sales tax	48.3	9.2	75.1	54.7	585.1	759.0	69.4	71.9	—	206.0	1,878.7
(4) Motor fuel tax	23.8	6.2	41.2	34.5	318.6	437.0	46.0	52.5	82.8	104.7	1,147.3
(5) Hospital insurance and medicare premiums	—	—	—	—	—	610.7	29.0	19.0	55.0	70.0	783.7
(6) Other provincial taxes	8.0	2.6	7.1	41.7	393.8	222.7	28.9	14.4	30.6	66.1	815.9
(7) Privileges, licences and permits	17.0	2.1	16.2	21.3	255.6	276.3	36.0	59.5	321.4	202.0	1,207.4
(8) Liquor profits	9.2	3.5	23.2	20.0	88.0	201.5	25.4	26.6	58.2	68.5	524.1
(9) Non-tax receipts from own sources	26.6	8.3	53.0	20.9	182.3	453.6	37.9	94.8	128.1	99.6	1,105.1
(10) Conditional transfers from other levels of government	121.4	30.4	118.5	119.7	472.3	974.4	147.6	122.6	245.2	253.5	2,605.6
(11) Unconditional transfers from other levels of government	120.8	21.7	98.6	97.2	693.0	11.4	52.9	56.9	9.5	2.7	1,164.7
Total gross provincial revenue	410.1	90.0	496.8	466.1	4,353.7	5,277.3	625.8	602.4	1,174.6	1,416.2	14,913.0

Estimated Gross Provincial Expenditure in 1971-72

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	Millions of dollars										
(1) General government	17.5	7.5	17.2	27.4	155.9	197.6	19.9	27.5	61.0	57.0	588.5
(2) Protection of persons and property	8.9	1.7	10.8	8.7	182.6	238.7	20.4	17.8	45.7	41.7	577.0
(3) Transportation and communications	52.9	10.2	39.0	70.4	494.2	550.6	49.6	82.7	105.7	159.2	1,614.5
(4) Health	83.6	18.5	198.8	106.0	1,166.2	1,558.2	200.8	170.3	355.7	417.2	4,275.3
(5) Social welfare	48.1	8.8	55.0	44.3	680.0	358.3	68.5	49.8	90.5	136.2	1,539.5
(6) Education	124.7	26.4	156.5	150.2	1,350.9	1,751.2	180.6	170.7	408.3	405.5	4,725.0
(7) Natural resources and primary industries	24.1	4.8	17.3	20.5	147.9	176.5	43.1	34.8	58.7	86.5	614.2
(8) Debt charges (exclusive of debt retirements)	43.2	8.2	64.0	34.4	278.6	439.2	28.2	44.2	80.5	0.9	1,021.4
(9) Unconditional transfers	3.3	0.6	10.2	20.3	156.9	66.4	5.0	—	41.5	47.7	351.9
(10) All other expenditure	93.7	8.6	18.5	17.0	180.1	368.7	28.8	26.4	50.2	37.6	829.6
Total gross provincial expenditure	500.0	95.3	587.3	499.2	4,793.3	5,705.4	644.9	624.2	1,297.8	1,389.5	16,136.9

for 3.66 per cent. Additional expenditure required to service provincial indebtedness accounts for 2.00 per cent. The other expenditure functions account for 3.36 per cent.

Provincial Governments' Financial Assets and Liabilities. The financial assets of provincial governments at March 31, 1969, and March 31, 1970, amounted to \$8,493.8 million and \$10,035.3 million respectively for an increase of \$1,541.5 million or 18.1 per cent between these dates. Investments in Canadian securities and loans and advances accounted for 88.1 per cent of the total increase.

The liabilities of provincial governments at March 31, 1969, and March 31, 1970, amounted to \$11,901.3 million and \$13,372.4 million respectively for an increase of \$1,471.1 million or 12.4 per cent during the period. The dominant position of bonds and debentures was further consolidated as the relative importance of this item increased from 79.9 to 81.4 per cent of total liabilities. For provincial government financing, the Canada Pension Plan Investment Fund has become a major source of capital funds. Bonds and debentures issued to this fund and outstanding at March 31, 1969, and March 31, 1970, amounted to \$1,741.6 million and \$2,476.8 million respectively.

The excess of liabilities over financial assets was reduced from \$3,407.5 million to \$3,337.1 million or by 2.1 per cent between March 31, 1969, and March 31, 1970.

Local Government Finance. Local governments are established to provide services that the provincial and territorial governments consider best administered at the local level. The extent to which these services are furnished by local governments and the types of local governments providing the services vary widely; the services generally extended are protection (police, firefighting, and the like), transportation (roads, airports, and some marine services), environmental health (water supply, sanitation, garbage and waste disposal), public health and welfare, environmental development (planning and zoning, housing), recreation, culture, and education. In addition, a number of municipalities provide such services as urban transit, electricity and gas distribution, and telephone communications through enterprises of their own creation generally called utilities.

Traditionally, local government services, apart from those provided by enterprises, have been financed by the levying of taxes on real property. (Enterprises are mainly financed from the proceeds of sales of their services.) The real property tax, however, has proved inadequate in recent years to meet requirements for many additional services and for more elaborate types of existing services resulting from increased urbanization and the rising standard of living. As a result, real property taxation now accounts for about 85 per cent of revenue derived by local governments from their own sources but for slightly less than 46 per cent of their total revenue. The balance of local government revenue consists of transfers from the other levels of government. Most of these transfers are made by the provincial and territorial governments to assist local governments to provide specific services. In 1971 gross general revenue of local governments in Canada (excluding enterprises) was estimated at \$8,585 million. Slightly over half the expenditure made by local governments is for the provision of education—principally primary



In 1971-72 provincial governments spent \$4,725 million on education.

D.E. & Dept of Ed

and secondary schooling. Transportation services account for about 12 per cent of expenditure, environmental health for 9 per cent, protection for 7 per cent, and the remaining functions for lesser percentages. In 1971 gross general expenditure of local governments in Canada (excluding enterprises) was estimated at \$9,812 million. Approximately 6 per cent of local government expenditure is for charges relative to debt, exclusive of principal repayments. At the end of 1969 total local government debt amounted to over \$8,000 million.

Two further developments which are of increasing importance in local government finance should be noted. First, to enhance the borrowing capabilities of local governments, a number of the provinces have established financing authorities to which local governments sell all or part of their new debenture issues. The financing authority then loans either the proceeds of its own issues, or funds borrowed from the Canada Pension Plan, to the local governments. In either case the aim is to enable local governments to borrow on terms more favourable than they could secure on the open market.

Second, a number of provinces have developed systems under which part of the real property taxation levied on owners is either rebated at the time of payment of taxes or is subsequently refunded to the taxpayer. The local governments are reimbursed by the provincial governments for these rebates or refunds.

A different method for easing the burden of real property taxation was introduced in Ontario in 1972. Part of the taxes actually paid by homeowners (or imputed to be paid by tenants) can now be claimed as a tax credit against provincial income taxes.

Banking, Savings, and Insurance

The Canadian dollar is a decimal currency with 100 cents to the dollar. Currency in the form of bills is issued by the Bank of Canada. The coinage—nickel coins in denominations of one dollar, 50 cents, 25 cents, 10 cents, and 5 cents and bronze 1-cent coins—is issued by the Royal Canadian Mint. At the end of 1971, Bank of Canada notes totalling \$3,506 million and coin totalling \$488 million were in circulation.

Although many economic transactions in Canada involve payments made in the form of Bank of Canada notes and coin, an increasing proportion of payments, and certainly virtually all large ones, are made by cheque. A cheque is an order addressed to a bank to pay a third person named in the cheque a specified amount out of the deposit account maintained at that bank by the person writing the cheque. Deposit liabilities held at the chartered banks are considered a convenient means of settling transactions and are usually thought of as money because they are generally accepted in settlement of debts.

The banks offer three types of chequeable accounts: current accounts, personal chequing accounts on which no interest is paid, and chequeable personal savings accounts on which interest is paid. There are also non-chequeable savings accounts on which the banks pay a higher rate of interest. The banks as a group operate extensive facilities for clearing cheques drawn on one bank and cashed in another.

Malak (missing)



On April 30, 1971, the chartered banks had 21,656,872 deposit accounts with an average deposit of \$1,381 in each account.

Banks

There are nine chartered banks currently operating in Canada most of which are owned by a large number of individual Canadian shareholders. The majority of the banks have held banking charters (that is, licences from Parliament) for many years, but two new banks have opened their doors for business in the past five years. In August 1970, however, one of the new banks merged with another longer established bank and in March 1972 royal assent was given to the charter of another bank. Each of the banks has a network of branches and in the largest banks the branch network extends throughout the country. At the end of 1971, the banks operated a total of 6,349 branches in Canada. By the yardstick of total assets the two largest Canadian banks are among the top 20 banks in the world and the three largest Canadian banks are among the 30 largest banks in the world.

In addition to providing deposit accounts, the chartered banks offer their customers a wide variety of other services including facilities for investing in stocks and bonds, safekeeping for valuables, and loans for a variety of purposes and periods of time. Although bank loans are mainly for relatively short terms, the banks also make longer term mortgage loans for commercial and residential construction. To be able to meet unexpected withdrawals of deposits, the banks maintain reserves, mainly in the form of currency on hand and deposits with the Bank of Canada. The Bank of Canada performs the function of a banker for the chartered banks.

Many of the chartered banks are also active in international business and provide domestic banking services in a number of other countries, especially in the Caribbean area. The banks maintained 272 branches and agencies outside Canada at the end of 1971.

Non-Bank Financial Institutions

In 1971, the assets of the banks accounted for some 60 per cent of the total assets of the major Canadian financial intermediaries. Their main competitors are trust companies, mortgage loan companies, *caisses populaires*, credit unions, one Quebec savings bank, and sales finance and consumer loan companies. Investment dealers and stockbrokers also play an important part in the financial system.

While the chartered banks remain the largest financial institutions in Canada, the postwar period has witnessed a rapid growth and development of competing institutions. Those growing fastest in recent years have been the trust companies and the mortgage loan companies, of which there are approximately 110 operating across Canada. Both types of institutions accept deposits and have networks of branches. Although they compete with the banks to attract personal savings deposits, most of their funds are raised through the sale of fixed term debentures and investment certificates. A substantial portion of the assets of both trust and mortgage loan companies is held in the form of mortgages. Trust companies, in addition, administer private and corporate pension funds and the estates of individ-

uals, manage companies in receivership, and act as financial agents for municipalities and corporations. Mortgage and trust companies are licensed and supervised either by the federal Department of Insurance or by provincial authorities.

Another important type of financial intermediary among Canadians is the credit union or *caisse populaire* as it is called in Quebec. The *caisses populaires* began operations around 1900 and acted mainly as savings institutions for lower income groups. Later, some began lending to members at low cost, in addition to providing savings facilities. Unlike the chartered banks, most of which have been in operation since the turn of the century, virtually all of the credit unions and *caisses populaires* were founded during the past generation. Their growth has been due in large measure to their co-operative foundation and to the local character of individual credit unions and *caisses populaires*—a striking contrast to the development of many other institutions.

The Bank of Canada

The main function of the Bank of Canada is to regulate credit in the best interest of the economic life of the nation, so far as is possible by monetary action. The chartered banks have to maintain on a half-monthly basis the equivalent of 12 per cent of demand deposits and 4 per cent of notice deposits in the form of Bank of Canada notes and deposits at the Bank of Canada. In addition to these cash or primary reserves, the banks are required to maintain secondary reserves consisting of excess cash reserves, treasury bills, and day-to-day loans. These assets are easily converted into cash in case the need arises. The Bank of Canada carries out its monetary policy function by varying the amount of reserves available to the chartered banks. Because of the relationship the banks' reserves bear to their total

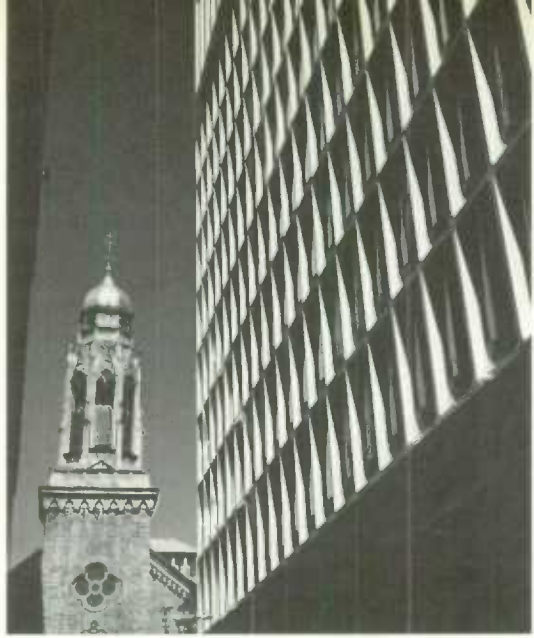


Patterson

The Toronto waterfront, with the Toronto-Dominion Bank's towers in the background.

*Marie
Chapman*

The Royal Bank, Place Youville,
Quebec, Que.



deposits, the Bank of Canada can induce the banks to expand or contract their assets in order to bring about the credit conditions that it considers appropriate. To affect the level of the chartered banks' reserves, the Bank of Canada acquires and disposes of a variety of financial assets.

The Bank also makes short-term advances to chartered banks or to banks operating under the Quebec Savings Bank Act as well as to the government of Canada. The minimum rate at which the Bank is prepared to make advances is called the Bank Rate, and the Act requires that it be made public at all times. The Bank acts as fiscal agent for the government of Canada; it operates the government's deposit account through which flow virtually all government receipts and expenditures, handles debt management and foreign exchange transactions for the government, and acts as an adviser.

Insurance

At the end of 1970, Canadians owned over \$121,000 million of life insurance. With an average of \$20,800 in force per household in 1970, Canadians are well insured compared to people in other countries.

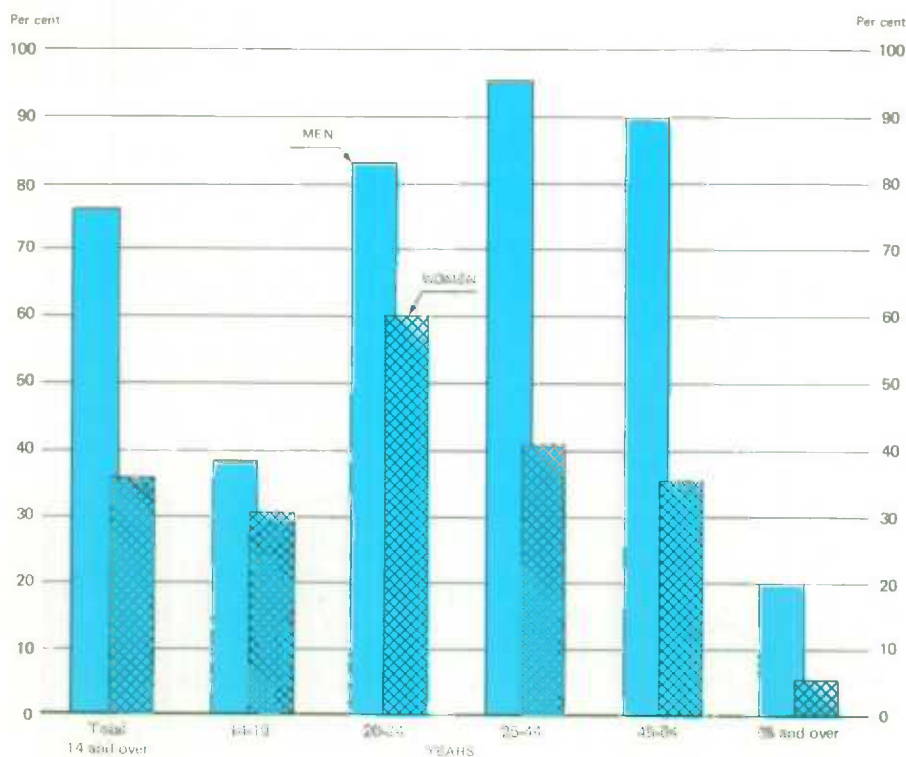
The Canadian life insurance business consists of about 240 companies and fraternal benefit societies, over half of which are federally registered companies. The latter group of companies writes more than 90 per cent of the total business of the industry and holds assets in Canada of almost \$15,000 million. In addition to life insurance, most of the companies sell policies to cover expenses resulting from illness and to compensate policyholders for wages not received during illness. Insurance may be purchased from a licensed insurance salesman or through a "group" plan operated by an employer, a professional association, a union, and so on.

In addition to those companies selling life insurance, about 350 companies sell insurance for fire, theft, automobile damages, and other casualties. The federally registered companies selling such insurance have assets in Canada of almost \$3,000 million.

The Labour Force and Its Earnings

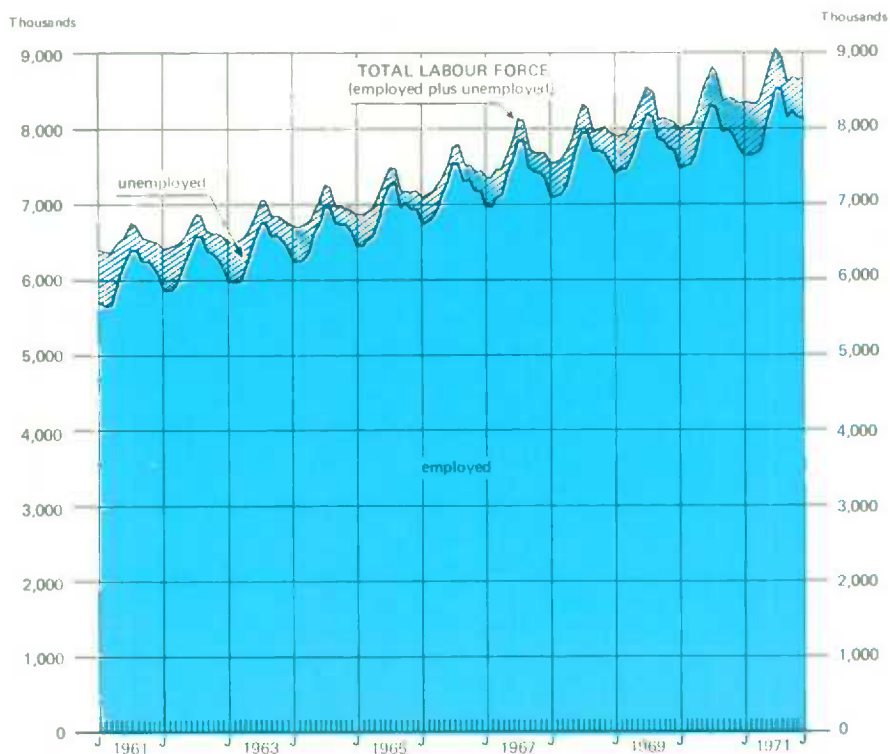
In the labour force in 1971, there were 8,631,000 persons aged 14 years and older, or 56.1 per cent of that age group, who were either working or looking for work. The chart below illustrates the participation in the labour force by the major age and sex groups in 1971.

**Percentage of the Population in the Labour Force, by Age and Sex
1971 Annual Averages**



The second chart gives an historical picture of the size of the labour force. The increase over the past ten years is attributable to the rapid growth in population and the large number of persons, especially women, joining the labour force. On average in 1971, there were 8,079,000 persons employed while there were 552,000 persons unemployed. The unemployed represented 6.4 per cent of the labour force. There were 6,757,000 persons not in the labour force. The third chart gives an indication of the over-all labour force status for 1970 and 1971.

The Labour Force, Employed and Unemployed, 1961-71, by Months

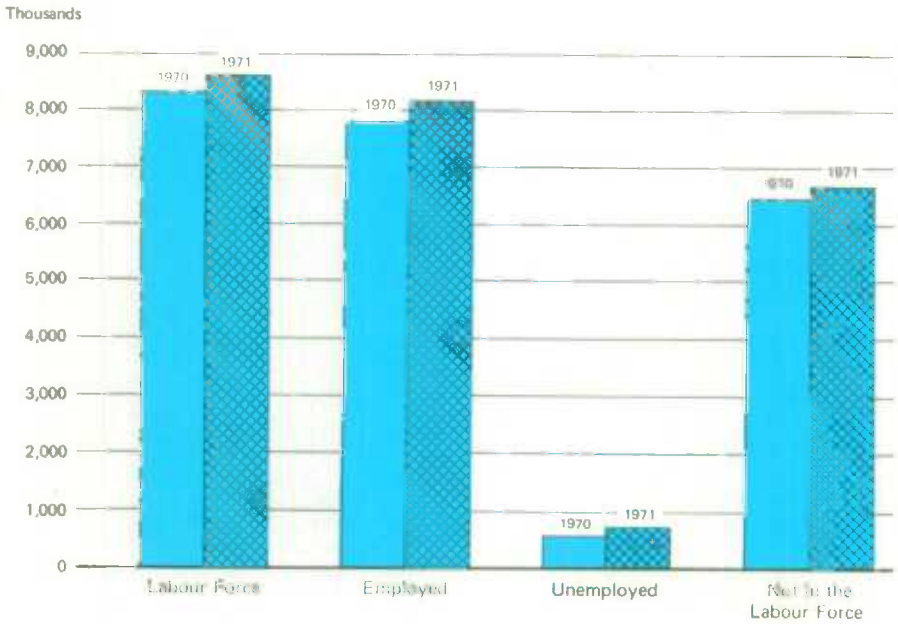


Earnings and Hours of Work

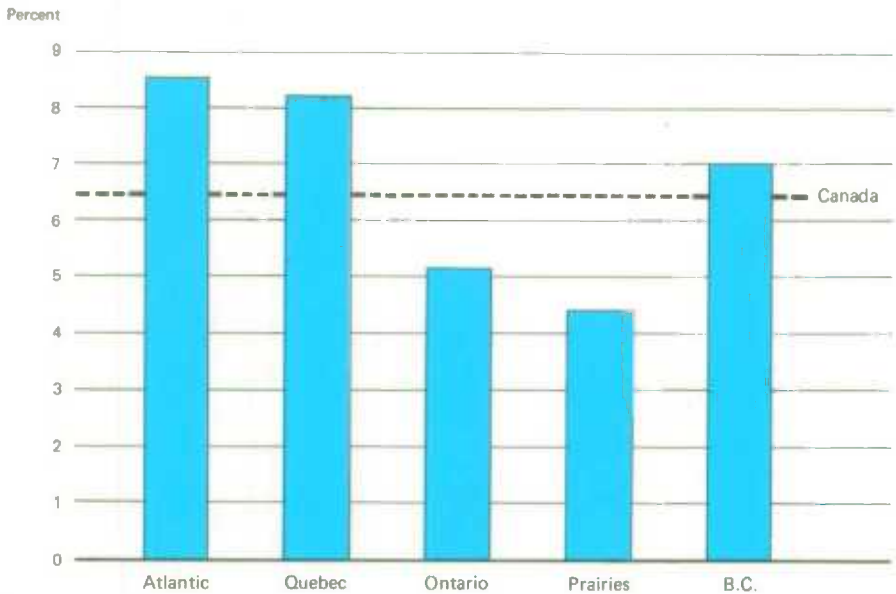
Statistics Canada obtains information on average weekly earnings, average weekly hours and average hourly earnings of employees from a monthly survey of some 51,000 non-agricultural establishments in Canada having 20 or more employees in at least one month of the year. Such establishments include slightly less than 60 per cent of the total employment in Canada.

Average Weekly Earnings. Average weekly earnings of wage-earners and salaried employees in all industries surveyed were \$137.66 in 1971, 8.5 per cent (\$10.84) above the preceding year's level. Increases ranged from 7.6 per cent in mining and finance, insurance, and real estate to 13.0 per cent in forestry. Average weekly earnings were up 8.5 per cent in manufacturing and 12.6 per cent in construction, from earnings in 1970.

Labour Force Status, 1970 and 1971, Annual Averages



Unemployment Rate, by Region, 1971 Annual Averages



Alberta
Dept of
Industry
&
Tourism
(missing)



Working on an oil rig near
Looma, Alta.

Average Weekly Earnings, Specified Industries for Canada, Annual Averages, 1961, 1970, 1971

Industry	1961	1970	1971 ¹	Changes from	
				1961-71	1970-71
				Dollars	Per cent
Forestry	79.02	137.60	155.46	+ 96.7	+13.0
Mining, including milling	95.57	164.70	177.27	+ 85.5	+ 7.6
Manufacturing	81.55	132.75	144.03	+ 76.6	+ 8.5
Durables	88.22	142.87	155.33	+ 76.1	+ 8.7
Non-durables	76.17	123.27	133.25	+ 74.9	+ 8.1
Construction	86.93	167.15	188.29	+116.6	+12.6
Transportation, communications, and other utilities	82.47	142.35	154.04	+ 86.8	+ 8.2
Trade	64.54	100.51	108.48	+ 68.1	+ 7.9
Finance, insurance, and real estate	72.82	120.52	129.70	+ 78.1	+ 7.6
Service	57.87	90.65	98.63	+ 70.4	+ 8.8
Industrial composite ²	78.24	126.82	137.66	+ 75.9	+ 8.5

¹Data for 1971 are preliminary.

²"Industrial composite" is the sum of all industries with the exception of agriculture, fishing and trapping, education and related services, health and welfare services, religious organizations, private households and public administration and defence. All statistics are based on returns received from employers having 20 or more employees in any month of the year.

Average Weekly Hours.* From 1970 to 1971, average weekly hours recorded small declines in most industries for which data are presented in the table. The declines ranged from 0.3 per cent in manufacturing and construction to 1.5 per

*Data on average weekly hours and average hourly earnings relate only to those hourly-rated wage-earners for whom data on hours are available.

cent in mining, including milling. Only urban transit showed an upward change of 0.5 per cent raising the average weekly hours to 42.2. Average weekly hours in manufacturing were up in Alberta (0.5 per cent) and British Columbia (1.1 per cent) and down in the remaining provinces except Nova Scotia and Ontario where there was no change.

Average Hourly Earnings.* In 1971, average hourly earnings were higher than the 1970 levels in all industries; all provinces shared in the increase in manufacturing. Construction recorded the largest increase (13.1 per cent) and the smallest gain was in highway and bridge maintenance (8.5 per cent). Average hourly earnings in manufacturing in British Columbia were 11.1 per cent higher than in the preceding year and the largest among the provinces. The smallest gain occurred in Manitoba (7.4 per cent).

*Data on average hours and average hourly earnings relate only to those hourly-rated wage-earners for whom data on hours are available.

**Average Hourly Earnings and Average Weekly Hours for
Hourly-rated Wage-earners, Annual Averages, 1961, 1970, 1971**

Industry and Province	Average Hourly Earnings			Average Weekly Hours			Changes in A.H.E.		Changes in A.W.H.		
	1961	1970	1971	1961	1970	1971 ¹	1961 to 1971	1970 to 1971	1961 to 1971	1970 to 1971	
	Dollars			Number			Per cent				
Industry											
Manufacturing	1.83	3.01	3.28	40.6	39.7	39.6	+ 79.2	+ 9.0	- 2.2	-0.3	
Durables	2.00	3.25	3.55	40.9	40.2	40.1	+ 77.5	+ 9.2	- 1.7	-0.3	
Non-durables	1.69	2.77	3.02	40.3	39.3	39.2	+ 78.7	+ 9.0	- 2.5	-0.3	
Mining, including milling	2.13	3.71	4.03	41.8	41.0	40.4	+ 89.2	+ 8.6	- 1.9	-1.5	
Construction	2.06	4.21	4.76	40.9	39.2	39.1	+131.1	+13.1	- 4.2	-0.3	
Building	2.16	4.36	4.91	38.9	37.5	37.4	+127.3	+12.6	- 3.6	-0.3	
Engineering	1.90	3.92	4.46	44.8	43.1	42.9	+134.7	+13.8	- 3.8	-0.5	
Other industries:											
Urban transit	2.12	3.65	4.00	41.7	42.0	42.2	+ 88.7	+ 9.6	+ 0.7	+0.5	
Highway and bridge maintenance	1.60	2.70	2.93	36.1	37.2	36.6	+ 83.1	+ 8.5	+ 3.0	-1.6	
Laundries, cleaners and pressers	1.04	1.74	1.91	39.8	37.0	36.7	+ 83.7	+ 9.8	- 7.0	-0.8	
Hotels, restaurants, and taverns	1.04	1.75	1.95	38.7	31.9	31.5	+ 87.5	+11.4	-17.6	-1.1	
Province—											
Manufacturing ²											
Newfoundland	1.69	2.53	2.72	40.5	40.5	40.1	+ 60.9	+ 7.5	—	-1.0	
Nova Scotia	1.58	2.45	2.67	40.3	39.2	39.2	+ 69.0	+ 9.0	- 2.7	—	
New Brunswick	1.55	2.47	2.71	40.9	40.5	40.1	+ 74.8	+ 9.7	- 1.0	-1.0	
Quebec	1.65	2.68	2.89	41.5	40.4	40.3	+ 75.2	+ 7.8	- 2.7	-0.3	
Ontario	1.94	3.18	3.47	40.5	39.8	39.8	+ 78.9	+ 9.1	- 1.7	—	
Manitoba	1.67	2.72	2.92	39.7	38.9	38.5	+ 74.9	+ 7.4	- 2.0	-1.0	
Saskatchewan	1.98	3.16	3.44	39.0	39.5	39.3	+ 73.7	+ 8.9	+ 1.3	-0.5	
Alberta	1.96	3.18	3.47	39.7	39.1	39.3	+ 77.0	+ 9.1	- 1.5	+0.5	
British Columbia	2.23	3.71	4.12	37.7	36.8	37.2	+ 84.8	+11.1	- 2.4	+1.1	

¹Data for 1971 are preliminary.

²Figures for P.E.I. are not available.

Manufacturing

Manufacturing is the largest of Canada's goods-producing industries. Because of this fact and of its importance to the growth of national productivity, its high demand for capital goods, and its contribution to exports, it plays an especially important role in the economy. Approximately one person out of four earning a wage or salary in Canada receives it from an employer in the manufacturing industries. These industries also account for roughly the same proportion of the gross domestic product at factor cost.

Monthly surveys showed an average number of employees of 1,667,600 in the manufacturing industries in 1970. By comparison, a monthly household sample survey showed an average number in all industries of 6,839,000 for 1970. (For a combination of reasons, the household survey shows a somewhat higher number of paid workers classified in manufacturing than does the mail survey of manufacturers.)

Preliminary data from monthly surveys show that Canadian manufacturers shipped \$49,183 million of their own products in 1971, an increase of 6.9 per cent over 1970. (By comparison, the annual average index of selling prices of manufacturing industries increased 2.1 per cent over the same period.)

An exact measure of exports of manufactures is not routinely compiled, but if exports of fabricated materials and end products are accepted as roughly equivalent to manufactured products, Canadian manufacturers did some processing on about five dollars out of every seven of exports of Canadian products in 1971. Domestic exports of fabricated materials amounted to \$6,020 million, compared to \$6,759 million for end products. This nearly equal status indicates the importance of industrial materials produced for export.

However, the end products — roughly equivalent to highly manufactured goods, though including very small values of non-manufactured goods — had increased in value more than nine and a half times since 1961, when they amounted to only \$706 million, while those of fabricated materials had only doubled, from a 1961 figure of \$2,916 million. This is a striking reflection of the growth of those sectors of Canadian manufacturing producing more highly fabricated goods. For various reasons, these values are not strictly comparable with the value of over-all shipments of manufactures by Canadian factories, but they give an impression of the approximate intensity of export activity as measured by shipments. The importance of production for export would be appreciably higher if it were feasible to use a measure of the Canadian value added that is exported, as the over-all manufacturing shipments of Canadian manufacturers necessarily contain double counting of output from manufacturers supplying each other with inputs.

Most manufacturing activity in Canada is highly mechanized and Canadian factories thus constitute a large market for capital equipment. This is partly because many types of natural resource processing are inherently capital intensive, that is, they employ a great deal of machinery, equipment, and buildings in proportion to employees. Industries producing highly manufactured goods like machinery and automobiles are increasingly important. In addition, high living standards, reflected in high wages, bring about economy in the use of workers and this often leads to increased mechanization.

In 1972, according to a survey of investment intentions, it was anticipated that



Swedish automobiles are now manufactured in Nova Scotia for the Canadian market.

A.S. Info Service

the manufacturing industries would be accounting for 29 per cent of all capital expenditures by business and government for new machinery and equipment. These expenditures represent, of course, not only the expansion of productive capacity but also some "deepening" of capital, or an increase in capital per employee or per unit of product.

Increasing capital intensity of production has probably been a prime cause of rise in productivity per employee in the manufacturing industries. Physical output in the manufacturing industries, per man-hour worked, increased at an average rate of 4.0 per cent over the 1946-70 period.

The largest manufacturing industry in Canada in 1971 was motor vehicle manufacturers, with manufacturing shipments estimated at \$3,746 million. This amount was 7.6 per cent of the shipments of all manufacturing industries and more than \$1,000 million greater than the shipments of the second largest industry, pulp and paper mills. As recently as 1966 motor vehicle manufacturers' shipments were in second place, behind those of pulp and paper mills. This rapid expansion reflects the effect of the Canada-United States Agreement on Automotive Products; this treaty has permitted manufacturers to ship new motor vehicles between the two countries free of customs duties, subject to certain stipulations, and has led to an expansion of the Canadian industry.

The third leading industry in terms of shipments according to 1971 preliminary data, petroleum refining, had slightly more than half the shipments of motor

vehicle manufacturers. Almost equal in shipments to petroleum refining, the slaughtering and meat processors industry was in fourth place. Iron and steel mills were fifth.

Four other industries had shipments in excess of \$1,000 million in 1971: dairy factories, motor vehicle parts and accessories, sawmills and planing mills, and miscellaneous machinery and equipment manufacturers.

The annual Census of Manufactures provides the most comprehensive, detailed set of figures on the manufacturing industries. While part of the data have been published for 1970, the latest complete results at the time of writing were for 1969.

The industry group which had shown the greatest annual average percentage growth in employees in the 1961-69 period was the machinery industries, closely followed by the transportation equipment industries. Though not large, the individual industry having shown the highest annual average percentage growth of employment was miscellaneous vehicle manufacturers; it owes this position to a distinctive Canadian technological development, the snowmobile, invented in Canada and now shipped to many countries. The second fastest-growing industry by this measure, carpet, mat, and rug manufacturers, reflected changing buyers' tastes and rising incomes. The third, fourth, and fifth most rapidly expanding employers were truck body and trailer manufacturers, plastics fabricators (not elsewhere specified) and manufacturers of motor vehicle parts and accessories.

An impression of the price trend in the Canadian manufacturing industries can be gained from the fact that the preliminary January 1972 index of all manufacturing industry selling prices was 24.2 per cent higher than its 1961 average.

Ellott Copper & Brass Co.

In the manufacture of beer, the mash is mixed in the vessel to the rear, the cereal is cooked, and the brew is processed in the brew kettle, in the foreground.



Manufacturing Statistics, by Province and Industry Group, 1969

Province or Territory and Group	Total Employees	Salaries and Wages	Value Added by Manufacture	Value of Shipments of Goods of Own Manufacture
	Number	Thousands of dollars		
Province or Territory				
Newfoundland	12,302	65,325	112,522	242,386
Prince Edward Island	2,606	9,746	18,468	56,859
Nova Scotia	33,229	165,640	298,533	731,475
New Brunswick	28,984	148,206	269,859	708,939
Quebec	529,027	3,166,701	5,674,438	12,810,214
Ontario	825,462	5,660,929	10,637,008	23,847,773
Manitoba	49,439	277,380	486,057	1,230,020
Saskatchewan	15,267	95,082	186,891	530,443
Alberta	52,354	335,104	702,820	1,849,271
British Columbia	126,449	922,804	1,744,524	3,917,832
Yukon Territory	95	528	1,078	1,681
Northwest Territories	118	894	1,394	3,545
Canada	1,675,332	10,848,340	20,133,593	45,930,438
Industry Group				
Food and beverage industries	224,111	1,293,546	2,832,912	8,223,767
Tobacco products industries	10,049	66,871	201,999	487,907
Rubber industries	25,259	171,187	331,749	632,748
Leather industries	31,192	137,530	207,353	412,274
Textile industries	75,351	399,543	747,964	1,688,357
Knitting mills	24,704	104,850	180,440	402,637
Clothing industries	99,091	412,543	636,603	1,331,832
Wood industries	92,524	541,323	951,215	2,149,584
Furniture and fixture industries	44,248	232,847	389,089	728,992
Paper and allied industries	121,877	926,270	1,712,574	3,833,814
Printing, publishing and allied industries	84,654	576,928	996,404	1,488,302
Primary metal industries	110,953	839,046	1,621,348	3,574,422
Metal fabricating industries (except machinery and transportation industries)	141,417	957,930	1,632,131	3,162,039
Machinery industries (except electrical machinery)	61,747	602,681	878,173	1,734,673
Transportation equipment industries	157,755	1,228,156	2,326,188	6,484,568
Electrical products industries	126,986	813,227	1,272,500	2,607,481
Non-metallic mineral products industries	51,888	357,764	738,938	1,286,857
Petroleum and coal products industries	15,633	151,653	317,168	1,720,340
Chemical and chemical products industries	78,441	592,574	1,381,328	2,581,824
Miscellaneous manufacturing industries	77,452	441,672	777,514	1,398,021

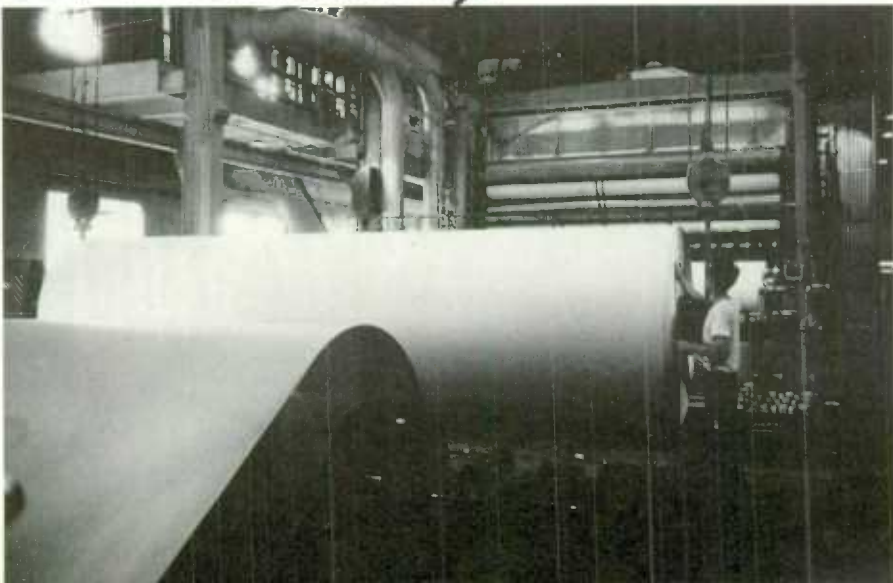
Most statistics in this chapter are on an establishment basis; they relate to units roughly equivalent to factories or plants. When whole corporations are classified by industry according to their principal activity, those principally engaged in manufacturing and logging had a net profit before income tax of 6.0 per cent of total revenues in 1971, but only 5.1 per cent in 1970. The average for the 1962-71 period was 6.4 per cent.

Manufacturing Statistics, Selected Years, 1920 to 1971

Year	Employees	Salaries and Wages	Value Added by Manufacture	Value of Shipments of Goods of Own Manufacture ¹
	Number		Thousands of dollars	
1920	598,893	717,494	1,621,273	3,706,545
1929	666,531	777,291	1,755,387	3,883,446
1933	468,658	436,248	919,671	1,954,076
1939	658,114	737,811	1,531,052	3,474,784
1944	1,222,882	2,029,621	4,015,776	9,073,693
1949	1,171,207	2,591,891	5,330,566	12,479,593
1953	1,327,451	3,957,018	7,993,069	17,785,417
1954	1,267,966	3,896,688	7,902,124	17,554,528
1955	1,298,461	4,142,410	8,753,450	19,513,934
1956	1,353,020	4,570,692	9,605,425	21,636,749
1957	1,340,948	4,778,040	..	21,452,343
1958	1,272,686	4,758,614	9,454,954	21,434,815
1959	1,287,810	5,030,132	10,154,277	22,830,836
1960	1,275,476	5,150,503	10,380,148	23,279,804
1961	1,352,605	5,701,651	10,434,832	23,438,956
1962	1,389,516	6,096,174	11,429,644	25,790,087
1963	1,425,440	6,495,289	12,272,734	28,014,888
1964	1,491,257	7,080,939	13,535,991	30,856,099
1965	1,570,298	7,822,919	14,927,753	33,889,425
1966	1,646,024	8,695,890	16,351,740	37,303,455
1967	1,652,827	9,254,190	17,005,696	38,955,389
1968	1,642,352	9,905,504	18,332,204	42,061,555
1969	1,675,332	10,848,340	20,133,593	45,930,438
1970	1,667,600 ²	11,445,800 ³	20,054,000 ⁴	45,991,700 ⁵
1971	...	12,306,300 ³	21,405,000 ⁴	49,183,100 ⁵

¹ Before 1953, data represent gross value of production.² Based on current data as published in *Estimates of Employees by Province and Industry* (DBS Bull. no. 72-008).³ Based on current data on earnings in manufacturing.⁴ Estimated on the basis of the ratio of "value added by manufacture" to "manufacturing gross output" in earlier years.⁵ Based on the monthly survey of shipments by manufacturers.*John R. Curran*

Gigantic rolls of paper are produced for newspapers.



Domestic Trade

The channels of distribution may be defined as the means by which goods are moved from the producer and from secondary sources (for example, importers), to the final consumer. The principal channels of distribution are wholesalers (including agents and distributors), manufacturers' sales branches, retail outlets, vending machines, and direct selling activities such as mail order and door-to-door selling. In addition there are avenues for the performance of services to both the consumer and industry, including accommodation, meals, recreational and amusement facilities, laundry and other personal service facilities, equipment rental, management, research, advertising, consulting, and data-processing facilities.

The nature and activities of the channels of distribution are characterized by continuous change. In retailing and services, franchising operations appear to be multiplying. Planned shopping centres have sprung up in the suburbs of cities. In the central business district, merchants are participating in newly constructed shopping malls and multi-store, multi-level building developments which house retail and service outlets. Independent store owners are forming voluntary groups that engage in joint advertising and centralized purchasing in order to compete more effectively with corporate retail chains. The gasoline industry engages in the direct selling and retailing of appliances and household and sporting goods. Businesses are making extensive use of specialized agencies, many types of which have come into existence only in recent years, such as data processing services, market research agencies, public relations firms, mailing list houses, and marketing and management consultants.

Retail Trade. From 1966 to 1971 retail sales in Canada rose by 35.1 per cent to a total of \$30,648.4 million. Increases appreciably above the national level were recorded for British Columbia, Alberta, and New Brunswick (40-45 per cent); the increases of Ontario and Nova Scotia (36-38 per cent) were slightly above the national level; below-average increases were recorded for Newfoundland, Prince Edward Island, Quebec, and Manitoba (31-32 per cent); a substantially below-average increase in retail sales was noted in Saskatchewan.

The largest increase in retail trade was recorded by department stores (61.3 per cent), closely followed by the "all other stores" category (+58.4 per cent) in which liquor and beer stores are the largest component, accounting for over one third of that group. Retail sales in alcoholic beverage stores rose by over 60 per cent. The important motor vehicle dealers category, which had a below-average growth from 1966 to 1969, showed a serious drop in 1970 to below the 1966 level, then made a substantial recovery in 1971 registering a 13.5 per cent increase over the 1966 total.

Chains account for an increasing share of retail sales. In 1971, of all retail sales in Canada, \$11,736.0 million were spent in chain stores (38.3 per cent) and \$18,912.3 million in independent stores (61.7 per cent). In 1964, chains had 31.7 per cent and independents 68.3 per cent of the total retail market.

As mentioned earlier, in an effort to compete more effectively with corporate chain stores, independent retailers in certain trades have affiliated in voluntary or-

Malak

The staff of life is produced in bakeries large and small.

ganizations to take advantage of management services, bulk buying, and improved advertising at lower cost. The three trades in which voluntary groups were able to form most readily were grocery and combination stores, drug stores, and hardware stores. Although in these trades the voluntary groups failed to halt the growth of the chain stores' share of the market, they probably succeeded in slowing the progress of the chains in recent years.

There has been a substantial increase in the activities of shopping centres. In 1961 some 281 centres accounted for 5.5 per cent of all retail sales in Canada. By 1970 the number of centres had grown to 541 and the share of total retail sales to 13.8 per cent. In that year, over 43 per cent of all department store sales were made through shopping centre outlets, over 28 per cent of all women's clothing store sales, 23 per cent of shoe store sales, 20 per cent of variety store sales, and 19 per cent of all grocery and combination store sales.

Direct Selling. Not included in the retail trade data are direct sales, that is, door-to-door, mail-order, and other sales to private consumers not made through a store, although department store mail-order catalogue sales are included with retail trade. In 1970 direct sales amounted to \$718.3 million, supplementing the 1970 retail sales of \$28,033.9 million. Also excluded are sales through merchandise vending machines which reached \$156.8 million in 1970, an increase of 9.7 per cent over 1969.

Retail Trade by Province and Kind of Business, 1969-71

Province or Territory and Kind of Business	1969	1970	1971 ¹	Percentage change 1970-71
Millions of dollars				
Province				
Newfoundland	481.4	493.4	533.3	+ 8.1
Prince Edward Island	123.4	131.5	141.0	+ 7.2
Nova Scotia	884.1	930.0	1,022.9	+10.0
New Brunswick	702.6	740.5	834.8	+12.7
Quebec	6,961.6	7,074.1	7,682.0	+ 8.6
Ontario	10,588.4	10,885.0	11,878.5	+ 9.1
Manitoba	1,187.5	1,227.2	1,318.5	+ 7.4
Saskatchewan	1,051.8	1,018.4	1,138.9	+11.8
Alberta	2,255.1	2,274.0	2,466.6	+ 8.5
British Columbia, Yukon and Northwest Territories	3,165.4	3,259.8	3,631.9	+11.4
Total	27,401.3	28,033.9	30,648.4	+ 9.3
Kind of Business				
Grocery and combination stores	6,400.9	6,849.2	7,262.4	+ 6.0
All other food stores	619.7	640.1	654.2	+ 2.2
Department stores ²	2,737.1	2,852.3	3,184.1	+11.6
General merchandise stores ³	825.2	848.5	938.8	+10.6
General stores	567.3	575.2	616.5	+ 7.2
Variety stores	541.7	552.9	570.7	+ 3.2
New motor vehicle dealers ⁴	4,795.9	4,197.2	4,924.7	+17.3
Service stations and garages	2,318.2	2,530.7	2,694.9	+ 6.5
Men's clothing stores	423.7	446.0	475.6	+ 6.6
Women's clothing stores	544.8	561.4	621.8	+10.8
Family clothing stores	385.5	397.5	423.8	+ 6.6
Shoe stores	317.7	327.5	345.7	+ 5.6
Hardware stores	391.4	382.8	408.9	+ 6.8
Furniture, T.V., radio and appliance stores	868.4	847.4	942.3	+11.2
Fuel dealers	465.7	473.1	523.3	+10.6
Drug stores	791.6	840.0	907.0	+ 8.0
Jewellery stores	224.9	218.5	236.0	+ 8.0
All other stores ⁵	4,181.8	4,493.6	4,917.7	+ 9.4

¹Preliminary; subject to revision. Excludes adjustments for "births" and others.

²Since 1966 concessions operating in department stores are included and non-department store outlets or department store mail-order catalogue sales are excluded. The new definition of department stores has affected the data of several other categories of retail trade which cannot be compared with pre-1966 data.

³Includes stores which are not full-line department stores, plus department store mail-order catalogue sales.

⁴Includes sales of both new and used vehicles, service and repair receipts. Excludes data of used-car dealers.

⁵The chief component is alcoholic beverage stores, but used-car dealers and many others are also included.

The principal components of direct sales in 1970 were dairy products (\$163.9 million); newspapers and magazines (\$134.0 million); cosmetics and pharmaceuticals (\$80.5 million); books and record albums (\$71.1 million); bakery products and frozen food plans (\$68.7 million); household electrical appliances (\$50.3 million); kitchenware, kitchen utensils, and household cleaning utensils, cleaners, and soaps (\$45.8 million). Of the total direct sales, door-to-door sales accounted

Malak

The growth of the restaurant business is partially responsible for the rapid increase in the service trades.



for 72 per cent, mail-order for 19 per cent and sales through manufacturers' premises, exhibitions, marketstalls, and so on for 9 per cent.

Service Trades. Changes within the service sector can best be measured and analyzed through census results, since intercensal surveys provide only partial coverage of this large and diverse field. From 1961 to 1966, the service trades developed at a faster rate than either personal disposable income or personal consumer expenditure. The 53.9 per cent increase in the service trades was also greater than the 41.2 per cent growth in retail sales during the same period. In 1966, receipts by service trades amounted to \$4,587 million, of which the hotel, tourist camp, and restaurant group accounted for \$2,397 million, the personal services group for \$596 million, the amusement and recreation group for \$442 million, and the business services group for \$492 million.

Consumer Credit. Consumer credit refers to advances made for personal, non-commercial purposes, either in the form of cash, or as credit against specific purchases of consumer goods under contractual sales agreements. It does not include residential mortgages, home improvement loans, fully secured bank loans, fees owed to professionals such as doctors and lawyers, loans from stockbrokers and investment dealers, credit extended for services such as public utilities, hotels and trade, and interpersonal loans. The following table on national estimates of consumer credit as measured by the outstanding balances held by selected holders of such credit over the past twenty years illustrates the expanding

use Canadians make of this facility. Noteworthy is the shift observed over the period from a demand for "vendor-credit" which was linked to the sales of consumer goods to the demand for "cash-credit" supplied by banks and other financial institutions. The chartered banks now play a major role in this field of economic activity, holding at year-end 1971 almost 47 per cent of all outstanding balances. Their balances include \$1,580 million against automobile purchases alone. This far exceeds the \$617 million held by sales finance companies, which until quite recently dominated the financing of automobile purchases.

**Consumer Credit: Balances Outstanding, Selected Year-ends 1950-71
for Selected Holders**

Year End	Total	Annual Percentage Change	Retail Dealers ¹	Other Vendors ²	Cash Loans: Banks ³	Other Cash Loans ⁴
		%	Millions of dollars			
1950	1,223	...	454	202	224	343
1955	2,517	...	752	625	443	697
1960	4,020	...	960	929	863	1,268
1965	7,040	...	1,313	1,270	2,257	2,200
1966	7,648	+ 8.6	1,353	1,346	2,474	2,476
1967	8,474	+10.8	1,385	1,287	2,997	2,805
1968	9,704	+14.5	1,440	1,352	3,694	3,217
1969	10,969	+13.0	1,529	1,524	4,181	3,736
1970	11,525	+ 4.9	1,551	1,322	4,685	3,967
1971p	12,460	+ 8.1	1,600	1,092	5,802	3,966

¹Includes both charge accounts and instalment credit of department stores, furniture and appliance stores, and so on.

²Includes instalment sales credit extended by sales finance and consumer loan companies and oil companies' credit cards.

³Personal cash loans (other than those fully secured and home improvement loans) extended by chartered banks and Quebec savings banks.

⁴Includes personal cash loans extended by consumer loan companies, credit unions and *Caisses populaires* and policy loans of life insurance companies.

p. Preliminary data.

Wholesale Trade. Wholesalers are primarily engaged in buying merchandise for resale to retailers, to industrial, commercial, institutional, and commercial users, and to other wholesalers, or in acting as agents in connection with such transactions. For statistical purposes, wholesalers are classified into five types: wholesale merchants, agents and brokers, manufacturers' sales branches, assemblers of primary products, and petroleum bulk tank plants and truck distributors. Of these five types, wholesale merchants are by far the most important category. They buy and sell goods on their own account and include export and/or import merchants, cash and carry wholesalers, drop-shippers, truck distributors, mail-order wholesalers, desk jobbers, rack jobbers, or simply jobbers. They accounted for over 60 per cent of the total wholesale sales of \$31,172 million as measured by the 1966 census. The following table shows sales by wholesale merchants according to the 1966 census and estimated sales for 1971 as measured by a panel of reporting establishments.

Wholesale Trade (Merchants), 1966 and 1971

	Sales		Change
	1966	1971	1971/1966
	Millions of dollars		Percentage
Total, all trades	18,922.4	24,896.1	+31.6
Consumer goods trades	8,683.3	12,728.6	+46.6
Automotive parts and accessories	829.1	1,519.0	+83.2
Motor vehicles	328.7	627.2	+90.8
Drugs and drug sundries	396.2	653.7	+65.0
Clothing and furnishings	219.3	307.6	+40.3
Footwear	69.5	77.6	+11.7
Other textiles and clothing accessories	416.5	588.5	+41.3
Household electrical appliances	378.8	600.4	+58.5
Tobacco, confectionery and soft drinks	668.1	999.8	+49.6
Fresh fruits and vegetables	417.9	558.7	+33.7
Meat and dairy products	589.0	757.3	+28.6
Floor coverings	163.2	275.9	+69.1
Groceries and food specialties	2,887.6	3,830.1	+32.6
Hardware	526.4	638.3	+21.3
Consumer goods residual	792.8	1,294.6	+63.3
Industrial goods trades	10,239.1	12,167.5	+18.8
Coal and coke	106.9	65.0	-39.2
Grain	1,701.7	1,002.5	-41.1
Electrical wiring supplies, construction materials, apparatus and equipment	338.5	447.3	+32.1
Other construction materials and supplies including lumber	2,257.9	3,115.3	+38.0
Farm machinery	920.8	792.8	-13.9
Industrial and transportation equipment and supplies	1,775.4	2,222.8	+25.2
Commercial, institutional and service equipment and supplies	413.5	592.7	+43.3
Newsprint, paper and paper products	366.3	420.6	+14.8
Scientific and professional equipment and supplies	201.2	337.0	+67.5
Iron and steel	757.4	1,306.3	+72.5
Junk and scrap	368.7	423.9	+15.0
Industrial goods residual	1,030.8	1,441.4	+39.8

Co-operatives. The co-operative movement is represented in all ten provinces of Canada. It was most readily adopted in the rural areas of the country where there were no marketing facilities for farm produce or where farmers were dissatisfied with the prevailing marketing practices. Because of this, the movement remains predominantly agricultural. It is only in the last decade that significant progress has been made in the urban sector with the establishment of co-operative super-



Malak

The convenience of having ample parking space and many shops under the same roof has led to a change in the shopping habits of Canadians.

markets and shopping centres. Most co-operatives are incorporated under provincial legislation; a number of the larger ones whose activities span provincial boundaries are incorporated under the Canada Corporations Act or special federal acts. However with the passage of the Canada Co-operative Associations Act in December 1970 co-operatives doing business in several provinces are now able to incorporate under a federal Act which provides for the particular character and structure of the co-operative form of enterprise. Co-operative business organizations are generally classified into three types: marketing (for example dairy co-operatives, which receive milk from their farmer-members and sell it for them); purchasing (such as grocery co-operatives, which purchase food supplies and sell them to their members); and service (for example transportation co-operatives, which truck their members' produce to market for a fee). Some of the marketing and purchasing co-operatives also engage in manufacturing. In addition to the regular or local co-operatives (those directly owned by the members), there were seven co-operative wholesales in 1970. These wholesales serve as distributors and central marketing agencies for the locals.

The gross business volume of 2,300 local co-operatives with 1.7 million members amounted to \$2,179 million for 1970, up from \$2,010 million in the previous year. Assets at year-end totalled \$1,241 million, down slightly from 1969 owing to a reduction in inventories by the prairie grain-marketing co-operatives. The total volume as broken down into its three broad categories of business activity, plus miscellaneous income, was made up of farm product marketings, \$1,354 million; sales of merchandise and supplies, \$749 million; service revenue, \$60 million; and miscellaneous income, \$16 million. Farm products marketed by co-

operatives include fruits and vegetables, dairy products, livestock, poultry and eggs, honey, maple products, wool, lumber, and grains (the largest single item, valued at \$527 million in 1970). A wide variety of consumer and farm supplies are included in merchandise and supply sales; food, feed, and petroleum account for the largest shares. In the services sector rural electric and medical insurance co-operatives were by far the largest revenue-earning groups followed by housing, transportation, and seed cleaning. Saskatchewan has the largest co-operative membership of the provinces—over 450,000 persons—and contributes more than one quarter of total business volume based on its dominance in the marketing of grains and livestock.

Total sales volume of the seven co-operative wholesales rose to \$629 million in 1970, an increase of \$38 million or 6 per cent over 1969. Farm product marketings at \$225 million were only slightly higher for the year, while supply sales at \$404 million were up 10 per cent with substantial increases in the sale of food products, feed, clothing, home furnishings, hardware, and petroleum. These sales more than offset declines in the sale of fertilizer, machinery, and building materials.

Two important national co-operative bodies work together to improve co-operative organization, education, and promotion. The Co-operative Union of Canada concentrates its efforts in English-speaking areas while the *Conseil canadien de la coopération* serves co-operatives in French-speaking areas.

A number of Canadian universities offer courses on co-operatives and some conduct extension work in this field. The most prominent is St. Francis Xavier University in Nova Scotia which, since the early 1930's, has carried on extension

The co-operative movement began in the rural areas of Canada as a means of marketing grain.

Patterson





*M. J.
Rocky
Schulstad*

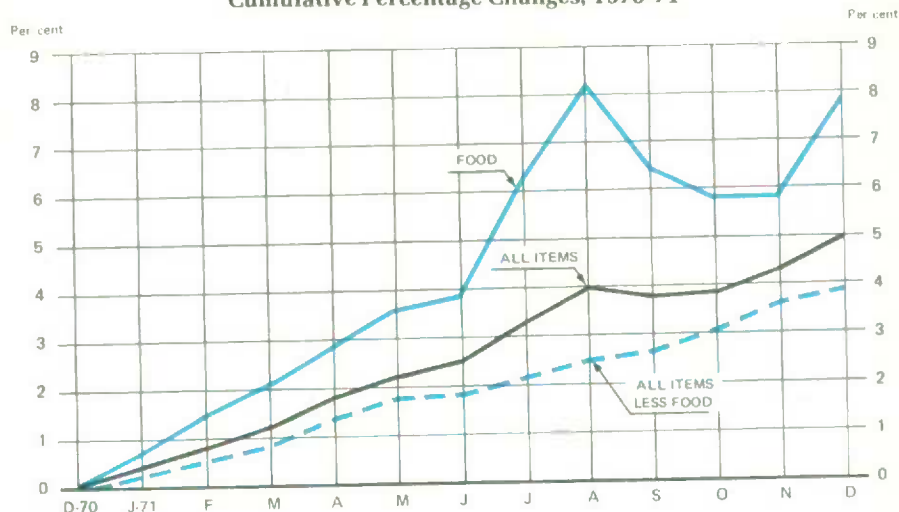
Co-operatives now sell a number of commodities besides grain.

work in the Maritime Provinces to organize and assist co-operatives. In recent years, university courses have been instituted, both short-term for co-operative management and personnel, and as a regular part of the university curriculum. The Coady International Institute was established at St. Francis Xavier University in 1960 and has been providing instruction in co-operative principles and organization to non-Canadian students, mainly from developing countries where the self-help nature of co-operative organizations has been found to be most appropriate.

Western Co-operative College in Saskatchewan provides short courses for co-operative personnel as well as training courses for foreign students. The *Institut coopératif Desjardins* in Quebec specializes in adult education and social leadership for co-operative members and foreign students.

The Consumer Price Index. Food prices, rebounding sharply after a marked decline at the end of 1970, were the main contributor to the accelerated rise in the consumer price level during 1971. In the 12 months from December 1970 to December 1971 the consumer price index for Canada rose by 5.0 per cent. This was a significantly greater rate of advance than in the previous 12 months and, as shown in the following table, also exceeded the average December to December increase in the preceding five years.

Cumulative Percentage Changes, 1970-71



**Percentage Changes in the Consumer Price Index
for All Items and Major Components
December-to-December Comparisons**

	1966 1965	1967 1966	1968 1967	1969 1968	1970 1969	5-Year Average	1971 1970
All Items	3.6	4.1	4.1	4.6	1.5	3.6	5.0
Food	3.6	2.7	3.9	4.3	-3.2	2.3	7.9
Housing	3.4	4.5	4.8	5.5	4.5	4.5	4.8
Clothing	4.8	3.8	3.1	2.4	1.2	3.1	2.5
Transportation	2.6	4.6	1.9	5.4	3.4	3.6	4.3
Health and personal care	3.7	5.1	3.7	5.7	2.9	4.2	3.8
Recreation and reading	3.9	5.2	6.1	3.9	4.3	4.7	2.0
Tobacco and alcohol	3.4	5.1	6.0	4.1	0.1	3.7	2.6

The degree to which the upward surge in food prices in 1971 influenced the all-items consumer price index is evident from the foregoing chart. In the 12 months from December 1970 the price level of consumer goods and services, excluding food, increased at a steady annual rate of about 4 per cent. In contrast, food prices advanced at twice that rate over the same 12-month period, starting from their unusually low December 1970 level.

Consumer price movements, when classified by commodities and services, offer another view of the incidence of price change. In the 12 months ending in December 1971 commodity prices increased by 4.8 per cent, a rise much influenced by the 7.9 per cent advance in food prices. Non-durable commodities other than food rose by 3.0 per cent while durable commodity prices moved up by 1.8 per cent over the same 12-month period. Service prices, including shelter, continued their rate of advance of recent years by increasing 5.5 per cent. The purchasing power of the consumer dollar declined from 77 cents in December 1970 to 74 cents in December 1971, relative to \$1.00 at the end of 1961.

International Trade

Canada's trade balance dropped from the record surplus of \$2,868 million in 1970 by \$772 million to \$2,096 million in 1971, the second highest surplus recorded. The contraction in the trade balance resulted from an increase of \$884 million, or 5.3 per cent, in exports to \$17,704 million, and a wider increase of \$1,656 million, or 11.9 per cent, in imports to \$15,608 million. The rate of increase in exports was the lowest in ten years, and followed a rise of 13 per cent in the previous year. On the other hand, the rate of increase in imports nearly matched the average annual change over the period from 1961 to 1969, and succeeded an unusual decline in 1970.

Higher prices were responsible for practically no part of the climb in export value, but for about 2 per cent of the rise in import value. Canada's foreign trade (summing exports and imports) grew in real terms by about 3.6 per cent in 1970, slightly more than the 3.3 per cent rise in national output. However, in 1971 foreign trade increased more, about 7.3 per cent against a 5.4 per cent rise in the Gross National Product in real terms. This is in line with an acceleration in imports as the growth rate of GNP increases sharply.

International Background. Canada held the sixth position among the leading trading nations of the world in 1969 and 1970, behind the United States, the Federal Republic of Germany, the United Kingdom, Japan, and France.

Foreign Trade of Canada, 1965-71

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Exports	Re-exports	Total Exports			
	Millions of dollars					
1965	8,525	242	8,767	8,633	17,400	+ 134
1966	10,071	255	10,325	9,866	20,191	+ 459
1967	11,121	299	11,420	11,075	22,495	+ 345
1968	13,270	354	13,624	12,358	25,982	+1,266
1969	14,462	428	14,890	14,130	29,020	+ 760
1970	16,401	419	16,820	13,952	30,772	+2,868
1971	17,281	423	17,704	15,608	33,312	+2,096

During 1971 Canadians were assessing the probable impact of Britain's entry into an enlarged European Economic Community (EEC) consisting of the original Six Countries of Belgium, Luxembourg, France, the Federal Republic of Germany, Italy, and the Netherlands together with the United Kingdom, Denmark, Ireland, and Norway. Besides negotiations with the four candidate countries, the Community began discussions in December with the six members of the European Free Trade Association not seeking full membership in the EEC - Austria, Finland, Iceland, Portugal, Sweden, and Switzerland. These consultations were aimed at establishing a free trade area in Western Europe for industrial products. In addition, the existing six EEC members have extended preferential trading arrangements southward to most of the Mediterranean countries and all of French-speaking Africa. Canadians and Americans have been concerned with the



The former Minister of Industry, Trade and Commerce and the German Foreign Minister sign an agreement on scientific and technical co-operation between Canada and the Federal Republic of Germany.

H. B. Zeller / Ind. Trade & Com.

possibility that concentration on a larger European customs union might lead to a narrower program of world trade liberalization.

On August 15, 1971, the President of the United States announced a new economic policy to create employment, stabilize prices, and establish new international monetary arrangements. The new policy included a broad temporary surcharge of 10 per cent on dutiable imports not subject to quantitative limitations imposed under statute by the United States. The major Canadian exports to which the surcharge was added included machinery, except farm machinery and automotive products under the Auto Pact; electrical apparatus; aircraft and parts; plywood; paper and paperboard, except newsprint; and iron and steel-mill products. Furthermore, President Nixon announced a temporary suspension of full convertibility of dollars into gold or other reserve assets. After four months of uncertainty, an agreement on international monetary arrangements was reached in Washington in mid-December by the Group of Ten countries participating in the International Monetary Fund's General Arrangements to Borrow—Belgium, Canada, France, the Federal Republic of Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States. The agreement removed the 10 per cent surcharge. Trade negotiations were immediately undertaken between the United States, and the EEC, Japan, and Canada. On their part the United States undertook to propose to Congress to raise the official price of gold to \$38 per ounce, a devaluation of some 8.57 per cent following the trade negotiations. Trade

discussions were completed with the Community and Japan, and are still in progress with Canada. The latter have reportedly covered safeguard provisions of the 1965 Canada-United States Automotive Products Agreement, protective features of Defence Sharing Arrangements, and provisions of the recently enacted American domestic international sales corporations (DISC) legislation.

Commodity Pattern: Exports. The commodity pattern of domestic exports changed between 1970 and 1971 with food, beverages and tobacco up from 11 to 11.8 per cent of the total, and end products up from 34 to 35.7 per cent; consequently, crude materials dropped from 18.7 to 18.5 per cent, and fabricated materials from 35.8 to 33.5 per cent.

Domestic exports rose by \$880 million in 1971. End products accounted for \$604 million, food, beverages, and tobacco for \$235 million, and crude materials for \$124 million — offsetting smaller orders for fabricated materials by \$82 million.

Shipments of automotive products increased by \$652 million, or 18.6 per cent over the previous year, when production was distorted by industrial disputes at General Motors.

*Hunter
(missing)*

In Vancouver harbour ocean freighters are loaded with forest products for sale abroad.



Among food, beverages, and tobacco domestic exports, wheat and barley accounted for a \$206 million rise. Wheat exports rose 21 per cent in value in contrast to growth over the five years of 2.7 per cent each year. In the crude material grouping, rising sales of crude petroleum and natural gas along with rapeseed, nickel and zinc ores offset sharply reduced demand for Canadian iron ore and copper ore. In the fabricated material grouping, falling sales of nickel and copper metals from the unusual levels of 1970, lower demand for aluminum, and another decline in newsprint more than offset a surge in domestic exports of lumber, pulp, and fertilizers.

Principal Domestic Exports, 1967-71

Commodity	1967	1968	1969	1970	1971
	Thousands of dollars				
Motor vehicles and parts	1,739,160	2,690,832	3,525,739	3,499,688	4,151,351
Passenger automobiles and chassis	883,862	1,397,510	1,825,125	1,695,656	2,048,376
Motor vehicle parts, except engines	365,104	556,154	722,935	781,889	978,352
Trucks, truck tractors and chassis	280,147	401,880	540,341	507,389	522,386
Motor vehicle engines and parts	158,907	246,711	289,265	329,217	441,714
Other motor vehicles	51,140	88,577	148,073	185,537	160,523
Newsprint paper	955,261	989,831	1,125,801	1,110,393	1,084,282
Wheat	741,878	684,469	472,703	687,431	832,085
Lumber, softwood	474,604	623,414	664,759	638,324	798,739
Woodpulp (and similar pulp)	543,433	627,874	753,488	785,229	796,334
Crude petroleum	397,875	446,413	525,780	649,075	786,851
Aluminum including alloys	398,910	445,128	474,752	458,638	448,480
Iron ores and concentrates	383,063	443,202	333,131	475,743	413,333
Nickel in ores, concentrates and scrap	203,981	261,030	225,312	371,593	395,358
Copper and alloys	336,723	378,216	300,904	474,591	381,469
Aircraft and parts	313,610	369,427	328,410	379,101	332,230
Nickel and alloys	229,297	245,433	226,079	434,214	318,992
Natural gas	123,664	153,752	176,188	205,988	250,719
Fertilizer and fertilizer materials	154,623	168,882	171,918	221,207	238,426
Asbestos, unmanufactured	172,397	192,896	216,275	227,248	223,924
Copper in ores, concentrates and scrap	157,464	233,343	233,727	261,446	222,806
Barley	72,609	40,043	30,427	133,478	195,263
Whisky	141,514	158,253	189,074	183,140	184,954
Rapeseed	40,868	31,908	31,182	79,009	148,211
Office machines and equipment	52,326	49,865	71,152	114,150	147,471
Zinc in ores, concentrates and scrap	94,126	99,593	102,611	125,164	131,632
Plate, sheet and strip steel	88,795	109,136	75,185	131,509	131,275
Meat and meat preparations	58,314	69,540	76,826	109,048	110,212

Imports. The pattern of imports shifted between 1970 and 1971 with crude materials up marginally from 8.4 to 8.5 per cent of the total, and end products from 61.8 to 62.9 per cent; accordingly, food, beverages, and tobacco dropped from 7.8 to 7.2 per cent and fabricated materials from 20.7 to 20.1 per cent.

Imports rose \$1,656 million in 1971. End products accounted for \$1,203 million, fabricated materials for \$255 million, crude materials for \$151 million, food, beverages and tobacco for \$33 million, and live animals and special trade transactions for \$14 million.

Deliveries of automotive products were higher by \$851 million, or 26.2 per cent, than the depressed level of 1970. Increased purchases of generators, air condition-

ing and refrigeration equipment, tractors, computer components, books and pamphlets, television sets, footwear and so on accounted for a gain of \$164 million. Among fabricated materials, increased demand for iron and steel products, metal basic products, chemical products, and textiles was significant. In the crude material grouping, higher demand for crude petroleum was dominant. Among the food, beverages, and tobacco grouping of commodities, higher valued deliveries of fruits, vegetables, sugar, and preparations were important.

Principal Imports, 1967-71

Commodity	1967	1968	1969	1970	1971
	Thousands of dollars				
Motor vehicles and parts	2,168,363	3,000,856	3,546,056	3,251,595	4,102,813
Motor vehicle parts except engines	998,257	1,342,300	1,764,793	1,653,049	1,883,105
Sedans, new	669,706	940,986	908,573	793,077	1,165,459
Motor vehicle engines	144,509	244,462	313,491	270,006	303,397
Trucks, truck tractors and chassis	120,731	167,501	236,991	233,152	307,594
Motor vehicle engines and parts	91,344	109,849	127,078	104,252	155,068
Other motor vehicles	54,218	72,465	83,485	101,683	147,961
Other passenger automobiles and chassis	41,823	64,443	61,978	68,190	110,307
Convertible automobiles, soft top, new	47,775	58,850	49,667	28,126	29,922
Crude petroleum	355,416	372,586	393,453	415,161	541,114
Aircraft and parts	361,064	437,034	400,781	384,430	288,950
Tractors and parts	233,508	196,661	194,401	188,594	264,043
Electronic computers	115,902	108,606	160,527	176,290	184,055
Plate, sheet and strip steel	117,230	103,179	155,519	128,875	176,697
Coal	145,544	160,390	114,603	150,832	151,389
Organic chemicals	116,003	129,036	138,030	133,543	137,377
Books and pamphlets	96,232	105,392	122,344	126,078	132,319
Plastic materials, not shaped	80,868	99,433	114,830	112,190	124,426
Television and radio sets and phonographs	56,200	68,168	92,343	90,485	124,039
Fuel oil	119,824	142,497	131,436	122,225	122,972
Meat and meal preparations	62,780	68,321	123,317	117,567	100,785
Raw sugar	47,575	46,411	70,287	85,275	97,010
Aluminum ores, concentrates and scrap	74,587	83,668	102,942	99,590	96,777
Coffee	78,027	83,302	82,105	97,956	96,426
Air conditioning and refrigeration equipment	73,542	87,534	81,124	87,386	94,547
Inorganic chemicals	64,825	67,710	77,731	140,322	92,985
Footwear	41,842	53,907	65,063	74,084	85,359
Electric generators and motors	55,790	49,124	67,606	62,575	84,735

Area Pattern. The pattern of domestic exports altered sharply in 1971, reflecting stronger demand in the United States and a slower pace of expansion in overseas markets together with uncertainties created by the floating of major currencies and the United States' new economic program. The proportion of Canadian domestic exports going to the American market climbed from 64.5 to 67.5 per cent. The share sent to the United Kingdom dropped from 8.9 to 7.8 per cent, and the share to the EEC from 7.3 to 6.3 per cent. Changes in the shares of Japan and Latin American countries were less marked; from 4.9 to 4.6 per cent and from 3.4 to 3.2 per cent. The Commonwealth outside the United Kingdom absorbed a smaller share as well, dropping from 3.9 to 3.5 per cent.



Forty-foot containers carrying 24 tons of cargo swing ashore at the new container terminal in Halifax, N.S.

Hunter (missing)

Domestic exports to the United States and the rest of the world rose in 1971 by \$1,085 and \$86 million, offsetting lower sales to the United Kingdom, EEC, Latin America, and Commonwealth countries by \$290 million.

Stronger demand in Canada, and changes in the composition of commodity imports affected the area pattern of imports. The share of imports from Japan increased markedly from 4.2 to 5.1 per cent, from the United Kingdom marginally from 5.29 to 5.33 per cent, from the EEC from 5.8 to 6 per cent, and from other countries from 5.8 to 6 per cent. As a result, the share of imports from the United

Domestic Exports by Leading Countries, 1967-71

Country	1967	1968	1969	1970	1971
	Thousands of dollars				
United States	7,079,396	8,941,501	10,237,742	10,571,937	11,665,050
United Kingdom	1,169,053	1,209,567	1,091,236	1,465,155	1,345,805
Japan	572,156	606,787	624,733	810,142	789,256
Federal Republic of Germany	177,955	228,733	277,382	383,681	314,265
Netherlands	176,431	178,850	184,966	277,189	232,336
Italy	141,439	131,210	133,671	183,961	207,555
People's Republic of China	91,306	163,243	122,891	141,995	204,053
Norway	87,423	116,559	103,645	178,056	185,802
Australia	156,249	185,717	163,258	197,750	179,962
Belgium and Luxembourg	100,800	126,648	116,232	189,943	178,628
France	80,608	81,516	128,583	154,201	153,095
India	140,592	111,255	95,552	129,842	142,405
U.S.S.R.	128,663	88,569	9,071	101,553	125,812
Venezuela	82,049	102,671	92,902	111,391	119,934
Brazil	27,540	48,200	50,246	87,387	92,516
Mexico	49,202	54,589	72,873	91,698	78,984
Spain	39,623	41,114	55,908	64,506	64,135
South Africa	77,690	68,141	78,501	104,005	62,828
Peru	32,344	22,231	26,234	35,891	61,187
Cuba	42,390	44,988	40,739	58,900	56,069

States fell from 71.1 to 70.2 per cent, the proportion from Latin America from 3.9 to 3.8 per cent, and that from the Commonwealth from 4 to 3.5 per cent.

Import purchases were higher from the United States, Japan, and the EEC by \$1,032, \$220 and \$130 million, and from the United Kingdom, Latin America, and other countries by \$94, \$61 and \$127 million. Deliveries from the Commonwealth held steady.

Imports by Leading Countries, 1967-71

Country	1967	1968	1969	1970	1971
	Thousands of dollars				
United States	8,016,341	9,048,372	10,243,242	9,917,045	10,943,954
United Kingdom	673,050	696,093	790,973	738,262	837,258
Japan	304,768	360,180	495,704	581,715	801,864
Federal Republic of Germany	256,879	298,869	354,715	370,931	429,416
Venezuela	276,327	357,862	345,596	339,212	387,664
France	130,080	121,647	151,841	158,486	213,092
Italy	110,269	114,495	141,193	144,973	157,473
Australia	64,471	75,990	96,285	146,148	125,671
Sweden	76,242	78,091	84,506	105,888	113,294
Switzerland	66,022	64,326	83,930	80,831	86,180
Taiwan	23,569	34,379	42,456	51,936	80,706
Hong Kong	51,040	58,354	72,942	78,486	80,188
Netherlands	64,783	69,052	78,678	78,923	76,384
Iran	33,229	33,569	30,176	33,880	66,642
Belgium and Luxembourg	64,620	57,520	60,936	51,695	58,981
Nigeria	36,560	16,966	22,203	44,558	57,243
South Africa	37,060	39,315	45,944	45,702	54,590
Norway	33,761	39,204	44,895	49,132	53,195
Brazil	31,436	38,725	42,128	49,311	50,698
Mexico	29,535	52,167	64,084	47,344	50,162

Info Service, Quebec.

At the International Automobile Show at the Place Bonaventure in Montreal, Que., 250,000 visitors saw 300 cars from 7 countries.



Balance of International Payments

The balance of international payments of a country can be defined as a systematic record of the economic transactions, during a given period, between the residents of the country and residents of the rest of the world. In addition to identifying flows between one country and the rest of the world, it is also common practice to present bilateral accounts, in which transactions with specific countries are segregated.

In Canada the most important bilateral accounts concern transactions with the United States. The close economic relations between the two countries, in merchandise trade, service transactions, and capital flows, can easily be seen in the accompanying table by comparing the United States-Canada bilateral accounts with the adjacent aggregate accounts for all countries. In 1971, 68 per cent of all Canadian merchandise exports were sold to the United States. Eighty-nine per cent of all travel expenditures in Canada by non-residents and 46 per cent of all interest and dividend revenue received by Canadian residents from non-residents were from the United States. On the other hand 70 per cent of all Canadian merchandise imports came from the United States and 85 per cent of all interest and dividend payments abroad went to American investors. In addition Canadian travellers spent 62 per cent of their travel expenditures in the United States. Similar comparisons can be drawn for capital transactions, particularly with respect to direct investment in Canada as well as sales and purchases of Canadian and foreign securities.

This close economic relationship between the two countries is in large part attributable to their geographic proximity, but other important factors are the natural resources available in Canada and the development of American-based multinational enterprises. The cultural and linguistic ties between the two countries are also significant.

Although Canadian economic transactions abroad are preponderantly with the United States, the importance of other foreign countries in Canada's accounts is increasing significantly. Wheat sales to the state trading countries, the development of Canadian resources in British Columbia for the Japanese market, and the raising of capital in European countries will continue to have an important effect on the Canadian balance of international payments. Developments in these countries as well as in the United States had a material influence on the current and capital account sectors in 1971.

While in Canada the economy showed strong resurgence in 1971, it was a year of crisis on the international economic front. Over a period of some years there had evolved a series of crises of confidence in the viability of the existing international financial structure and particularly the role of the United States dollar within it. These recurring crises reached a new peak in the summer of 1971 and, on August 15, the United States introduced measures to improve its domestic and international economic positions. To cushion the effect on economic activity in Canada, the Canadian government in early September introduced proposals for an Employment Support Program. At the same time Canada participated actively in efforts to reshape the international monetary system. An agreement involving the realignment of most major currencies vis-à-vis the United States dollar was worked out in Washington in mid-December. It included a commitment by the



One of 17 distillation columns each weighing 60 tons is on its way from Montreal, Que., to Texas. It is used to separate liquid oxygen from atmospheric air at -320°F .

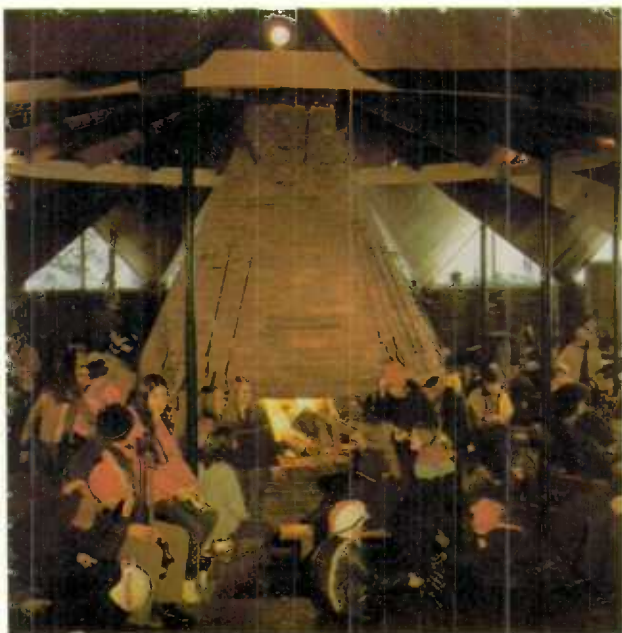
United States to change the price of gold from \$35 (U.S.) an ounce to \$38 (U.S.) an ounce. Currencies would be allowed to fluctuate within $2\frac{1}{4}$ per cent above or below their new central rates. No central rate was established for the Canadian dollar. Bilateral trade negotiations were entered into by the United States to obtain some concessions from its major trading partners.

In the current account for all countries, the growth of imports by Canada was greater than that of its exports, and the merchandise trade surplus was reduced from \$2,917 million in 1970 to \$2,194 million in 1971. The traditional deficit in non-merchandise transactions further reduced the record current account surplus from \$1,060 million in 1970 to \$227 million in 1971.

The current account deficit with the United States increased by 28 per cent to \$368 million. This deterioration was due entirely to non-merchandise transactions, on which the deficit advanced by 10 per cent to \$1,468 million. Contributing to this change among the service items was a decrease in other service receipts and an increase totalling just over \$170 million in interest and dividends and other service payments. On merchandise trade the surplus increased by \$47 million to \$1,100 million following 11 per cent increases in both exports and imports from the previous year. With the raising of the United States import quotas, sales of crude petroleum increased. Exports of natural gas also rose and shipments of lumber surged ahead with the boom in residential construction in the United States. More motor vehicles, engines, and parts and aluminum were also exported while there was a decrease in deliveries of iron ore and nickel. On the imports side, motor vehicles, engines, and parts led the way with a 25 per cent increase. More agricultural machinery, communication and office equipment were imported while purchases of aircraft, engines, and parts fell sharply.

Malet

Skiers warm their toes by the fire at Edelweiss, Que. Skiing in both the East and the West attracts many Canadians and, increasingly, visitors from abroad.



Canadian Travel Abroad

The majority of Canadians who travel abroad visit the United States. Aggregate statistics for 1971 reveal that 34.3 million Canadians returned from visits to the United States, 3.9 per cent fewer than in 1970. Canadian residents returning by automobile numbered 29.3 million while persons re-entering by plane amounted to 1.3 million, by bus 0.7 million, and by boat 0.1 million.

The average length of stay of all Canadian residents returning from the United States in 1970 was 2.9 days and the average expenditure \$8.50 per day. Holiday was the main reason given by 56 per cent of residents returning from the United States, followed by visiting friends or relatives, 27 per cent.

Canadian residents returning direct from overseas countries in 1971 numbered 1,039,200, an 8.5 per cent increase from 1970. The largest number of returning residents re-entered in Ontario and accounted for 46.9 per cent of the total followed by Quebec, 32.9 per cent. In 1970 the average length of trip overseas was 27 nights and the average expenditure was \$352, excluding fares paid to foreign carriers.

International Travel. Estimates for 1971 reveal that Canada earned \$1,296 million from international travel, while at the same time spending \$1,497 million abroad. These figures include transportation costs paid to commercial carriers. United States residents spent about \$1,147 million in Canada in 1971 and \$1,082 million in 1970. Overseas visitors spent \$149 million in Canada, in 1970 and again in 1971.



Many visitors to Canada from the United States cross the border by the Bluewater Bridge at Sarnia, Ont.

Hunter (missing)

The growth in receipts has resulted in earnings from travel by non-residents in Canada and payments to Canadian carriers in 1970 that were exceeded only by the value of exports of the auto industry (vehicles and parts). Travel receipts were greater than the value of such major exports as newsprint paper, wood pulp, wheat, lumber, or crude petroleum.

Payments by Canadians abroad ranked next in importance to purchases of automobiles and parts from abroad and exceeded dollar spending on such imports as crude petroleum, or aircraft and parts, or communications and related equipment.

Visitors to Canada. The majority of visitors to Canada in 1971 were Americans, some 38.5 million, or 3.5 per cent more than 1970. Of this total, 33 million travellers entered by automobile, 1.3 million by plane, 1.2 million by bus, and 0.6 million by boat.

In 1970 the average length of stay of all visitors from the United States was 2.8 days and the average spending \$10.40 per person-day. United States residents travelling by automobile and staying one or more nights remained 5.8 days on the average.

In 1971, overseas visitors to Canada numbered 543,000, an increase of 1.4 per cent from last year. The five leading countries were the United Kingdom (150,300), the Federal Republic of Germany (45,800), France (37,200), the Netherlands (29,100), and Japan (25,900).

Travel Between Canada and Other Countries, 1968-70

Visitors to Canada	Numbers			Expenditures ¹		
	1968	1969	1970	1968	1969	1970
	Thousands of visits			Millions of dollars		
From the United States						
Entering and leaving the same day	23,068	23,454	23,505	120	121	129
Staying more than one day	11,708	12,312	13,648	771	840	953
Totals	34,776	35,766	37,153	891	961	1,082
From countries other than the U.S.	362	463	536	87	113	152
Total	35,138	36,229	37,689	978	1,074	1,234
Canadians Travelling Abroad						
To the United States						
Entering and leaving the same day	25,468	26,116	25,921	66	57	55
Staying more than one day	8,480	9,326	9,735	644	836	881
Totals	33,948	35,442	35,656	710	893	936
To countries other than the U.S.	638	852	1,099	298	399	524
Total	34,586	36,294	36,755	1,008	1,292	1,460

¹Includes international passenger fares.

*Hunter
(missing)*

The most famous natural wonder in Canada is Niagara Falls, Ont.



Transportation and Communications

Transportation

Canada's vastness and the importance of trading to her economic and social well-being necessitate an effective over-all transportation system. The activities in the major sections of transportation—air, rail, road, and water—and technical developments in recent years are indicative of Canada's prosperity.

Over-all, passenger traffic measured in passenger miles has expanded by more than 300 per cent within the past two decades. The automobile has long been the dominant mode of transport and in 1970 accounted for 88 per cent of total passenger miles. The remainder were distributed among air transport, 6 per cent; rail, 3 per cent; and the various public urban systems including buses, 3 per cent. The most noteworthy redistribution in this passenger traffic pattern has been in the commercial air services category which has doubled since 1958. However, air cargo has likewise grown rapidly; current figures are 1,700 per cent higher than those of some twenty years ago.

Railway freight transport totals expanded from 65,450 million ton-miles in 1960 to 98,000 million ten years later. Water shipment figures in 1970 totalled 79,000 million ton-miles, 22,100 million more than in 1960. Nonetheless, the percentage share of both railway and water freight in the total transportation market has decreased to 63.1 per cent in 1970 from the 1960 total of 74.2 per cent.

Trucking has continued to capture more of the industrial market each year—ton-miles in 1970 totalled 27,310 million or approximately five times the 1950 figure.

Miller Service Ltd.

The automobile has long been the most common form of transport in Canada.





Some Prairie farmers overcome the vast distances in Canada by airplane.

Bodington

Shipments of natural gas, petroleum and petroleum products via pipelines have risen considerably in the past decade to account for 31 per cent of transportation in Canada by 1970, or 14.7 per cent more than in 1960. Pipelines accounted for 87,000 million ton-miles in 1970; the 1960 figure was 26,850 million ton miles.

Air Transport. Since the delivery of the first pure-jet aircraft just over a decade ago, the activity of Canada's aviation industry at all levels has increased sharply.

Although Canadian air carriers perform many varied services including such specialty flying as crop dusting, forest fire patrol, pipeline inspection, aerial survey and photography, construction, and flight training, passenger and cargo transportation is by far the most important activity. In 1971 alone, some 525 air carriers with Canadian registries transported 9.4 million passengers domestically and 3.5 million on international routes. Of the grand total, Air Canada, CP Air, and the regional air carriers—Pacific Western Airlines, Transair, Nordair, Quebecair and Eastern Provincial Airways—accounted for 87.6 per cent or the carriage of 11.3 million passengers.



Toronto, Ont., has the busiest airport in Canada, measured by aircraft movement. There were 176,984 takeoffs and landings in 1971.

John Reunes

The international routes of Canada's air carriers have extended considerably during the past decade, and today the scheduled air services of Air Canada, CP Air, Pacific Western Airlines, and Nordair form a global network connecting Canada to the United States, the Caribbean, Europe, the Middle East, the Soviet Union, the Central and South Americas, the South Seas—Hawaii, Fiji, and Australia—as well as Tokyo and Hong Kong. While 2.9 million passengers were transported on the international scheduled services of these operators in 1971, a further 0.4 million travellers journeyed throughout the world on charter services flown by the major air carriers in this country.

Statement of Operations of Canadian Carriers, 1970 and 1971

Revenues and Expenses	7 major carriers ¹		All other carriers		Total all carriers	
	1971	1970	1971	1970	1971	1970
Operating revenues (\$ millions)	769.2	714.2	144.9	127.6	914.1	841.8
Passengers (scheduled)	600.2	554.2	7.2	6.2	607.4	560.4
Goods (scheduled)	106.2	101.5	4.1	3.7	110.3	105.2
Charter and contract	52.0	49.7	95.7	82.0	147.7	131.7
Specialty and non-flying	10.8	8.8	37.9	35.7	48.7	44.5
Operating expenses (\$ millions)	722.5	684.8	134.1	125.8	856.6	810.6
Revenue traffic carried:						
Passengers (no. millions)	11.3	10.6	1.6	1.4	12.9	12.0
Goods (lb. millions)	489.8	465.9	169.2	168.6	659.0	634.5

¹Air Canada, CP Air, Pacific Western Airlines, Transair, Nordair, Quebecair, and Eastern Provincial Airways.

Canada's major civil airports have air traffic control towers manned by the Ministry of Transport (MOT). The expansions in both the numbers of airports with MOT towers and the aircraft movements reported by tower personnel during the past ten years, are indicative of the vital importance of aviation in our society. In 1965, 33 towers reported 2,688,239 aircraft takeoffs and landings; during 1971, 53 airports with MOT control towers reported 4,895,376 movements, an increase of 82.1 per cent in just six years. Comparing the last two years, growth was 11.9 per cent between 1971 and 1970 when 47 MOT towers reported 4,375,369 movements.

As expected, jet aircraft account for a greater percentage of the total number of aircraft landings and takeoffs each year – in 1971 they accounted for 24.1 per cent of the total, up from 23.3 per cent in the previous year.

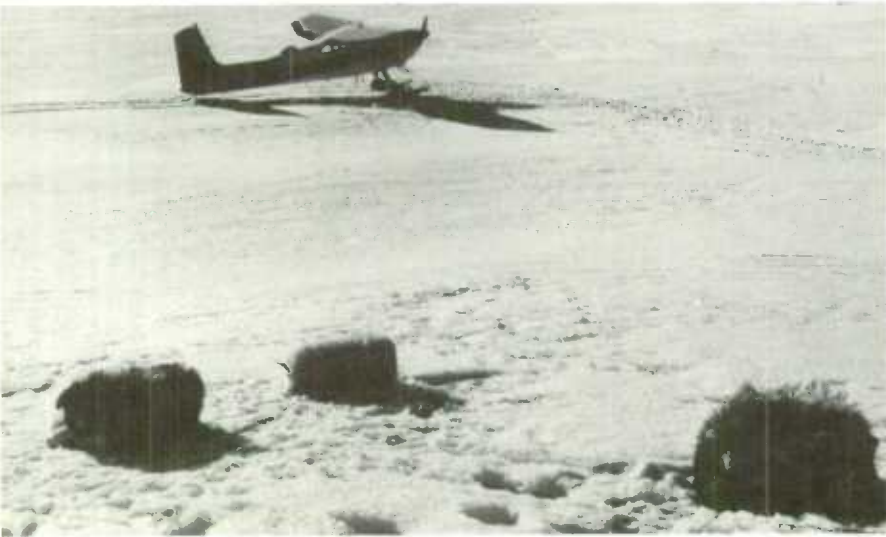
**Distribution of Itinerant Movements¹ at MOT Tower Controlled Airports
by Type of Power Plant, 1971, 1970, 1964**

Aircraft type	1971		1970		1964	
	Number	Per cent	Number	Per cent	Number	Per cent
Piston	1,198,464	60.0	1,119,486	59.2	729,647	65.5
Turbo-prop	247,205	12.3	264,913	14.0	255,497	23.0
Jet	481,982	24.1	440,533	23.3	105,969	9.5
Helicopter	69,988	3.5	63,618	3.4	22,394	2.0
Glider	2,299	0.1	1,143	0.1	—	—
Total	1,999,938	100.0	1,889,693	100.0	1,113,507	100.0

¹A landing or takeoff of an aircraft that is arriving from or departing to another airport.

Old and new modes of transport in the North.

Brummer



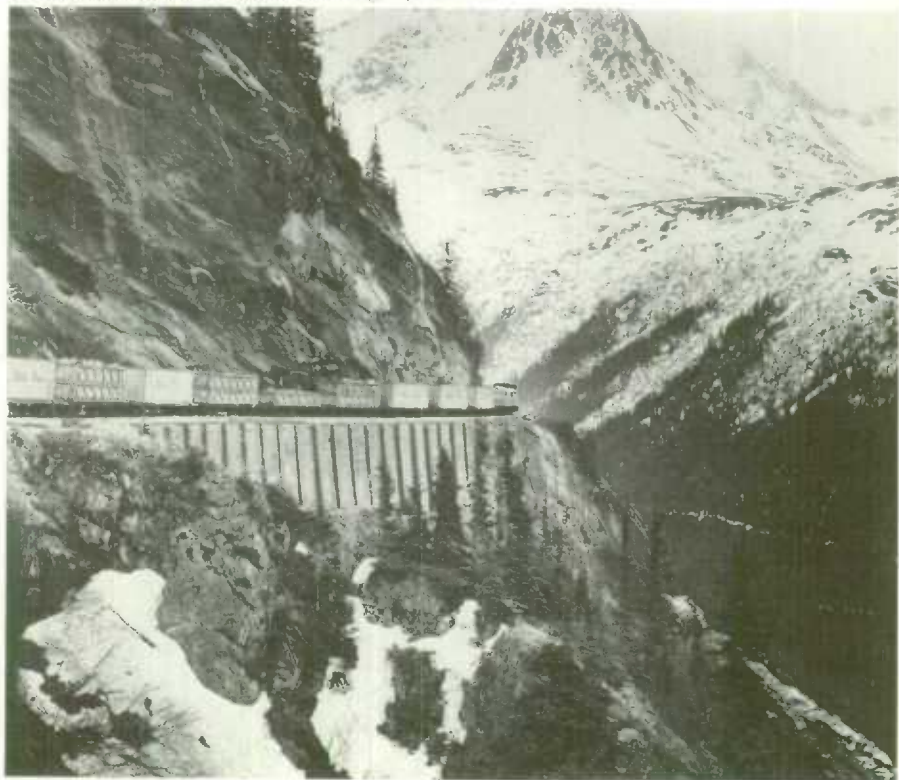
Growth in the aviation industry is likewise reflected in the number of registrations for both aircraft and aviation personnel, the latter group including pilots of all types of aircraft, flight navigators, and air traffic controllers, as well as flight and maintenance engineers. From March 31, 1965, to the same date in 1972, the number of civil aircraft in Canada increased from 7,016 to 12,076; at March 31, 1972, 1,987 more personnel licences were in force than in 1971, bringing the total to 39,479.

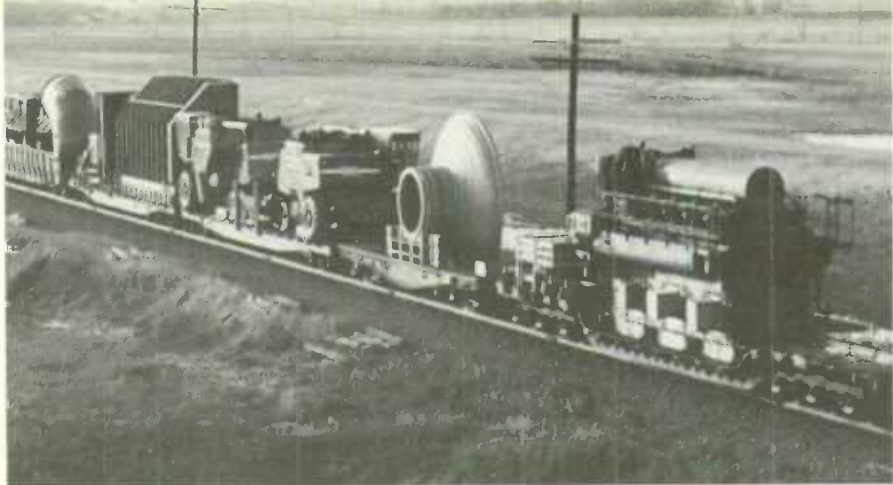
In general, these trends seem likely to continue during the 1970's as technology, population, and developments in all sectors further stimulate the aviation industry, and as the convenience of air travel is brought within the reach of an even greater number of Canadians.

Rail Transport. The extensiveness of rail services throughout the country indicates the key position that rail transport has occupied and today still holds in the development and progress of Canada.

Harrington

The White Pass Railway in the Yukon carries containerized freight and ore concentrates between Whitehorse, Yukon, and Skagway, Alaska.





A weekly service for freight shipments requiring special handling because of their special height, weight, or width has been inaugurated between Toronto, Ont., and Winnipeg, Man.

CNR

Canadian National and Canadian Pacific Railways continue to dominate the rail transport industry in Canada with their mainline transcontinental routes, feeder-service networks, and outside interests in the airline, trucking, coastal and oceanic shipping, hotel, and communication fields.

Numerous smaller railways provide essential linkages between other communities and provincial districts across Canada, particularly to more remote areas of the North. Since 1900, the White Pass & Yukon has brought settlers and supplies into the Yukon and given this territory access to the Pacific along its rail-line to Skagway, Alaska. The provincially-owned British Columbia Railway, formerly the Pacific Great Eastern Railway, passes through the British Columbia interior from Vancouver to Fort Nelson, less than one hundred miles from the Northwest Territories. Northern Ontario is served by another provincially-owned system, the Ontario Northland Railway, with over 600 miles of line between Sault Ste. Marie and Hearst. To the east, the services of the Quebec North Shore and Labrador have permitted the exploitation of large iron-ore deposits in this geographical sector, since the railway was completed in the mid-1950's.

In all, the 34 common-carrier railways operating in Canada in 1970 collected \$1,680 million in railway revenues, of which Canadian National and Canadian Pacific Railways captured 50.7 per cent and 36.7 per cent respectively; Pacific Great Eastern, 1.8 per cent; Ontario Northland, 1.1 per cent; Quebec North Shore and Labrador, 3.3 per cent; and Chesapeake and Ohio, 1.0 per cent, with the remaining 5.4 per cent divided among 28 railway operators including branches of American networks crossing into Canada.

Railway freight carriage has been increasing steadily in recent years, by 11.6 per cent between 1969 and 1970. During 1970, Canadian railways loaded 22 million more tons of revenue freight than the previous year, bringing the total to 207 million tons, a figure which excludes an additional 26 million tons of revenue freight received from American rail connections. Of interest is the fact that each ton was carried an average distance of 472 miles.

Passenger traffic, on the other hand, rose 0.6 per cent to reach the mark of 238 million in 1970. Each traveller journeyed an average of 102.0 miles in 1969, 95.3 in 1970; the average revenue per passenger-mile climbed to 2.81 cents from 2.73.

Road Transport. More Canadians and more automobiles each year have naturally made the road transport industry one of the most active sectors of Canadian enterprise: the political, social, and environmental implications of highway development, the enormous financial expenditures involved at all levels, and the continuing pressures for new and better highway networks are but some of the elements contributing to its importance. Mileage, expenditure, registration, and general activity figures attest to the magnitude of this industry today. At the end of 1970, Canada had 515,922 miles of roads and streets—317,116 miles of federal and provincial highways, 198,806 miles of municipal roads and streets. Maintenance and construction expenditures totalled \$2,101 million during the 1970-71 fiscal year. Motor vehicle registrations numbered 8,497,339 in 1970, a 2.9 per cent increase over 1969. Of this total, 6,602,176 were automobiles; 1,440,079, trucks and road tractors; 41,118, buses; 157,402, motor cycles; and 256,564, other motor vehicles such as farm tractors.

During 1971, Canada's urban transportation systems grossing more than

Glenn + Mail

Over 800 traffic signals in Toronto, Ont., are operated by computers.



\$100,000 annually numbered 58 and reported \$237 million in revenues—slightly more than the preceding year—with 1,000 million passenger fares and 249 million revenue vehicle miles. The latter figures represent 0.9 and 0.5 per cent decreases respectively over 1970.

Transport by bus however, increased 1.4 per cent from 1970 to 1971. It accounted for the transport of 48.2 million revenue passengers over a total mileage of 128.5 million. Revenues from intercity bus services totalled \$91.5 million, a 10.5 per cent expansion over the \$82.8 million reported in 1969.

Yet another indicator of the over-all annual growth in the road transport industry is the expanded figure for intercity freight carriage by motor carriers which rose 3.2 per cent between 1969 and 1970. Increasing demands by Canadian industry for data on this sector were responsible for the establishment of a new survey on the for-hire trucking industry in this country. During 1970, trucking revenues totalled \$1,503 million, the freight transport figure was 109 million tons, with the traffic total recorded as 27,312 million ton-miles.

*Roman Industries Ltd.
L. Colman Ltd.*

The increasing use of motor carriers to transport commodities is reflected in the figures for the road transport industry.



Water Transport. The geographical configuration of Canada—surrounded by three oceans, with two of the world's largest rivers, and countless lakes—is the natural reason for the important role that water transportation has always played in the Canadian economy.

Canada's canal systems have contributed much to the speed and efficiency of intercontinental water transport today. The country's major system—the St. Lawrence Seaway from Montreal to Lake Ontario, the Welland Canal bypassing the Niagara River between Lakes Ontario and Erie, and the Sault Ste. Marie Canal between Lakes Huron and Superior—makes possible a descent of 580 feet between Thunder Bay and Montreal. In addition, smaller canals exist between the Bras d'Or Lakes in Nova Scotia and the Atlantic Ocean, between Ottawa and Kingston, between Lake Ontario and Georgian Bay, as well as on the Richelieu and Ottawa Rivers, and give rise to recreational and limited economic activities. During 1970, 73.7 million tons of freight were transported through Canadian canals, 72.3 million through the St. Lawrence Seaway-Great Lakes system alone.

Generally, canals, lakes, and rivers throughout Canada are equally available to all countries for shipping purposes, the exception being the Great Lakes-St. Lawrence Seaway from Havre St. Pierre which, in 1966, was restricted to Canadian vessels for inter-port goods and passenger carriage.

Ont Ministry of Industry & Commerce

The Welland Canal, which links Lake Ontario to Lake Erie, is a part of the St. Lawrence Seaway.





The deep-water harbour at Point Havesbury, N.S., can accommodate the increasingly large tankers used to transport oil.

*Gulf Oil Can Ltd
(to missing)*

Of Canada's ten major ports which handled some seven million tons of cargo in 1970, Vancouver and Montreal ranked first and second in the "general cargo" category, recording 26.5 and 22.3 million tons respectively. While Sept-Îles and Port Cartier exported more Labrador and Quebec iron ore than other ports—30.1 and 16.0 million tons—Thunder Bay, once again, was the leader in the grain trade, recording a 20.7 million ton total. Hamilton and Toronto specialized in the import of raw materials and foodstuffs for the densely populated, industrial Ontario peninsula, and reached a total of 18.1 million tons by year's end.

In a comparison of port activity between 1969 and 1970, expansions occurred in most sectors. Canadian ports recorded higher totals for cargo handled—foreign tonnage figures increased 2.2 per cent to 164 million tons in 1970. Similarly, domestic unloadings rose 10 per cent to reach the 63.2 million tons mark in 1970 or 6 million tons more than the previous year. Approximately 113,625 vessels arrived during 1970. Some of the prime commodities making up the 58.8 million tons of cargo imported in 1970 include bituminous coal which totalled some 18 million tons; soyabeans, 2.0 million; alumina and bauxite, 3.7 million; and limestone, 1.7 million.

Exports climbed to 105.6 million tons from 1969's 77.6 million ton total. Iron ore exports were recorded as 41.8 million, marking an 11.4 million tons growth; wheat expanded to 12.9 million from 8.3, including re-exports; barley figures reached 4.5 million in 1970 from the previous year's 0.6 million; soyabeans showed a 50-per cent increase to 1.5 million tons; and finally, bituminous coal exports totalled 3.7 million, a large increase over the 1.0 million tons in 1969.

Technology. There are many indicators of the technological changes that have occurred in Canadian transportation in recent decades — jet aircraft, diesel-engine railways, and giant oil tankers and freighters are but a few.

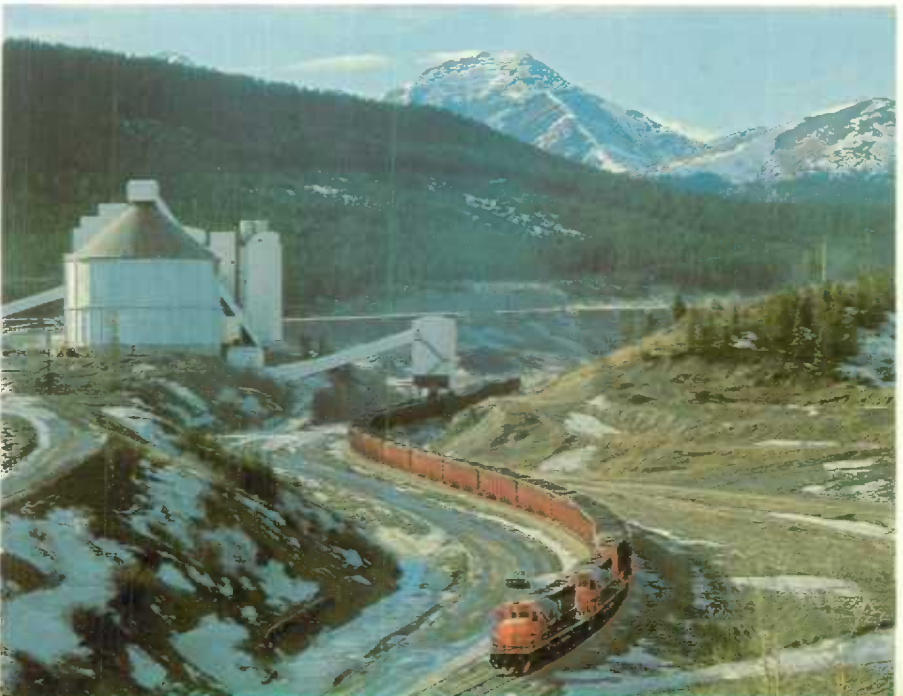
In Canada today, government, industry, and educational institutions are involved in the effort to bring new and improved products to all modes of transport. The National Research Council conducts detailed, sophisticated studies on most phases of the transport industry; the Council also undertakes joint programs with private industry and other governmental agencies, such as the National Aeronautical Establishment, in addition to its regular commitments. Several Canadian universities have initiated centres for transportation research, among them Queen's University in Kingston, York University in Toronto, the University of Toronto, the University of Manitoba, and the University of British Columbia. These centres focus on the broad and long-range problems of the Canadian transportation system and on specific technical solutions in many instances.

Technological advances in air transportation have been spectacular: developments have occurred in materials, engines, fuels, design, navigational aids, and ground support facilities. Jumbo jets, supersonics, short and vertical takeoff and landing aircraft, Instrument Flight Rule which permits all-weather, all-instrument aircraft landings, terminal baggage carousels, and moving sidewalks are now familiar to the aviation environment.

Numerous problems previously affecting rail transport in Canada have been partially solved. The National Research Council has developed an apparatus for measuring the vertical acceleration of wheels passing over track and connecting this result with a description of the profile of the rails when loaded. This device has already measured some 100,000 miles of track throughout the country. New

CNR (missing)

A very modern way to transport coal from Alberta and British Columbia is the unit train, seen here at Luscar, Alta.



Malak

Air-cushion vehicles have proved their usefulness, especially in the Arctic.

shock-absorbing devices and interior fittings for preventing the shifting of lading within cars have also been produced. The use of containers in interplant and intermodal shipments and the adaptation of unit trains on a major scale have brought a genuine revolution to the railroad industry. Only a few of these unit trains are now operating in Canada but in the next few years they may be employed for hauling grains, potash, and other minerals in addition to coal, iron ore, and sulphur, which are currently being transported in this manner. The advantages of unit trains include immense capacities generally used for only one commodity, the continual shuttle service type operations, and the fact that they are rarely out of service except for routine maintenance. Improved use is possible, and will be even more so in the future by the continued application of third generation computers to the real time control of car, locomotive, and train movements on the railway.

In the other forms of surface transport, technology has resulted in anti-pollution devices for cars, collapsible steering wheels, better structural supports, and other safety mechanisms for automobiles.

Most technological developments in the field of water transportation have appeared in the areas of increased size of vessels, greater speeds, containerization, and the carriage of oil and dry bulk commodities. Some 158 specialized vessel types have become operable—for example, automobile, molten sulphur, and cement carriers; oil tankers; heavy-lift ships; and belt conveyor self-unloaders, among others—all over 100,000 deadweight tons in weight. The development of nuclear power plants has made the use of submarine freighters in Arctic waters feasible, and ships for handling only containerized products are growing in number. New bows, such as the Alexbow which breaks ice surfaces from underneath, have likewise been successfully produced.

The significant feature of transportation technology in recent years has been the emphasis on increased interaction between all modes: containerization and unit-type shipments are indicative of a trend that is finding more widespread use in Canadian transport each year.

Telecommunications

The geography of Canada, stretching from coast to coast and from the United States to the North Pole, gives a unique importance to efficient telecommunications. The metropolitan centres of an increasingly urbanized population are separated by great distances, while vast areas of the country remain undeveloped. However new forms of telecommunications are diminishing the effect of space and time, and help overcome the barriers of geography. The possibility of virtually instantaneous transfer of information in any form between all parts of the country not only helps to bridge distance as an obstacle to national trade and commerce but also provides new prospects for reducing regional disparities and developing the Canadian North.

In most countries outside North America, telecommunications services are provided by the state. In Canada, the corporate structure, ownership, and control of telecommunications systems is mixed: it is necessary to take into account not only the telephone and telegraph companies, the broadcasters and the cable-operators, but also the manufacturers of telecommunications equipment.

As a rule the operations of privately-owned telecommunications carriers are licensed and regulated either by federal or provincial authorities.

In 1968, 8,818,000 telephones were provided in Canada by 2,067 companies offering telephone service. In 1971 the number of telephones in use in Canada

B.C. Telephone Co.

The Bell-Irving Mountain radio site in northwestern British Columbia, with the rocket-shaped fiberglass structure to house the B.C. Telephone system's equipment.





Modern telephone booths are colourful, as well as useful.

Batteries (missing)

passed the 10 million mark, but the number of companies declined to just over 1,600. One of the independent companies had less than 20 telephones, while the largest, Bell Canada, had 6,300,000 telephones.

The total assets of Bell Canada make it the largest Canadian industrial corporation. This company holds, directly or indirectly, a majority interest in the four principal telephone companies serving the Atlantic Provinces, and in a number of smaller communities in Ontario and Quebec. Taken as a whole, the Bell group of companies owns more than 60 per cent of the telephones in Canada, and more than 84 per cent of the telephones east of Manitoba. In the manufacturing sector, Northern Electric Company Limited is a wholly-owned subsidiary of Bell Canada. The Bell group of companies, taken together, has total assets valued at more than \$4,000 million, gross revenues exceeding \$2,000 million, and some 65,000 employees. Bell Canada has more than 254,000 common shareholders; of these, some 97.6 per cent, owning 95.8 per cent of all outstanding shares, live in Canada. The largest foreign stockholder is American Telephone and Telegraph (AT&T), with approximately 2.0 per cent of the outstanding common shares; a service agreement between the two companies provides Bell Canada with advice and assistance on technical and operating matters for an annual fee.

A second important grouping is that under the direct or indirect control of General Telephone & Electronics Corporation (GT&E), which is incorporated and domiciled in New York. This association owns 11.7 per cent of the telephones in

Malak

A young Dutch girl is intrigued by the new style telephone in a trade display in Amsterdam.



Canada through the British Columbia Telephone Company, Québec-Téléphone, and their subsidiaries. In the manufacturing sector, a subsidiary of GT&E is the sole owner of Automatic Electric (Canada) Limited, and its subsidiaries.

In the three Prairie Provinces, telephone service is provided by provincial Crown corporations – Alberta Government Telephones, the Manitoba Telephone System, and Saskatchewan Telecommunications. Together, they own some 12.8 per cent of the telephones in Canada. The two largest municipal systems are those of Edmonton and Thunder Bay; other municipal systems are relatively small.

Before the formation of the Trans-Canada Telephone System (TCTS) in 1931, Canada had to rely on transmission through the United States for most of its Trans-Canada telephone routings. TCTS is a voluntary association of eight large telephone undertakings (which, with their subsidiaries, own 96 per cent of the telephones in Canada) working together to provide a complete communications network from coast to coast.

The TCTS, although it is not incorporated, has a Board of Management – made up of directors representing all member companies – which meets frequently; all decisions are based on unanimous agreement. The Board is supported by operational and administrative committees which plan and co-ordinate nation-wide services and facilities, including the establishment of design standards and common operating procedures. TCTS arranges for the division of system revenues

among its members, and they in turn arrange settlements with most of the independent companies. The purpose is to ensure that settlements, which are arrived at through a bargaining process, result in a fair distribution of revenues derived from the provision of a national service.

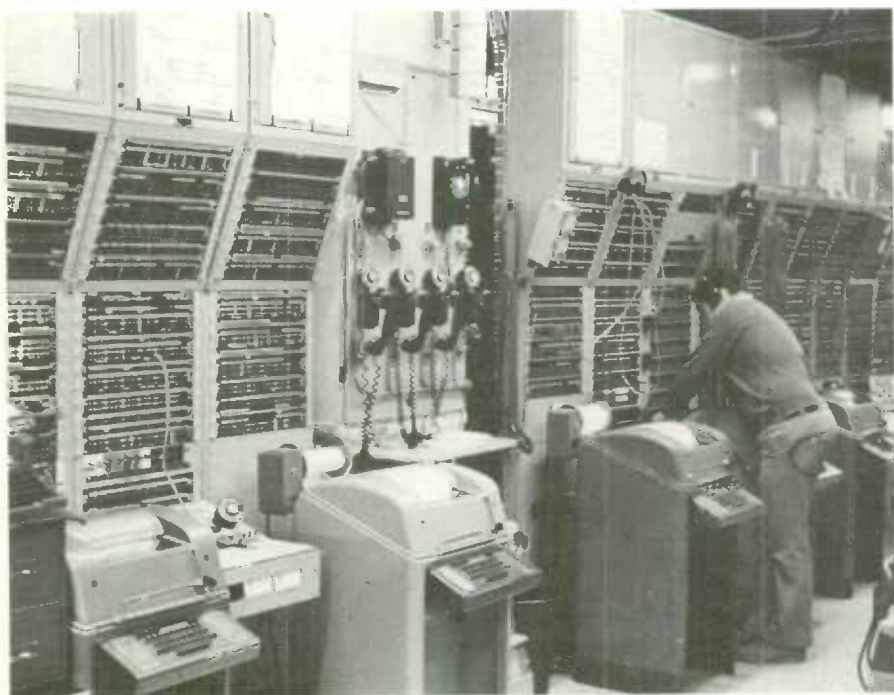
The Telephone Association of Canada (TAC) was formed in 1921 to promote the exchange of technical and operating information. It served this purpose on behalf of the industry until it was replaced in 1972 by the Canadian Telecommunications Carriers Association. TAC had thirteen participating companies in its membership during its final year.

With almost a century of telecommunication experience and knowledge CN/CP Telecommunications, a consortium of the telecommunication departments of Canadian Pacific and Canadian National Railways, provides Canada with Telex, private wire services, public message handling, Broadband data services, and all manner of telecommunication needs. CN/CP Telecommunications introduced Telex to Canada in 1956 and now provide service to over 22,000 terminals from the Atlantic to the Pacific.

The private wire services are simply telecommunication facilities placed at the disposal of a lessee for a long period of time to meet his specific needs. These services were first used by the CBC and later by the weather and air traffic control offices. Many other businesses and government departments use the service.

CNR

The Telex exchange room at CN Telecommunications in Winnipeg.



By 1969 Data-Telex had been introduced and Broadband data service was established. Broadband can be used at speeds up to 53,000 words per minute.

The Canadian Overseas Telecommunication Corporation (COTC) was incorporated by federal statute in 1949. By means of international-gateway switching-centres in Montreal and Vancouver, COTC provides public telephone service to more than 200 overseas territories. The corporation also provides Telex and private wire services to many overseas points. Canadian participation in Intelsat is ensured by COTC.

Unlike COTC, Telesat Canada, incorporated by federal statute in 1969, has as its principal object the establishment of satellite telecommunication systems providing commercial services between locations in Canada. Telesat's Anik satellite was built by the Hughes Aircraft Company of California with Spar Aerospace Products Ltd., of Toronto, Ont., and Northern Electric Company Limited, of Montreal, Que., as major subcontractors. The first spacecraft was launched from Cape Kennedy in November of 1972. The initial baseline system of some 37 earth stations is under construction and will be completed and ready for the beginning of commercial operations early in 1973. Telesat Canada's customers include the Trans-Canada Telephone System, CN/CP Telecommunications, Bell Canada, the Canadian Broadcasting Corporation, and the Canadian Overseas Telecommunications Corporation. Shares in the company will be offered to the public in 1973. At that time equity in the company will be shared equally among the telecommunications common carriers, the government of Canada, and the general public.

TCTS and CN/CP will use the system for high-density trunk telephone service between Vancouver and Toronto; Bell Canada will provide medium- and low-density telephone service linking the far North and the main east-west telephone system, and the CBC will use the system to carry both its French and its English live network television service throughout Canada. COTC will use the satellite system to provide a gateway to Toronto from the terminal of the new Cantat II trans-Atlantic cable scheduled to go into operation in 1974.

The Canadian Telecommunications Carriers Association (CTCA) came into being officially in February 1972. CTCA brings together for the first time 17 of Canada's largest telephone companies; Canadian National and Canadian Pacific Telecommunications, Canadian Overseas Telecommunication Corporation, Telesat Canada, the Trans-Canada Telephone System, and the Canadian Independent Telephone Association. A key purpose of the CTCA is to develop and co-ordinate policies affecting the telecommunications industry nationally with a view to continually improving the service to the public. It will also represent the carriers in dealing with government, the news media, and the public on all telecommunications matters.

In Canada, there are three major microwave systems; two of these are owned and operated by the members of the Trans-Canada Telephone System (TCTS), in association with other major interconnecting telephone organizations, the other one by CN/CP Telecommunications. The TCTS Trans-Canada route (TC-1) carries a message channel with a nominal capacity of 780 two-way voice-circuits. In Eastern Canada, portions of the structure carry a second message channel and in the case of Nova Scotia-New Brunswick, a second route has developed. It is expected that a

second message channel, with a capacity of 1,200 two-way voice circuits, will be added to the TC-1 structure between Ontario and Alberta by 1973. In addition to the message channels the TC-1 microwave route also carries 2 to 3 two-way television channels over most of the route.

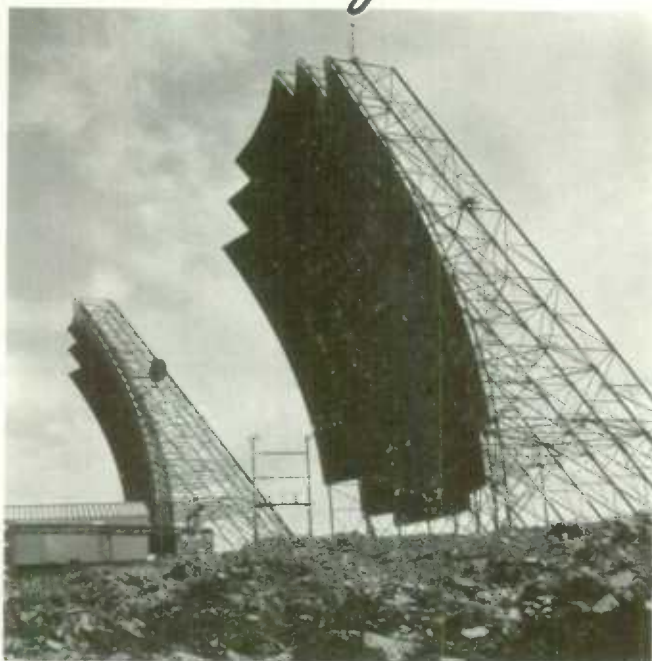
The second microwave system operated by TCTS is crossing Canada between the territories of Bell Canada and B.C. Telephone, and is designated as the inter-provincial route (IP-1). This system carries one message channel with a capacity of 1,200 two-way voice circuits.

The third major system is owned and operated by CN/CP Telecommunications. This system spans the country from the West Coast to Moncton, N.B. and carries one service channel for message traffic. The channel has an installed capacity of 960 two-way voice circuits. Over portions of the system there is also one channel for television distribution.

(negotiating)
Canadian Overseas Tele Corp.

The Canadian Overseas Telecommunication Corporation (COTC) was incorporated in 1949. By means of international-gateway switching centres in Montreal and Vancouver, COTC provides telephone service to more than 200 overseas territories. It also provides Telex and private wire services to points overseas.





A relay station of the telecommunications system on a hill near
Elsa, Yukon.

During the decade of the 1960's, the technologies of computer and communications came together to create an important new class of combined computer/communications systems. These systems employ telecommunication links and a variety of equipment and time-sharing techniques to make available direct to customers in their own premises a wide range of information and data-processing services. In Canada, the total expenditures on computer services during 1970 have been estimated at \$800 million, of which the federal government accounted for \$84 million, the provinces for \$63 million, and universities and municipalities for \$35 million. It is expected that the federal government expenditure for computer services will exceed \$200 million by 1975.

The federal Department of Communications is responsible, both nationally and internationally, for the development and operation of communications in Canada and for the long-range planning of Canada's communications. It also carries out research in the field of communications. In addition, the department manages the radio-frequency spectrum in Canada. This function requires the development of regulations, technical standards, radio-frequency plans, and assignment criteria and it includes the technical evaluation of applications to use radio frequencies, the licensing of radio stations, and the technical certification of broadcasting undertakings. It also includes the inspection and monitoring of radio stations to ensure adherence to regulations and standards and the provision of information for spectrum planning purposes.

Postal Services

The Canada Post Office employs some 48,000 people to provide service to the Canadian community from coast to coast and from the southern border to the Arctic.

An "Assured Mail" program was inaugurated in 1971 and has progressively been extended throughout the nation so that by the end of 1972, first class mail received next day delivery in major centres in Canada, providing mailers post their letters under certain conditions and to specific schedules.

The National Postal Code is being gradually implemented across the country to prepare for the mechanization of mail processing to meet the increased volume of mail.

Several new postal centres have been opened which combine regular post office services with new marketing services and products. This continuing program will lead to a new and attractive type of postal facility in many centres.

At the post office headquarters, a national philatelic museum will be established to house a collection of Canada's best known stamps as well as original drawings, designs, and so on. The collection will be of special interest to stamp collectors and will be open to the general public.

Malak

A safe way to send money by mail is provided by the Post Office through postal money orders.



acknowledgements

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